

Ready for REDD: Acre's State Programs for Sustainable Development and Deforestation Control

Executive Summary

The Brazilian Amazonian state of Acre, though still relatively poor and isolated, has over the last decade experienced economic growth well above the national average while also substantially reducing deforestation (see Figure 1). Stable leadership, good governance and innovative policies enabled the state to grow and improve social indicators while laying the groundwork for a sustainable forest-based economy. The state is consequently in a singularly strong position to offer high-quality, compliance-grade carbon credits from Reducing Emissions from Deforestation and Forest Degradation (REDD) to international and domestic buyers, generated through the state-wide System of Incentives for Environmental Services (SISA) now under implementation.

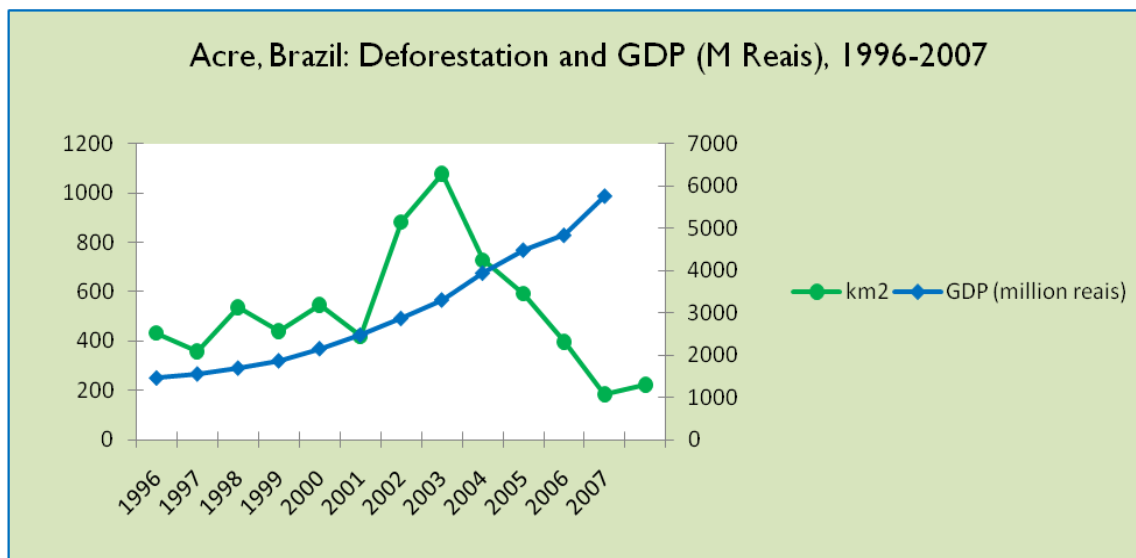


Figure 1. GDP increased in Acre as deforestation declined, 1996 – 2007.

Introduction

Acre was first occupied by Brazilians around 1878 during the rubber boom. Incorporated into Brazil by the Treaty of Petropolis in 1903 following the rubber tappers' uprising against Bolivian rule, Acre became a state in 1962. Due to the importance of native rubber (*Hevea brasiliensis*) in the state's settlement, and the role of rubber tappers in making the territory part of Brazil, the forest is a core value for the people of the region. This identity with the forest, championed by grassroots leaders in the struggle against deforestation and frontier lawlessness in the 1970s and

1980s, was also adopted by the Workers' Party (*Partido dos Trabalhadores*, or PT) when it came to power in 1999 as "the government of the forest."

From 2003 – 2008, Acre's real GDP increased over 44% (over one and a half times more than the robust national average), while deforestation declined about 70%. Agriculture commodity prices did in some measure influence the deforestation trend, but a set of integrated government monitoring, law enforcement, land-use planning and sustainable development policies and programs – including a state-wide deforestation reduction target – was critical to fostering economic growth while decreasing deforestation. The state has invested in adding value to sustainable forest products, technology development and sustainable supply chains in order to stimulate growth and reduce poverty while conserving its wealth of forest resources. With adequate support, investment and the right policy signals, Acre can definitively break the historic link between economic growth and deforestation.

