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ENVIRONMENTAL SERVICE INCENTIVES SYSTEM IN THE STATE OF ACRE, BRAZIL

Lessons for policies, programmes and
strategies for jurisdiction-wide REDD+



CONTENTS

List of acronyms	4
Executive summary	8
Executive summary (Portuguese)	10
Introduction	13
Deforestation in Acre	15
Acre's public policies	22
The ISA Carbon Programme	28
Analysis of the ISA Carbon Programme	44
Lessons learned	56
Acknowledgements	60
References	62

ACRONYMS

AAUs	Assigned Amount Units
AB32	The State of California's New Climate Policy
ATER	<i>Assistência Técnica e Extensão Rural</i> (Rural Technical Assistance and Extension)
BM&F BOVESPA	<i>Bolsa de Valores de São Paulo</i> (São Paulo Stock Exchange)
BNDES	<i>Banco Nacional de Desenvolvimento Econômico e Social</i> (Brazilian National Social and Economic Development Bank)
CBMAC	<i>Corpo de Bombeiros Militares do Acre</i> (Acre State Fire Brigade)
CCBA	Climate, Community and Biodiversity Alliance
CDSA	<i>Companhia de Desenvolvimento de Serviços Ambientais</i> (Environmental Services Development Company)
CEGdRA	<i>Comissão Estadual de Gestão de Risco Ambiental</i> (State Environmental Risk Management Committee)
CEVA	<i>Comissão Estadual de Validação e Acompanhamento</i> (State Committee for Validation and Monitoring)
CIFOR	Centre for International Forestry Research
CO₂e	Unit equivalent to a carbon dioxide molecule in terms of greenhouse effects
CNS	<i>Conselho Nacional das Populações Extrativistas da Amazônia</i> (National Council of Amazonian Extractivist Populations)
CPI/Acre	<i>Comissão Pró-Índio do Acre</i> (Acre Pro-Indian Commission)
Embrapa	<i>Empresa Brasileira de Pesquisa Agropecuária</i> (Brazilian Agricultural Research Corporation)
ETS	European Union Emissions Trading System
FSC	Forest Stewardship Council
GHG	Greenhouse gases
GTA	<i>Grupo de Trabalho da Amazônia</i> (Amazon Working Group)
Ibama	<i>Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis</i> (Brazilian Institute for the Environment and Renewable Natural Resources)
IBGE	<i>Instituto Brasileiro de Geografia e Estatística</i> (Brazilian Geography and Statistics Institute)
ICMBio	<i>Instituto Chico Mendes de Conservação da Biodiversidade</i> (Chico Mendes Institute for Biodiversity Conservation)

- IMC** *Instituto de Mudanças Climáticas e Regulação de Serviços Ambientais* (Climate Change and Environmental Services Regulatory Institute)
- INPE** *Instituto Nacional de Pesquisas Espaciais* (National Space Research Institute)
- ISA** *Incentivos por Serviços Ambientais* (Incentives for Environmental Services)
- IUCN** International Union for the Conservation of Nature
- KfW** *Kreditanstalt für Wiederaufbau* (German Development Bank)
- LIDAR** Light Detection And Ranging
- Mt** Million tonnes (metric system)
- NGO** Non-governmental organisation
- PAS** *Plano Amazônia Sustentável* (Sustainable Amazon Plan)
- PDC** *Plano de Desenvolvimento Comunitário* (Community Development Plan)
- Pesacre** *Grupo de Pesquisa e Extensão em Sistemas Agroflorestais do Acre* (Acre Agro-forestry System Research and Extension Group)
- PNMC** *Plano Nacional sobre Mudança do Clima* (National Climate Change Plan)
- PPCDAM** *Plano de Prevenção e Controle do Desmatamento na Amazônia* (Amazon Deforestation Prevention and Control Plan)
- PRODES** *Programa de Cálculo do Desflorestamento da Amazônia* (Amazon Deforestation Calculation Programme)
- RCEs** *Reduções Certificadas de Emissões* (Emission Reduction Certificates)
- REDD+** Reducing Emissions from Deforestation and Forest Degradation
- RESEX** *Reserva Extrativista* (Extractive Reserve)
- SEANP** *Sistema Estadual de Áreas Naturais Protegidas* (State Protected Areas System)
- SEAPROF** *Secretaria Estadual de Extensão Agroflorestal e Produção Familiar* (State Department of Extension in Agroforestry and Family-based Production)
- SECT** *Secretaria Estadual de Ciência e Tecnologia* (State Department for Science and Technology)
- SEDENS** *Secretaria Estadual de Desenvolvimento Florestal, da Indústria, do Comércio e dos Serviços Sustentáveis* (State Department for Forest, Industry, Trade and Sustainable Services Development)
- SEF** *ex-Secretaria de Florestas do Acre* (former Acre Forests Department)

- SEMA** *Secretaria Estadual de Meio Ambiente*
(State Environment Department)
- SISA** *Sistema de Incentivos por Serviços Ambientais*
(Environmental Services Incentives System)
- UCEGEO** *Unidade Central de Geoprocessamento e Sensoriamento Remoto* (Central Geo-processing and Remote Sensing Unit)
- UCs** Unidades de Conservação (Protected Areas)
- UFAC** *Universidade Federal do Acre* (Federal University of Acre)
- UK** United Kingdom
- UNFCCC** United Nations Framework Convention on Climate Change
- VCS** Voluntary Carbon Standard
- ZEE** *Zoneamento Ecológico-Econômico*
(Ecological-Economic Zoning)



EXECUTIVE SUMMARY

This study analyses the design of an Environmental Service Incentives System (SISA, in Portuguese), which includes a programme for REDD+ (Reducing

Emissions from Deforestation and Forest Degradation) in the State of Acre, Brazil. Known as Environmental Service Incentives for Carbon (or ISA Carbon, in Portuguese), this programme represents one of the first public policies for REDD+. It's considered the most advanced jurisdiction-wide¹ REDD+ mechanism in the world.

This study aims to:

- analyse the design and the process of constructing the programme, identifying its strengths and potential challenges
- provide insights for its implementation
- identify relevant lessons for the design of other REDD+ mechanisms.

The state of Acre still has over 86% of its original forest cover. Between 2003 and 2012, its rate of deforestation fell by 71%, a trend that began the following year across the whole of the Brazilian Amazon.

Since 1999, the Acre government has implemented a series of social and environmental policies that contributed to the early drop in deforestation in the state. The following policies are especially noteworthy:

- ecological-environmental zoning, which serves as a basic instrument for territorial planning
- establishment and expansion of a system of protected areas that covers nearly 50% of the state
- development of an extremely advanced system for monitoring forest cover
- support for a forest-based economy, through the establishment of forest concessions and promotion of multiple-use forestry, definition of minimum prices for forest products and investments in processing industries
- provision of incentives for adoption of socially and environmentally sound resource management practices by small-scale production units.

The ISA Carbon Programme presents numerous positive and innovative aspects, including:

- insertion of the programme in a favourable political and institutional context
- compatibility with regional targets and baselines
- extension over the entire state, with the goal of ultimately benefiting more than 30,000 rural households



> 86%

OF THE
ORIGINAL
FOREST COVER
IN ACRE STATE
REMAINS
INTACT

¹ In this context jurisdiction-wide refers to any politically defined region (nation, state, province, district, etc.)

FOREST FIRES POSE A THREAT TO THE FORESTS AND ENVIRONMENTAL SERVICES IN ACRE

- establishment of a state-wide political and institutional framework prior to initiating local initiatives – in sharp contrast with the vast majority of REDD+ experiences documented worldwide
- a highly participatory process of design that involved beneficiaries and other interest groups
- insertion within a larger policy framework – the Environmental Service Incentives System (SISA) – which aims to add value to other environmental services, such as biodiversity and hydrological processes.

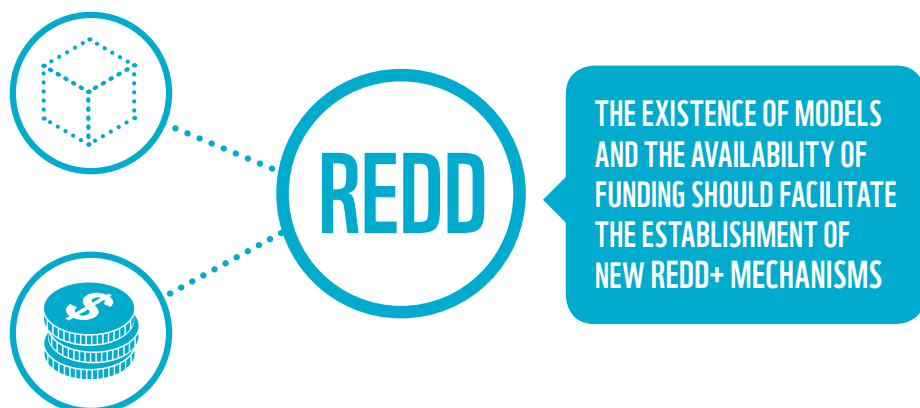
The programme has attracted a variety of technical and financial partnerships. By the end of 2012, it had secured approximately R\$107.7m in financing, and future prospects for funding are promising.

Acre's ISA Carbon Programme also faces important challenges. Key among these is a complex governance model, owing to the inclusion of several entities for social control. An additional challenge is the programme's integration into a national REDD+ strategy that's currently under development. Externalities, such as large-scale forest fires in recent years in the south-western Amazon, pose significant threats to the maintenance of forests and associated environmental services in the state. The study presents specific recommendations to address each of these challenges.

The experience of Acre provides important lessons for the definition of other REDD+ mechanisms, summarised below:

- such systems should be part of a broader policy framework, aimed at reducing deforestation and promoting forest conservation and sustainable development
- the compatibility of REDD+ mechanisms at various scales is critical to their effective implementation
- one of the biggest challenges facing REDD+ and other payment for environmental services schemes is to design benefits that can be implemented both efficiently and effectively
- the involvement of multiple actors, through, for example, broad public consultations, provides valuable recommendations for the design of REDD+ mechanisms and contributes to their legitimacy among different sectors of society.

Finally, the definition of arrangements for governance and benefit sharing were the components of the ISA Carbon Programme that have required most time to define in Acre. Today, the existence of models and the availability of funding should facilitate the establishment of new REDD+ mechanisms. The experience of Acre has the potential to contribute to the development of a national REDD+ strategy in Brazil, and to inspire the design of such systems in other parts of the world.



RESUMO EXECUTIVO

Título: O Sistema de Incentivos por Sistemas Ambientais do Estado do Acre, Brasil: Lições para Políticas, Programas e Estratégias de REDD+ Jurisdicional

Este estudo trata do desenho de um Sistema Estadual de Incentivo a Serviços Ambientais (SISA) que inclui um regime de REDD+ (Redução de Emissões por Desmatamento e Degradação Florestal) no Estado do Acre, Brasil. Conhecido como Incentivos por Serviços Ambientais associados com Carbono, ou ISA Carbono, esse programa representa uma das primeiras políticas públicas de REDD+ jurisdicional e é considerada a mais avançada em todo o mundo. O estudo visa:

- analisar o desenho e o processo de construção do programa, identificando fortalezas e desafios
- contribuir com subsídios para sua implementação
- identificar lições relevantes para o desenho de outros regimes de REDD+.

O Estado do Acre mantém mais de 86% de sua cobertura florestal original. Entre 2003 e 2012, a taxa de desmatamento caiu 71%, um padrão que também foi observado posteriormente em toda a Amazônia brasileira.

A partir de 1999, o governo do Acre começou a implementar uma série de políticas socioambientais que contribuíram para a queda mais precoce do desmatamento no estado. Dentre essas políticas destacam-se:

- o Zoneamento Ecológico-Econômico, que serve como instrumento básico de ordenamento territorial
- o estabelecimento e a expansão de um sistema de áreas protegidas, que cobrem quase 50% do estado, considerando somente as áreas públicas
- um sistema extremamente avançado de monitoramento da cobertura florestal
- o apoio à economia florestal, por meio de concessões florestais e fomento ao manejo florestal de uso múltiplo, sistema de preços mínimos e investimentos em indústrias de processamento
- incentivos para pequenas unidades produtivas que adotem práticas socioambientais.

O Programa ISA Carbono apresenta inúmeros aspectos positivos e inovadores, entre os quais se incluem:

- a inserção do programa em um contexto político-institucional favorável
- a compatibilidade com metas e linhas de base regionais
- a extensão sobre todo o território estadual e a ambição de beneficiar mais de 30 mil estabelecimentos rurais
- o estabelecimento de um arcabouço político e institucional no nível estadual antes de partir para iniciativas locais – em forte contraste com a grande maioria de experiências de REDD+ documentadas no mundo
- um processo altamente participativo de desenho, que envolveu os beneficiários e outros grupos de interesse
- a inserção num arcabouço maior – o Sistema de Incentivos por Serviços Ambientais (SISA) – em que outros serviços ambientais, tais como a biodiversidade e processos hidrológicos, são valorizados.



ACRE MANTÉM
MAIS DE
86%
DE SUA
COBERTURA
FLORESTAL
ORIGINAL

**INCÊNDIOS
FLORESTAIS
REPRESENTAM
UMA AMEAÇA
AS FLORESTAS
E SERVIÇOS
AMBIENTAIS NO ACRE**

O programa já atraiu apoio de diversas parcerias técnicas e financeiras. O seu financiamento assegurado até o final de 2012 foi de cerca de R\$107,7 milhões, e as perspectivas futuras para financiamento são promissoras.

O Programa ISA Carbono do Acre também enfrenta desafios importantes, dentre os quais se destaca um complexo modelo de governança definido para o SISA, fruto da decisão de incluir diversas instâncias para controle social. Outro desafio do programa é de integrar-se a uma Estratégia Nacional de REDD+, atualmente em desenvolvimento. Externalidades, como a ocorrência de incêndios florestais de grandes proporções em anos recentes no sudoeste da Amazônia, representam uma ameaça significativa à manutenção das florestas e dos serviços ambientais associados no estado. O estudo apresenta recomendações específicas para tratar de cada um destes desafios.

A experiência do Acre traz importantes lições para a definição de outros regimes de REDD+, resumidas a seguir:

- mostra claramente que esses regimes devem fazer parte de um contexto mais amplo, voltado para a redução do desmatamento e a promoção da conservação de florestas e do desenvolvimento sustentável
- a compatibilidade de regimes de REDD+ em diversas escalas é fundamental para sua plena operacionalização
- um dos maiores desafios enfrentados por regimes de REDD+ e outros sistemas de pagamentos por serviços ambientais é desenhar benefícios que possam ser implementados com eficiência e efetividade
- o engajamento de diversos atores locais, por meio de, por exemplo, amplas consultas públicas, fornece recomendações valiosas para o desenho de regimes de REDD+ e contribuem para sua legitimação perante diferentes setores da sociedade.

Finalmente, os componentes do Programa ISA Carbono que levaram mais tempo para ser desenhados foram os sistemas de gestão e de repartição de benefícios. Hoje, a existência de modelos e a disponibilidade de financiamento devem facilitar a criação de novos regimes de REDD+. A experiência do Acre pode servir de inspiração para o desenho desses regimes em outras partes do mundo, além de trazer referências que podem contribuir para a definição de uma Estratégia Nacional de REDD+.





