GOVERNO DO ESTADO DO ACRE

ACRE STATE CARBON EMISSION REDUCTION PROPOSAL UNTIL 2030

INTRODUCTION

The United Nations Framework Convention on Climate Change (UNFCCC) acknowledges that change in the Earth´s climate and its adverse effects are a common concern of humankind, especially given the substantial increase in atmospheric concentrations of greenhouse gases generated by human activity. These concentrations enhance the natural greenhouse effect in a way that could result in an additional warming of the Earth´s surface and atmosphere and may adversely affect natural ecosystems and human health (MCT, 2015).

According to the United Nations Development Program, there is a need for local and subnational governments to implement adaptation and mitigation measures to combat emissions of substances that alter climate conditions 50-80% of current values and limit global temperature rise to under 2° C, which is needed to avoid dangerous climate change (IPCC).

The State of Acre has proposed in the Memorandum of Understanding, being referred to as "Under 2 MOU", to present an emission reduction proposal for 2030, based on necessary strategies and actions to meet the agreed reduction targets.

ACRE STATE CHARACTERISTICS

Acre is one of Brazil´s Federal Units with an area of 164.123.040 km^2 and is divided into 22 municipalities. The population estimate for the year 2014 was 790,101 with a population density of 4.47 inhabitants/km², and the projection for the year 2030 is 972,464 inhabitants.

Despite its small area, Acre has an immense biological wealth resulting from its geological and climatic conditions. With altitudes ranging from 250 to 580 meters, the landscape contains hills and plateaus inherited from its paleogeographical evolution, and wetlands and flood areas with typical vegetation types. The climate is characterized by two distinct periods: a "summer" with temperatures between 24,5 and 32°C, 1.600 to 2.750 mm of rainfall per year and high humidity, and a dry "winter" that may extend for up to 3 months.

Acre has over 87% of its original forest intact, of which 47% are protected areas, 14% indigenous lands and 33% conservation units, demonstrating the conservation strategy adopted in its development policy and maintaining a rich biodiversity under canopy of different forest formations.

The primary sector of the state´s economy represents 17%, with its main activities in the field of non-timber extraction (nuts, rubber), fishing, agriculture and livestock farming. The secondary sector, represented by the industry, represents 15%, and the tertiary sector accounts for 68%. This sector has increased with urban growth, with the Human Development Index (HDI): 0751 (UNDP - 2005). The GDP of the State in 2014 was 8.7 billion, representing 0.2% of the national GDP. The average growth rate of Acre´s GDP was higher than the national and Northern region´s GDP growth rates in the last decade. From 2002 to 2010, Acre grew on average 5.8% against the national average of 3.9%. While Brazil showed a cumulative growth of 37% from 2002 to 2010 and the Northern region of 56%, Acre reached 59%.

The population ranging from 0 to 29 years, accounts for 59.86% of the population, while those over 60 account for only 7%, indicating a prevailing young population. This is considered a positive factor for the profile of available manpower, especially taking into consideration that

life expectancy rates at birth of 70.37 years and 77.23 years for men and women will respectively grow to 73.85 and 80.33 in the estimates for 2030.

All investments made since 1999 begin to reflect the results of joint actions between government, rubber tappers, river people, base communities, Catholic Church pastoral councils and social movements. With the continuation of actions focused on social aspects, a gradual improvement of indices is expected. According to data from IPEA, inequalities were reduced by 13.5%, due to continued government actions and the trajectory of public policies focused on low-income populations and maintenance of the cultural character of extractive activities in a sustainable manner. In the period 2009 – 2013, there was a 35% poverty reduction in the state and between 2001-2013 there was a 102% increase in formal employment, contributing to improved living conditions of the population in general.

CURRENT LOW-CARBON STATE POLICY CONTEXT

Acre´s state government has chosen a different development model, exploring the natural resources wisely, aware of the need to preserve this valuable natural capital. Over the last fifteen years, the state government has been innovating with a green economy model, reducing deforestation, increasing its GDP and revolutionizing with socio-productive inclusion.