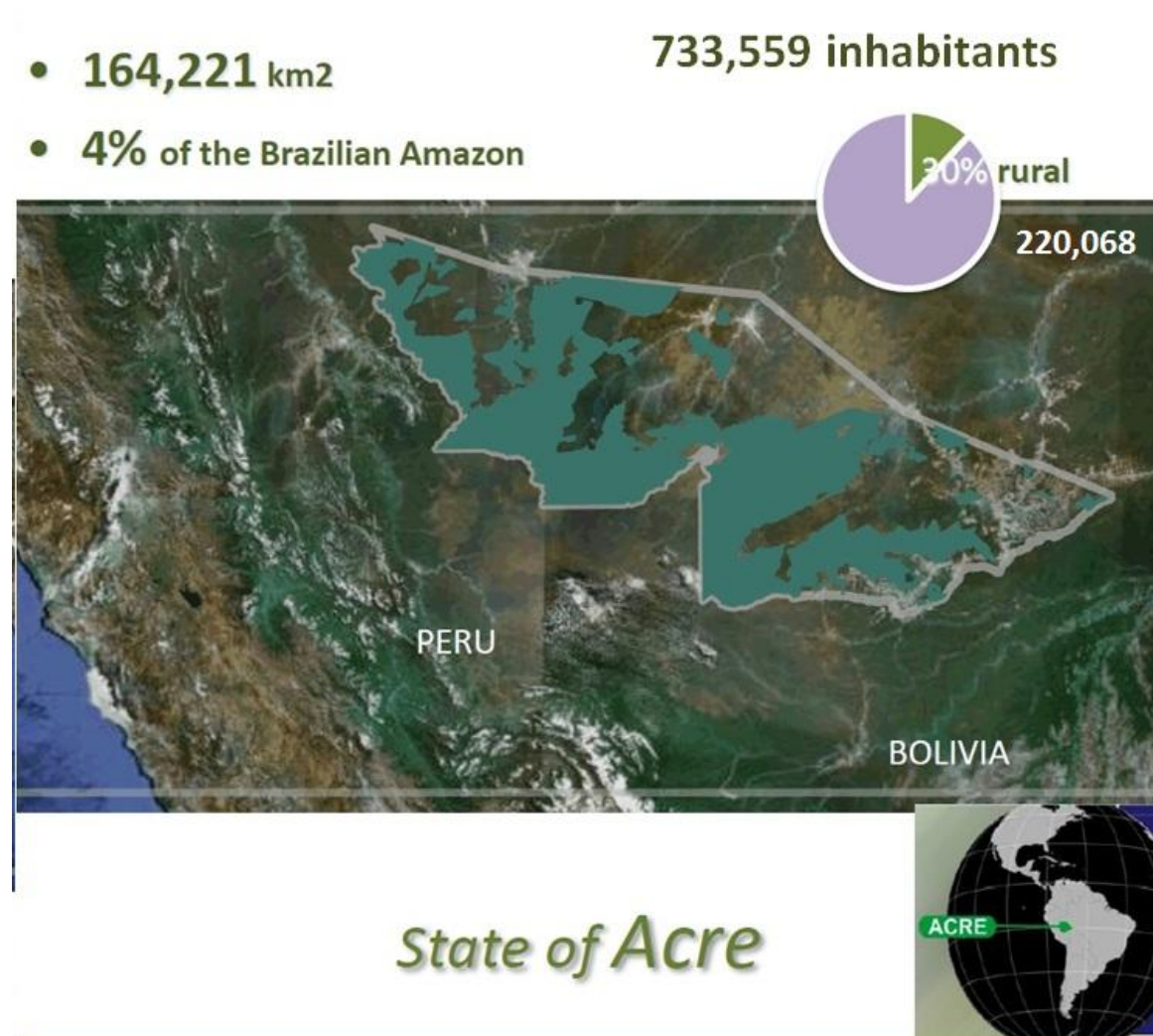
In 2006, Acre approved an Economic and Ecological Zoning plan which regulates economic activities in the 12% of the state already deforested and establishes parameters for sustainable forestry management and harvesting of non-timber forest products in forested regions. The state has also launched an ambitious Program for Valuing Environmental Assets, including best practices and certification for agriculture, cattle ranching, logging and family farming in already cleared or altered areas, and forest management in intact forests. In 2008, the state adopted a deforestation reduction target, calculated as Acre's contribution to Brazil's national target of an 80% reduction below average rates from 1996 – 2006 by 2020.

Good governance has been key to Acre's progress towards sustainable development. The Workers' Party (PT) in Acre, in office since 1998, has a strong commitment to forest protection and sustainability. Chico Mendes – the rubber tapper and union leader who was murdered by cattle ranchers in 1988 – and his colleagues founded the PT in Acre. They viewed officially supported frontier expansion through cattle ranching and agricultural colonization projects as a deeply flawed and environmentally destructive development strategy. Their governance strategy is based on improving infrastructure and services for the 70% of the state's population that lives in cities; combating organized crime and government corruption; and adding value locally to sustainable forest products and *florestania*, or forest citizenship, on the principle that poor and isolated forest communities have the right – and corresponding responsibility – to fully participate in the state's social, economic and political life.

