



Strategies to Reduce
Deforestation in Brazil
From controlling illegal deforestation to the
challenge of
sustainable production in the country's forests
and savannas

A horizontal band with a wood grain texture, framed by solid yellow bars above and below it. The wood grain is a mix of light and dark brown tones with visible grain patterns and knots.

Strategies to Reduce Deforestation in Brazil

From controlling illegal deforestation to the challenge of sustainable production in the country's forests and savannas

Foreword

This publication offers an overview of the challenges to control deforestation in the Amazon and the Cerrado, as well as results of Brazilian government actions and expectations to extend measures to other biomes, especially the Caatinga biome in the northeastern region of the country.


The aim of this publication is to provide knowledge of the joint work realized by various Brazilian institutions that compose the Permanent Interministerial Working Group, which is responsible for both the Action Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm in Portuguese) and the Action Plan for Prevention and Control of Deforestation and Forest Fires in the Cerrado (PPCerrado). Furthermore, the findings represent a way to synthesize and share experiences with countries that face similar challenges.

The reader will see that, over the past few years, Brazil has developed a consistent policy for reducing deforestation in the Amazon, as stated in the PPCDAm, launched in 2004. This Plan articulates different interventions, such as efficient monitoring, the creation of protected areas, a new legal framework

for management of public forests, land planning and various others. Since the beginning of its implementation, the rate of clearcutting has experienced a successive decline, reaching the three lowest rates ever registered.

This publication will demonstrate to the reader that the successful experience in combating deforestation in the Amazon inspired the government to expand measures to other equally critical regions, such as the Cerrado biome (the Brazilian savanna) as of 2010. In 2012, the government expects to conclude a similar plan to the Caating biome.

Even during moments that an increase in deforestation was detected, such as the beginning of 2011, measures were adopted to avoid its continuity. A national crisis council was established immediately, consisting of environmental control agencies, public security and policing bodies, as well as institutions in charge of national territory protection. New municipalities were added to the list of critical deforestation localities and, as will be shown, subsequent data demonstrated that the critical measures had the desired effect, thus ensuring the continued

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success towards the achievement of national commitment to reduce deforestation.

In 2010 and 2011, the PPCDAm passed through a process of external evaluation and the main findings were discussed with representatives from various spheres of government, civil society and even other countries (Colombia, Peru, Venezuela, Bolivia, Ecuador and Indonesia). The evaluation highlighted the relevance of the Action Plan in reducing deforestation. Criticism and recommendations were also identified, which are being considered in the revision of the PPCDAm for the following four years, a period which coincides with the next Multiannual Plan (PPA in Portuguese) of the Brazilian federal government.

In the first semester of 2011, the formulation of the PPA (2012-2015) clearly incorporated the strategy for prevention and control of deforestation and forest fires. The PPA also assumed the commitment of implementing this strategy in a phased manner across all Brazilian biomes.

We call attention to a strategy of the PPCDAm that needs to be highlighted here: the strengthening of the Rural Environmental Registry (CAR in Portuguese),

which is an instrument for environmental management of rural properties. This initiative has increased significantly over the past years. In this regard, two municipalities were removed from the list of critical localities with the highest deforestation rates in the Amazon, precisely because they drastically reduced illegal deforestation and included over 80% of properties in the environmental registry system.

In the case of the Cerrado biome, after one year of the PPCerrado, some advances could be observed in the generation and dissemination of deforestation data, as well as in integrated enforcement actions. This publication brings, for example, information about the Operation Corcel Negro, which dismantled schemes involving illegally extracted charcoal from the Cerrado biome. For the next years, it is expected that the Plan reaches its objectives in a faster manner.

Brasília, December 2011.

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The deforestation issue in the Amazon and the Cerrado

The majority of carbon gas emissions in Brazil stems from deforestation in these two biomes, which are rich in biodiversity and at the same time large producers of beef and grains

Over the past three decades, Brazil has become one of the main suppliers of the growing global demand for animal and plant protein. A significant part of this production results from land use in the Cerrado and more recently, in part of the region known as the Legal Amazon. These two large regions, that provide society with fundamental environmental services, have been exploited in an uncontrolled manner in order to meet industrial demands for timber and charcoal. According to the second national inventory of greenhouse gas emissions, for the year 2005, deforestation and forest fires in the Cerrado and the Amazon Forest were the main culprits for the emissions of CO₂ and other greenhouse gases in the land use and forestry sector. Responding to the commitment to reduce greenhouse gas emissions stemming from the cutting and burning practices in these biomes, the Brazilian government has recently developed specific action plans aimed at containing deforestation and, simultaneously, promoting the sustainable use of natural resources.

The first one, called the Action Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm), was launched in 2004 and has since greatly reduced the average annual deforestation rate in the region. In 2009, this Plan entered a new phase of adapting to the changing context of deforestation in the Amazon and contributed to achieving the smallest rates of clearcutting since 1988, the year in which the Brazilian government initiated satellite monitoring of the region's forest cover .



The success of PPCDAm has served as an example for drafting the Action Plan for Prevention and Control of Deforestation and Forest Fires in the Cerrado, launched in September 2010 and currently in its first phase of implementation. A similar plan will be launched in 2012, focusing on the protection and sustainable use of the Caatinga, another biodiverse Brazilian biome with significant deforestation levels.

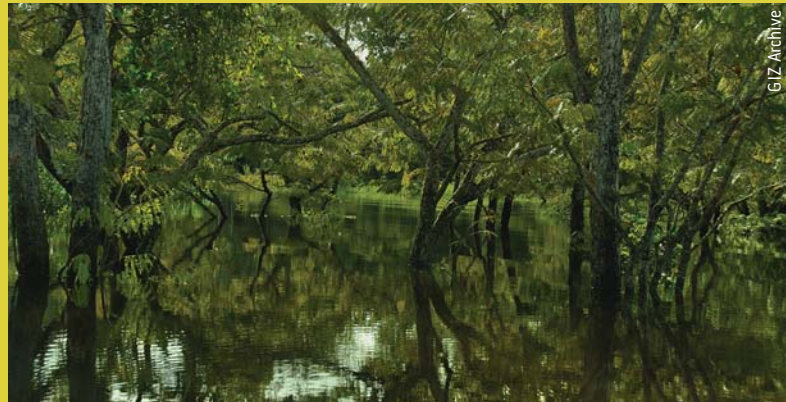
The objective of the Action Plan is to contain illegal deforestation and promote the sustainable use of natural resources in the region



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National Policy on Climate Change

Brazil has committed to a voluntary reduction in emissions from deforestation by 2020



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Even though Brazil's energy matrix predominately comes from renewable sources, the country ranks as one of the five greatest greenhouse gas emitter due to deforestation and the burning associated with land-use change, which represent 61% of the national CO₂ emissions. From the average 10.371 Tg (10.3 billion tons) of CO₂ released in the atmosphere between 1994 and 2002 as a result of these activities, 67% originated in the Amazon and 23% in the Cerrado.