Starting from Acre´s Ecological-Economic Zoning (ZEE), the Valuation of Forest and Environmental Assets Policy was passed into state law (Law 2.2204/2008), with the main objective of ensuring the sustainable use and proper management of the territory with social and economic inclusion. This policy has contributed to the mitigation and adaptation to climate change, and the consequent reduction of greenhouse gas emissions.

The challenges posed by the process of global climate change require action in several areas that involve changing consumption patterns, maintaining biodiversity, and a new model aimed at a low-carbon economy and social inclusion.

In this regard, the Valuation of Forest and Environmental Assets Policy has encouraged the development of sustainable supply chains in already converted areas, reducing the pressure on the forest and maintaining standing forest. Moreover, it has contributed to the promotion of new business arrangements in open areas, aimed at social and environmental aspects in an innovative way, as strategies that contribute to improved living conditions, social inclusion and reduce pressure on the remaining forest. Among the productive chains in development, we highlight timber production through sustainable community forest management as well as forest resources businesses that work with Brazil nut, açaí, fish farming, pig farming, poultry, corn, cassava, banana and coffee, and always referring to the need to build a low-carbon economy.

Today, Acre is the second largest producer of Brazil nuts and has the only factory in the world producing male condoms with native rubber latex – NATEX. Moreover, the state exports certified wood to other Brazilian regions and European countries and was the first Brazilian state to receive authorization from the Federal Government to establish industries in their Export Processing Zone (EPZ). The installation of production units in the state means more income for thousands of families, especially families working with agroextractivism and improvement of the quality of life for populations that have the forest as their base of support and survival.

The timber industry has adopted a range of strategies such as timber forest management, timber production certification and reforestation of degraded areas. The main objective of reforestation is to occupy altered and degraded areas, in order to ensure supplies for forest-based industries and generate employment and income, especially for industries that require

timber and the expansion of the local market for timber originated from reforestation projects.

The Modeflora[1] method is used as the main instrument for effective control of forest management from licensing procedures and its implementation has contributed to the control of illegal timber removal and thereby reducing the impact caused by logging.

Opting for sustainable diversified livestock farming, provides benefit plans for open areas, with funding and guidance for intensive activities in sustainable techniques. Strategies that present increases in production through production gains are encourages, like diversification of livestock, genetic improvement and intensive production on small areas.

In this context, the fish farming value chain aims at increasing animal protein supply and has had state support to expand and modernize which has attracted large farmers and gathered smallholders through cooperatives.

With regard to mitigation, projects and strategic actions related to the strengthening of territorial and environmental management in Conservation Units, Indigenous Lands and rural communities stand out, as well as production techniques, recovery, environmental and land compliance techniques. Monitoring of natural disasters and extreme events and the implementation of the Water Resources Management Plan are related to adaptation and management of state environmental risks mechanisms.

Acre State Government has the implementation of its Prevention and Control of Deforestation, Burning and Forest Fires Plan (PPCDQ) as one of its main policy instruments aimed at reducing the impacts of climate change. This plan establishes guidelines, goals and actions until 2030, for territorial and land planning, productive chains and sustainable practices, and monitoring, control and surveillance. In the period 2004-2014, the state showed a 57% reduction in deforestation compared to the average for the decade 1995-2004, with average annual increment of 300 km² (PRODES, 2014)[2].

The State System for Protected Natural Areas - SEANP (Law 1.426 / 2001) comprises the Conservation Units and Indigenous Lands and aims at operating and managing this mosaic in an integrated manner, guaranteeing the ecological corridor to protect biodiversity and ecosystems.

The Community Development Plan - PDC is an instrument that raises the needs and expectations of the communities, as well as strategies to promote local development, focused on social inclusion and improved income through the consolidation of sustainable production strategies focused on forest and restoration of degraded areas, integrating family farming productive chains.

Plans for Territorial and Environmental Management of Indigenous Lands (PGTI) and participatory mapping (ethno-zoning) are used as important management tools, helping indigenous communities to organize themselves in management actions and natural resource conservation, monitor and control their lands´ boundaries, and guide the dialogue with government institutions and other stakeholders.

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[1] Modeflora – digital logging model based on planning, forest inventory techniques, logging operation tracking from navigation Technologies and satellite images.