State of Acre economic and social indicators

Acre has the third smallest economy of Brazil's 27 states, and 40% of the population lives below the poverty line. The largest sector of the state's economy is services, at 35% of GDP in 2008; followed by the public sector, at 33% of GDP; agriculture, ranching and forestry at 20%; and industry at 12%. An important indicator of the evolution of the state's economy is that the public sector's share of GDP, historically the largest, declined from 41% in 1998 to 33% in 2008, while agriculture, ranching and forestry increased from little over 10% to about 20% in the same period. GDP per capita tripled. The state sees reduction of the public sector's share of the economy and private sector growth as central to its development.

Acre has seen significant returns on its investments in health and education. Between 2000 - 2009, infant mortality declined from 31 per thousand live births to about 20, in part because coverage under the state's family health program increased from about 27% to 62% of the population. Adult literacy (from 15 – 65 years) increased from 76% to 87%. Acre rose in national rankings in Portuguese and Math from 25th and 26th place among Brazil's 27 states in 1999 to 10th and 13th, respectively, in 2007. Urban infrastructure and the state road network have improved markedly. Rising social indicators and visible infrastructure upgrades underpin the consistent popularity of the Government of the Forest.



Deforestation control and land use planning

While many countries are just beginning to prepare their policies and frameworks for possible participation in REDD mechanisms, Acre is “REDD-ready” because it has invested in creating a sustainable forest-based economy for over a decade.

In the past decade, Acre's approach has increasingly delivered results. Since 2003, Acre has seen a dramatic decrease in deforestation, while real GDP has grown well above the national

average. Acre remains a poor and isolated state, but the trend is clear. From 2003 – 2007, GDP nearly doubled; GDP per capita grew by 40%; the value of agriculture increased by 40%; and the state's cattle herd grew by 15% — while deforestation decreased by 80% (see Figure 1).

About 88% of Acre's 164,220 km² land-area remains forested, and 44% of the state's land-area is in protected areas such as indigenous lands, parks and extractive reserves. Since ex-Governor Jorge Viana initiated the "government of the forest" in 1998, only about 3.7% of the state has been deforested, while over the same period 11.8% of neighboring Rondonia State was deforested, and 4.75% of the Amazon region overall.

Acre's sustainable development goals and policies

PT leaders built broad political support for the concept of sustainable forest-based growth — with forest as a development solution, rather than problem — by the end of the 20st century and set the stage for innovative policies and strategies for sustainable development, including investment in environmental assets and ecosystem services during the first decade of the 21st century.

REDD, and forest conservation, are thus conceived as part of a broader sustainable development strategy, integrating environmental, economic, and social concerns. Three central laws and policies anchor the state's sustainable development model. They are described in brief below, and in more detail in the appendix.

1. **The Economic and Ecological Zoning Plan (ZEE-AC)** mapped land-use and defined land-use priorities, first at a 1:1,000,000 scale in 2001, then at the 1:250,000 scale in 2007, through a broad-based process of consultation and grassroots participation. The ZEE is a federally ratified state law, and thus the legal basis for environmental law enforcement in the state. It regulates economic activities in the 12% of the state already deforested, and also establishes parameters for sustainable forestry management and extraction of non-timber forest products in forested regions and defining protected areas.
2. **The Policy for Valuing Forest Environmental Assets**, passed in 2008, includes a certification system for sustainable farming practices and incentives and payments for ecosystem services such as biodiversity and carbon. Today, 2,500 family farms are registered and receiving benefits from the program. Another 2,000 families' incomes are increased by processing their Brazil nuts at two local, cooperative processing plants.
3. **The System of Incentives for Environmental Services (SISA)**, passed in 2010, builds on the previous policy to establish a comprehensive system of incentives for enhancing and protecting a range of environmental services, regulatory institutions and a mixed, public/private program development company. Its initial focus is on forest carbon, while ultimately aiming to include water resources and hydrological services, aesthetic beauty, climate regulation, and biodiversity.

Conclusion: REDD and beyond

Acre state views REDD and other mechanisms of payment for ecosystem services as part of a broader set of policy instruments supporting sustainable development. Acre began to address many issues related to REDD and payment for ecosystem service mechanisms long before REDD was proposed in the United Nations climate negotiations in 2005, and offers lessons to other states and countries for developing PES programs and mechanisms.

The state of Acre's current capabilities for monitoring and measuring emissions from deforestation, enforcing environmental laws, and implementing incentive programs for sustainable development put it well ahead of the curve in terms of REDD readiness. Acre has already achieved very substantial deforestation and emissions reductions through its Ecological and Economic Zoning Plan, the Policy for Valuing Environmental Assets, deforestation action plan and investment in accurate deforestation monitoring and measurement. It is consequently well positioned to supply high-quality, compliance-grade emissions reductions to international and domestic buyers, and carbon investment can, as part of the state's broader set of sustainable development initiatives, help ensure that it continues to build the low-carbon, high-social equity economy it seeks.