INTRODUCTION

This study analyses the design of an Environmental Service Incentives System (SISA, in Portuguese), which includes a programme for REDD+ (Reducing Emissions from Deforestation and Forest Degradation), in the Brazilian state of Acre. Formally known as Environmental Service Incentives for Carbon (or ISA Carbon), this programme represents one of the first public policies for REDD+. It's considered the most advanced jurisdiction-wide REDD+ mechanism in the world (Moutinho et al., 2012; EPRI, 2012). Potentially the programme can generate important lessons for other REDD+ mechanisms, whether at sub-national or national levels, in Brazil or in other countries.



THE BRAZILIAN STATE OF ACRE OFFERS A FAVOURABLE ENVIRONMENT FOR THE SUCCESSFUL IMPLEMENTATION OF A REDD+ MECHANISM

It's not surprising that one of the first policies directly involving REDD+ has emerged in Acre. This Brazilian state still has over 86% of its original forest vegetation intact, almost half of its territory has been designated as protected areas and, since 2004, deforestation rates have been dropping substantially, achieving the lowest levels during 2007-12 since deforestation monitoring began in 1988.

Since 1999 the state of Acre has been governed by a progressive political party that's implemented a series of policies designed to generate a sustainable development model based on principles of environmental conservation, rational use of natural resources, reduction of poverty and strengthening of a forest-based economy.

International experiences have shown that REDD+ mechanisms depend on good forest governance to become efficient, effective and fair (Angelson, 2009; Larson & Petkova, 2011). With its long history of socio-environmental governance, the state of Acre offers a favourable location for the successful implementation of a REDD+ mechanism.

The three objectives of this study are:

1. To analyse the design of the ISA Carbon Programme and the Environmental Service Incentives System in Acre, identifying their strengths and challenges.
2. To contribute information to support the ongoing and future implementation of the programme and the system.
3. To identify lessons learned from these experiences that are relevant for designing REDD+ mechanisms in other contexts, both elsewhere in Brazil and in other countries.

The study is an effort to improve the design and foster the implementation of the Acre government's Payment for Environmental Services (PES) strategy, as well as to support public policy formulation and decision making in emerging REDD+ experiences in Brazil and worldwide.

The study is based on an analysis of four sets of key documents generated during the process of design and initial implementation of the ISA Carbon Programme:

- The programme's initial design document (Government of Acre, 2009b) which describes technical aspects (scope, interim goal and baseline, priority areas for implementation, environmental service incentives, and estimated costs).

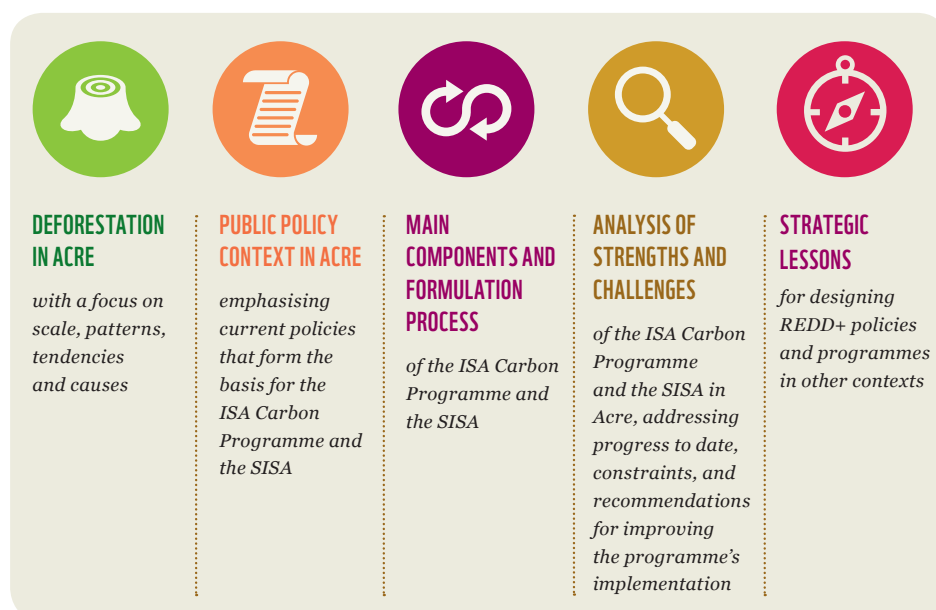
- The text of Law 2.308, dated 22 October 2010 (Government of Acre, 2010a),² which defines programme governance and the system in which it is inserted.
- The text of Decree 1.471 dated 25 March 2011 (Government of Acre, 2011a), which defines the structure of the two agencies that, among other attributes, are responsible² for administering the programme.
- Various documents produced during the first two years of the programme's regulation, structuring and implementation (2011-12).

Other documents and publications were also consulted to support the analyses presented in this study. To obtain additional supporting information as well as different perspectives of the various groups of actors involved in the programme, the authors interviewed eight representatives of the Acre government, two representatives of research centres and eight representatives of civil society in Acre.

It's important to recognise that at the conclusion of this study, in mid-2013, there are aspects of the ISA Carbon Programme and of the Environmental Service Incentives System (SISA), of which the programme is part, which are still under development. Thus, in addition to the relevant lessons learned that are valuable for other contexts, the study is also intended to support and inform the Acre government's ISA Carbon Programme and the system of which it is a part (SISA).

Finally, although the study focuses mainly on the ISA Carbon Programme, the programme itself is part of a much broader context of public policies designed to promote conservation, valuation and restoration of forest vegetation in Acre. As a result, a section of the study has been dedicated to examining this broader policy context. However, to maintain focus on the core theme, the coverage of the broader policy context is succinct and selective. In regard to the institutions that are responsible for the SISA the study concentrates on the attributions that have direct relevance for performance in administering the ISA Carbon Programme.

The study is divided into five thematic sections, as set out below:



² Law 2.308/2010 defines the establishment of the Climate Change and Environmental Services Regulatory Institute (IMC) and of the Environmental Services Development Company (CDSA) (Government of Acre, 2010a).

DEFORESTATION IN ACRE

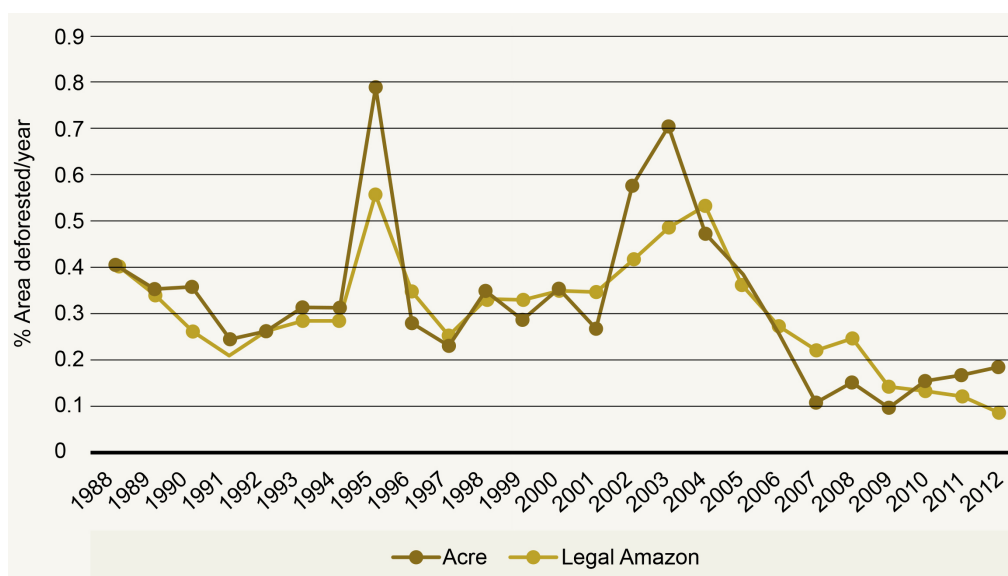
Acre still has 86.4% of its original forest cover intact, and since 2004 deforestation rates in the state have been declining. In Brazil's Legal³ Amazon this decline began one year later and the tendency has been maintained until 2012 (Figure 2). Estimates made in 2006 indicate that in a worst case scenario (that is,

if no steps were taken to curb deforestation), 36% of the total area of the state could be deforested by 2030 (Soares-Filho et al., 2006). Given the steady drop in rates since 2004, a new estimate based on current data would point to more positive results.

Deforestation trends

Acre has a total area slightly over 164,000 sq km. Until 2012 about 13.6% of the state had been deforested (Figure 1) according to the Amazon Deforestation Calculation Programme (PRODES), developed by the National Space Research Institute (INPE). Figures for 2008 show that 70% of all deforestation in the state occurred in regions of the Upper and Lower Acre River (Government of Acre, 2010b). This concentration is readily explained by the easy access to these regions by road, the presence of rural settlement projects, and soils highly favourable for agriculture and ranching.

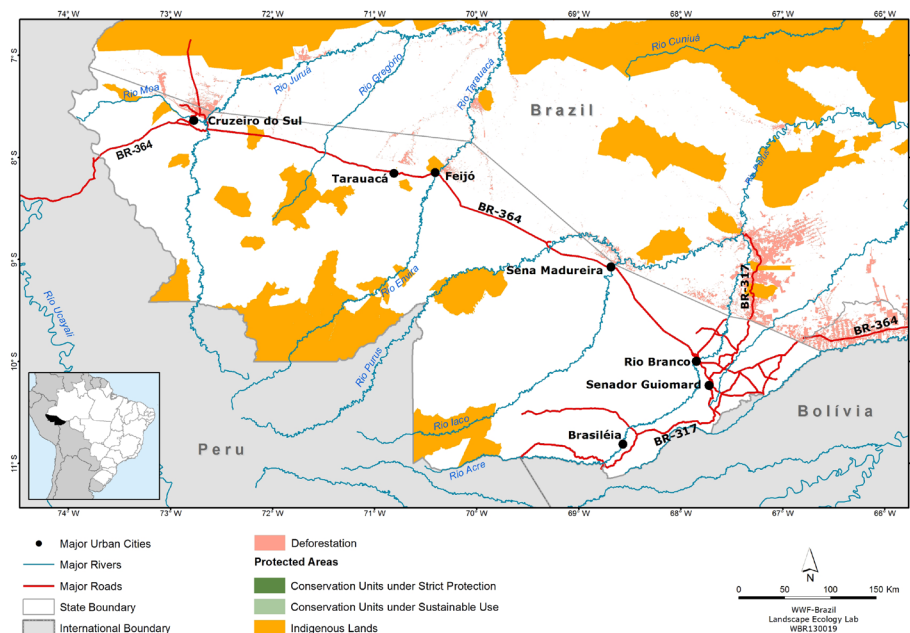
Figure 1
Annual deforestation rates in Acre and Brazil's Legal Amazon from 1988 to 2012. Source: www.inpe.br



Acre government data for 2007 clearly shows the powerful influence of roads and highways on deforestation: 68% of all deforested areas lie within 50km of the two major highways that cut across the state from north to south (the BR-317 Federal Highway), and east to west (the BR-364 Federal Highway; see Figure 2).

³ A Brazilian administrative unit encompassing nine states. It covers the Amazon basin as well as some other areas outside of the Amazon.

Figure 2
Deforestation and protected areas in the State of Acre in 2010.
(Sources: www.mma.gov.br for protected areas; www.inpe.br for deforestation; www.ibge.gov.br for highways; and www.ana.gov.br for rivers)



Another way of analysing deforestation in Acre is by examining six land-use categories: indigenous lands, protected areas, private properties, settlement projects, public lands under classification (in which the tenure status is under definition), and unclassified public lands (in which the tenure status is unknown).

Table 1 below reveals how indigenous lands and conservation units have the lowest indices of deforestation. Although they cover 45.7% of the state, just 8.1% of their total area has been deforested. Deforestation is also low on unclassified public lands, but this is mainly due to their remoteness and difficult access. Such lands cover 9.1 % of the state yet contain only 3.9% of its total deforested land area.

Table 1. Major land-use categories of Acre, showing their area and corresponding proportions of Acre's total area and area deforested.

Land-use category	AREA		
	Area (1,000 sq km)	Percentage of Acre's total area	Percentage of Acre's total area deforested
Indigenous lands	24.0	14.6	1.2
Conservation units	51.1	31.1	6.9
Private properties	32.2	19.6	31.5
Settlement projects	16.4	10.0	35.0
Public lands under classification*	25.6	15.6	21.4
Unclassified public lands*	14.9	9.1	3.9
TOTAL	164.2	100	100

* Estimates based on unpublished databases of UCEGEO



**ONLY
8.1%
OF ACRE'S
DEFORESTED
LAND LIES WITHIN
PROTECTED
AREAS, WHICH
COVER 45.7%
OF THE STATE**

In the case of public lands under classification and private properties, the level of deforestation is intermediate. Public lands under classification cover 15.6% of the state and contain 21.4% of its deforested land area. For private properties, the corresponding numbers are 19.6% and 31.5%. Deforestation is highest in settlement projects in both relative and absolute terms. Although they only occupy 10% of the state, they account for 35% of all deforestation.

Similar tendencies can be identified when data on deforestation rates are cross-referenced with data on the main socio-economic groups (Table 2). Note that deforestation rates are relatively low in areas occupied by indigenous peoples and so-called 'traditional' settlers (dependent on small-scale agriculture and harvesting of non-timber forest products), revealing the need for measures to stimulate continued forest conservation (and consequently of carbon stocks) by these groups.

Compared with indigenous peoples and traditional settlers, the deforestation rate associated with more recent settlers in agricultural settlement projects is 30 times higher. This finding reveals the need for a concentrated effort to reduce the greenhouse gas (GHG) emissions associated with the land-use activities carried out by this population. In Acre, settlement projects include approximately 21,000 families of smallholders (Table 2) who, generally speaking, employ traditional agricultural and livestock raising practices. There's an urgent need to target such families for rural extension and technical assistance to improve their production methods.

Rural properties in settlement projects are relatively small, and there are strong indications that the expansion of extensive cattle ranching is the main driver of deforestation in such areas. The costs of actions aimed at curbing deforestation and associated GHG emissions in small properties are relatively high. The most efficient way of reversing deforestation in settlement projects is to focus efforts on intensifying ranching on already cleared areas by increasing the number of head of cattle per hectare. Adoption of improved ranching practices would reduce the currently high rate of deforestation in settlement projects.

In addition to focusing efforts to reduce deforestation on agricultural settlement projects, there's a need for data (which is currently unavailable) on deforestation by owners of private properties larger than 100 hectares. Such data is critical for defining priority actions for reducing deforestation among this group. Another essential action is the acceleration of defining the tenure status of public lands that are either under classification or unclassified. Such lands cover 24.7% of the state's territory (as shown in Table 1), and they could have a significant impact on deforestation if their status remains undefined.

Table 2 on the following page provides information on the main socio-economic groups in rural areas of Acre, including population sizes, the respective areas they occupy, the proportion of those areas that still have their original forest cover, deforestation rates and opportunity costs for avoiding carbon emissions.



**RURAL SETTLEMENT
PROJECTS IN ACRE
INCLUDE AROUND
21,000
SMALLHOLDER
FAMILIES**

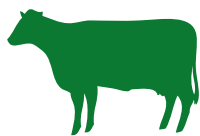
Table 2. Population size, total area occupied, forested area, deforestation and opportunity costs for avoiding greenhouse gas emissions associated with the principal socio-economic groups inhabiting rural areas of Acre.