[2] INPE. Spatial Research Center. **Monitoring the Brazilian Amazon Forest by Satelite -** PRODES Project. http://www.obt.inpe.br/prodes/prodes_1988_2014.htm (Acessed February 19, 2015)

The main tool for environmental regularization of rural properties is the Rural Environmental Registry – CAR[3] that uses geo and satellite images for effective control of illegal logging, and has created the Environmental Adjustment Program (PRA) to ensure the recovery of existing environmental liabilities in Permanent Protection Areas (APP) and Legal Forest Reserves (RL).

The System of Incentives for Environmental Services - Sisa (Law 2.308 / 2010), aims to maintenain and expand the supply of ecosystem services and products aimed at natural resources and climate protection and integrity to benefit present and future generations. It is based on national and international principles for REDD (reducing emissions from deforestation and degradation) Jurisdictional Programs.

Sisa establishes financial mechanisms for implementing programs, projects and actions that range from traditional compensation mechanisms aimed at carbon sequestration and global warming reduction, to other innovative mechanisms on the market.

Today, financial resources obtained from avoided deforestation and carbon sequestration, are distributed through Sisa´s REDD+ program, to farmers, traditional and indigenous populations, through existing public policies that contribute to the reduction of deforestation and degradation in specific economic sectors production chains (agriculture, forestry, livestock etc.), or in territorial areas such as Conversation Units or Indigenous Lands. This is one of the options set by the state to mitigate the effects of emissions.

Sisa´s implementation is expected to integrate policies and generate environmental assets, promoting a new low-carbon model of local and regional sustainable development with high social inclusion, contributing to the national effort of emission reductions. These measured, reported and verified assets may be filed with the state regulatory authority or future national registry for Certified Emission Reductions from deforestation and forest degradation.

ADAPTATION

The State of Acre has a long history of extreme hydrological events, due to the runoff regime of its rivers with large level variations, making droughts and floods critical natural phenomena in the region. In this regard, the Government has structured its Environmental Disaster Risk Management Plan, which sets forward the adoption of prevention, preparedness and rapid response measures to emergencies involving fires, floods and hazardous chemicals through the State Commission for Environmental Risk Management, established by Decree 3,145 / 2008. Today, the Commission consists of 41 institutions, representing the Federal, State and Municipal government, as well as NGOs´ and social movements´ representatives. The purpose of this Commission is to propose and evaluate programs, actions and activities aimed at the prevention, control and impact mitigation of fires, drought, deforestation, floods, accidents involving hazardous chemicals and other events to that cause risks to the environment resulting from human activities and the effects of global climate change.

At the same time, the state has structured an Extreme Event Monitoring System, which aims to increase its capacity to monitor climate conditions in order to generate data on extreme events such as droughts and floods. This automated network allows obtaining meteorological and hydrological data in real time to monitor weather conditions and feed the extreme events alert system that, in partnership with the Weather Forecast Center and Climate Studies (CPTEC) from INPE, uses the TerraMA2 Platform. The state has 33 automatic telemetric

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[3] CAR – Federal Law 12.651, May 25, 2011 (New Forest Code), established the Rural Environmental Registry – CAR, through Art. 29.

hydrometeorological stations in partnership with the National Water Agency - ANA, in addition to weather stations of the National Institute of Meteorology - INMET. At Acre´s Hydrometeorological Event Monitoring Situation Unit it is possible to monitor weather and climate conditions as well as (forest) fires, thereby providing technical information to support not only enforcement, control and combat actions against extreme events, but also Civil Defense response actions.

The State also has an important instrument for the management of water resources - the State Water Resources Management Plan - PLERH, with guidelines for the implementation of the Acre State Water Management System (SEGRH-AC), within a sustainable vision of development, ensuring interagency integration and effective participation of users, civil society and government, reconciling environmental conservation and economic growth with equity. The State Water Resources Management plan provides strategic actions that are coordinated and integrated with the State Commission for Environmental Risk Management - CEGdRA.