**Public-Private-Community Partnerships:
Laying the Groundwork for a Sustainable
Forest-Based Economy**

Public-Private-Community partnerships are among the most important ways that Acre puts its innovative policies into practice. Government invests in infrastructure to add value to sustainable products and negotiates where possible with the private sector to manage new enterprises, while local communities provide high-quality certified raw materials at premium prices. The Natex native rubber latex condom factory in Xapuri is an example.

In 2002, the government of Acre secured federal government support for the construction of a state-of-the-art condom factory in Xapuri. Government technicians trained and equipped rubber tappers in the neighboring Chico Mendes Extractive Reserve to produce native rubber latex – a much more demanding and higher-quality product than the crude blocks of coagulated rubber they produced for tire companies. They then trained local people in Xapuri to meet the high quality control standards required for surgical quality latex products. The government contracted with Brazil's Ministry of Health to deliver 100 million condoms for distribution in the national AIDS program.

Today, the factory directly employs 160 people, and is supplied by 500 rubber tapper families from the Chico Mendes reserve. These rubber tappers' average income has approximately doubled. The factory will complete delivery of 100 million condoms to the AIDS program this year, and receives regular inquiries from companies in the US and Europe. The plant has space to double its current production capacity of 100 million condoms per year, and is planning to expand into the private sector next year.



XAPURI CONDOM FACTORY
HIGH TECHNOLOGY NON-TIMBER FOREST PRODUCT
ONLY FACTORY IN THE WORLD TO USE NATIVE (non-plantation) RUBBER

Appendix

1. The Acre State Law on Economic and Ecological Zoning (ZEE-AC)

The ZEE-AC was carried out in two phases, between 1999 and 2007, using detailed satellite mapping and GIS analysis to inform an extensive multi-sectoral, multi-stakeholder planning process in every county in the state. The result was a set of detailed thematic 1:250,000 maps and land use plan that won broad public acceptance, and that now form the basis for regulating land use. The plan defines four major management zones:

1. **Zone 1:** Consolidation of Systems of Sustainable Production—4,054,102 hectares (24.7% of Acre). Zone 1 covers the already deforested regions of the state along major roads and heavily altered forest areas, including small, medium and large-scale farming and cattle ranching on private lands, logging and official smallholder agricultural colonization projects. Landowners in Zone 1 are required to keep 50% of their properties in forest. The goal here is to bring ranching, farming and logging into compliance with environmental regulations and incentivize intensification of production and transition from unsustainable to sustainable practices, while increasing incomes and agriculture and forestry production.
2. **Zone 2:** Sustainable Use of Natural Resources and Environmental Protection—8,035,751 hectares (48.9% of Acre). Zone 2 covers managed and intact forest areas, including indigenous territories, sustainable use reserves and settlement projects, state and national production forests and strictly protected natural areas. Most regions in this zone are sparsely populated by indigenous peoples, rubber tappers and riverine communities. Landholders must maintain forest cover on 80% of their lands. Goals are to ensure long-term conservation of protected areas, guarantee the sustainability of inhabited reserves and improve incomes and social services in the isolated indigenous and rubber tapper communities.
3. **Zone 3:** Priority Areas for Territorial Planning and Ordering—4,296,387 hectares (26.2% of Acre). The land use profile of Zone 3 is similar to Zone 1, but also includes cleared and degraded areas along major rivers. In contrast to Zone 1, land tenure and titling in Zone 3 is unclear or involves overlapping or conflicting claims. Hence, the first goal here is defining and regularizing land tenure as a pre-condition to incentivizing sustainable land use practices. That Acre has clearly defined where land tenure is uncertain puts it ahead of other Amazon states.
4. **Zone 4:** Cities —26,819 hectares (0.2% of Acre). Zone 4 covers the .2% of Acre's territory where 70% of the population lives, and where priorities are improved urban infrastructure and services and development of industry, particularly to add value in sustainable agriculture, forestry, and non-timber forest product supply chains.

The ZEE-AC thus divides the state's landscapes according to ecological and socio-economic criteria, and comprises a comprehensive development and conservation plan, with specific policies and programs for each landscape category (see Figure 2).