<i>Socio-economic groups</i>	<i>Number of families or rural properties (2006)</i>	<i>Total area occupied (hectares)</i>	<i>Forested area (hectares, 2007)</i>	<i>Number of families or rural properties (2006)</i>	<i>Number of families or rural properties (2006)</i>
Indigenous families	+/- 2,000	2,390 million (30 areas)	2,365 million (99%)	0.06	\$0.10
Other 'traditional' settler families	+/- 6,000	2,678 million (5 areas)	2,605 million (97.2%)	0.05	\$2.16
Families in settlement projects (<100 ha)	21,040	1,995 million (108 areas)	1,177 million (59%)	1.95	\$2.21
Private properties (> 100 ha)	+/- 2,000	4,781 million	3,203 million (67%)	Yet to be determined	\$1.66
Other public lands*	--	4,054 million	--	Yet to be determined	\$1.22
Total/Average	±31.040	11,844 million	9,350 million	--	\$1.70

* Public lands under classification or unclassified.

Sources: Meneses-Filho et al., 2009; IBGE, 2006; UCEGEO, unpublished data; Alencar et al., 2012.





85.2%

**OF ALL DEFORESTED
AREAS IN THE STATE
ARE COVERED
BY PASTURES**

Deforestation drivers

As explained above, the main factor driving deforestation in Acre is cattle ranching. Data for 2010 show that 85.2% of all the cleared forest land in the state is covered by pastures (Costa et al., 2012). Most of these pastures are degraded, which usually compels landowners to clear new areas to maintain or expand their production. In addition, secondary forests cover 10.4% of cleared areas and agriculture covers 4% (Costa et al., 2012). Deforestation is also associated with ease of access and, as a result, the presence of roads or highways is a strong determinant.

During 2012, 79.4% of the forests cleared in Acre consisted of plots under 6 hectares in size, and 13.5% were plots between 6 and 10 hectares. Data supplied by the Central Geoprocessing and Remote Sensing Unit (UCEGEO) show that the overwhelming majority of deforestation in the state consists of small areas. While the data have not been cross-referenced as yet with information on land tenure, they suggest that the greatest pressure for deforestation originates from small and medium-sized properties.

As in the Brazilian Legal Amazon as a whole, deforestation rates in Acre declined substantially in recent years. The last spike of deforestation registered in the state was in 2003, while for the Brazilian Amazon it was in 2004 (Figure 2). In Acre, there was a sharp decline from 2004 to 2007. But from 2010 to 2012 deforestation in the state has increased constantly, while it's continued falling in the rest of the Brazilian Amazon Legal Amazon (Figure 2). Even though the recent increase is well below the spike in 2003, it merits serious concern.

A preliminary study conducted by the state government raised the hypothesis that the prospect of changes to the country's main environmental legislation, the Brazilian Forest Law, which began in 2010 and was confirmed in 2012, contributed to this increase. Nevertheless, a more in-depth analysis of the recent increase in deforestation in Acre is needed to identify its causes and define effective responses.



ACRE'S PUBLIC POLICIES



Since 1999, Acre has embarked on a series of policies designed to foster sustainable development and reduce deforestation, long before the other eight states that comprise the Brazilian Legal Amazon. These policies, which could explain why deforestation began decreasing in Acre earlier than elsewhere in the region, originated in the movements of rubber tappers, Brazil nut gatherers and indigenous peoples that took place during the 1970s and 80s. These ‘forest peoples’, as they came to be called, organised themselves to claim their rights and to combat deforestation caused by enormous increases in land speculation and expansion of cattle ranching associated with the extension of the BR-364 Federal Highway into the state.

The assassination of a major leader in the grassroots movements against deforestation, rubber tapper Chico Mendes, attracted national and global outrage, inducing the federal government to recognise and officially create the first extractive reserves (referred to in Portuguese by the acronym RESEX). These are a special category of protected area designed to protect the land rights of populations dependent on harvesting of natural resources such as rubber and Brazil nut, fostering the sustainable use and conservation of the environment while valuing the traditional knowledge of these populations. Building on the model created in Acre, by 2010 65 RESEX had been established in the Brazilian Amazon, covering a total area over 133,000 sq km.

When it made the decision to invest in public policies to foster sustainable development in 1999, the Acre government based its actions on the concept of ‘Florestania’ (a combination of the Portuguese words Floresta-forest and Cidadania-citizenship), which seeks to promote economic growth, social inclusion and environmental conservation. It’s based on six principles:

- Wise and responsible use of natural resources
- Recognition of the knowledge and rights of forest peoples
- Reinforcing identity and respect for cultural diversity, combating poverty and improving quality of life
- Strengthening a sustainable, forest-based economy
- Transparency and social participation in the formulation and implementation of public policies
- Fair and equal sharing of economic and social benefits stemming from public policies for sustainable development.

Acre now has a broad set of public policies designed to promote forest conservation, valuation and restoration, six of which are strongly associated with the SISA and ISA Carbon Programme and, accordingly, are described in greater detail in the following sections.

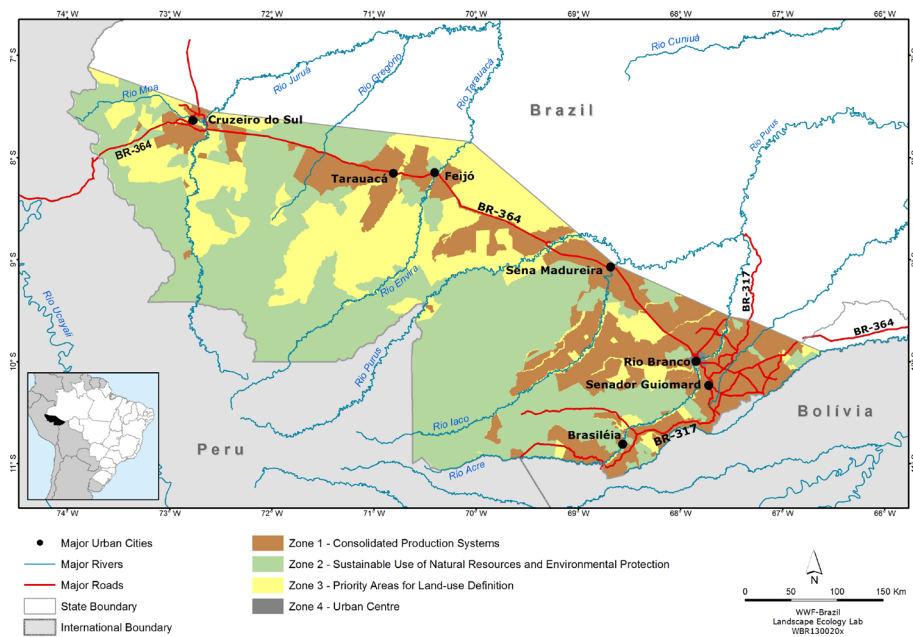
Ecological-Economic Zoning

Ecological-Economic Zoning (ZEE) is a basic zoning instrument that should be carried out by all states in the Brazilian Legal Amazon. Acre was the first state to

achieve full implementation of this instrument. The Acre ZEE was conducted in two stages and involved broad popular participation. Thanks to this participatory process, the government of Acre views the ZEE as a large-scale social pact involving land-use management in the state.

The second stage of the ZEE was concluded in 2006, after unprecedented consultation with various sectors of society in all of the state's municipalities (Government of Acre, 2006). The ZEE identifies specific areas for conservation and environmental protection, and others suitable for forest management, and it's

Figure 3
Land management map of Acre, defining the four main land-use planning zones



provided an important foundation for the implementation of state policies. The state land-use management map that was generated during the second stage of the ZEE defined four zones (Figure 3): Consolidated Production Systems (Zone 1 covering 24.7% of the state); Sustainable Use of Natural Resources and Environmental Protection (Zone 2, 49.0%); Priority Areas for Land-use Definition (Zone 3, 26.2%); and Urban Centres (Zone 4, 0.2%).

State protected area system

The Acre State System of Protected Natural Areas (SEANP) was established in 2008 and includes federal protected areas and state and municipal conservation units; indigenous lands; and, on private properties, mandatory legal reserves and areas of permanent protection. Its main purpose is to coordinate the management of protected areas and establish guidelines for the monitoring and use of natural resources in these areas. In 2004 the Acre government began to invest in the expansion of state conservation units, which increased in coverage from 47,000 hectares to 1.2 million hectares (Onaga & Drumond, 2009; Government of Acre, 2011a).

With this expansion, almost half of the state (45.7%) is covered by protected areas, including indigenous lands (Figure 1). Table 3 shows the distribution of the various categories of protected areas.

Table 3. Number, jurisdiction, area in hectares and percentages of Acre's territory, according to protected area categories

Category	Number	Jurisdiction	Area (ha)	% Territory
Indigenous lands	28	Federal	2,390,112	14.6
Conservation units under strict protection	2	Federal	868,466	5.3
	1	Estadual	695,303	4.2
Conservation units under sustainable use	8	Federal	3,022,453	18.4
	8	Federal state/municipal	521,614	3.2
TOTAL	47		7,497,948	45.7

Source: Government of Acre, 2011a.

From 2000 to 2008, the total area of conservation units in Acre increased by 112.7% and today they occupy 31.1% of the state territory. In turn, indigenous lands currently occupy 14.6% of the state, but this figure is expected to increase with the establishment of new indigenous lands. Most of the area under protection in the state (83.8%) is under federal jurisdiction, corresponding to 38.3% of the state's total area.

Similar to the situation in other Amazonian states, in Acre most protected areas – even those under strict protection that, theoretically, should not be inhabited – are occupied by traditional communities comprised of fishermen, hunters, harvesters of forest products, small-scale farmers and indigenous peoples. In indigenous lands, for example, there are over 17,000 people belonging to 14 different ethnic groups. As a result, reconciling social development with nature conservation is absolutely essential in Acre, and protected areas have a crucial role to play in maintaining that equilibrium.

Since 1999, the state government and the federal Chico Mendes Institute for Biodiversity Conservation (ICMbio) have invested considerable resources in preparing management plans for both state and federal conservation units. By the end of 2012, 13 of the 19 conservation units in Acre, including six state-run areas, had established administrative councils. Preparing management plans and establishing administrative councils are basic steps for the implementation and sound management of protected areas.

Monitoring

The Acre government has set up an effective system for monitoring forest vegetation cover and burning in the state. This system is managed by the Central Geoprocessing and Remote Sensing Unit (UCEGEO) making use of Landsat satellite images. Data is available for as far back as 1988. UCEGEO's mission is to store and manage data, keep it up-to-date and make it available to diverse governmental agencies and the general public.

The monitoring methodology is similar to that used by INPE to monitor Amazon forest cover. But UCEGEO uses a finer minimum resolution of 0.54 hectares, whereas the PRODES project of INPE only detects areas greater than or equal to 6.5 hectares.



**ALMOST
80%
OF THE STATE'S
DEFORESTATION
TAKES PLACE IN
AREAS UNDER
6 HECTARES**

This enhanced resolution is essential in Acre because, as mentioned above, almost 80% of the deforestation in the state takes place in areas under 6 hectares.

In 2013, UCEGEO is expected to carry out monitoring of degraded areas as well as deforested areas. With financing from the Amazon Fund,⁴ the unit is now refining its methodology for monitoring and evaluating the impacts of forest fires by making use of high-resolution air-transported laser images and other information on burned areas. Another important UCEGEO action has been the geo-referencing of almost 50% of the properties in settlement project areas, which are precisely those that have the state's highest deforestation rates.

Public, private and community forest management

Acre is a pioneer in the field of public forest concessions in Brazil. The state government conducts forest management directly, assuming responsibility for harvesting forest resources and channelling the resulting revenues to communities located in the state forests and to funds for maintaining these areas. The first trial of this kind of forest management took place in 2005 in the Antimary State Forest. Here the state government harvests and auctions timber. A new forest concession project is currently being prepared for the Mogno State Forest.

This focus by the Acre government on managing public forests began in 1999, when the federal government began to transfer responsibility for managing public forests to the states. Since then, the Acre government has been establishing norms governing the harvesting of forest resources. It has declared that all fines levied on illegal logging and deforestation must be invested in forest restoration. These fines are deposited in a Forest Fund established in 2001, which by 2012 had accumulated over R\$2.7 million.

Boosting the forest economy

The Acre government has implemented a series of policies to stimulate sustainable use of forest resources such as natural rubber latex, Brazil nuts and timber. In the case of latex, the government established a minimum price for rubber and invested in establishing a factory for manufacturing condoms ('Natex'), the first of its kind using latex harvested from native rubber trees. In 2008 the factory processed 103,000 litres of latex supplied by over 400 rubber tappers. Nevertheless, the state's rubber production fell between 2002 and 2010 (Table 4). Sector experts believe that even with the subsidised prices, rubber tapping is becoming less attractive in comparison with other activities such as farming and cattle ranching.

But in the case of Brazil nuts, production has been increasing since 2002 and Acre is currently the largest Brazilian producer, accounting for 28% of national production according to data of the Brazilian Geography and Statistics Institute (IBGE). Since 2004, Brazil nuts have been the highest valued non-timber forest product. Production is over 10,000 tonnes a year and represents the main source of income for more than 15,000 families. Acre currently represents the biggest national export centre for processing Brazil nuts and was responsible for 63% of the volume of processed nuts in 2005 (Silva, 2010). The state government invested in the installation of two plants to enhance local processing capacity. From 2002 to 2010,

4 Established in 2008 to support deforestation reduction initiatives and promote forest conservation, especially in the Brazilian Amazon, the Amazon Fund is planned to receive US\$1 billion in financing from the Norwegian government, while the German government has contributed over US\$20 million raised from taxes on auctions of GHG emissions permits.





1,239
FAMILIES HAD
REGISTERED IN
THE SUSTAINABLE
PROPERTY
CERTIFICATION
PROGRAMME BY
MAY 2013

Brazil nut production increased by 88% (Table 4), and during 2002-07 the gross turnover value increased by 316% (Government of Acre, 2009a).

The state government has also supported the certification of the first community-managed timber production project in the Amazon region, the Chico Mendes Agro-extractive Project, established in 2002. And the government has invested in a timber flooring factory, six furniture manufacturers and a plywood manufacturing company. Currently 60% of the state's roundwood production is certified by systems such as that of the Forest Stewardship Council (FSC), and over half originates from areas under government-approved forest management plans. Yet the volume of roundwood being produced and commercialised dropped steadily between 2005 and 2010. This may not imply a drop in the importance of timber in the Acre economy, since today many businesses are dedicated to adding value to wood products, such as manufacturers of furniture and flooring. But specific data is lacking to monitor economic trends in this sector.

Table 4 below shows the evolution of latex, Brazil nut and timber production in Acre from 2002 to 2010.

Table 4. Production of major forest products in the state of Acre

Year	Coagulated rubber latex (tonnes)	Brazil nuts (tonnes)	Timber (m3)
2002	1,598	6,674	287,306
2003	1,489	5,661	317,190
2004	1,710	5,859	353,861
2005	2,073	11,142	483,441
2006	1,407	10,217	397,414
2007	1,226	10,378	326,138
2008	845	11,521	152,668
2009	533	10,313	120,566
2010	507	12,362	121,947

Fontes: governo do Acre, 2008, 2009a, 2011a.

