

Brazil

Implementing prevention and control policies for reducing deforestation

Activity	Deforestation reduction in the Brazilian Amazon through policy measures and multi-stakeholder engagement including: Monitoring, environmental control and accountability, land use, creation of protected areas, and promotion of sustainable production activities
Country	Brazil
Sector(s) involved	Forest
Time frame	2004–2013

Case summary Since 2004, the Brazilian government has been implementing the Action Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm) aimed at reducing illegal cutting of forests and based on a three pillared strategy which includes: (1) territorial and land-use planning, (2) environmental control and monitoring, and (3) fostering sustainable production activities.

Dozens of government agencies were deployed to tackle what seemed to be an uncontrollable problem. The PPCDAm is led by 13 ministries initially under the direct coordination of the Executive Office of the Presidency, and more recently transferred to the Ministry of Environment. For ten consecutive years, over 200 measures were implemented in the region, including: creation of protected areas, demarcation of indigenous lands, battling corruption in government agencies and companies, combating “illegal occupation” of public land (land grabbing), transparency in environmental monitoring, involving different police forces, and improvement of satellite monitoring systems.

As a result of these measures, deforestation has fallen significantly in the Brazilian Amazon. While in 2004 annual forest loss reached 27,700 km², by 2012 this figure had been reduced to 4,500 km², representing a reduction of almost 84%, despite the continued growth in agricultural production in the Northern region (see figure).

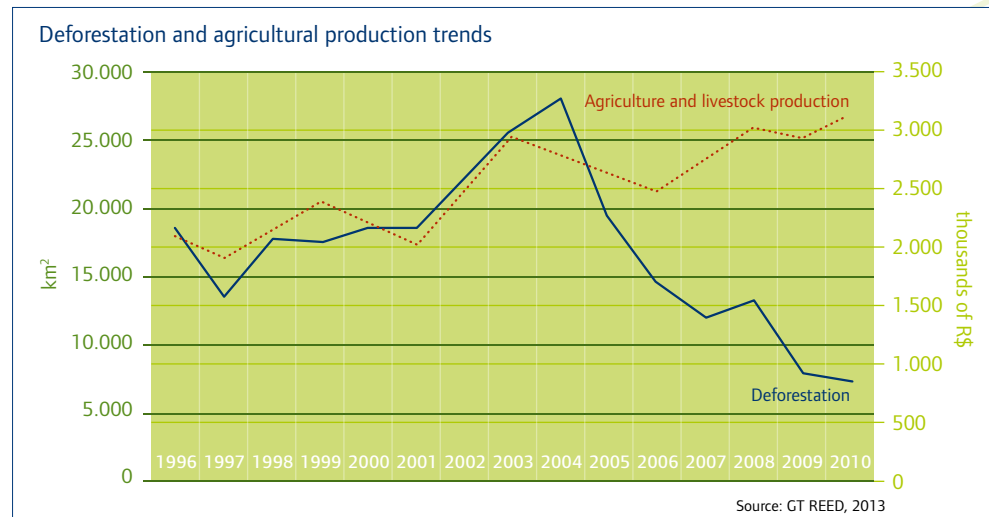


Deforestation, Brazil

© IBAMA

Brazil

Implementing prevention and control policies for reducing deforestation



Rate of deforestation and expansion of agricultural production in the North Region states, Brazil

Background

The Brazilian Amazon extends to more than 5 million km², representing 60% of Brazil's territory. It is composed mainly of tropical forests, but has areas of natural savannah, grassland and other forms of vegetation. The Amazon is home to 24.7 million inhabitants, 73% of which live in cities. The region shelters approximately 1.2 million families engaged in small-scale rural production and socially differentiated groups such as quilombolas¹, extractivists² and indigenous populations that extract their means of survival from nature.