Law 12.187/2009, which instituted the National Policy on Climate Change (PNMC in Portuguese), documents the recognition by the Brazilian government and society of the necessity to confront the problem with concrete adaptation and mitigation actions. The law establishes an ambitious commitment to voluntarily reduce between 36.1% and 38.9% of total national emissions by 2020, using a growth trend scenario for the period as baseline.

In the context of this commitment, the objective is to reduce deforestation rates by 80% in the Amazon and by 40% in the Cerrado during this period². The reference for assessing reduction targets in the Amazon is the average of the official deforestation rate calculated between 1996 and 2005, equivalent to 19.5 thousand km² per year. In the case of the Cerrado, the average annual rate adopted was estimated for the 1989-2008 period, at 15.7 thousand km².

Brazil has committed itself to the promotion of a low-carbon agricultural model, encouraging increased productivity and efficiency in agricultural production, with the intention of limiting the pressure on conservation areas, as well as maintaining the percentage of renewable sources in the national energy matrix.

¹ Clearcutting is the elimination of all vegetation that covers a determined land. Normally, clearcutting occurs in order to plant one crop, either agricultural or forestry related, or for the creation of pastures, a process technically referred to as "conversion".

² These figures are contained in Decree 7.390, December 9th 2010, which regulates the PNMC.



The Action Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm)

Launched at a time when deforestation in the Amazon Forest was growing significantly, PPCDAm initially prioritized strengthened monitoring of forest covers and environmental control and enforcement activities

The Action Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm) encompasses an area of 5 million km², the so-called Legal Amazon, which occupies close to 60% of Brazilian terrestrial territory. This region, more extensive than various European Union countries put together, is primarily composed of tropical forests, but with some areas of the Cerrado vegetation in its interior, as well as islands of natural grasslands and other forms of vegetation.

Primarily known for its rich biodiversity and for encompassing the largest tropical forest on the planet, the Legal Amazon is home to 24.7 million inhabitants, 73% of which live in cities. The region shelters thousands of families engaged in small rural production and socially differentiated groups, such as quilombolas³, extractivists⁴ and indigenous populations that extract their means of survival from nature.

The gradual integration of this vast region into the national and global markets brought about accelerated deforestation and increased conflicts between local social groups and economic actors operating in the area. Certain municipalities have transformed into important exporters of commodities, especially related to mining, grains and beef – research demonstrates that cattle farming is the main catalyst of deforestation in the region. As a result, the average rate of deforestation in the Brazilian Amazon between 1988 and 2004 was 18.5 thousand km² per year, causing concern in Brazil and abroad.

As of 2002, deforestation started to grow at a rate well above this average. In

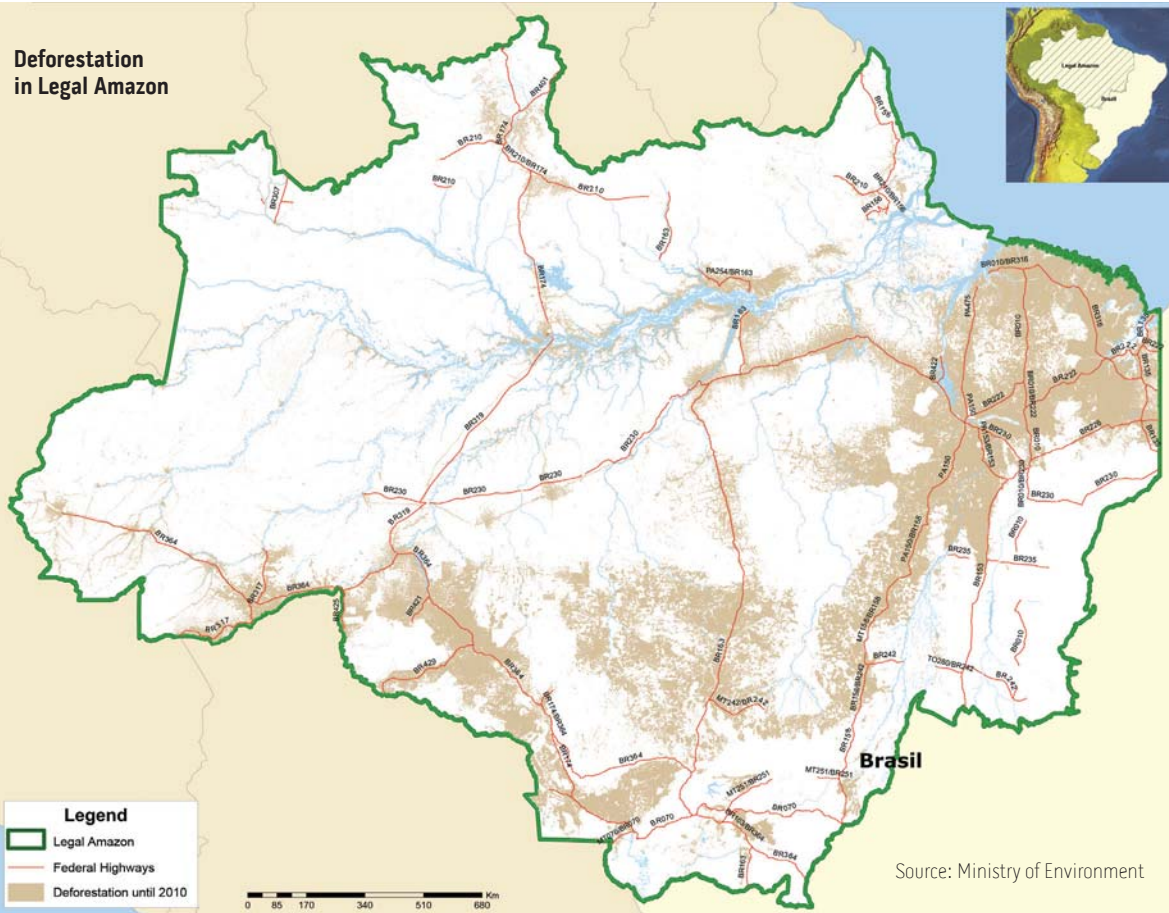
that year, 21.5 thousand km² of forests were cleared. In 2003, the level increased to 25.4 thousand km² and the following year reached an alarming 27.7 km² – the second greatest rate in history since the beginning of Amazon forest cover monitoring by satellite in 1988.

³ Individuals and populations descending from enslaved Africans during the period of the Portuguese empire and colonization are identified as 'quilombola'. There are hundreds of quilombola communities scattered across the Brazilian Amazon.

⁴ Traditional forest dwelling smallholders that harvest forest products.