Sustainable Property Certification Programme

The Sustainable Property Certification Programme was established in 2008 to provide incentives for smallholders of up to 150 hectares to adopt socio-environmental practices designed to conserve and increase forest coverage, while reducing deforestation, fire and soil degradation.

This is a voluntary programme, and participants gradually adopt sustainable land-use practices over a period of nine years. In compensation they receive: (i) bonus payments of R\$500-600 per year (according to the degree of progress in adoption), (ii) rural technical assistance and extension services to boost agroforestry production and commercialisation (ATER); and (iii) preferential access to official lines of financing. According to the State Department of Extension in Agroforestry and Family-based Production (SEAPROF), 1,239 families had registered with the programme by May 2013. Certification of Sustainable Properties is one of the types of incentive schemes that come under the aegis of the ISA Carbon Programme.

THE ISA CARBON PROGRAMME

The Environmental Services Incentives System (SISA), which includes the ISA Carbon Programme, is part of a larger policy for valuing environmental assets in the state. According to the government of Acre (2011b), this policy encompasses six programmes:



- Incentives for environmental services
- Regularisation of environmental liabilities
- Certification of sustainable properties
- Public, private and community forest management
- Reforestation
- Restoration of degraded areas.

These policies are aimed at establishing a low-carbon economy that will improve quality of life while enhancing environmental and economic sustainability. Part of the funds generated by the ISA Carbon Programme will be used to support the other programmes included in the policy for valuing environmental assets. This policy is also linked to federal policies such as the Sustainable Amazon Plan (PAS), the Amazon Deforestation Prevention and Control Plan (PPCDAM) and the National Climate Change Plan (PNMC). As a result, the ISA Carbon Programme is part of a larger policy framework designed to promote sustainable development, conservation, and increased valuation and restoration of forests in Acre.

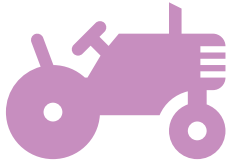
The SISA was established to value and stimulate Acre's major environmental services. To that end, five related programmes have been identified for inclusion in the system (Moutinho et al., 2012):

- Forest carbon (ISA Carbono)
- Socio-biodiversity
- Water resources
- Climate regulation
- Valuation of cultures and traditions.

The first of the programmes to be designed and implemented was the ISA Carbon Programme which aims to achieve progressive, consistent and long-term reductions in greenhouse gas emissions from deforestation and forest degradation (Government of Acre, 2010a). As part of a more in-depth analysis of the programme, six of its main aspects are described below: scope, goal and baselines, sub-programmes and projects, financing mechanisms, consultative processes, and governance.

Scope

The scope of the ISA Carbon Programme is highly ambitious: it encompasses the entire state of Acre (164,221 sq km), including federal and state protected areas, federal and state settlement projects and private properties. In addition to its broad geographic scope, the programme seeks to benefit over 30,000 rural properties, with a special focus on the following major socio-economic groups:



IN 2006 THERE WERE
29,488
RURAL PROPERTIES
IN ACRE

- settlers and rural property owners who reduce their pressure on the forests thereby reducing emissions; and
- indigenous peoples and other traditional populations who have historically conserved the forests and maintained environmental services.

According to the IBGE statistics, in 2006 there were 29,488 rural properties in Acre. This means that the ISA Carbon Programme intends to benefit practically all the rural properties in the state.

Goal and baselines

Brazil has committed itself to reducing deforestation in the Amazon by 80% by 2020, as compared to the average rate of deforestation – or baseline – registered during 1996 to 2005. This target was established in the Brazilian National Climate Change Plan (Act 12.187/2009 and Decree 7.390/2010), and achieving it will have an enormous impact in reducing Brazil's greenhouse gas emissions. The Acre government also committed itself to reducing deforestation by 80% by 2020, using an identical baseline for deforestation within the state (Government of Acre, 2010b).

During 1996 to 2005, Acre's average rate of deforestation was 602 sq km per year. To achieve its target, the state needs to reduce deforestation to an annual rate of 120 sq km per year by 2020. By 2012, Acre had already achieved 61% of this target. The recent rise in deforestation between 2010 and 2012, referred to above – tentatively attributed to the changes in Brazil's Forest Code in 2012 – raises concern. But the reduction in deforestation rates continues to follow a trajectory towards achieving the target set for 2020.

In the process of establishing the Amazon Fund, the Brazilian government proposed a baseline for deforestation in the Amazon region, defined as the average rate for the preceding decade, which would be adjusted every five years (Government of Brazil, 2008). According to this methodology, Acre reduced its emissions by 97 million tonnes of CO₂ between 2006 and 2012. This calculation is based on (i) the reduction in deforestation during that period, which totalled 215,200 hectares in relation to the baseline; and (ii) an average stock of 123 tonnes of carbon (or 451 tonnes of CO₂) per hectare (Government of Acre, 2010b). Achieving its target means that Acre will reduce emissions by a total of 153Mt CO₂ between 2006 and 2020 (Figure 4A). This estimate is a little below a 2008 estimate of 164Mt of CO₂ to be reduced by 2020 (Government of Acre, 2010b). The difference can be attributed to the unexpected increase in deforestation registered during 2010-12 (Figure 2).

Together with the other Amazonian states, the Acre government is proposing that the methodology for calculating the baseline should be changed, and that the original baseline (the average rate of deforestation from 1996 to 2005) should be maintained through to 2020 without adjustments every five years (Ludovino Lopes Advogados, 2012). This change would significantly increase emission reduction figures for Acre, which would reach a total of 251Mt of CO₂ from 2006 to 2020 assuming that the state achieves its target. The adoption of this change in the methodology for defining the baseline will depend on the establishment of a compatible REDD+ strategy at the national level, which is currently under development.

Figure 4
 Deforestation baseline and reduction target by 2020 for Acre state, based on current deforestation data to 2012 (source: www.inpe.br), and projected deforestation that would enable the target to be achieved by 2020. A: Application of three baselines for the period 2006-20, according to the methodology defined by the Government of Brazil (2008); B: Application of a single baseline for the period 2006-20, according to the position defended by the states in the Brazilian Amazon.



Sub-programmes and projects

To minimise the risks of leakage, impermanence and double counting of emission reductions, the ISA Carbon Programme should be linked to a national REDD+ strategy and contribute to achieving the national emission reduction target involving deforestation in the Brazilian Amazon. Within the limits of Acre, the programme minimises these risks by covering the entire state. Now, through sub-programmes and projects, the programme focus is shifting to smaller scales. This approach is what distinguishes the ISA Carbon Programme from the vast majority of the REDD+ initiatives that have been documented worldwide, which usually begin with projects in specific localities, without a system to integrate them within the jurisdiction as a whole (EPRI, 2012).

In the original design of the ISA Carbon Programme, the first sub-programmes were intended to focus on a limited number of priority areas,⁵ where the cost-benefit ratio would be maximised in terms of forest conservation or future reductions in deforestation. Later, the Acre government decided to abandon this approach and, instead of pre-defining the areas for carrying out actions, opted for more flexible planning that could respond to demands that emerged spontaneously. As a result, the programme will be designed in a hierarchical system of sub-programmes and projects that's still under definition (Government of Acre, 2012a).



IN THE ORIGINAL DESIGN OF THE ISA CARBON PROGRAMME, SUB-PROGRAMMES WERE ENVISIONED TO FOCUS ON PRIORITY AREAS

⁵ To define priority areas in which the programme was initially intended to focus, a model based on 12 risk-related variables was used to map zones under high risk of deforestation by 2020. High-risk zones with already fragmented forest vegetation were eliminated, and the limits of the remaining zones were adjusted to incorporate land-use categories (such as settlement projects and protected areas). This methodology permitted provisional identification of six priority areas, most of which were located along the route of the BR-364 Federal Highway, recently opened to year-round traffic. These areas correspond to just 35% of the total area of the state of Acre (5.8 million hectares) but encompassed about 50% of the areas that are at high risk of being deforested (Soares Filho et al., 2006). Only 4% of those areas have already been deforested, which suggests huge potential benefits in terms of conserving forest carbon stocks. At the same time, population densities in these areas are low, which implies reduced implementation costs. The priority areas identified for the initial implementation of the programme thus offered potentially high environmental benefits at low costs.

**GENERALLY
SPEAKING, THE
ISAS ARE DEFINED
AS INTERVENTIONS
THAT MOTIVATE
BENEFICIARIES
TO MAINTAIN
AND INCREASE
ENVIRONMENTAL
SERVICES**

The sub-programmes may be based on themes (for example, indigenous lands, lands for cattle ranching, or other themes related to land use), geographic aspects (for example, the area under influence of the BR-364 Federal Highway in the Purus River basin) or a combination of the two (for example, settlement projects in the upper Acre River basin). Projects will have a localised focus within sub-programmes and may be implemented through the direct involvement of governmental agencies or, in the case of special projects, under the management of private agents. Public-private partnerships are also envisioned under the aegis of the recently established Environmental Services Development Company (CDSA). Currently Acre has one such special REDD+ project, called the Purus Project, which is currently being registered in the SISA. The project covers 34,702 hectares and has been proposed by the Moura & Rosa Empreendimentos Imobiliários Ltda, a real estate development company that owns the area, and CarbonCo LLC, which is responsible for obtaining certification and the financing for the project (McFarland, 2012). In addition, other REDD+ projects are currently under negotiation with the state government.

Generally speaking, the ISAs are defined as interventions that motivate beneficiaries to maintain and increase environmental services. In its initial design, the ISA Carbon Programme provided highly detailed definitions for Incentives for Environmental Services (ISA). Each one was directed at a certain segment of the rural population. As originally conceived, the ISAs could include financing for community organisation initiatives; technical assistance for preparing management plans at the level of municipalities, communities and individual private properties; and rural extension services designed to increase the value, quantity and sustainability of agricultural and forest-based products (Government of Acre, 2009b).

Under the current programme design, the ISAs are still defined as interventions that encourage the beneficiaries to maintain and increase environmental services. To permit greater flexibility and adaptation to local conditions, the precise nature of the ISAs will be determined in accordance with each sub-programme and/or project. Further details about the ISA mechanisms to be applied will be defined by regulations associated with Law 2.308.

ISAs will be established especially to strengthen three aspects related to reducing deforestation and their associated emissions:

- forest protection
- forest management and forest product processing and marketing
- intensification of agriculture, ranching, silviculture and agroforestry activities associated with the restoration of degraded areas, so as to value forests and reduce pressure for deforestation of new areas.

As an example, one of the incentives defined by the ISA Carbon Programme, the certification of rural properties, already exists and is especially appropriate for smallholders in settlement projects. As explained above, when smallholders agree to adopt sustainable practices, they receive a bonus payment, technical assistance and preferential access to credit.

But the exact nature of the ISAs will depend on the geographic location of each project and the opportunity for public agencies to leverage existing programmes in rural extension, health and education. As a strategy to assure its efficacy, the SISA does not anticipate establishing new forms of incentives for its beneficiaries, but rather to make best use of governmental programmes already in place or that will be established independently.



THE OPPORTUNITY
COST FOR AVOIDING
DEFORESTATION IN
THE VARIOUS LAND
USE CATEGORIES IN
ACRE VARY FROM

US\$0.10
PER tCO₂ TO
US\$2.21
PER tCO₂

The need for flexibility in the design of ISAs is revealed by a simple comparison of the opportunity costs associated with avoiding deforestation in different land-use units in Acre. These costs vary from US\$0.10/tCO₂ on indigenous lands, usually located in remote areas, to as much as US\$2.16 2.21/tCO₂ in extractive reserves and settlement projects, respectively (see Table 2; Alencar et al., 2012). Extractive reserves and settlement projects tend to be located in more readily accessible areas, but costs of providing extension services and other benefits tend to be relatively high in the case of individual properties that are widely scattered (extractive reserves) or relatively small (settlement projects). The data on opportunity costs represents average figures for the state but varies according to the accessibility of each location. Such considerations show how important it is to develop the ISAs locally, in accordance with specific geographic conditions and the needs and demands of the population living in each project area.

Financing mechanisms

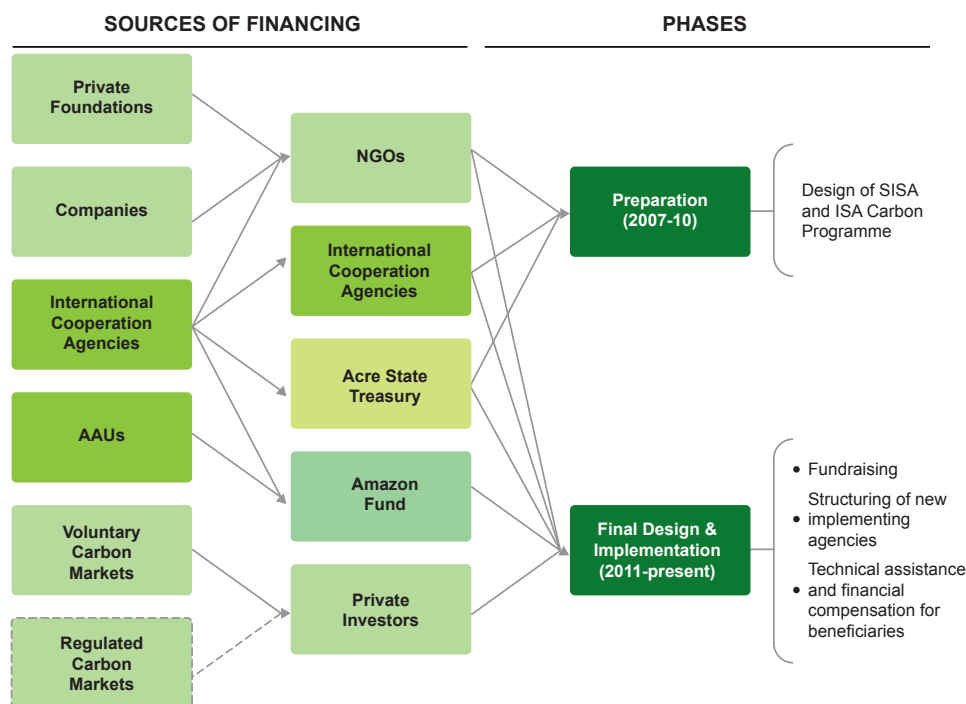
There are various current and potential sources of financing for the two main phases of the ISA-Carbon Programme, as illustrated in Figure 5. The initial preparation of the SISA and the ISA-Carbon Programme, which culminated in their establishment with the approval of Law 2.308/2010, was financed directly from the Acre state treasury, international cooperation agencies and Brazilian NGOs. International financing during this phase totalled approximately R\$240,000 and came from the German Cooperation Agency (GIZ), WWF and the International Union for the Conservation of Nature (IUCN).

The second phase consists of the final design and the implementation of the SISA and the ISA Carbon Programme. At present, the largest source of funding is the Amazon Fund, which has provided a grant of R\$60 million to the Acre government over a three-year period starting in 2010. Another international source is the partnership between WWF and the UK's entertainment and communications company Sky, which has provided approximately R\$3.8 million to the Acre government over a three-year period starting in 2009. The support provided by this partnership will continue until 2016, and the funds donated by Sky's customers are being currently matched by the company.