Deforestation in the Amazon intensified during the second half of the 20th century as a result of policies instigated by the military regime aimed at territorial occupation, colonisation, promotion of large farms, tax benefits and credit for those activities, construction of highways, and various other instruments. Up to 1980, an estimated 300,000 km² of forests were lost in the region (Santos, 2010). In 1988, the National Institute for Space Research (INPE) began monitoring deforestation in the Amazon each year and made it possible to measure the impact of these policies more accurately. Between 1980 and 2000, over 280,000 km² were added to the deforested area (Santos, 2010). Despite national and international appeals, the government's response to the problem was limited and restricted to the area of environmental governance.

At that time, the system for monitoring deforestation (called Prodes) generated data with a considerable time lag. For example, the deforestation rate from August 1999 to July 2000 was reported only at the end of 2001, and the rate from August 2000 to July 2001 was only announced in late 2002, and so on. This lag hindered effective decision-making. At the turn of the millennium, deforestation rates intensified due to, among other factors, the announcement of plans for further road-building (which facilitated forest cutting and ranch expansion) driven by the increasing price of agricultural commodities.

Between 1998 and 2003, approximately 118,500 km² were cleared, which corresponds to an annual average of 19,700 km² (INPE, 2014). Those numbers caught the attention of the new government that took office in January 2003. Marina Silva, then a senator, took over the Ministry of Environment (MMA).

¹ 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.

² Traditional forest dwelling smallholders that harvest forest products.

Brazil

Implementing prevention and control policies for reducing deforestation

Bringing along some nationally recognized environmentalists, she established the battle against deforestation of the Amazon as a top priority. Ms. Silva convinced President Lula and his fellow ministers that overcoming deforestation would require coordinated action on many different fronts, involving various institutions, not just the MMA.

In July 2003, a working group made up of 13 ministries under direct coordination of the Executive Office of the Presidency was tasked with the development of an intervention strategy. After eight months of preparation and discussions with civil society, PPCDAm was officially launched, aiming to address the causes of deforestation in an unprecedented manner that was “comprehensive, integrated and intensive” (MMA, 2011), and distributed over two hundred actions divided into three components: (1) territorial and land planning, (2) environmental control and monitoring, and (3) fostering sustainable productive activities.

Activities

Phase 1 (2004–2008)

- » **Establishment of the foundations for more coordinated action:** Laying foundations for a paradigm shift to deal with the problem, including changes in legislation.
- » **Increase in the number and coverage of protected areas:** The Federal Government demarcated 114 indigenous areas totalling 44 million hectares, created 25 million hectares of conservation areas, and urged the state governments to create another 25 million hectares in state-level conservation areas.
- » **Enhancements to environmental monitoring:** The existing system (PRODES) was enhanced and data on deforestation rates started to be reported in the same year, reducing time lags. This was followed by the creation of the “Real Time Deforestation Detection System” (DETER), which had lower accuracy than the PRODES system but was faster at issuing alerts of deforestation and forest degradation.
- » **Environmental enforcement:** Enforcement agencies applied more than 41,000 fines totalling around USD 3.9 billion. They confiscated 11,000 properties and equipment, more than one million cubic meters of tropical timber and embargoed nearly one million hectares of productive land (pastures and crop-land used for growing soybeans and cotton).
- » **Revised rules for rural credit:** Rules governing access to rural credit (which in Brazil is subsidised by the government and therefore highly sought after) were amended to demand proof of compliance with environmental regulations and restricted new legal logging permits for areas over five hectares in size, except in cases of public interest or when they met requirements for land registration.
- » **Creation of an inter-ministerial committee to combat environmental offenses:** Bringing together police and environmental forces, and thus speeding up integrated operations.
- » **Increased involvement of sub-national governments:** All nine states in the region drew up their plans for prevention and control of deforestation and some local municipalities signed agreements to end the destruction of forests.
- » **Supply chain policies:** The Federal Public Attorney began requiring beef production industries to demand from their suppliers (ranchers) proof of compliance with environmental regulations.
- » **Legislation for regularisation:** Land titling of federal public lands was changed to expedite the process of land titling.
- » **International announcement of commitment:** The intention to decrease deforestation in the Amazon by 80% by 2020 was announced during UNFCCC-COP 15 in Copenhagen.