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The state considers it important to follow the target and indicator definitions from the Sustainable Development Indicators – ODS and incorporate them in local policies as part of their institutional actions. The ODS are focused on measurable results and therefore meet the monitoring needs of commitments to reduce deforestation and emissions, including Objective 13: *Taking urgent action to combat climate change and its impacts* and Objective 15: *Protect, recover and promote the sustainable use of terrestrial ecosystems, sustainably manage the forests, combat desertification, halt and reverse land degradation, and halt the loss of biodiversity.*

STRATEGY

The inventoried activities´ sectors in Acre that are directly related both to emissions and to carbon sinks and also to the state economy are energy, transport, agriculture, changes in land use and solid waste. As the largest percentage of emissions is in the land-use sector (97%), Acre´s carbon emission reduction strategy is focused on forest conservation, because the state has a total of 5,361,913.36 hectares of Conservation Units and 2,390,112 hectares in indigenous lands. Moreover, the strategy is focused on increasing carbon stocks through reforestation, recovering permanent preservation areas and forest restoration, low impact forest management, reducing emissions from deforestation, agriculture in sustainable production chains and diversified livestock to withdraw the pressure on the forest, and effective control of illegal activities.

MONITORING

In line with the Federal Government project, in 2009 Acre launched its Prevention and Control of Deforestation and Burning Plan – PPCD, to continuously reduce deforestation by 80% until 2020. PPCD was the initial baseline for quantifying environmental services from deforestation emission reduction. From the average deforestation rate in the period of 1996-2005 (PRODES / INPE) it was designed for a period of five years, when it was revised according to the historical rate of 10 subsequent years (2001-2010). Since then this rate will be projected every period of five years to investigate the annual reduction of emissions from deforestation. The values

achieved by 2020 will be maintained until 2030, aiming at a zero illegal logging rate, and incorporate the goals of the Environmental Rural Register - CAR.

The State of Acre uses the annual deforestation monitoring system PRODES Project (Satelite Monitoring of the Brazilian Amazon Forest) from the Institute for Space Research - INPE, responsible for annual deforestation rates since 1988, based on images from Landsat. Deforestation rates are presented through annual reports for the Amazon region but also broken down by state, available on the site (http://www.obt.inpe.br/prodes/index.php). We also use the Real Time Deforestation Detection System data in the Amazon - DETER that conducts quick surveys of change evidence alerts of forest cover in the Amazon, made by INPE since 2004, with data from the MODIS sensor from the Terra satellite, and spatial resolution of 250m, which allows the State, through its Central GIS Unit, to monitor and control deforestation and illegal forest degradation in municipalities.

For deforestation monitoring with higher spatial resolution, the State has the Central GIS Unit – UCEGEO that has developed a methodology for mapping deforested areas, focusing on small polygons (from 0.54 ha), complementing INPE's annual monitoring system. This methodology allows the classification of deforested areas and the stratification of the data by regional administration, municipality and land structure (protected areas, indigenous lands, settlement projects and private properties).

The Inventory of Anthropogenic Greenhouse Gas Emissions and Sinks integrates with the ecological-economic zoning, allowing the state to monitor the carbon balance in the relevant economic activities and is used as an instrument for measuring, reporting and verification, checked every two years. Acre is the first state in the Amazon to have a GHG inventory and the fourth in Brazil to have this instrument, which has become an efficient database to monitor and evaluate carbon emissions and sinks in the state.

Considering that the ISA Carbon Program was established linked to the reduction of emissions from deforestation and degradation, carbon flow, sustainable forest management and conservation, maintenance and enhancement of forest carbon stocks (REDD+), these activities are part of the Incentives for Environmental Services Jurisdictional Program - Isa Carbon, whose achieved targets will be checked every five years.

To estimate reductions in CO2 emissions, the reference level or base line follows state and federal regulations and is consistent with the National Policy on Climate Change (Decree 7,390 / 2010) and the Acre State Plan for Prevention and Control of Deforestation, using the same data source that served to calculate the historical deforestation rates of Prodes. Thus, reduction monitoring, likewise, was and will be conducted using the same Prodes deforestation data.

For the 2020-30 decade, these values should be adjusted according to the dynamics and evolution of the objectives´ achievement. Considering the average state carbon stock per hectare of 123.5 ton.C / ha or 451 ton.CO2 / ha, greenhouse gas emission reduction for the period 2006-2020 will be 164 million tons of CO2.