In December 2012, the Acre government carried out the first state-level transaction for reducing emissions from deforestation, through an agreement with the German Development Bank (KfW). Based on the reduced emissions that the state had already accomplished, the Bank offered financing of €16 million over a four-year period, equivalent to a payment for reducing four million tonnes of CO₂ emissions at a rate of US\$5 per tonne. Instead of compensating emissions that failed to be reduced by industrialised countries, the KfW financing stems from a tax levied by the German government on transactions carried out under the European Union's Emissions Trading Scheme (ETS). These transactions involve tradeable units corresponding to one tonne of CO₂ emissions, which are known as Assigned Amount Units (AAUs). Part of the tax is devoted to supporting efforts by developing countries to reduce their greenhouse gas emissions.

As a result, by the end of 2012 the Acre government had managed to attract approximately R\$107.7 million in external financing for its ISA Carbon Programme.

Figure 5
Actual and potential sources of financing for the main stages of the ISA Carbon Programme. The box corresponding to the potential source (Official carbon markets) has a dotted line edge



Regarding future programme financing prospects, the Acre government believes that an increasing proportion of programme financing will come from carbon markets, initially voluntary and eventually regulated. Currently the scale of the voluntary carbon market is quite small: in 2011, a total of 87 million tonnes of CO₂e were traded worldwide, of which a mere 7.7 million tonnes involved REDD+ projects – 60% less than the volume registered in 2010 (Kossoy & Guigon, 2012). But the Acre government firmly believes in the future expansion of these markets. By the end of 2012, four REDD+ projects potentially aimed at the voluntary carbon market were in different stages of development in the state. Altogether, those projects could represent up to 37 million tonnes of CO₂ in reduced emissions over the next 10 years.

Another potential source of financing lies in the new, official carbon markets that operate outside the scope of the United Nations Framework Convention on Climate Change (UNFCCC). For example, the California state government’s new cap-and-trade programme⁶ offers future opportunities for trading carbon credits originating from states and provinces of various countries. A Memorandum of Understanding between the states of California in the United States, Acre in Brazil, and Chiapas in Mexico was signed in November 2010, defining the legal and technical basis for a programme to be launched by the three states (Alencar et al., 2012).



BY THE END OF 2012, THE ACRE GOVERNMENT HAD ATTRACTED R\$107.7 IN EXTERNAL FINANCING FOR ITS ISA CARBON PROGRAMME

⁶ The term cap-and-trade refers to a market mechanism that sets limits to the volumes of greenhouse gas emissions a given sector or group is allowed to emit. Based on the established limits, emission permits are issued to the participants and each one is obliged to find its own way of complying. In the case of REDD+ schemes, market transactions involve the sale of emission reductions (for example, by governments or other agencies that reduce deforestation) and the purchase of offsets (by industries that failed to keep their emissions within the limits).

California's new climate policy (AB32), scheduled to come into effect in 2013, will permit regulated entities (for example coal-burning power companies) to allocate a small part (2% by 2015, increasing to 4% by 2020) of their mandatory emission reductions to international offsets (ROW, 2013). It's been estimated that the level of international offsets (including REDD+ initiatives) absorbed by California, if the inclusion of compensation for such initiatives is approved, could reach 97.7 million tonnes of CO₂e during 2013-20 (Kossov & Guigon, 2012).

In addition to its active participation in the dialogue with California, the Acre government is seeking opportunities within a potential Brazilian carbon market involving other states, especially São Paulo and Rio de Janeiro. São Paulo has adopted significant emission reduction targets to be achieved by 2020, mainly involving its industrial sectors. In 2012, the governments of Acre and São Paulo signed a memorandum of understanding for the implementation of a cap-and-trade system, in which the emission reduction generated by Acre's ISA Carbon Programme could offset industrial emissions in São Paulo. A similar memorandum has also been signed between the state governments of Acre and Rio de Janeiro and the National Social and Economic Development Bank (BNDES), with the possibility of attracting other states. The Acre government is also planning to register its emission reductions in the Brazilian stock market, through the São Paulo Stock Exchange (BM&FBOVESPA).

In short, prospects for financing the ISA Carbon Programme are promising, not only from public sources but through voluntary carbon markets as well. But the rules for emitting carbon credits at the state level, and the possible trading of these credits in regulated markets, depend on the definition of a national REDD+ strategy, which should strive to incorporate and be compatible with the REDD+ policies, programmes and projects that already exist in several states (Government of Brazil, 2012).

Consultative processes

The consultative processes carried out during the preparation of the initial design document defining the ISA Carbon Programme were extremely broad. Consultations were made from September 2009 to April 2010 with representatives of three target audiences:

- representatives of local civil society organisations, who were informed about the programme's preparation in a series of five meetings;
- representatives of the main segments of Acre's rural population targeted by the programme, namely, smallholders, traditional forest-based producers and indigenous groups, who participated in three 3-day workshops, which generated 357 recommendations;
- representatives of national and international organisations with experience in REDD+, who participated in a technical seminar and were invited to submit their recommendations in written form.

Various representatives of Acre's civil society interviewed as part of this study characterised these consultations as 'unprecedented' in scope. In mid-2013, the Acre government plans to publish a detailed report providing responses to the recommendations generated during the consultations, and explaining how some of these recommendations were eventually incorporated into the provisions of Law 2.308 that established the ISA Carbon Programme and the SISA – and the subsequent regulations required for their implementation. Table 5 below provides a summary of the consultations held during the design phase.



Table 5. The results, processes and participation associated with the two main products prepared during the design of the ISA Carbon Programme and the SISA.

Result	Process	Representatives/ organisations involved
Initial design document defining technical aspects of the ISA Carbon Programme (Government of Acre, 2009b)	5 meetings with local civil society groups to inform of preparations for the programme	40 people representing local organisations
	3 three-day workshops to train programme beneficiary groups and obtain their recommendations	80 participants representing target beneficiary groups, generating 357 recommendations
	Request for technical remarks and recommendations sent to 72 national and international organisations	3 written contributions received via e-mail
	3-day technical seminar to gather recommendations and comments	32 representatives of 10 national and international organisations and 7 governmental departments
Law 2.308 defining SISA governance (Government Acre, 2010a)	2 meetings to present and receive comments	42 representatives of the State Forests Council; the State Environment, Science and Technology Council; and the State Forest and Rural Development Council
	5 sector-based meetings with large and small scale farmers and producers, federal institutions and other governmental bodies.	60 participants
	2-day debate in the State Legislative Assembly	Law enacted

Source: governo do Acre, 2012b.

After receiving the recommendations on the ISA Carbon Programme, the Acre government proceeded to design the institutional framework of a much larger system, the SISA, which aims to value a wide range of environmental services and not just forest carbon alone. The government presented a draft bill the SISA's institutional governance model at a joint meeting of three consultative councils for environment, forests and rural development. The draft bill was also distributed to local national and international organisations with requests for their comments. At a second meeting of the three councils, the government presented the adjustments it had made to the draft bill for further commentary. On 22 October 2010, the government submitted a final version of the bill to the State Legislature. Following a two-day debate, the Legislature approved Law 2.308 by a large majority.

Some of the 357 recommendations that were received during the process of designing the ISA Carbon Programme were duly incorporated into Law 2.308, and others to the regulations that defined the law in greater detail. However, various recommendations involved specific aspects of the ISA Carbon Programme that the government had rejected, such as an initial programme focus on previously defined priority areas, or the prior definition of the Incentives for Environmental Services (ISAs) according to the socio-economic group involved. During the process of regulating the programme in 2011, the government opted for a more flexible approach in which sub-programmes and projects would be designed to meet local demands, rather than predefining the locations in which the programme would operate and the incentives it would provide.

Governance

To establish the principles of governance for the ISA Carbon programme, the Acre government commissioned a study of various possible institutional models (Ludovino Lopes Advogados, 2010). Based on this study and under the direct management of the Acre government, a proposal was prepared defining the governance system of the SISA. This proposal included institutional arrangements, the legal framework, safeguards and social monitoring. The governance system eventually selected (as shown in Figure 6) involves various entities that are directly responsible for the actions associated with the SISA's functioning. Their specific roles and responsibilities are shown in Table 6 on the following page.

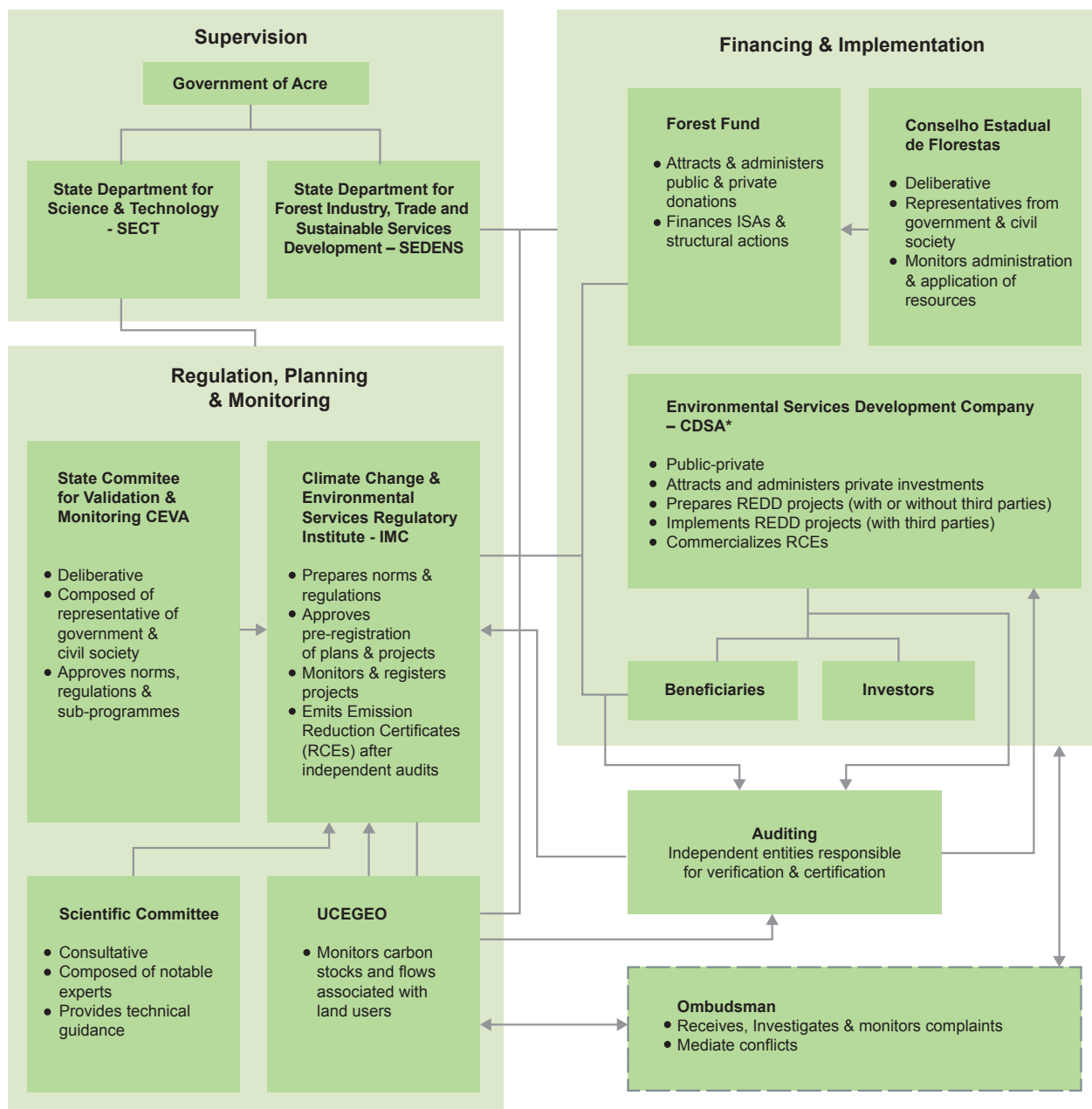


Figure 6 • The SISA's current governance scheme describing relevant functions as determined by the Law 2.308 and subsequent regulations as of December 2012. Existing entities are indicated by solid edges and those to be established with dotted edges. Unbroken lines indicate supervisory functions and arrows indicate exchanges or submission of reports or information. Sources: Law 2.308 (Government of Acre, 2010a); Decrees 1.471/2011, 4.511/2011, and 4.301/2012; and Government of Acre, 2012a.

Table 6. Functions, actions and entities responsible for the SISA

Function	Action	Responsible entity
1. Regulation, planning and management	Prepares norms and regulations and approves sub-programmes	Climate Change and Environmental Services Regulatory Institute (IMC), supported by the Scientific Committee
	Revises and approves norms, regulations and sub-programmes	State Committee Validation and Monitoring (CEVA)
	Prepares action plans and environmental services projects	Environmental Services Development Company (CDSA) and/or independent agents
	Approves pre-registration and registers plans and projects	IMC
2. Technical monitoring and social monitoring	Carries out social monitoring of the IMC	CEVA
	Provides technical advice to the IMC	Scientific Committee
	Carries out social monitoring of the Forest Fund	State Forests Council
	Receives, analyses and monitors complaints and mediates conflicts	Ombudsman
	Provides official statistics on deforestation in Acre (and CO ₂ emissions associated with sub-programmes and projects)	INPE (PRODES)
	Monitors deforestation in the state for enforcement purposes; in the future will also monitor forest degradation and increased carbon storage through reforestation and forest restoration	UCEGEO

Function	Action	Responsible entity
3. Validation and certification of sub-programmes and projects and of emissions and carbon credits	Validate and certify Emission Reduction Certificates (RCEs) and carbon credits in terms of their fulfilment of social and environmental safeguards	Independent entities and audits (e.g. VCS, CCBA)
	Issues RCEs that can be used to achieve official targets, or that can be converted into carbon credits for market transactions	IMC
	Carries out RCE and carbon credit accounting and registration of credits for market transactions	Markit, under the direction of IMC
4. Project financing and implementation	Attracts financing*	IMC (for donations) together with other state departments; CDSA (for private sector investments)
	Administers grants	Forest Fund*
	Attracts and manage financial resources obtained by selling REDD+ credits	CDSA and/or independent agents approved by the IMC
	Implements projects using financial resources generated by the sale of REDD+ certificates	CDSA and/or independent agents