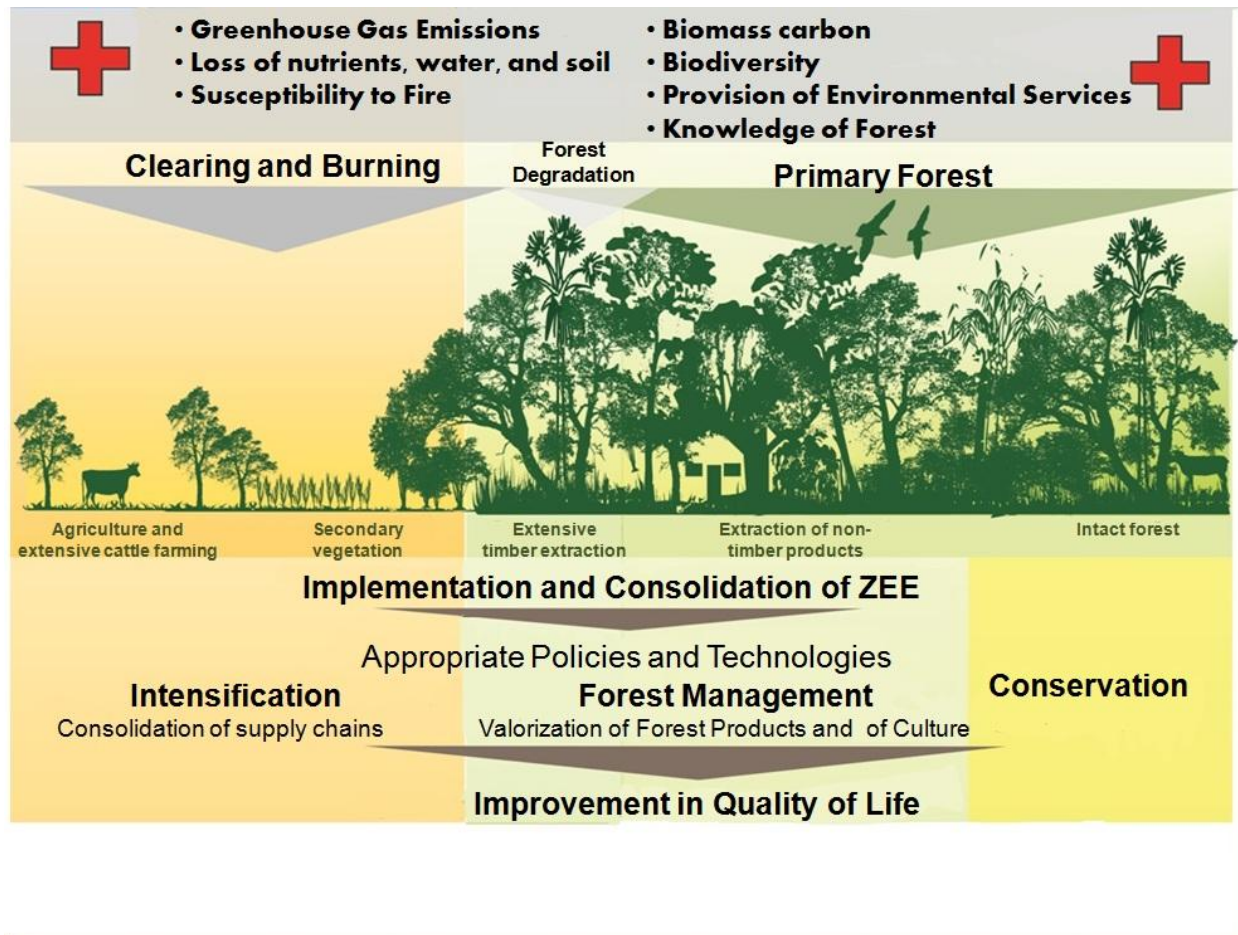


Figure 2. Acre Economic and Ecological Zoning Plan

2. The Acre State Policy for the Valuation of Forest Environmental Assets

Building on policies and programs in place since 2001, starting with the State System for Natural Protected Areas (law 1,426), the Acre state legislature voted to launch an ambitious Policy for the Valuation of Forest Environmental Assets in 2008 after broad public consultation and commentary. This policy includes programs to regulate and improve best practices and certification for agriculture, cattle ranching, logging and smallholder farming in already cleared or altered areas, as well as programs to regulate and improve forest management in already altered or managed forests. The policy includes a state-wide deforestation reduction target to be reached by 2020, calculated as an 80% reduction below average rates of Acre's contribution to Brazil's national deforestation rates from 1996-2006.

The policy was conceived as the primary mechanism for implementing ZEE through:

1. a program for the restoration of already altered areas, including reforestation, agroforestry and sustainable agriculture
2. a program for valuation of forest environmental assets designed to regularize "environmental liabilities," or lands not in compliance with environmental regulations; certify sustainable rural properties; create a forest management system ; and generate payments for environmental services.

The strategy for implementing the Policy of Valuing Forest Environmental Assets is two-pronged: first through a recovery plan for disturbed and degraded areas, providing for the re-planting of forests; and second, through valuation of forest environmental assets, which includes the State Program for Certification of Family Production Units; subsidies for sustainably produced products; support for sustainable forest management plans; and ultimately a REDD program for incentives for reducing emissions from deforestation and degradation (see Figure 3). These programs are coordinated with a state plan for forest concessions for both communities and the private sector.