Phase 2 (2009–2011)

Brazil

Implementing prevention and control policies for reducing deforestation

- » **Creation of the Amazon Fund:** A fund was created with the National Bank for Economic and Social Development (BNDES) which coordinated international finance for investing in activities preventing deforestation and promoting sustainable development.
 - » **DETER system enhanced:** Improving the frequency of environmental monitoring to daily alerts, instead of every fifteen days as it used to do.
 - » **“Terra-Class” project:** Implemented in a partnership between INPE and the Brazilian Agricultural Research Corporation (EMBRAPA), periodically quantifying the use of deforested areas in the Amazon, helping decision makers better understand the dynamics of land occupation and use.
 - » **Rural Environmental Registry (CAR):** A registry enabling deforestation crosschecks of satellite images with maps of the owners and leaseholders of rural properties, thus facilitating effective accountability and punishment.
- Phase 3 (2012–2015)
- » **Expansion of financial benefits for traditional populations:** Through government purchases of products from traditional communities and family farms, together with the creation of the “Bolsa Verde”, a cash allowance for families living in protected areas and below the extreme poverty line (income per capita below approximately USD 30).
 - » **Implementation of a crop-livestock and forestry integration project:** To improve the productivity of open areas and make forest clearing unnecessary.
 - » **Addressing new deforestation drivers:** Resulting from the implementation of major infrastructure projects such as road-building, construction of dams, and the acceleration of the commodities markets and mining (especially from surface gold extraction or “garimpo”).

Institutions involved

Executive Office of the Presidency was responsible for coordinating the PPCDAm (until 2013). Other institutions involved include: Ministry of Environment (MMA); Ministry of Agrarian Development (MDA); Ministry of Justice (MJ); Ministry of Agriculture, Livestock and Supply (MAPA); Ministry of National Integration (MI), Ministry of Science, Technology and Innovation (MCTI); Ministry of Planning, Budget and Management (MPOG); Ministry of Finance (MF); National Institute of Colonization and Agrarian Reform (INCRA); Brazilian Institute of Environment and Renewable Natural Resources (IBAMA); Chico Mendes Institute for Biodiversity Conservation (ICMBIO); Brazilian Forest (SFB); National Institute for Space Research (INPE); Brazilian Enterprise for Agricultural Research (EMBRAPA); National Foundation to Support the Indigenous (FUNAI).

Cooperation with

Ministry of Mines and Energy (MME); Ministry of Labour and Employment (MTE); Ministry of Transport (MT); Ministry of Foreign Affairs (MRE); Ministry of Fisheries and Aquaculture (MPA); Institutional Security Cabinet of the Presidency of the Republic (GSN); Federal Police; Federal Highway Police; State Police; Brazilian Army; National Security Force (FNS); Ministry of Defence (MD); Strategic Affairs Secretariat (SAE), Acre, Amazonas, Rondônia, Mato Grosso, Pará, Tocantins, Maranhão, Amapá and Roraima State Government Municipalities.

Finance

Resources for implementing PPCDAm come in large majority from the national budget. Further international cooperation resources from Germany (implemented by KfW and GIZ), Norway (Fundo Amazônia), European Commission and international bodies, such as the GEF.

Brazil

Implementing prevention and control policies for reducing deforestation

Impact of activities

- » **Significant reduction of deforestation rate:** From 27,700 km² per year in 2004, to 4,500 km², in 2012 (84% decrease), followed by a small increase in 2013, estimated at 5,800 km² (Source: INPE, 2013).
- » **Conservation of biodiversity and maintenance of carbon stocks:** Between 2005 and 2012, the decline in deforestation has meant a reduction in emissions of around 3,575 million tCO₂e (Source: MMA, 2013).
- » **Greater control over public lands:** The creation of protected areas (parks and reserves) between 2004 and 2009 and the implementation of the regularisation program (called "Terra Legal") is gradually reducing the illegal occupation of federal lands.