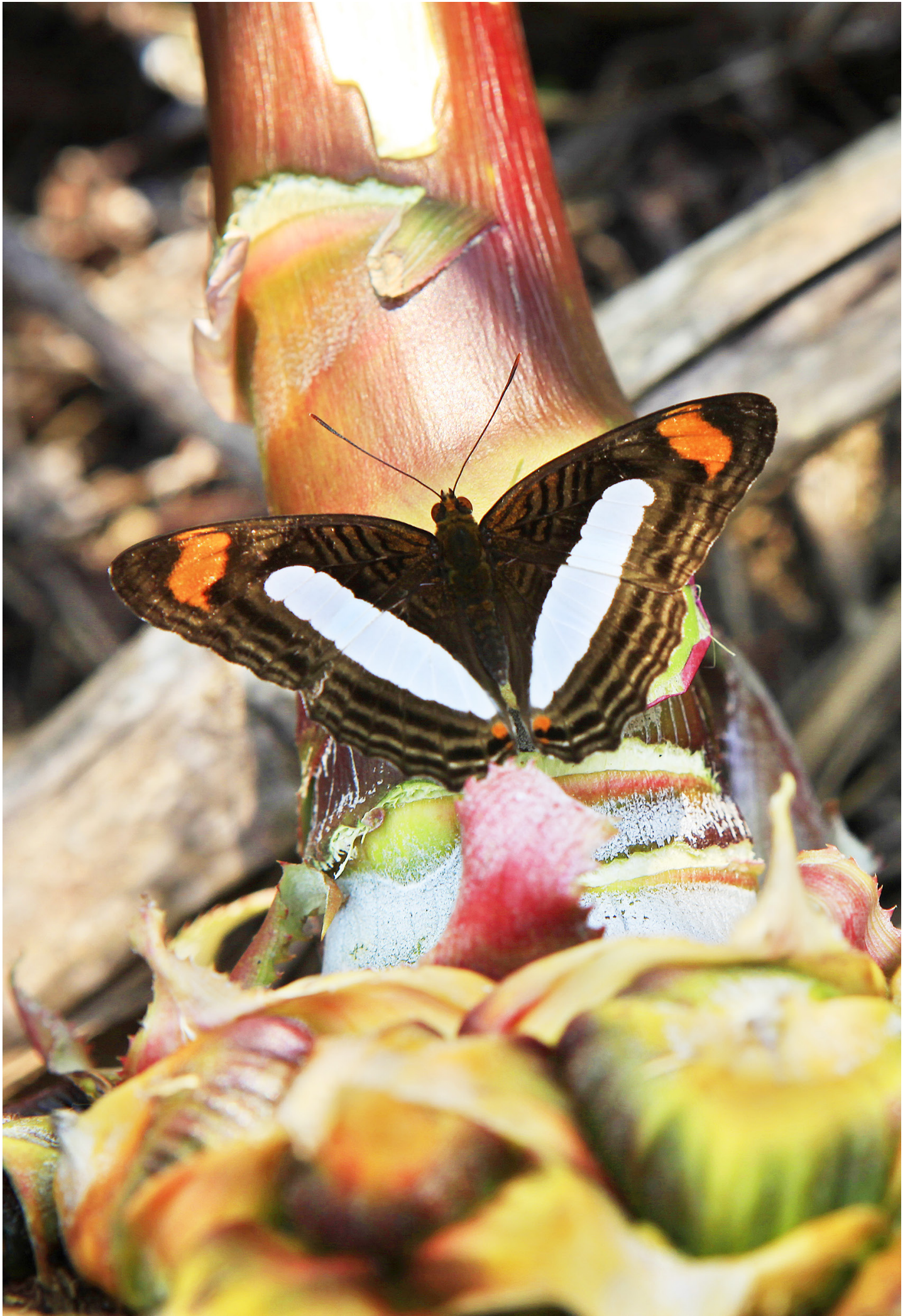
* Currently the Forest Fund administers ISA Carbon Programme funds originating from the Amazon Fund and a portion of the funds obtained from the WWF and Sky partnership.

Sources: Law 2.308 (Government of Acre, 2010a); Decrees 1.471/2011 4.511/2011, 4.301/2012; and Government of Acre, 2012a.

Two new institutions play outstanding roles in managing the ISA Carbon Programme:

- The Climate Change and Environmental Services Regulatory Institute (IMC), established in March 2011, is responsible for the preparation of norms and regulations, the definition of sub-programmes, the approval of plans and projects and the issuing of emission reduction certificates.⁶ It is attached to the State Science and Technology Department (SECT).

⁶ According to the provisions of Decree 10.513/2011, the IMC is also responsible for evaluating, monitoring and mobilising governmental agencies required for the mitigation of and adaptation to the impacts of climate change; conducting periodic inventories of the state's greenhouse gas emissions; developing strategies for the quantification of environmental services, and for furnishing and distributing their benefits; and the coordination of risk management actions associated with environmental services incentives.



- The Environmental Services Development Company (CDSA) is a public-private company in which the government is the majority shareholder. It is attached to the Department for Forest, Industry and Sustainable Services Development (SEDENS). The company is responsible for preparing and executing REDD+ action plans and projects (with or without the participation of private investors), and for negotiating and selling carbon credits.

According to the terms of Law 2.308, the CDSA is also eventually responsible for capturing and managing financial resources from all sources, including those resulting from the sales of carbon credits, to finance plans and projects. At present, all external financing of the ISA Carbon Programme (excluding support from the state budget for personnel) is managed by the Forest Fund, which is also attached to the SEDENS.

There are three other important entities involved in managing the SISA, namely:

- The State Committee for Validation and Monitoring (CEVA) is responsible for the revision and approval of norms, regulations and sub-programmes proposed by the IMC. It is composed of equal representation by government and civil society. The latter are drawn from three existing state councils (environment, forests and rural development).
- The Scientific Committee is made up of renowned scientists and social scientists who provide advisory support to the IMC on technical matters such as forest carbon monitoring, safeguards and distribution of benefits.
- The Ombudsman will be responsible for monitoring eventual complaints and for mediating conflicts.

In addition to the above, other governmental agencies will be mobilised to assure the proper functioning of the system. For example, in the same way that has already taken place with the Sustainable Property Certification Programme, the ISA Carbon Programme draws on the Department of Extension in Agroforestry and Family-based Production (SEAPROF) to provide technical assistance and extension services to farmers and smallholders who have registered their properties. Other governmental programmes are expected to provide services and benefits to populations participating in the ISA Carbon Programme.

PRODES data supplied by the INPE are used by the ISA Carbon Programme to monitor total deforestation against the 2020 target and baselines, following the approach adopted by the federal government for the Brazilian Amazon region as a whole. The state-run UCEGEO will continue to monitor deforestation in Acre at a very fine scale, to guide enforcement and risk monitoring actions whenever necessary.

In the near future, the UCEGEO will also be taking on responsibility for monitoring forest degradation and increase in carbon stocks through natural regeneration and reforestation, as a way to increase the value of REDD+-related activities under the ISA Carbon Programme. At present, information on degradation is limited to determining the location of fires. To fill this gap, the Acre government intends to channel part of the financing from the Amazon Fund to establish a Light Detection And Ranging (LIDAR) system, which will permit monitoring of forest degradation in much greater detail.



**OTHER
GOVERNMENTAL
AGENCIES WILL
BE MOBILISED TO
PROVIDE SERVICES
AND BENEFITS
TO POPULATIONS
PARTICIPATING IN
THE ISA CARBON
PROGRAMME**

**TO GUARANTEE
THE SYSTEM'S
CREDIBILITY,
PROVISION IS BEING
MADE FOR VALIDATION
OF BOTH RCEs AND
CARBON CREDITS
BY RECOGNISED,
INDEPENDENT
AUDITORS**

The SISA has chosen the Markit Environmental Registry as the platform for registering Emission Reduction Certificates (RCEs). Markit has a robust registration system that can be used for RCEs and carbon credits, and eventually for other environmental assets as well. Markit services more than 75% of this market, with over 600 clients and 75 million credits listed. The registration system makes it possible to account for and monitor the status of RCEs and carbon credits from the moment they're issued, through trading operations (should they occur) and until they're retired. Markit uses eight of the 10 main standards adopted internationally for certifying reduced emissions and carbon credits (Government of Acre, 2012a).

In general terms, governance of the ISA Carbon Programme is structured in two parts: one strictly concerned with the issuing of RCEs by the Climate Change and Environmental Services Regulatory Institute, and the other dedicated to the sale of carbon credits, with or without the involvement of the Environmental Services Development Company.

To guarantee the system's credibility, provision is being made for validation of both RCEs and carbon credits by independent auditors, especially the Voluntary Carbon Standard (VCS) and the Climate, Community and Biodiversity Alliance (CCBA). Both of these auditors are widely used in voluntary REDD+ projects to verify compliance with internationally recognised safeguards. Indeed, Acre is now part of a highly select group of countries (Ecuador, Nepal, Mexico, Tanzania) and sub-national jurisdictions (Kalimantan, Indonesia and Acre, Brazil) that are currently developing CCBA standards at national or sub-national scales (Albán & Durban, 2012).

In a partnership with the Markit Environmental Registry, the state government is developing a specific standard for RCEs that will not be commercialised. To this end, the criteria, procedures and norms associated with the proposed standard are expected to be defined by the end of 2013.

Some aspects remain to be defined in the governance system of the SISA and of the ISA Carbon Programme – particularly in relation to the latter's insertion within a national REDD+ strategy. But it can be stated with confidence that all the entities described above, whether governmental or independent, are contributing towards a governance system characterised by a high degree of integrity, transparency and social monitoring.

ANALYSIS OF THE ISA CARBON PROGRAMME

The preceding sections have described deforestation trends in Acre, the state's policy context and the main aspects of the ISA Carbon Programme. The following section analyses the programme's strengths and challenges, which provide a foundation for

recommendations aimed at improving the programme.



Strengths

1. Favourable political context

To achieve success, REDD+ projects and programmes require a favourable public policy context. In Acre's case, since 1999, the state government has focused on the design and implementation of a wide range of policies that have contributed to the following achievements:

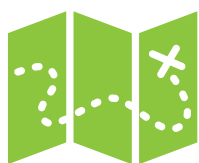
- defining land-use planning at diverse scales
- establishing and expanding a state protected areas system
- reducing illegality in the logging sector and launching the first forest concession in a Brazilian public forest
- increasing the value of forest products such as natural rubber, Brazil nuts and timber by establishing minimum prices and introducing processing industries (many of which in the timber sector are FSC certified)
- improving the system for monitoring deforestation and fires
- reducing land-use pressure on forests, evident in the sharp drop in deforestation rates.

Together the policies have created highly favourable context for the ISA Carbon Programme. In this sense, there's high potential for synergy between the programme and various other public policies in Acre, generating mutual benefits.

2. Programme before projects

Instead of beginning implementation of REDD+ actions within isolated projects, the Acre government decided to prepare an ambitious programme that provides a framework for the entire state. This approach avoids potential problems that can arise when REDD+ projects are developed independently within political jurisdictions, without standard baselines or the existence of official institutions, as has frequently been the case in other regions worldwide.⁷

⁷ As an example of such problems, in the adjacent regions of Madre de Dios and Cusco in Peru, 12 REDD+ projects appeared independently and are currently at different stages of development, without a common baseline or official supervisory institutions, which could lead to problems in generating credible reductions in emissions (Hajek et al., 2011). In response to these problems, in 2010 WWF collaborated with a reactivated REDD+ Roundtable of Madre de Dios to bring together local farmers, businesses, indigenous peoples and other stakeholders to develop and provide inputs for a participatory regional REDD+ strategy. More recently, our team in Peru supported the establishment of the region's first MRV/REDD+ certificate program to equip a growing base of individuals within government and civil society with the technical tools to understand and advocate for REDD+. Looking forward, we're currently focused on creating a Regional Environmental Authority in Peru to integrate regional REDD+ initiatives and inform a national strategy.



ACRE HAS A HIGH RESOLUTION MONITORING SYSTEM TO SUPPORT ITS REDD+ PROGRAMME

3. Advanced monitoring system

The Acre government has invested in a highly advanced, high resolution monitoring system. It's capable of identifying deforested areas of 6 hectares or less, which make up about 80% of all deforestation in the state. According to the UCEGEO, around 50% of all the properties in the settlement projects have already been geo-referenced. An advanced monitoring system such as that of Acre provides a solid base for a transparent REDD+ programme.

4. Ambition

Acre's ISA Carbon Programme encompasses the entire state and is designed to benefit all of the major segments of the rural population including indigenous peoples, residents of extractive reserves, riverside community dwellers, smallholders in settlement projects, and property owners with titled areas of 100 hectares or more. The ISA Carbon Programme could potentially benefit 30,000 rural properties, making it one of largest REDD+ mechanisms in the world.

5. Flexible implementation

Implementing the ISA Carbon Programme in Acre requires time and flexibility. Instead of pre-defining all its aspects, the programme has been designed as a hierarchical system of sub-programmes and projects capable of responding to future demands. The sub-programmes can be defined either geographically, thematically or a combination of the two. The projects will have a localised focus within sub-programmes outreach and can be implemented directly by governmental agencies or, in the case of special projects, by independent entities.

Similarly, Environmental Services Incentives (ISAs) can be defined according to each sub-programme and/or project to be executed. As a strategy to ensure its efficacy, the SISA will not define new types of incentives, but instead make use of existing government programmes or others that will be established in the future. This flexibility in ISA design reflects the range of opportunity costs in the state, which emphasises the need to develop the ISAs locally, according to specific geographic conditions and the needs and demands of the population living in each project area.

6. Consultations

The technical aspects of the ISA Carbon Programme (Government of Acre, 2009b) were developed by means of broad consultative processes that some of its participants classified as 'unprecedented' as compared with other public consultations undertaken to formulate policies in Acre. In this case, participants included representatives of the main beneficiary groups targeted by the programme (extractive reserve populations, indigenous peoples and smallholders), as well as representatives of Acre's civil society, NGOs, and national and international research institutes. The consultations generated well over 300 recommendations for improving programme design and, according to local observers, greatly contributed to legitimising the programme and gaining support from various sectors of society.



**THE FULL
RANGE OF
ENVIRONMENTAL
SERVICES
PROVIDED BY
FORESTS ARE
INCLUDED IN SISA**

7. Integration within a larger environmental services system

The Acre government's policy of valuing environmental assets aims to enhance the values of maintaining carbon stocks, and of reducing deforestation rates and their associated emissions. The government has sought to address the need to value the full range of other environmental services provided by forests, such as those associated with biodiversity and water resources. Accordingly, the ISA Carbon Programme has been incorporated into a much broader Environmental Services Incentives System. In the current global context in which REDD+ is often considered to be the mechanism with greatest potential for valuing and conserving forests, it's noteworthy that in this particular vision forest carbon is just one of the environmental services provided by forests that requires valuation.

Challenges


1. Compatibility with a national REDD+ strategy

A national REDD+ strategy is still being defined, but in the meantime states such as Acre, Amazonas and Mato Grosso have begun designing and even implementing their own REDD+ programmes. Law 2.308, which established the SISA in Acre, envisions making it compatible with a national system, including eventual adjustments should these prove necessary. To minimise the risks of impermanence and double counting of the same emissions, it's crucial that the REDD+ systems should be compatible at both state and federal levels. Other Amazonian states such as Mato Grosso, Amazonas, Amapá and Rondônia are forging ahead in defining their own REDD+ policies (Government of Brazil, 2012), which makes it all the more urgent to establish a national framework.

The target of the ISA Carbon Programme is to reduce deforestation by 80% by 2020 compared with the baseline (the average rate for the period 1996-2005). This target and baseline are identical to those established by the federal government for the entire Brazilian Amazon. To further enhance compatibility, the Acre government has decided to use the PRODES data on deforestation supplied by the INPE, even though it produces conservative estimates. Because the monitoring system used by the UCEGEO is far more sensitive and can distinguish much smaller deforested areas, it will be used to support the state's own monitoring and enforcement activities.

To maximise compatibility, the methodology used by the federal government and the states to define the baseline must be identical. But the federal government has adopted a methodology that, in the current context of declining deforestation, results in a reduction in the baseline every five years, reflecting the average deforestation rate over the previous 10-year period (Government of Brazil, 2008). The governments of the Amazonian states argue for a methodology in which the baseline, reflecting the average deforestation rate during 1996-2005, remains constant between 2006 and 2020, without adjustments every five years. In Acre's case, presuming achievement of the reduction target for 2020, the methodology currently used by the federal government produces a reduction in emissions estimated at 153Mt CO₂ by 2020. However, with a constant baseline as advocated by the states, the estimated reduction in emissions increases to 251Mt CO₂.