Certification program of rural production units

The Certification Program of Rural Production Units was developed with support from rural producers, debated in the legislature, and written into state law in 2008. The program sets out a period from one to seven years—depending on producer capacity—during which the rural producer voluntarily agrees to adopt a sustainable production system, and receive a classification label indicating his or her degree of sustainability. This classification entitles the producer to a series of benefits. The program's regulatory framework provides for the gradual abandonment of burning; priority access to labor-saving technologies; access to incentives and financing; and inclusion in sustainable production chains to encourage the production and protection of environmental services. Under the program, producers receive a start-up bonus of R\$ 500.00-600.00 as an incentive to join the program and keep their land under certification.

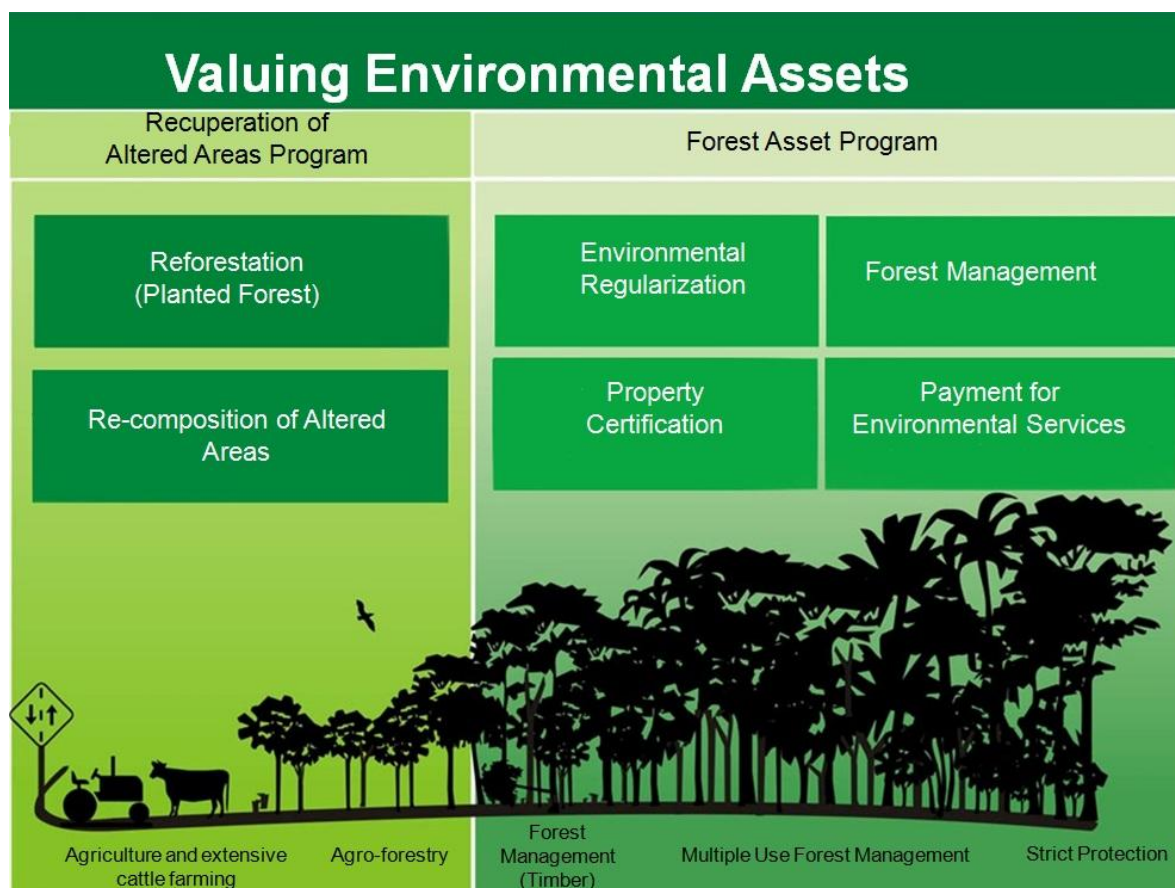


Figure 3. Valuing Environmental Assets

Deforestation Target

Acre has good reason to want to develop a REDD program. State-of-the-art land use modeling shows that under current trends, deforestation, now about 1.9 million hectares, or 12% of the state, will reach 5.9 million hectares, or 36% by 2030, putting at risk the rainfall regime, raising fire risk and destroying untold biodiversity. Building on the Policy to Value Environmental Assets, Acre adopted a state Plan for the Prevention and Control of Deforestation in 2008, including a state-wide deforestation reduction target. In keeping with Brazil's approach nationally, the state is calculating its reductions not below a projected business-as-usual trajectory, but much more conservatively, below the historical average deforestation from 1996 – 2005. Acre's REDD program thus "nests" directly into Brazil's national program, and is fundamentally similar to national emissions reductions regimes in the EU Emissions Trading System or Kyoto Protocol countries. The deforestation reduction target defined in this policy is 59% below 2008 levels, and 86% below the 1996-2005 baseline levels. Based on remote sensing analysis of deforestation and existing forest carbon inventories from plot samples, meeting the target will reduce total emissions by about 164 million tons CO₂ below the historical baseline by 2020. The state proposes to seek credit for only part of these reductions, while holding the rest as a carbon reserve buffer to ensure that reversals of reductions can be made good.