Deforestation in Legal Amazon



Close to 73% of the 24.7 million inhabitants in the Brazilian Amazon live in cities

The integration of federal agencies in the planning and execution of actions is one of the main reasons for the success achieved by the PPCDAm

It was in this context that the Brazilian government launched PPCDAm in 2004, which addressed the causes of deforestation in an unprecedented manner that was comprehensive, integrated and intensive. As a result of experiences and knowledge accumulated in over more than a decade, this Action Plan is executed with the participation of more than a dozen ministries under the coordination of the Executive Office of the President (Casa Civil). Its actions are structured around three main axes: (i) land and territorial planning, (ii) environmental monitoring and control,

and (iii) fostering sustainable productive activities.

The necessity of achieving immediate results, given the elevated deforestation registered between 2002 and 2004 and the intensification of social conflicts in the region brought the government to prioritize an upgrade of the orbital forest cover monitoring systems in the region, as well as a strengthening of environmental enforcement and control activities.

One of the main innovations of this period was the development of the Real Time Deforestation Detection System

How the Amazon forest cover is monitored

Since 1988, the forest cover in the Brazilian Amazon is monitored by the National Institute for Space Research (INPE), a Ministry of Science, Technology and Innovation entity internationally recognized for its competence in the use of satellite images to monitor tropical rainforests. The official estimate of deforestation in the region is calculated in the scope of the Amazon Deforestation Monitoring Project (Prodes), which utilizes images obtained from Landsat-TM⁵ sensors and other satellites. The estimate only considers changes in clearcutting of forests registered between July in one year and August the following year.

The 'Deter' System (Detection of Deforested Areas in Real Time Sys-

tem) was developed in parallel to Prodes with the objective of generating clearcutting and forest degradation alerts over intervals of less than 15 days, indicating the localization and approximate area where the alteration was registered in order to direct enforcement operations. The adoption of the Deter System has been fundamental to contain tendencies towards increased deforestation, as occurred at the end of 2007 and the beginning of 2011. Monthly analyses obtained from this system are published on the internet (www.obt.inpe.br/deter) for queries and downloads.

As a strategic component of the PPCDAm, monitoring of the Amazon region has received significant investments from the federal government. Advances implemented as of 2004 include: the use of images from new satellites to minimize cloud cover and refine analysis, the acquisition of new equipment and hiring of more special-

ists, the reduction of lags between analysis and public announcement of annual deforestation estimates and public dissemination of data on the internet. Close to R\$ 1 billion is being invested in a new generation of satellite imaging, such as CBERS-3 (2011), CBERS-4 (2014) and Amazonia-1 (2012), thus strengthening the national capacity to monitor forests.

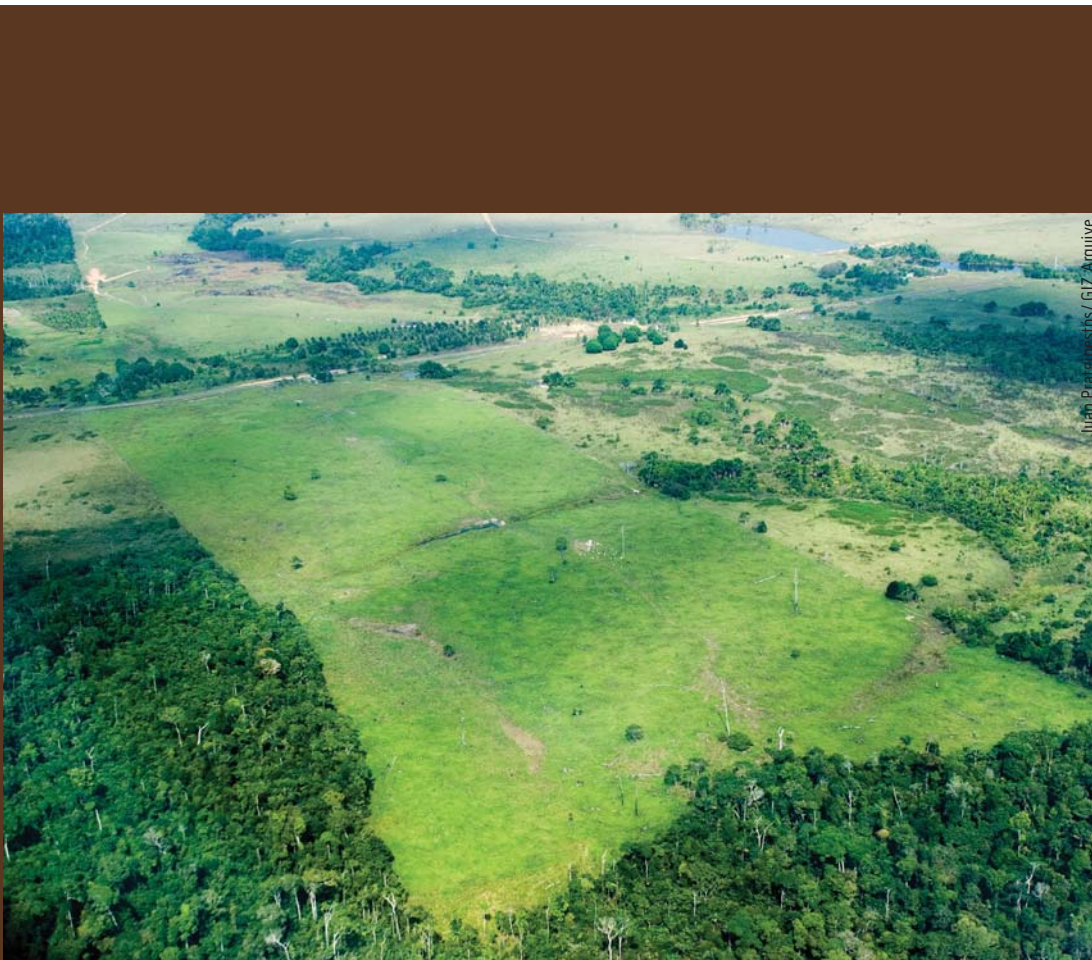
⁵ Official annual deforestation rates since 1988, past analyses and a description of the Prodes System methodology are available at www.obt.inpe.br/prodes.

(Deter in Portuguese), which enabled an analysis of deforestation dynamics based on satellite images, in intervals of less than 15 days (see details on page 12). A grand effort to combat the illegal appropriation of public land was undertaken by rewriting norms aimed at land tenure regularization. Thousands of square kilometers of protected areas were created and various indigenous lands were recognized, which helped to assign land settlements and natural resource use in the region.

At the same time, hundreds of command and control operations were carried out in-

volving representatives from Ibama (the federal environment agency), state environment agencies, the Federal Police, the National Security Force, the Federal Highway Police and, in more critical situations, the Brazilian army, to strike fraudulent schemes involving public land and illegal deforestation. Also, the first measures were issued to stimulate the growth of an economy based on sustainability and conservation.

Through these actions, the PPCDAm managed to significantly reduce deforestation in the region over four years, from 27.7 thousand km² in 2004 to 11.5 thousand km² in 2008.