Why is it good practice

- » The policy for reducing deforestation represented by PPCDAm is good practice because it demonstrates that it is possible for a country to stop the loss of tropical forests, protect its biodiversity and reduce greenhouse gas emissions at the same time as expanding its economy. It shows that **coordinated action of government institutions** is a powerful intervention approach, as a single aligned strategy works better than dispersed initiatives against illegal deforestation.
- » Based on the lessons from PPCDAm, Brazil is **expanding this approach to other biomes**, starting with the "Cerrado" biome (Brazilian Savannahs), which has a Plan for Prevention and Control of Deforestation and Burning in Cerrado "PPCerrado", product of a presidential decree from September 15th, 2010. Also in preparation is the "PPCaatinga", similar to PPCDAm to address the "Caatinga" biome (dry forests of North-eastern Brazil). The success of PPCDAm influenced the decision to consider prevention and control of deforestation plans as an instrument of the National Policy on Climate Change.

Success factors

- » **Political ability to promote articulation and integration between different government agencies:** The evaluation by ECLAC, IPEA and GIZ (2011) notes that a decisive factor in the policies' effectiveness is that for the first time deforestation was addressed by the highest political level of the federal government, and is no longer seen as a small matter limited to the environmental agenda (ECLAC, IPEA and GIZ, 2011). This, in turn was important for increasing government action in various regions of the Amazon.
- » **Involvement and empowerment of other levels of government:** Involvement of states and municipalities was important to increase commitment to the deforestation strategy agenda, internalising initiatives at the state and municipal level. Prioritising deforestation municipality champions helped to optimise results, budget and scarce personnel (ECLAC, IPEA and GIZ, 2011). Subnational government were also given new legal powers for environmental management through the Public Forests Management Law, Complementary Law and the new forestry law.
- » **Creation of protected areas:** Forming a kind of "Green Wall" in front of deforestation, which discouraged the illegal appropriation of public lands (known as "land grabbing").
- » **Integration and adjustments to systematic environmental monitoring:** involving collaboration between a range of organisations.
- » **Investments in environmental accountability and transparency:** Disclosure, on the internet, of properties embargoed due to illegal deforestation, enabled beef and soy traders to avoid the purchase of raw materials from these areas, thus impacting demand.
- » **Embargo of products and equipment used for deforestation:** Including confiscation and removal of equipment involved in deforestation (e.g. tractors, fuel, etc.)