Monitoring and Measurement

The Geo-processing Laboratory of Acre's Technology Foundation (FUNTAC) uses the full array of remote sensing technologies deployed by Brazil's National Space Research Institute (INPE – www.inpe.br/) to track and measure deforestation, fires, and forest degradation nationally on annual to near-real time scales. INPE routinely uses high-resolution (30 meters) Landsat images to measure annual deforestation. Scientists consider Brazil to be one of the two developing countries that accurately and regularly measures forest cover and land use changes. FUNTAC, however, has also acquired much higher resolution Formosat-2 images (8 – 2 meters) for the entire state, allowing it to measure land use and forest cover change more accurately and quickly (see Figure 4).

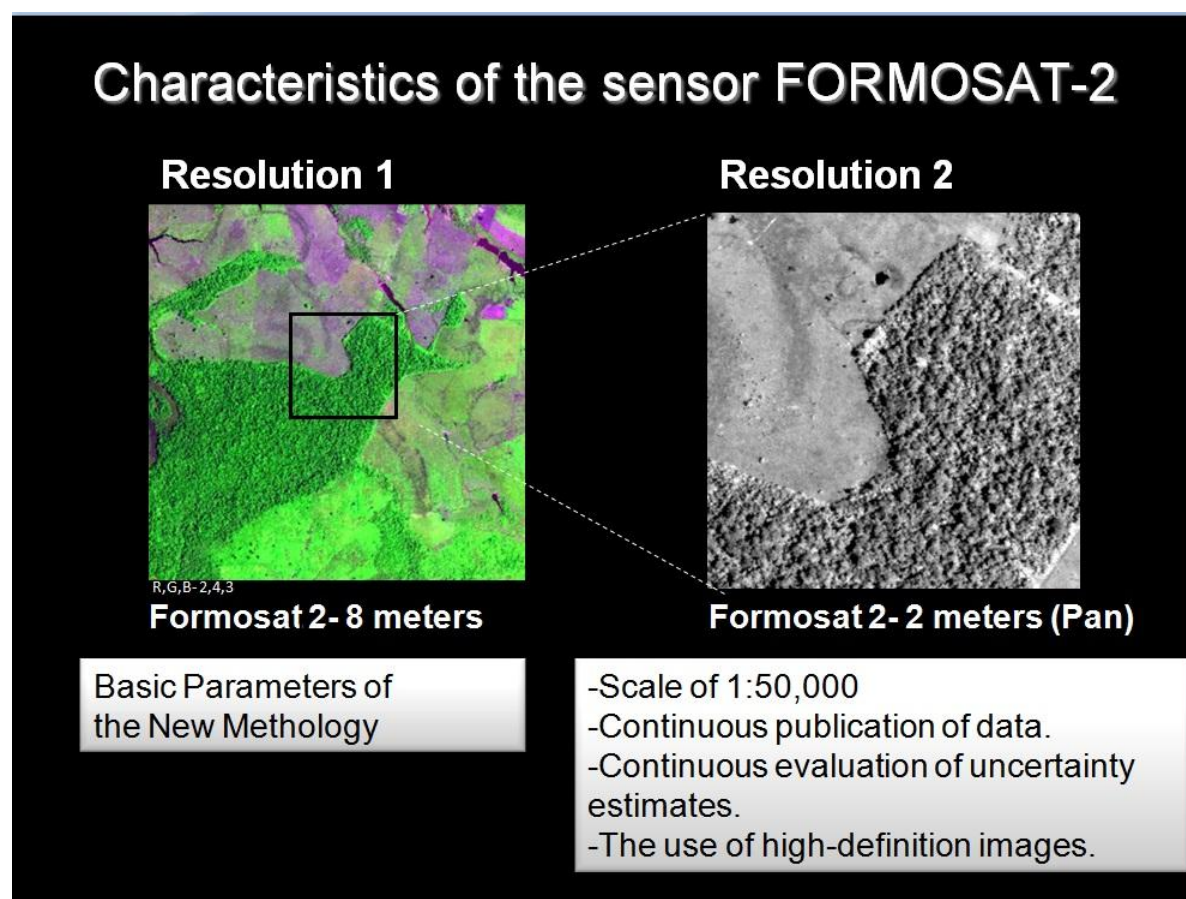


Figure 4. State-of-the-art monitoring and measurement of deforestation

Current carbon stock estimates are based on existing plot-sampling data. The state has contracted with one of Brazil's most respected climate scientists to prepare a state-wide forest carbon map. In addition, Acre is purchasing a LIDAR-equipped airplane and has made an agreement with the Carnegie Institute's Airborne Laboratory to train state technical staff in the use of the Clas-lite system, the cutting edge operational technology for measuring forest carbon and forest cover change, including accurate measurement of selective logging and degradation from fires.