Deforestation alerts with approximate estimates of the area affected and its location are emitted periodically by the Deter System in order for enforcement and compliance activities to be undertaken

3.

The Action Plan for Prevention and Control of Deforestation in the Amazon advances over recent years

The current phase of the PPCDAm emphasizes environmental and land regularization of properties, joint accountability of state and municipal governments, and private sector engagement in controlling deforestation

During the second half of 2007, after three years of consecutive declines in forest clearing, the analyses provided by the monitoring systems identified a change in the deforestation trajectory, with the return of large clearcut areas of substantial size. At the same time, data revealed an increased trend of forest clearing during the rainy season, a period during which deforestation has historically been low.

This new tendency brought the Brazilian government to anticipate the implementation of actions aimed at strengthening Plan activities and confronting the new deforestation dynamics. An evaluation car-

ried out at the time indicated a necessity to adjust the adopted strategy to the new conditions, to ensure its continued success.

It was clear that deforestation could only be controlled in the long term if there was participation and accountability of states, municipalities and the private sector and if sustainable economic alternatives were offered to producers in the region. At the same time, it became fundamental to address land and environmental regularization of properties. As such, a new PPCDAm document was drafted, establishing actions for the 2009-2011 period.

The challenge of planning land occupation in the Brazilian Amazon

Decades of disordered occupation in the Amazon has favored the establishment of criminal schemes specialized in the appropriation of public land, involving public and private entities and registration offices. In this process, the clearing of the forest cover has been used to simulate the economic use of these lands, seeking future legalization by the government.

Disabling the process of illegal appropriation of public land, while at the same time organizing the occupation of territory to prevent illegal deforestation and social conflict, has been one of the greatest challenges of

PPCDAm. As such, an unprecedented effort by the federal government was dedicated to publishing norms to unify the management of public lands in the region, blocking transactions involving illegally appropriated lands and deconstructing gangs specialized in falsifying documents to regularize illegal occupation. Throughout the first phase of the PPCDAm, transactions involving close to 60 thousand irregular titles of rural properties in the Amazon were cancelled.

In 2009, the Amazon Program Terra Legal ("Legal Land" in English) was created by the Ministry of Agrarian

Development, with the aim of regularizing occupation of unallocated federal lands. Initially executed in conjunction with Operation Arco Verde ('Green Arc' in English), this program favored land tenure regularization in municipalities prioritized for deforestation control, a measure that led to greater synergies among federal government actions (read more about Operation Arco Verde on page 20).

In parallel, 500 thousand km² of protected areas were created, both by federal and state governments, predominately in the conflict zones of the Amazon region. A substantial



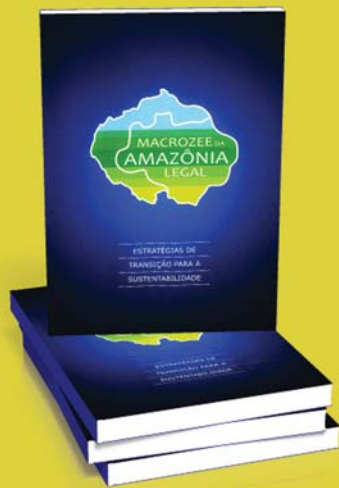
Operation against illegal deforestation: measures adopted as of 2007 avoided uncontrolled deforestation

portion of the results were obtained with support from the ARPA⁶ program that provides technical and financial resources to the process of creating and implementing protected areas.

Also part of the effort to organize the occupation and use of lands, new legislation was approved with the aim of regularizing the economic exploitation of public forests in the Amazon (law 11.284/2006), through concessions given by the Brazilian Forest Service (SFB) utilizing planning and sustainable management techniques. By October 2011, five concession contracts had been signed, enabling the exploita-

tion of 1.45 thousand km² in two national forests – Jamari in Rondônia, and Saracá-Taquera in Pará.

⁶ The Amazon Region Protected Areas Program (ARPA) is a Brazilian government initiative coordinated by the Ministry of Environment and executed in partnership with the federal agency responsible for protected areas – the Chico Mendes Institute for Biodiversity Conservation (ICMBio) – and state governments in the Amazon, with support from the following institutions: the Brazilian Fund for Biodiversity (Funbio), the Global Environment Facility (GEF), the World Bank, the German government via KfW Entwicklungsbank and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the WWF network and private foundations of O Boticário and Natura.



The role of macrozoning in the Legal Amazon

At the end of 2010, the challenge of planning the occupation and natural resource use in the Amazon region gained a fundamental instrument: ecological-economic macrozoning of the Legal Amazon. The result of an effort initiated by the Brazilian government at the beginning of the 1990's, macrozoning integrates processes and results of zoning done by the states, which are synthesized in a map that delimits ten territorial units based on ecological, geopolitical and socio-economic characteristics.

Developed in a partnership between the Ministry of Environment, the Coordination Commission of Ecological-economic Zoning of National Territories and state governments, macrozoning enables the Brazilian government to articulate development policies for the region, in a way that promotes compatibility between economic interests and improved quality of life for populations, with conservation and responsible administration of natural resources as dictated by the sustainability concept.

3.1. The participation of states and municipalities in the combat of deforestation

The altered deforestation dynamics revealed at the end of 2007 by the orbital systems that monitor forest cover in the region resulted in measures that promoted greater participation of state and municipal governments in the battle against illegal clearing of forests

The frequent evaluations realized during the first years of PPCDAm demonstrated that given its complexity, the challenge of controlling illegal deforestation in a consistent and lasting manner in a vast region such as the Legal Amazon demanded the participation of state and municipal governments, as well as the private sector. Negotiations between the different government authorities and the development of new norms to reinforce the confrontation of the causes of deforestation were approved at the end of 2007 through the Decree 6.321/2007, which enabled the integration of these sectors into the federal government's effort.

▪ State plans to control deforestation

The participation of the Amazon states began with the signing of

a protocol of intentions in May 2008, between the governors of the region and the Ministry of Environment, in order to develop state plans to combat illegal deforestation. The approval of the Amazon Fund by Decree 6.527 in August 2008 strengthened the stimulus to develop state plans to control deforestation (read about the Amazon Fund on page 17).