Brazil

Implementing prevention and control policies for reducing deforestation

Overcoming barriers/challenges	What were the main barriers/challenges to delivery? How were these barriers/challenges overcome?
Capacity	<p>A current challenge linked to the policy for reduction of deforestation refers to the implementation of the Rural Environmental Registry (CAR). On one hand, public officials need to be trained to use these new tools, and on the other, farmers need training to insert their information in the registration system. Recently, the government began to promote the training of civil servants, but there's still plenty to do. Regarding support to producers, the government is signing agreements of technical cooperation with associations and unions to expand the training and support of owners for the environmental record (CAR).</p>
Financial	<p>National resources used to implement PPCDAm are not sufficient.</p> <p>To increase the resources devoted to deforestation reduction policies, in 2008 the Brazilian government created the Amazon Fund, which raises funds and takes action to reduce deforestation. It is an important tool for increasing resources, and the Fund is identifying new ways to become more agile and overcome initial criticism that it was a slow and bureaucratic mechanism.</p>
Information	<p>At the beginning of the PPCDAm, it was difficult to quickly diagnose deforestation dynamics on the ground. The government created the DETER system to improve surveillance, primarily by reducing the time lag in observations of deforestation. However, this has shown limitations, as it does not capture cuts of less than 25 hectares and is not useful during the rainy season (5–6 months per year). Moreover, the dynamics of illegal logging are changing. Small polygons are now prevailing, which makes satellite monitoring and environmental monitoring difficult (Pires, 2014). The government intends to improve the DETER system to address these issues.</p> <p>Even today it is still challenging to accurately determine how deforestation is authorised and how much is illegal.</p> <p>Recently, MMA and IBAMA signed a technical cooperation agreement with state environmental agencies in order to systematise deforestation data permits.</p>
Institutional	<p>Many public lands in the Amazon were illegally occupied, with legal barriers hindering legal settlement. Registries that recorded the titles of the properties were not computerised and the majority of data on properties were not geo-referenced, allowing land grabbing to continue.</p> <p>In 2009, the Brazilian government changed the law to make regularization more agile. The increased agility was achieved, yet new problems appeared such as lack of human resources. To overcome this emerging barrier, the government has hired many employees exclusively for this activity. The government is currently georeferencing all their lands and raising the status of the occupants (squatters or illegal occupants).</p> <p>Despite advances, there are still conflicts between policies. On one hand, PPCDAm seeks to reduce deforestation, meanwhile, infrastructure projects, such as road-building and construction of hydroelectric dams, are putting pressure on the forest. Mining activities plan to expand into protected areas. In Congress, proposals are in place to amend the demarcation ritual of indigenous lands and protected areas, threatening environmental achievements made to date. New forest legislation is cited as one of the factors explaining the increase in deforestation rate in 2013 (ISA, IPAM & Imazon, 2014).</p> <p>In the third phase, municipalities around major infrastructure projects were also considered for priority action under the plan, and various policies should be directed to these, as is happening through the Regional Development Plan of the Xingu to address the municipalities affected by the Belo Monte dam.</p> <p>Although the policy of "targeting" critical municipalities is recognised as adequate (ECLAC, IPEA & CHALK, 2011), when these areas manage to control deforestation, there are no real benefits to encourage them to continue their efforts.</p> <p>The proposed use of a mechanism called "government transfers" (transfer of funds from the federal government to municipalities) has been drafted but not yet tested in practice.</p>

Brazil

Implementing prevention and control policies for reducing deforestation

Lessons learned

- » **Enforcement actions are essential but insufficient:** Investment in environmental monitoring, increased control and expansion of the police force presence in the region provide short and medium term results, but when the enforcers leave, deforestation often continues. It is therefore necessary to invest in (and incentivise) forest recovery through sustainable production activities.
- » **Financial incentives important:** Financial incentives such as requiring recipients of rural credit to demonstrate compliance with environmental regulation or establishment of new lines of credit for the recovery of degraded areas, implementation of agroforestry, forest management and plantation forests (e.g. "Pronaf florestal").
- » **Address drivers of deforestation in the supply chain:** The consumer market needs to be part of the "conservation and development" equation. The measures adopted at the end of the first PPCDAm phase (credit cuts and embargoes of property and equipment, etc.) and the involvement of the Federal Public Ministry (requiring compliance of beef industry with relevant environmental regulations) have demonstrated efficacy and helped to avoid deforestation resumption that emerged from 2007/08. However, much remains to be done around consumer demand and supply chain activities to reduce illegal logging.
- » **Make upfront investments in forest locations that may be impacted by large constructions:** Creation and maintenance of protected areas around forecasted asphalt highway developments at-risk from informal public land occupancy.
- » **Involve and empower subnational actors (states and municipalities) in the deforestation reduction agenda:** They are closer to local reality and are better able to influence the dynamics of deforestation.
- » **Improve environmental monitoring systems:** Effective monitoring is essential to provide both government and society with more precise and agile diagnostics on the dynamics of deforestation. The dissemination of data on the internet, allowing anyone interested to monitor the deforestation situation in a particular location, has proven to be a powerful tool for social engagement and control. Brazil became internationally recognised as a result of these monitoring systems (e.g. PRODES, DETER).