The PPCD-AC is a powerful planning, command and control, prevention and production base tool. Strategic actions are set out by themes, environmental compliance of CAR, and land regularization defined by Acre´s Land Institutes - Iteracre and Terra Legal. Iteracre provides a system with all the land base until 2030, allowing deforestation control and meeting the gap of the priority areas.

PPCD's actions are geared towards a low-carbon economy and on the one hand aim to restore and reforest, through timber and non-timber forest management, and on the other hand

establish best practices, without fire, in open areas. Among these actions, the following actions stand out for the axis Monitoring and Control: the integration and provision of bases, updating and training of GIS units, modernizing tools and inspection procedures, preventive actions and fire control. For the axis Sustainable Production Activities we highlight: integration of supply chains and deforestation mapping, consolidation of non-timber (brazilnut, açaí and rubber) productive chains, broadening incentives to forests planted in open areas, capacity building for adoption of new production models. Lastly, for the axis Spatial and Land Planning the following actions stand out: actions to update the dynamics of land use and vulnerability classification, monitoring of actions in protected areas, assessing the dynamics of deforestation in priority areas for conservation, actions to curb land grabbing and illegal property fractionation, among others.

The goal is to reduce illegal deforestation to zero, using UCEGEO monitoring and CAR data as instruments. CAR conducts the only rural property licensing, uniting licensing of productive activities with compliance with the environmental compliance requirements issued by the Forest Code, especially verifying the protection of Permanent Preservation Areas - APP and the identification and registration of Legal Forest Reserves - RL. The new Forest Code of May 2012 (Law 12651), replaces previous mechanisms and establishes the obligation for all rural properties in the country to have their CAR.

PROPOSALS FOR 2030

1. **Forest Conservation**
   - Zero illegal deforestation in the State Conservation Units, settlement projects and private rural properties;
   - Community low impact forestry on 180,000 hectares;
   - Timber forest management enterprise in the form of forest concession in 240,000 hectares of state forests;
   - Maintenance of carbon stocks in protected areas and indigenous lands within the federal and state legal limits.

2. **Reducation of Emissions of Deforestion**

a) 50% recovery of degraded and altered areas of rural properties registered in the Rural Environmental Registry - CAR (60,000 ha);
b) Recovery of 10,000 hectares of Permanent Preservation Areas - APP in the Acre River Basin;
c) 100% productivity, production and organization intensification of the Brazil nut chain;
d) Implementation of planted forests;

   - Implementation of 10,000 hectares of planted forest with rubber trees and modernization of extractive activities;
   - Implementation of 10,000 hectares of açaí in consortium with other fruit and forest species;
   - 20,000 hectares reforestation by planting species for timber production, energy and biomass.

3. **Diversified Sustainable Agriculture and livestock farming**

- Implementation of 5,000 hectares of water depths for fish farming, with technology, innovation and technical capacity;

- Modernization and intensification of cattle raising to 4 heads / ha;

- Modernization, technology and innovation in the dairy region to intensify levels of productivity, production and quality in the Lower Acre Region;

- Modernization, technology and innovation of pig farming with technologies and expertise to farmers;

- Modernization, technology and innovation of poultry farming with technologies and expertise to farmers.

4. **Environmental Monitoring**

- Implementation and monitoring of the State Plan and the 22 Municipal Plans for Prevention and Control of Deforestation and Forest Fires;
- Monitoring and control of deforestation and hotspots through the digital platform and satellite images under the Rural Environmental Registry Program - CAR;
- Monitoring of deforestation and forest degradation by Acre´s Central GIS Unit – UCEGEO, focusing on small farms;
- Follow up on deforestation monitoring via Prodes and Deter;
- Permanent monitoring of extreme climatic events of drought and floods through 33 data collection platforms distributed in major state rivers, issuing early warnings of at least 24 hours in advance;
- Measurement, reporting and verification (MRV) of GHG emissions by sectors inventoried, reviewed every two years;
- Implementation and operation of the Integrated Center for Management and Monitoring of Acre Environmental Information.