For the national REDD+ strategy, this latter approach could be useful once there's definition regarding how ownership of the emission reductions associated with deforestation and forest degradation is determined, and how benefits derived from REDD+ are to be shared. These definitions are required to avoid double counting of reduced emissions. Some of the reduced emissions achieved to date are unquestionably part of the federal government's international commitments, and



**IN ACRE,
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ESTIMATED AT
153
MtCO₂
BY 2020.**

they've been used as guarantees for the international donations provided by Norway and Germany to the Amazon Fund. At the same time, the Acre government offered Germany part of its emission reductions as a guarantee for the financing received from KfW, and it intends to use additional reductions to guarantee other financial transactions in the future.

Considering that states such as Acre are far ahead of the federal government in defining their REDD+ policy frameworks, it makes sense – especially under a federative form of government such as Brazil's – to define the roles, responsibilities and beneficiaries for reducing emissions from deforestation and forest degradation. Those states that have advanced in defining a political framework for REDD+ should be considered qualified to assume responsibilities and receive benefits. Requirements for states to assume responsibilities and benefits from REDD+ could include:

- a demonstrable commitment to reducing deforestation and forest degradation, as evidenced by the design and implementation of relevant social, environmental and economic policies – such as is obviously the case in the state of Acre
- a REDD+ policy framework in place that encompasses the entire state instead of a focus on specific projects (given the advantages of the former approach, as described above in comparing the situation in Acre with other jurisdictions lacking such frameworks)
- use of a deforestation and forest degradation monitoring system that's identical with the federal one (PRODES) or at least compatible with it, and also a system for registering emission reductions identical or compatible with a system to be established at the federal level, so as to eliminate the chances of double-counting of emission reductions.

States that meet these requirements could be accredited to manage a greater proportion of emission reductions occurring in areas under their jurisdiction.

This division of responsibilities and benefits between the federal and state governments will inevitably require considerable dialogue and a much clearer definition of roles. In this regard, the use of a single baseline (1996-2005) until 2020, under the methodology supported by the states, increases the emission reductions that could potentially be counted. This leaves a wider margin for negotiating how responsibilities and, especially, benefits will be allocated between the different spheres of government (Government of Brazil, 2008).

In addition to allocating responsibilities and benefits, a national REDD+ strategy also needs to take a coherent stance in relation to the eventual sale of carbon credits. Law 2.308 refers to various funding sources for the ISA Carbon Programme, including the sale of carbon credits and the transfer of their ownership. Due to the current lack of an international climate accord that recognises REDD+, and the corresponding lack of REDD+ policy framework at the federal level in Brazil, the legal basis for the sale of carbon credits by states such as Acre could be called into question.

The states of the Brazilian Amazon contracted legal council, which issued a technical brief justifying their claim to sell and transfer ownership of carbon credits (Ludovino Lopes, 2012). The prospect of a domestic cap-and-trade market might well overcome the current resistance of the federal government to the commercialisation of such credits. But any national REDD+ strategy and an eventual REDD+ mechanism for Brazil must define the financing of REDD+ initiatives, providing clarity about permissible sources of financing (for example, public funding, carbon markets, etc.) and the rules governing access to such sources by diverse actors (such as state and municipal governments, investors, landowners and traditional communities).





**THE BIGGEST
CHALLENGE FACING
THE NATIONAL
REDD+ STRATEGY
IS HOW TO DEFINE
A BENEFIT-SHARING
SYSTEM CAPABLE OF
FUNCTIONING IN ALL
FOREST BIOMES**

Finally, a stock-flow system that takes into account both emission reductions and forest carbon stock conservation should serve as the basis for distributing the benefits associated with the ISA Carbon Programme in Acre (Alencar et al., 2012). Likewise, a national REDD+ strategy needs to encompass states in different biomes, taking into account the tremendous diversity of situations related to deforestation, forest degradation and conservation in the country's different regions. A stock-flow model encompassing the entire country, such as that developed for the Amazon region (Moutinho et al., 2011), could provide an appropriate starting point for a national strategy. This brief discussion reveals that the biggest challenge facing the national REDD+ strategy is how to define a benefit-sharing system capable of functioning in all of Brazil's forest biomes.

2. Design of the ISAs

One topic that has not yet been addressed in the process of regulating the SISA, but which is of crucial importance for ensuring the success of the ISA Carbon Programme, is the design of the Incentives for Environmental Services (ISAs). The Acre government has already made it clear that the ISAs are going to be integrated into existing governmental programmes, such as technical assistance for the preparation of management plans; rural extension services to increase the quantity, value and sustainability of agricultural and forest products; and the provision of credit. The government currently envisions that the continuation of direct payments to beneficiaries (such as the bonus payments associated with the Sustainable Property Certification Programme) may not be possible due to difficulties in implementing the payments.

Part of the difficulty is associated with a lack of basic documents (such as personal identity card and tax registration number) by a large segment of the rural population, especially in isolated areas. Without such documents, a person cannot open a bank account or even carry out transactions in the banking system, which is necessary for transferring the bonus payments. Another problem is the potential risk that the bonus payment will come to be seen as simply another public transfer scheme,⁸ without clear connection to its overriding purpose of bringing about long-lasting changes in land use and, potentially, providing a disincentive to use the land at all. In the face of such considerations, the government is thinking about other kinds of benefits that could provide what it believes are more effective incentives for provision of environmental services.

Another major challenge facing the ISA Carbon Programme is the diversity of potential beneficiaries, which include highly distinct groups such as indigenous peoples, so-called 'traditional' settlers (dependent on small-scale agriculture and harvesting of non-timber forest products), more recent settlers living in agricultural settlement projects and small, medium and large landowners. This wide range makes implementation all the more complex as compared to other programmes that work with less diversified target populations, and that provide incentives based simply on direct payments to environmental service providers. In other places, governments have used this last approach to encourage the adoption of sound management of natural resources. In Ecuador, the Sócio Bosque programme, which makes direct payments to indigenous communities and landowners that conserve native forests



**IN ECUADOR,
THE SÓCIO BOSQUE
PROGRAMME
REGISTERED
60,000
BENEFICIARIES
AFTER JUST
TWO YEARS IN
OPERATION**

⁸ Brazil's largest public transfer scheme is the Family Stipend Programme (Programa Bolsa Familia), which currently benefits approximately 25% of Brazil's population and is frequently criticised for having no exit strategy and serving as a disincentive for work.

and other natural ecosystems, reached 60,000 beneficiaries after just two years of operation (De Koni et al., 2011). The programme's focus on direct payments is cited as one of the factors that's contributed to its extraordinarily rapid expansion.

Operating in Costa Rica since 1997, the Payments for Environmental Services Programme has been credited as one of the factors that has enabled this country, which formerly had one of the highest deforestation rates in the world, to achieve net expansion of native forest cover in the early 2000s (Pagiola, 2008). At first the programme attempted to provide incentives for a wide range of forest-related services (such as provision of fresh water and maintenance of scenic beauty). Gradually the programme concentrated its focus on direct payments for specific land uses. By 2005, these included forest plantations (covering a total area of 152,277 ha), native forest management (4,470 ha) and forest conservation (2,426 ha).

In the state of Amazonas, Brazil, the Forest Stipend Programme (Programa Bolsa Floresta) targets populations living inside state conservation units who commit to stabilising the area of their agricultural plots and avoid using fire as part of their land-use activities. The programme uses a combination of various economic instruments ranging from direct payments to families (represented by the female heads of households) to financial support for economic activities, improved social services and strengthening community organisations. After four years in operation (2007 to 2010), the programme had reached 7,225 families (FAS, 2011). Its focus is on traditional populations that historically have exerted very little pressure on their natural resource base. For this reason, the existing governmental programmes in rural extension and technical assistance are not part of the Bolsa Floresta, although it supports other actions designed to strengthen basic education, train people in natural resource management and generate income. To permit direct payments through local banks, the programme has invested heavily in obtaining beneficiaries' basic documents.

The experiences of these and other programmes provide two important lessons that could be useful in designing incentives for the ISA Carbon Programme in Acre. The first is that direct payments are a common element, even when involving highly diverse target populations, and they appear to contribute towards establishing the programmes' credibility among beneficiaries because they produce an immediate and tangible effect. Second, the experience in Ecuador demonstrates the effectiveness of direct payments in achieving widespread adherence in a relatively short time.

These experiences also reveal the relatively ambitious scope of Acre's ISA Carbon Programme, which seeks to mobilise a series of benefits for a large, diverse and widely dispersed population. The assumption underlying this approach is that direct payments are insufficient, and that other incentives are needed to motivate specific segments of the population to maintain the forest, reduce deforestation or restore degraded environments.

However valid this assumption may be, the diversity of benefits contemplated has critical implications for the operational aspects of the ISA Carbon Programme. Specifically, the historical record of public agencies in Acre and other states in the Brazilian Amazon shows that rural extension and technical assistance programmes are extremely difficult to implement (Smith et al., 1998), especially among highly-dispersed populations.

In this context, the Acre government's decision to permit flexibility in the design of the ISAs appears to be sensible. Furthermore, the government recently outsourced the preparation of Community Development Plans (PDCs) to local NGOs with in-

depth experience in rural development. To further enhance its effectiveness, the ISA Carbon Programme's support for rural extension and technical assistance could also be outsourced to such NGOs, especially in areas where they have prior experience.

3. Administrative model

The implementation of such a complex and ambitious programme as ISA Carbon will require an administrative model that's highly transparent and efficient. As described in an earlier section of this study, the programme's design involved consultations generally considered to be 'unprecedented'. But transparency can impose demands that diminish administrative efficiency. The governance model defined for the SISA is complex, especially given its incorporation of various entities responsible for social monitoring. Transparency and social monitoring are essential for the programme to maintain its legitimacy, but they are qualities that must be balanced with efficiency in making and carrying out decisions – especially in a programme such as ISA Carbon, which is highly dependent on the collaboration of other sectors within the state government. The programme's capacity to mobilise these governmental sectors will be critical in demonstrating that it can indeed contribute to the establishment of a low-carbon economy in Acre.

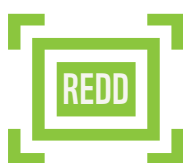
As another study has reported (Alencar et al., 2012), in most states REDD+ is confined to a single department with tenuous links to other governmental sectors working with agriculture, ranching, transport and mining. The participation of such sectors is essential for REDD+ to evolve into a new model for low-carbon development. In Acre, there's a multi-sector dialogue on climate change issues, albeit incipient, and the ISA programme could use this dialogue as a way to increase its links to governmental policies and plans in other sectors. Increasing multi-sectoral integration between its various departments appears to be one of the present government's goals (Government of Acre, 2011b). If the ISA Carbon Programme manages to operate across key governmental sectors, it could come to achieve a transformational role.

4. Environmental risk management

In the south-western portions of the Amazon basin, including Acre, the most significant threat in recent years has been the periodic occurrence of immense forest fires. Such fires broke out during exceptionally dry periods in 2005 and 2010, destroying enormous areas of forest. In 2005, for example, Acre's monitoring system detected fires at approximately 29,000 sites within the state, impacting on between 267,000 and 417,000 hectares of forest. The corresponding environmental damage has been estimated at roughly US\$100 million (Brown et al., 2011).

Acre's susceptibility to forest fires is aggravated by the high incidence of open forests dominated by bamboo, and also by the presence of extensive planted pastures covered by African grasses, mainly *Brachiaria* spp. Throughout the entire Amazon region, there's a notable trend to increasingly prolonged dry periods associated with climate change (Vergara & Scholz, 2011).

The pronounced drought of 2005 provoked an innovative response by the Acre government, which established a 'situation room' in the headquarters at the Acre State Fire Brigade (CBMAC) in the state capital of Rio Branco. The purpose of this facility was to increase information flow between and coordinate actions by governmental agencies. With the assistance of researchers from the Federal University of Acre (UFAC), the situation room provided daily updates of data obtained from satellites and overflights, which helped to boost the effectiveness of



IN MOST STATES, REDD+ IS CONFINED TO A SINGLE DEPARTMENT WITH TENUOUS LINKS TO OTHER GOVERNMENTAL SECTORS



forest fire monitoring and the allocation of fire fighters. During the drought of 2010, the situation room was installed adjacent to the governor's office and placed under the coordination of the recently established State Environmental Risk Management Committee (CEGdRA). The state government and Ibama provided helicopters and single-engine aircraft, which improved the capacity for monitoring the fires. The Civil Defence of Rio Branco employed the same concept when the city underwent severe flooding in 2006, 2009, 2010 and 2011, permitting a coordinated response by both governmental agencies and civil society (Brown et al., 2011).

During both floods and fires, the situation room made it possible to provide critical information in real time, which enabled more efficient and effective responses. Fire maps, for example, were updated every three hours. Due to the massive extent of the forest fires and the limited human resources available (only 400 firemen for the entire state in both 2005 and 2010), in both years it was only possible to combat a relatively small proportion of the fires. Considering that approximately 70% of Acre's population live in urban centres, the state government gave priority to fighting fires on the outskirts of the main urban centres, to reduce property damage (Brown et al., 2011).

Instead of combating immense forest fires such as those that took place in 2005 and 2010, a more effective strategy is to reduce the probability of their occurring. This is possible by improving monitoring, producing strategic information showing trends in land-use change, intensifying detection and enforcement against the first signs of fire outbreaks during the dry season, promoting forms of land-use less subject to burning, and training fire brigades.

Some actions can reduce the environmental damage caused by future fires. As observed in a previous section, the UCEGEO is improving its capacity to monitor forest degradation. Such information, combined with the data regularly generated by the IMC on land-use patterns in the state (Costa et al., 2012), could be used to generate fire risk maps that could, in turn, guide preventative actions. In this regard, it would be important to make the data and analyses available in real time. One current gap is a definitive analysis of the causes of the recent increase in deforestation rates in Acre during 20110-12 (Figure 2), which indicate appropriate interventions to combat this trend and its environmental risks.

Another gap this study has identified is the lack of economic data on the forest sector. In particular, there's a lack of data that could reveal whether the notable decline in timber production since 2005 (Table 4) is associated with a corresponding drop in timber's contribution to the economy as a whole. Or whether the creation of new enterprises aggregating value to timber products has compensated for that drop by generating greater value using less raw material. This information is of critical importance for detecting whether the forest sector is on a trajectory towards a low-carbon economy. In short, generating strategic information in real time could provide invaluable support to Acre's efforts to reduce its greenhouse gas emissions and adapt to climate change, while at the same time transforming its economy.

After the immense forest fires in 2005, the State Department of Extension in Agroforestry and Family-based Production (SEAPROF) adopted a fire prevention strategy that consisted of promoting agro-ecological practices, such as establishing agricultural plots that incorporate nitrogen-fixing leguminous species to fertilize the soil while at the same time diminishing the risk of fire, in comparison to traditional production systems. The increasing tendency of SEAPROF to outsource extension services to specialised organisations should increase the adoption of sustainable land uses.