How to replicate this practice

- » **Political engagement of senior government actors:** based on a solid intervention strategy, and an ability to act on a variety of different deforestation causes. This demands high capacity for coordination and a clear mandate. The fact that the Executive Office of the Presidency coordinated the plan seems to have been an important success factor.
- » **Coordinated action and leadership:** These are essential components for the effective development and implementation of the plan in order to engage key sectors and assign actions to reduce deforestation and overcoming obstacles along the way.
- » **Involvement and empowerment of subnational governments from the outset:** Early involvement may be more effective as later introduction has shown to result in conflicts.
- » **Increase regulatory policy early:** So not to delay resolution of land tenure problems.
- » **Promote sustainable production activities from the outset:** May be more effective as enforcement increases, and the importance of providing viable economic alternatives became clearer.

Contact for enquiries

- » Juliana Simoes, Manager, Department for Policies Against Deforestation (Minister of Environment – MMA), Juliana.simoes@mma.gov.br
- » George Ferreira, general monitoring coordinator, Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), george.ferreira@ibama.gov.br
- » Johaness Eck, Civil House of the Presidency, Johaness@presidencia.gov.br

Brazil

Implementing prevention and control policies for reducing deforestation

Website(s)	<ul style="list-style-type: none"> » www.obt.inpe.br/prodes » www.mma.gov.br » www.imazon.org.br » www.isa.org.br
Case study author(s)	<p>Mauro Oliveira Pires (Instituto Chico Mendes de Conservação da Biodiversidade), Ana María Majano (INCAE) and María José Gutiérrez (INCAE)</p> <p>Edited by: Nicholas Harrison (Ecofys)</p> <p>Editorial support: Frauke Röser, Thomas Day, Daniel Lafond, Niklas Höhne and Katja Eisbrenner (Ecofys).</p> <p>Coordination by: Ecofys www.ecofys.com and CLACDS, INCAE Business School</p>
Case study contributor(s)	<ul style="list-style-type: none"> » Juliana Simões, Manager, Department for Policies Against Deforestation (Minister of Environment – MMA) » Johanness Eck, Civil House of Presidency » Leiza Dubugras, Chief of Staff Officer of the Presidency » Dalton M. Valeriano, National Institute for Space Research (INPE), Ministry of Science, Technology and Innovation (MCTI) » Ana María Majano CLACDS, INCAE Business School » María José Gutiérrez, CLACDS, INCAE Business School
References	<ul style="list-style-type: none"> » Santos, Renato Prado. 2010. Os principais fatores do desmatamento na Amazônia (220-2009): uma análise econométrica e espacial. Brasília (dissertação de mestrado em Desenvolvimento Sustentável). Universidade de Brasília. » Grupo de Trabalho Interministerial de REDD+. 2013. Estratégia Nacional de REDD+ do Brasil (Versão Preliminar) Brasília. Restricted circulation document. » ECLAC, IPEA e GIZ. 2011. Avaliação do Plano de Ação para a Prevenção e o Controle do Desmatamento da Amazônia Legal. Brasília: IPEA/CEPAL/GIZ » INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS (INPE). 2014. Cálculo da Taxa Anual de Desmatamento na Amazônia Legal. São José dos Campos –SP. INPE. (Coordenadoria Geral de Observação da Terra Programa Amazônia – Projeto PRODES). Available at www.obt.inpe.br/prodes/prodes_1988_2013.htm. Accessed on 19th February 2014. » IPAM, AMAZON & ISA. 2014. O aumento do desmatamento em 2013: um ponto fora da curva ou fora de controle? Brasília. IPAM, AMAZON e ISA. Available at www.socioambiental.org/sites/blog.socioambiental.org/files/nsa/arquivos/aumento_no_desmatamento_na_amazonia_em_2013_vs_final.pdf. Accessed on 18th February 2014. » PIRES, M. O. 2014. A política de combate ao desmatamento na Amazonia e no Cerrado. In: LITTLE, P. Novos desafios da política ambiental no Brasil. Brasília; IEA. (In press)



Empowered lives.
Resilient nations.



Australian Government

giz

On behalf of:



Federal Ministry
for the Environment, Nature Conservation,
Building and Nuclear Safety

of the Federal Republic of Germany