Paragraph 2 of this decree states that actions to control and reduce deforestation to be benefitted by resources from the Amazon Fund should "observe the directives of the Sustainable Amazon Plan (PAS) and PPCDAm". Article 4 establishes that only state governments "with a state plan to prevent and combat deforestation" in congruence with the federal plan, should have a seat on the Steering Committee of



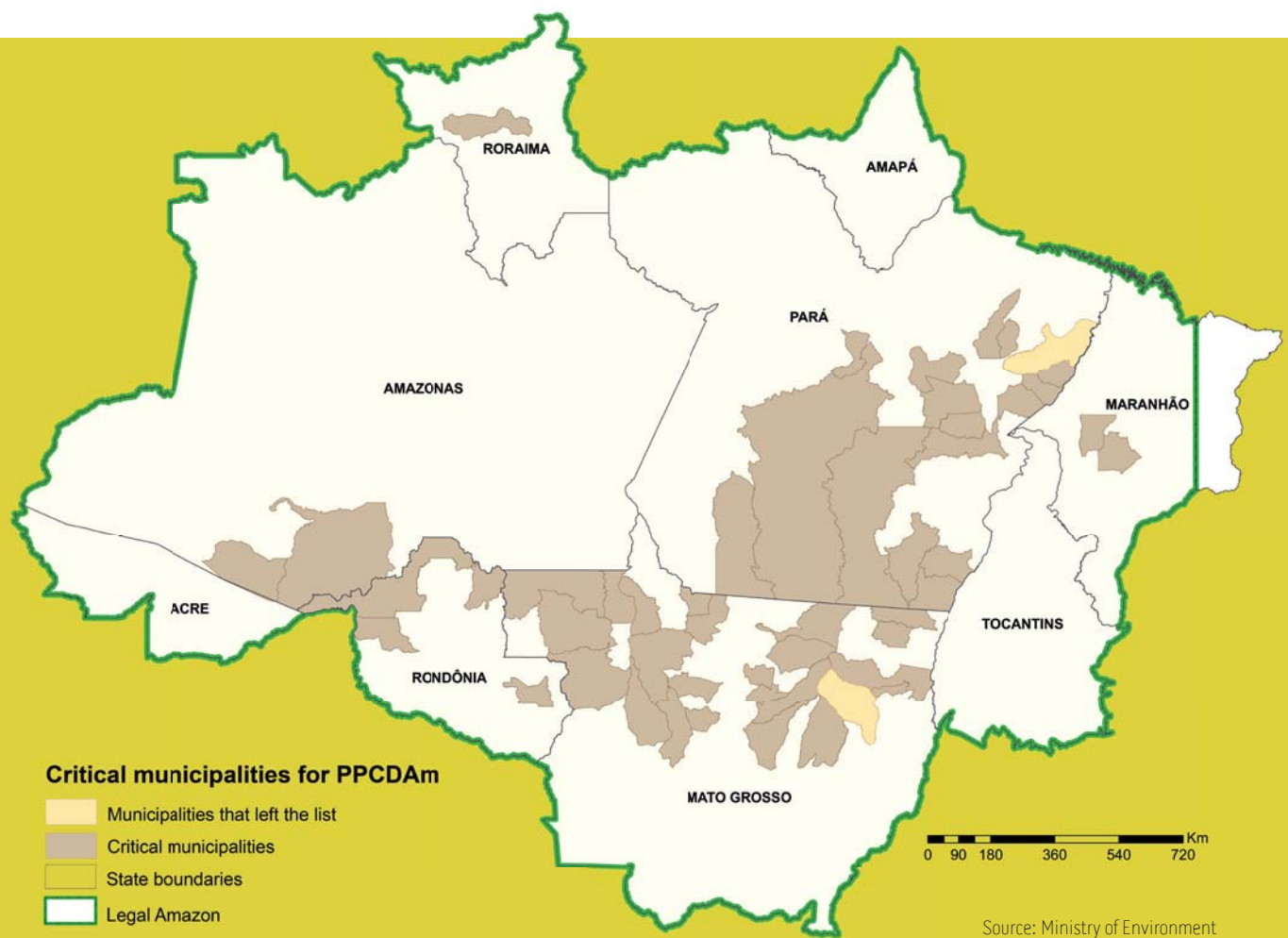
the Amazon Fund (COFA), the authority that deliberates about the destinations of fund resources.

Since then, seven of the nine states of the Amazon region – Amazonas, Pará, Mato Grosso, Acre, Tocantins, Amapá and Rondônia – have published plans to control deforestation, relying on support from the Ministry of Environment and other institutions. Some of these plans establish targets to reduce deforestation aligned with the objectives of PPDCAM and the National Policy on Climate Change (PNMC), coordinated by the federal government. The state of Maranhão is preparing to launch its plan, which has already been finalized, while the state of Roraima is finalizing its proposal.

What is the Amazon Fund?

Inspired by a mechanism presented by Brazil at the 12th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Nairobi (2006), the Amazon Fund aims to raise voluntary financial contributions to fund actions related to the prevention, monitoring and combat of deforestation, as well as the conservation of the Amazon forest. Launched in August 2008, the Fund contemplates the possibility of allocating up to 20% of its resources to monitoring deforestation and control projects in other Brazilian biomes, as well as in other countries with tropical rainforests.

The Amazon Fund is administered by the Brazilian Development Bank (BNDES) and the invested resources, which are of a non-refundable nature, are channeled to government and civil society projects. Various projects that further PPDCAM are eligible for financing, in order to enable the objectives of the National Policy on Climate Change to be reached, especially that of reducing national deforestation rates, in accordance with the voluntary commitment at the 15th UNFCCC Conference of the Parties in Copenhagen (2009).



▪ The participation of municipalities in the PPCDAm

The integration of municipal governments in PPCDAm was determined by the Decree 6.321/2007, which establishes an obligation of the Ministry of Environment to periodically publish a list that identifies municipalities responsible for the greatest share of deforestation in the region. Once included in the list, municipalities become prioritized for environmental and land control actions executed by the state and federal governments. In addition to becoming subject to intense surveillance, these municipalities are prohibited from obtaining new land clearing authorizations, with the exception of special cases described by the decree.

The first list published by the Ministry of Environment in February 2008, included 36 priority municipalities for deforestation control. In 2009, the list grew by additional seven locations. In 2010, not only were there no new additions, but the first municipality was removed – Paragominas, in the state of Pará – due to having fulfilled the established requirements. In 2011, other seven municipalities were added to the list and a second municipality was removed, Querência in the state of Mato Grosso. The list is currently composed of 48 municipalities.

To be removed from the list, the municipality must reduce deforestation in its territory, based on criteria that are updated annually to reflect observed deforesta-



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tion dynamics, and have 80% of its area (with the exception of public protected areas and indigenous lands) of rural properties monitored through the Rural Environmental Register (read more on page 22). Once these requirements are fulfilled, the Ministry of Environment officially recognizes that the municipality's deforestation is monitored and under control.

For example, the 2011 requirements to be removed from the list – in addition to having 80% of land registered and monitored – included: an annual deforestation rate equal to or less than 40 km² and average deforestation during the 2008-09 and 2009-10 periods equal to or below 60% of the average during the 2005-06, 2006-07 and 2007-08 periods.

Image of clearcutting: suspension of authorizations for new deforestation projects was one of the measures adopted in 2007

Pact proposed by Public Prosecutor reinforces participation of municipalities in the state of Pará

At the end of 2010, the Federal Public Prosecutor (MPF in Portuguese) in the State of Pará summoned the state government, municipal governments and the private sector to make commitments to confront the causes of illegal deforestation, in order to strengthen state participation in the federal government effort. By October 2011, 88 municipalities in Pará had signed agreements according to this pact, which promotes the end of illegal deforestation and the environmental registration of properties.