3. The Acre State System of Incentives for Environmental Services (SISA)

SISA: context and background

In 2010, the Acre state legislature passed and signed into law the System of Incentives for Environmental Services (SISA) in order to establish a system of incentives for a range of environmental services, including forest carbon, water resources, scenic beauty, climate regulation, biodiversity conservation, and others. Its first priority is the Incentives for Environmental Services – Carbon (ISA-Carbon) program, which seeks to create the necessary incentives for meeting and sustaining state-wide deforestation reduction targets. The SISA explicitly allows for harmonization and linkages with a future national system, other sub-national systems, and potential future international systems of incentives for environmental services. Acre, with the Mexican state of Chiapas, signed an MOU with California in 2010 to develop principles and criteria for the inclusion of REDD in California's carbon market.

The state's SISA legislation is the result of a long-term, comprehensive consultation process with a diverse array of civil society groups and individuals, both international and national experts from government, environmental NGOs, intergovernmental and other international institutions, as well as the citizens of the state. While under consideration, the proposal was made public through the state government portal and was sent for review to hundreds of people, including representatives of more than 72 domestic and international organizations, and 174 individuals including 30 indigenous leaders, 50 farmers, and 85 technical organizations. The document was also discussed in person at five technical meetings with local NGOs, three workshops with potential beneficiaries (indigenous and rural producers), and a technical workshop with 10 national and international civil society organizations and seven government agencies.

As a result of this long consultation process, there were 300 recommendations for proposed changes, which were grouped and systematized for consideration in the final debate before state policy-making councils. This report formed the basis for drafting the second version of the bill that became the State Program for Incentives for Environmental Services - Carbon. The state legislature passed the law on October 21, 2010 by an overwhelming majority. SISA also, importantly, incorporates mechanisms for effective social control, through a State Commission for Validation and Monitoring and an Ombudsman's Office that facilitates inquiries, review, and examination by Acrean civil society.

SISA: structure and legislation

SISA provides the structure and authority for a state system of economic incentives for ecosystem services. The SISA legislation creates:

1. the state Climate Change Institute, responsible for guaranteeing the technical and scientific integrity of the system through regulation; registry of program participants; and issuing and registry of carbon credits

2. a State Commission for Validation and Monitoring, composed of both government and civil society representatives
3. an Environmental Services Development Company, a mixed public-private company, authorized to raise private capital and establish partnerships with the private sector, and charged with developing economically viable, profitable projects with strong environmental and social benefits
4. a Scientific Committee, composed of recognized experts from diverse scientific fields
5. an Ombudsman's Office, to receive and address citizens' reports of mismanagement or misconduct

SISA: environmental service providers and beneficiaries

The SISA law defines “providers of environmental services” as those who promote legitimate actions for the preservation, conservation, or restoration and sustainable use of natural resources. To be considered a beneficiary of SISA, a provider of environmental services must participate in the programs established through it, and comply with its requirements. An “economic beneficiary of ecosystem services” is defined as a person who provides the service through her or his activity, thus including both property owners and those with resource use rights, such as indigenous or traditional communities who live in reserves that are public lands, but have exclusive resource use rights in those lands. Emissions reductions are consequently treated as a service, denominated in tons of CO₂, which can be contracted and traded in the market. Rights to emissions reductions then depend not on who owns a given piece of land or tree, but on who provides the service of reducing deforestation or enhancing carbon stocks. There is thus no need to determine “who owns the carbon,” or to resolve all pending land tenure issues, in order to assign rights to emissions reductions or carbon sequestration. One of the responsibilities of the Climate Change Institute is to identify and define who the providers of environmental services are.

SISA: regulation, control and registry

SISA is regulated by the Climate Change Institute, a government agency that is financially and administratively independent from, but supervised by the Secretary of Environment (SEMA). The agency is responsible for:

- establishing the rules under SISA
- approving, after the establishment of the Scientific Committee, project methodologies and action plans presented by the Environmental Services Development Company or other special projects
- harmonizing pre-existing methodologies for developing plans of action and projects
- conducting the pre-registration and registration of plans of action and projects

- issuing emissions reductions certificates for greenhouse gasses, in compliance with the targets established in registered plans of action or projects
- putting into effect the production and registration of other ecosystem products and services, within the terms of the law
- validating methodologies for registry and certification
- credentialing enterprises to operate projects within the scope of SISA and in accordance with its regulations