The agreements provide advantages to signatory municipalities, such as priority in the implementation of government programs, public financing and tax benefits. In the scope of the private sector, the commitment establishes that industrial and commercial businesses should freeze transactions with rural producers that do not require environmental regularization and whose properties are located in municipalities that do not adhere to the pact proposed by MPF.



Operation Arco Verde facilitated public services delivery in priority municipalities in order to encourage sustainable production

• Operation Arco Verde: supporting the transition to a sustainable economy

The suspension of new deforestation authorizations and the demand for land and environmental regularization of rural properties greatly affected the economies of priority municipalities for deforestation control. To facilitate regularization of properties and enable the adoption of sustainable production practices in these municipalities, the federal government launched Operation Arco Verde in 2009,

which contained emergency actions to support the families most economically affected by the command and control actions of the PPCDAm, and structuring actions aimed at strengthening non-predatory socioeconomic initiatives.

The main strategy adopted by Operation Arco Verde is to facilitate activities of various federal government agencies, based on the demands and needs identified in these municipalities. Technical assistance and rural extension, land tenure regularization of legitimate land claims, training of producers in a wide variety of topics related to production and management of natural resources, inclusion of forest products in the government's minimum price policy, incentives to family agriculture, technical and financial support for the recuperation of degraded productive lands and illegally deforested areas are all part of the list of executed actions.

Currently, the Operation's priority is to work towards the development of production chains in each of the municipalities, with the aim of making them adequate for forest conservation and social inclusion. The first step has already been taken: the identification of priority value chains through a process of dialogue with authorities and local representatives. The implementation of its action plan is expected in 2012.

Plan focuses on valuing forest products

In the Amazon, as well as in the Cerrado and the Caatinga (see chapter 4), there is a significant number of families extracting seeds, fruits, oils and other products from the native vegetation which, although these products have market value, face structural difficulties in commercialization. Due to the relevance of this type of activity for these communities and for the conservation of biodiversity, the federal government launched the National Socio-biodiversity Plan in 2009 with the intention of strengthening and integrating actions aimed at improving production chains and consolidating sustainable markets for products originating from Brazilian biodiversity⁷.

The preparation of the plan included participation by the government, organized civil society and the private sector, and its implementation meets the demands of traditional family agriculture communities and groups in the region. Coordinated by the Ministry of Agrarian Development, the Ministry of Environment and the Ministry



Fernando Gambarine / MMA Archive

of Social Development and Fight against Hunger, the National Socio-biodiversity Plan seeks to promote the valorization of the practices and knowledge of these social groups, through actions related to rural extension and training, industrial processes, social and productive organization, and services related to socio-biodiversity, in order to improve the quality of life and environment where they live.

Two production chains were prioritized by the plan: that of the Brazil nut, which permeates the Amazon, and that of the babassu coconut, found in the transition zone between the Amazon and Cerrado and the Caatinga.

Plan aims at consolidating sustainable markets for products originating from Brazilian socio-biodiversity

⁷ Additional information about the National Plan to Promote Socio-biodiversity Product Chains, more commonly known as the National Socio-biodiversity Plan, can be accessed at: <http://www.mda.gov.br/portal/saf/programas/Sociobiodiversidade/2308602>.

As ações implantadas com o apoio de estados e municípios reduziram as taxas de desmatamento aos níveis mais baixos desde 1988

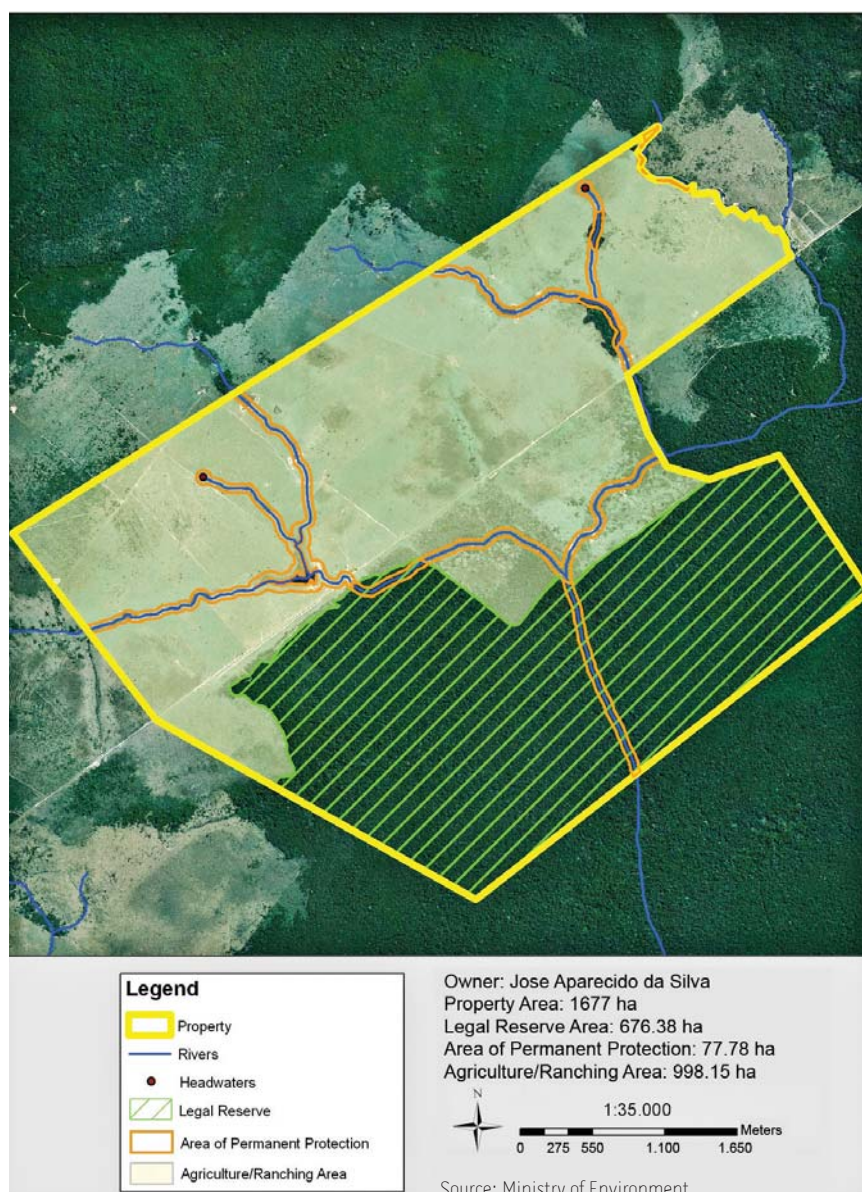
• The Rural Environmental Registry

The need to ensure environmental regularization of rural properties situated in the priority municipalities for deforestation control has made the Rural Environmental Registry (CAR) a strategic instrument for the current phase of PPCDAm.

Developed based on an experience originally implemented in the state of Mato Grosso within the scope of the old PPG-7⁸, CAR enables the monitoring of alterations to forest cover at the property scale. With the CAR, state environment agencies are able to identify areas

that were deforested illegally or without authorization from the relevant agency, thus speeding up compliance of rural properties with environmental law.

CAR entails the electronic register of rural properties with state environment agencies, including geo-referencing information demarcating areas destined for productive activities and other alternative uses (already deforested or not), such as areas destined for preservation in accordance with Brazilian legislation. In cases of illegally deforested areas, the property owner must present recuperation plans, thus committing to an obliga-



Advantages of the Rural Environmental Registry

- **for environmental management:** optimizes investments in monitoring and enforcement, speeds up legal accountability and favors integration at various levels of territorial planning, from macrozoning to the scale of each property, thus permitting landscape conservation;
- **for rural producers:** attests regularity of production throughout the production chain; confers judicial security, access to credit and preserves the environmental patrimony of the property;
- **for municipalities:** one of the requirements to leave the list of priority municipalities; strengthens municipal planning and could attract new investments in production chains guided by legal compliance.

tion before the government to make the land use changes in the property as mandated by law.

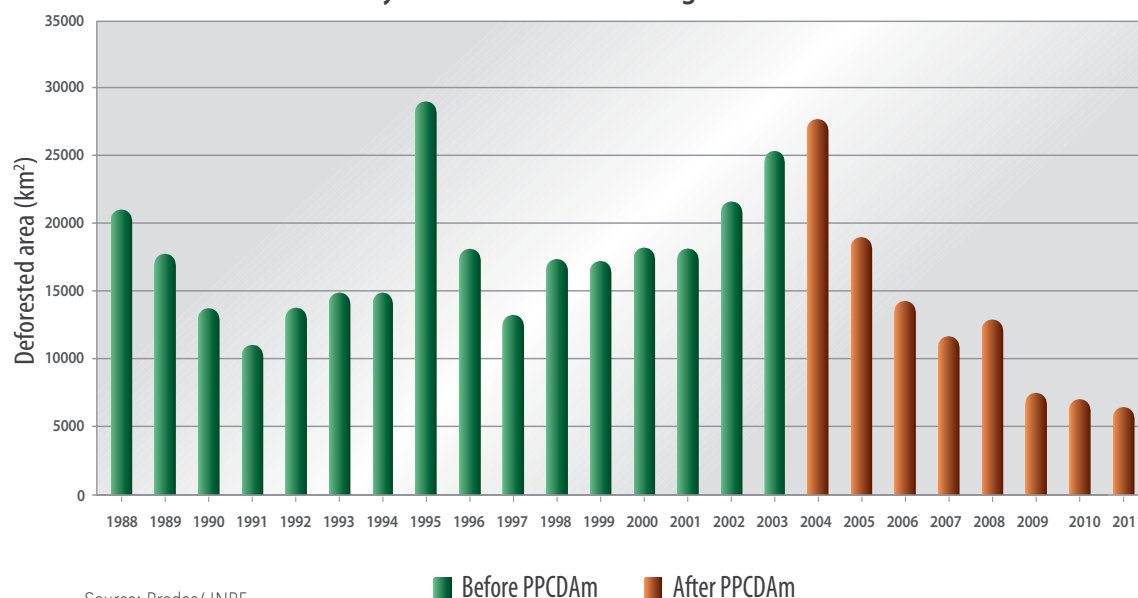
Instituted in six of the nine states in the region, this system facilitates and brings greater transparency to the activities of agencies responsible for environmental management, since it permits precise quantification of forest remnants and potential environmental violations. Furthermore, the system favors territorial planning, including conservation at a greater scale, and enables the creation of biodiversity corridors. The federal government recently created the More Environment Program (Decree 7.029/2009) that aims to amplify environmental regularization initiatives and integrate federal and state CAR systems.

CAR also offers advantages to producers since it serves as proof of environmental compliance in regards to

chain of custody in production chains – as is the case for frozen beef and grain exporters, for example. Furthermore, the register facilitates access to rural credit lines and financing for the recuperation of deforested areas, or even benefits from carbon sequestration projects. At the same time, municipalities with at least 80% of rural properties registered with CAR, who leave the list of priority municipalities, can attract investment for its economic activities.

⁸ The Pilot Program to Conserve the Brazilian Rain Forests (PPG-7) was an extensive partnership created at the beginning of the 1990's to support pilot activities in the area of Brazilian tropical forest conservation. Concluded in 2009, the program was financed through donations from the old "Group of Seven", as well as the European Union, the Netherlands and additional complementary funds from Brazil.

Yearly Deforestation in the Legal Amazon



This set of actions achieved relative success in containing a significant increase in deforestation between July 2007 and August 2008, as demonstrated by the final rate of 12.9 thousand km² of deforested land, only slightly above the 11.6 thousand km² of the previous year. Over the following years, the deforestation rate continued to decline – 7.5 thousand km², 7 thousand km² and 6.2 thousand km², respectively in 2009, 2010 and 2011⁹ –, the lowest registered since 1988.

⁹ The rate of 6,238 km² is an estimate announced by INPE in December 2011. With a margin of error of no more than 10% in either direction, this rate will be consolidated in mid-2012.

External evaluation highlights advances and recommends adjustments for the future of PPCDAm

The conclusions have served for the planning of a new phase of the PPCDAm, to be initiated in 2012

At the invitation of the Ministry of Environment (MMA) and the Executive Commission of PPCDAm, and coordinated by the Executive Office of the President of the Republic (Casa Civil), the Plan passed through an external evaluation, jointly realized by the Institute for Applied Economic Research (IPEA), the Economic Commission for Latin America and the Caribbean (ECLAC)¹⁰ and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, between November 2010 and October 2011. The evaluation took into special consideration the results obtained between 2007 and 2010.

The overall conclusion is that PPCDAm was fundamental to reduce illegal deforestation in the region, thus establishing a new framework for the development of similar actions in other regions. One of the aspects considered decisive is the fact that, for the first time, the issue was dealt with at the highest level of the federal government's political agenda, involving a large number of ministries and not only the Ministry of Environment. Moreover, the initiative served to increase the presence of the government in many areas of the Amazon, and promoted a gradual change of priorities in the region's development agenda.

In the final document, the evaluators emphasized that "the prioritization of municipalities with greater deforestation problems for targeted

actions was an adequate strategy to optimize results, given budget constraints and limited personnel". Nevertheless, they point out that the demand for legalization induced by PPCDAm actions clashes with the complex procedures that private actors must confront in order to comply with all legal requirements, partly due to the limited capacity of the State in providing assistance to producers.

The evaluation identified differentiated degrees of success among the actions under each axis of PPCDAm. According to the evaluators, the monitoring and control axis obtained the greatest success as compared to the axes of land and territorial planning and actions to encourage sustainable production. The conclusions of this evaluation are informing adjustments to the implementation of PPCDAm and have served as reference for the planning of a new phase of the Plan, to be initiated in 2012.

¹⁰ Ipea is a government foundation linked to the Secretariat of Strategic Affairs of the Presidency of the Republic, whose research provides technical and institutional support for the formulation and reformulation of public policies and development programs of the Brazilian government (for more information visit www.ipea.gov.br/portal/). Eclac is a regional economic commission of the United Nations (UN), created to monitor policies aimed at the promotion of economic development in the Latin American region (more information at <http://www.eclac.org/brasil/>). GIZ is an agency of the German government that provides international technical cooperation services for sustainable development (more information at <http://www.giz.de/>).

4

The Action Plan for Prevention and Control of Deforestation and Forest Fires in the Cerrado (PPCerrado)

Launched in 2010, the principal goal of the plan is to reduce by 40% greenhouse gas emissions from deforestation and accidental fires in Brazilian Savannas

The second largest Brazilian biome at approximately 2 million km², the Brazilian Cerrado is considered the most biodiverse savanna in the world. Since it is located in an area where many of the nation's large hydrographic basins form, this biome plays an important role in securing water supply to numerous large cities (as well as the Amazon region). Since its predominant characteristics, flat terrain and open vegetation, are conducive to mechanized agriculture and livestock farming, the biome has intensely been affected

by deforestation since the 1970's. In addition, the Cerrado has been exploited to meet the steel industry's demand for charcoal/fuel. By 2008, almost 48% of original vegetation had been cleared.

The Action Plan for Prevention and Control of Deforestation and Forest Fires in the Cerrado (PPCerrado) was launched in 2010 with the objective to permanently reduce the deforestation rate and the occurrence of forest fires and burning in the biome. The execution of the Plan relies on the participation of more than a dozen ministries and



Rui Faquini/ MMA Archive

the coordination of actions and partnerships among the federal government, states, municipalities, civil society and the private sector. The main goal of PPCerrado is a 40% reduction in greenhouse gas emissions from deforestation in the biome by 2020.

Inspired by the successful experience of the Amazon Action Plan, the PPCerrado encompasses 151 actions distributed between three axes: (a) monitoring and control, (b) protected areas and land use

planning and (c) promotion of sustainable activities, with environmental education as a transversal component.

The development of an orbital monitoring system for the Cerrado biome, under the direction of the Remote Sensing Center of Ibama (the federal environment agency), and the realization of law enforcement operations, such as Corcel Negro, were prioritized during the first year of PPCerrado (see box on page X). At the same time, actions were adopted to encourage the economic valorization of products of forest/savanna origins in the biome, through the inclusion of products in programs such as the minimum price guarantee policy and the food acquisition program.

The registration of forest areas for economic use, by means of sustainable forest management, and the creation of incentives for plantations – fundamental measures to contain pressures on native forest cover, which have been illegally exploited to supply steel industries – are further advances during this phase. Between June 2009 and July 2010, the deforestation of the biome fell by 16%, a promising signal for the PPCerrado objectives.

Operation Corcel Negro

Operation Corcel Negro (Black Stallion) consisted of two main actions – the first was realized in March 2010 and the second in July 2011 – undertaken by agents from Ibama, representatives from the Public Prosecution and the Federal Highway Police, with the intent of dismantle schemes to falsify documents involving the supply of illegally extracted charcoal to steel industries.

The actions were preceded by scrupulous intelligence work. Roads were barricaded and surveillance actions of suspected steel plants were undertaken, resulting in the apprehension of 221 trucks and several tons of illegal charcoal. Furthermore, 48 businesses were closed down and dozens of others cited and fined for environmental crimes. Also, 40 individuals were arrested and 22 weapons confiscated.



Rui Faquini/ MMA Arquivo

Combating illegal charcoal production using raw materials

Áreas prioritárias para o PPCerrado

- zones at risk of intensified deforestation;
- regions considered high priority for biodiversity conservation;
- areas relevant for the conservation of water resources, especially regions with springs that supply the main hydrographic basins;
- municipalities that present the greatest deforestation rates between 2002 and 2008.

A biome with elevated deforestation rates, the Caatinga will have a plan to control deforestation

Situated in the northeast of Brazil, the dry forest Caatinga biome occupies an area of approximately 830 thousand km², characterized by low rainfall (annual average below 800 mm) and elevated aridity with recurring periods of drought. The population living in the region, close to 28 million inhabitants, presents the lowest human development indexes in Brazil and confronts a permanent situation of economic fragility, partly due to the scarcity of water resources and the irregular distribution of rainfall.

Adapted to the climatic conditions of the region, the Caatinga forests have for centuries been used for various ends,

including predatory exploitation for fuel (firewood and charcoal production) destined for domestic and industrial uses. According to data from the Deforestation Monitoring in Brazilian Biomes Project by Ibama, the Caatinga had already lost 45% of its native vegetation cover by 2008.

At the beginning of 2010, the Brazilian government initiated the construction of an assessment of the Caatinga biome in order to develop an action plan to prevent and control deforestation, inspired by the PPCDAm and PPCerrado experiences. The Ministry of Environment expects to launch the plan in 2012.



Acronyms

| | |
|------------------|---|
| ARPA | Amazon Region Protected Areas Program |
| BNDES | Brazilian Development Bank |
| CAR | Rural Environmental Registry |
| COFA | Steering Committee of the Amazon Fund |
| Deter | Detection of Deforested Areas in Real Time System |
| ECLAC | Economic Commission for Latin America and the Caribbean |
| Funbio | Brazilian Biodiversity Fund |
| GEF | Global Environment Facility |
| GIZ | Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH |
| Ibama | Brazilian Institute for the Environment and Renewable Natural Resources |
| ICMBio | Chico Mendes Institute for Biodiversity Conservation |
| INPE | National Institute for Space Research |
| IPEA | Institute for Applied Economic Research |
| MDA | Ministry of Agrarian Development |
| MMA | Ministry of Environment |
| MPF | Federal Public Prosecutor |
| PAS | Sustainable Amazon Plan |
| PNMC | National Policy on Climate Change |
| PPA | Multiannual Plan |
| PPCDAm | Action Plan for the Prevention and Control of Deforestation in the Amazon |
| PPCerrado | Action Plan for Prevention and Control of Deforestation and Forest Fires in the Cerrado |
| PPG-7 | Pilot Program to Conserve the Brazilian Rain Forests |
| Prodes | Amazon Deforestation Monitoring Project |
| SFB | Brazilian Forest Service |
| UNFCCC | United Nations Framework Convention on Climate Change |



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