**ANOTHER GAP
IDENTIFIED BY
THIS STUDY
IS A LACK OF
ECONOMIC
DATA ON THE
FOREST SECTOR**

In addition to adopting more appropriate production systems, diminishing the risk of forest fires requires that rural communities should be trained in how to prevent and combat fires. To multiply its effectiveness, since 2005 the State Fire Brigade (CBMAC) has been running a programme to establish rural brigades, which are composed of members of local communities who are trained not only to combat but to prevent forest fires. Throughout the Brazilian Amazon, there are numerous successful examples of communities that have mobilised to manage and reduce fire hazards (for example, see Sauer, 2005).

Fires that are both large in scale and increasingly frequent pose a grave threat that could easily jeopardise the results that the ISA Carbon Programme aims to achieve. The success of this programme depends on continuous monitoring and feedback of information to permit adequate responses by both government and society to extreme events.

LESSONS LEARNED

Acre's experience reveals various valuable lessons for the definition of other REDD+ mechanisms, whether at sub-national or national levels, in Brazil or in other countries. Five lessons learned are especially relevant for defining REDD+ mechanisms in other contexts. These are presented below.



1. A policy context for REDD+

The Acre experience shows clearly that REDD+ mechanisms need to be part of a broader context of efforts aimed at reducing deforestation and forest degradation, and at conserving forests. In Acre's case, the ISA Carbon Programme was conceived within a set of governmental policies designed since 1999 to conserve and value the forest and promote the welfare of rural populations. The programme's success would be at considerable risk without this favourable policy context.

Furthermore, because of its long involvement with social and environmental issues, the Acre government perceived from the start that REDD+ initiatives, with their focus on valuing environmental services associated with forest carbon, are essential but not sufficient. While REDD+ is a financial mechanism with enormous potential, increasing the value of other environmental services, especially those related to biodiversity and water resources, is critical for enabling forest conservation and sustainable forest use to become more competitive in economic terms. Thanks to this perception, the ISA Carbon Programme is part of a broader policy framework, the Environmental Services Incentives System (SISA), which seeks to enhance the value a whole set of environmental services.

The central lesson for those wishing to establish other REDD+ mechanisms is that they can't be isolated from a set of complementary policies.

2. REDD+ mechanisms that are compatible at various scales

In an ideal world, REDD+ mechanisms would be established first at a global scale and then in progressively smaller scales, to ensure maximum compatibility. In the real world, the trend has been just the opposite: REDD+ projects are often developed in political jurisdictions without established baselines or official institutions. The Acre government avoided this problem by defining a state-wide REDD+ mechanism prior to the emergence of local projects, with a defined target and baselines, and official institutions that can provide a platform for future projects. What's more, the state adopted the same target and methodology to define baselines as the federal government uses for the Brazilian Amazon as a whole, which avoids the risk of double-counting emissions.

Yet, the continued lack of a national REDD+ strategy, and a similar lack of definition in the international sphere, raises questions about how Acre's mechanism will function. The most pressing questions at present concern the state's authority over the emission reductions achieved in its territory, the possibilities of trading and transferring ownership over carbon credits, and the prospects of adjusting the methodology currently used by the federal government to define baselines during 2006-20.

A clear definition of the allocation of benefits generated by emission reductions between the various levels of government is indispensable. Negotiating such a definition between the interested parties could be facilitated by adopting a single baseline for 2006-20 (Figure 4B). But changing the baseline would call for a revision



of the National Climate Change Plan and the Climate Change Law, which could be quite complicated. Even so, for the ISA Carbon Programme to be able to function fully, a national REDD+ strategy needs to resolve these pending questions in a way that acknowledges the significant progress achieved by some states, including Acre, and Brazil's federative structure, under which the federal government can concede a degree of autonomy for states to administer issues in which they're demonstrably competent.



**THE EXPERIENCE IN
ACRE HAS SHOWN
THAT PUBLIC
CONSULTATIONS
SHOULD PERMEATE
ALL STAGES OF
DESIGNING A REDD+
MECHANISM**

3. The challenge of designing efficient and effective benefits for REDD+

In Acre's REDD+ mechanism, important details concerning the Incentives for Environmental Services (ISAs) are still being defined. But the state government has already established three principles.

First, the mechanism will be based on the assumption that effective changes in behaviour required for conserving and increasing the environmental services associated with forest carbon don't depend on direct payments but, instead, on investments in the transformation of production systems.

Second, at a minimum the benefits provided by the ISA Carbon Programme should include financing to support rural extension and technical assistance (ATER), and facilitated access to credit to support sustainable forms of land use.

Third, each sub-programme will be sufficiently flexible to allow it to design the most appropriate benefits for the rural population involved.

The benefits under consideration in Acre focus on effective changes in behaviours involving land and resource use. The principal challenge to be faced in defining benefits for environmental service providers in this and other REDD+ mechanisms is how to strike a balance between efficiency of implementation and effectiveness of the results obtained. Achieving this balance will be facilitated by generating more complete information on natural resource use by the populations targeted for benefits.

4. Ample participation in the REDD+ mechanism design process

The experience in Acre has shown that public consultations should permeate all stages of designing a REDD+ mechanism. This process must include representatives of all potential beneficiary groups considered for inclusion under the mechanism, as well as other interest groups. A broad consultative process will serve to generate valuable recommendations for the design of the mechanism, and contribute towards its legitimisation by various sectors of society.

5. Timeframes and costs for designing REDD+ mechanisms

The technical aspects of Acre's REDD+ design took just a few months to prepare. They included the scope, target and baselines, priority areas for implementation, benefits, costs and financing. The broad consultation process also took just a few months because of the Acre government's strong commitment. But designing the system's institutional and political aspects (governance) required much longer, and other issues such as the distribution of benefits are still pending. Experience has shown that designing each aspect of a REDD+ mechanism requires different amounts of time.

**THE ISA CARBON
PROGRAMME'S
IMPLEMENTATION
OF REDD+
PROJECTS AT
THE LOCAL
LEVEL COULD
BEGIN IN 2014**

In Acre, the time between the beginning of the design process and the approval of the law defining the system's governance was three-and-a-half years (mid-2007 to the end of 2010). By the end of 2012, most of the associated institutions had been established but were still not operating completely. Important details regarding the functioning of the mechanism (for example, the design of the ISAs) are still awaiting definition, which will be carried out through regulations expected to be finalised by the end of 2013. Implementation of REDD+ projects at the local level could begin in 2014.

The length of time required to design the REDD+ mechanism in Acre was prolonged because of a lack of existing models as well as modest financial support from external sources, which totalled approximately R\$240,000 during the three-and-a-half years of the design process. Despite these limitations, today it can be considered one of the most advanced REDD+ mechanisms in the world. The current existence of models and availability of substantial international financing should facilitate the establishment of new REDD+ mechanisms. The experience in Acre can serve to inspire their design.

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REFERENCES

Albán, M and Durban, J. 2012. REDD+ SES: A comprehensive framework for high social and environmental performance. CCBA and CARE, Washington, DC, p14. Available at: <https://community.iucn.org/cihr/Documents/MontserratAlban-REDD+SES.pdf> Accessed on: 26 Dec 2012.



Alencar, A, Nepstad, D, Mendoza, E, Soares-Filho, B, Moutinho, P, Stabile, MCC, McGrath, D, Mazer, S, Pereira, C, Azevedo, A, Stickler, C, Souza, S, Castro, I and Stella, O. 2012. Rumo ao REDD Jurisdicional: Pesquisa, Análises e Recomendações ao Programa de Incentivos aos Serviços Ambientais do Acre (ISA Carbono). Instituto de Pesquisa Ambiental da Amazônia (IPAM), Brasília, p53.

Angelsen, A. 2009. Policy options to reduce deforestation. P125-138 In Angelsen, A, Ed., Realising REDD+: National Strategy and Policy Options. International Center for Forestry Research (CIFOR), Bogor, Indonesia.

Brown, F, Santos, GP, Pires, FF and da Costa, CB. 2011. Brazil: Drought and fire response in the Amazon. World Resources Report, Washington, DC. Available at: http://www.worldresourcesreport.org/files/wrr/wrr_case_study_amazon_fires.pdf Accessed on: 12 Dec 2012.

Costa, F de S, do Amaral, EF, Butzke, AG and da S Nascimento, S. 2012. Inventário de Emissões Antrópicas e Sumidouros de Gases de Efeito Estufa do Estado do Acre: Ano-Base 2010. Embrapa-Acre, Rio Branco, p144.

De Koni, F, Aguiñaga, M, Bravo, M, Chiu, M, Lascano, M, Lozada, T and Suarez, L. 2011. Bridging the gap between forest conservation and poverty alleviation: the Ecuadorian Socio Bosque program. Environmental Science and Policy, 14: 531-542.

EPRI. 2012. Overview of Subnational Programs to Reduce Emissions from Deforestation and Forest Degradation (REDD) as Part of the Governors' Climate and Forests Task Force. Electric Power Research Institute, Palo Alto, CA.

FAS. 2011. Relatório de Gestão 2010. Fundação Amazonas Sustentável, Manaus, p112.

Governo do Acre. 2006. Programa Estadual de Zoneamento Ecológico-Econômico, Fase II: Documento Síntese – Escala 1:250.000. Secretaria Estadual de Meio Ambiente (SEMA), Rio Branco, p356.

Governo do Acre. 2008. Acre em Números – 2007/2008. Secretaria Estadual de Planejamento (SEPLAN), Rio Branco, p168.

Governo do Acre. 2009a. Acre em Números – 2009. Secretaria Estadual de Planejamento (SEPLAN), Rio Branco, p181.

Governo do Acre. 2009b. Política de Valorização do Ativo Ambiental Florestal. Projeto Pagamentos por Serviços Ambientais – Carbono: Diretrizes Básicas. Secretaria Estadual de Meio Ambiente (SEMA), Rio Branco, p36.

Governo do Acre. 2010a. Lei No 2.308 de 22 de outubro de 2010. Rio Branco, p21.

Governo do Acre. 2010b. Plano Estadual de Prevenção e Controle do Desmatamento no Acre – PPCD/AC. Secretaria Estadual de Meio Ambiente (SEMA), Rio Branco, p112.

Governo do Acre. 2011a. Acre em Números – 2011. Secretaria Estadual de Planejamento (SEPLAN), Rio Branco, p103.

Governo do Acre. 2011b. Plano de Governo 2011/2014. Rio Branco, p140.

Governo do Acre. 2012a. Procedimentos de Cadastro do SISA. Nota Técnica do Instituto de Mudanças Climáticas e Regulação de Serviços Ambientais (IMC), Rio Branco, p17.

- Governo do Acre. 2012b. Construção Participativa da Lei do Sistema de Incentivos a Serviços Ambientais – SISA do Estado do Acre. Instituto de Mudanças Climáticas e Regulação de Serviços Ambientais (IMC), Rio Branco, p124.
- Governo do Brasil. 2008. Fundo Amazônia. Serviço Florestal Brasileiro, Brasília, p30. Available at: <http://www.florestal.gov.br/publicacoes/institucionais> Accessed on: 24 Dec 2012.
- Governo do Brasil. 2012. REDD+ nos Estados da Amazônia: Mapeamento de Iniciativas e Desafios para Integração com a Estratégia Brasileira. 2a Edição, Revista e atualizada, Ministério do Meio Ambiente, Secretaria de Mudanças Climáticas e Qualidade Ambiental (SMCQ), Brasília, p36.
- Hajek, F, Ventresca, MJ, Scriven, J and Castro, A. 2011. Regime-building for REDD+: Evidence from a cluster of local initiatives in south-eastern Peru. *Environmental Science and Policy*, 14: 201-215.
- IBGE. 2006. Censo Agropecuário 2006: Resultados Preliminares. Instituto Brasileiro de Geografia e Estatística, Rio de Janeiro, p146. Available at: <http://www.ibge.gov.br/home/estatistica/economia/agropecuaria/censoagro/2006/agropecuario.pdf> Accessed on: 13 Dec 2012.
- Kosoy, A and Guigon, P. 2012. State and Trends of the Carbon Market 2012. World Bank, Washington, D.C., p133. Available at: http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/State_and_Trends_2012_Web_Optimized_19035_Cvr&Txt_LR.pdf Accessed on: 6 Jan 2013.
- Larson, AM and Petkova, E. 2011. An introduction to forest governance, people and REDD+ in Latin America: Obstacles and opportunities. *Forests Journal* 2: 86-111. Available at: <http://www.mdpi.com/19994907/2/1/86/> Accessed on: 13 Jul 2012
- Ludovino Lopes Advogados. 2010. Estudo sobre o Desenho de um Modelo Jurídico para Gestão do Projeto Pagamentos por Serviços Ambientais (PSA) – Carbono do Estado do Acre. Relatório para WWF-Brasil, Brasília, p37.
- McFarland, B. 2012. O Projeto Purus: Um Projeto de Conservação de Florestas Tropicais no Acre, Brasil. CarbonCo, LLC, Bethesda, MD, 140 p. Available at: [https://amazonaws.com/CCBA/Projects/The_Purus_Project%3A_A_Tropical_Forest_Conservation_Project_in_Acre,_Brazil/+Purus+Project+Final+Draft+CCBS+PPD+-+Portuguese+\(101812\).pdf](https://amazonaws.com/CCBA/Projects/The_Purus_Project%3A_A_Tropical_Forest_Conservation_Project_in_Acre,_Brazil/+Purus+Project+Final+Draft+CCBS+PPD+-+Portuguese+(101812).pdf) Accessed on: 26 Dec 2012.
- Meneses-Filho, LCL, Maldonado, ML, Salles, P and Britto, D. 2009. Plano de Ação para Desenvolvimento do Programa de Redução das Emissões do Desmatamento e da Degradação Florestal do Estado do Acre. Relatório para o Governo do Estado do Acre, Rio Branco, p65.
- Moutinho, P, Stella, O, Lima, A, Christovam, M, Alencar, A, Castro, I and Nepstad, D. 2011. REDD no Brasil: Um Enfoque Amazônico. Centro de Gestão de Estudos Estratégicos, Brasília, D.F. Available at: <http://ipam.org.br/biblioteca/livro/REDD-no-Brasil-um-enfoque-amazonico-fundamentos-criterios-e-estruturas-institucionais-para-um-regime-nacional-de-Reducao-de-Emissoes-por-Desmatamento-e-Degradacao-Florestal-REDD/583> Accessed on: 12 Dec 2012.
- Moutinho, P, Alencar, A, Mendonça, E, Kunze, C, Nepstad, D, Stella, O, Azevedo, A, Lima, A, Crisostomo, AC and Stabile, M. 2012. REDD para “Early Movers”: Estudo sobre a Viabilidade do Sistema de Incentivos a Serviços Ambientais – SISA – Estado do Acre. Instituto de Pesquisa Ambiental da Amazônia (IPAM), Brasília, p76.

Onaga, CA and Drumond, MA, Organizadoras. 2009. Efetividade de Gestão das Unidades de Conservação no Estado do Acre. WWF-Brasil, Secretaria Estadual de Meio Ambiente (SEMA), Secretaria Estadual de Florestas (SEF), & Instituto Chico Mendes de Conservação da Biodiversidade (ICM-Bio). WWF-Brasil, Brasília, p64. Available at: http://d3nehc6yl9qzo4.cloudfront.net/downloads/rappam_acre.pdf Accessed on: 13 Dec 2012.

Pagiola, S. 2008. Payments for environmental services in Costa Rica. *Ecological Economics*, v. 65: 712-724.

ROW. 2013. California, Acre and Chiapas: Partnering to Reduce Emissions from Deforestation: Recommendations to Conserve Tropical Rainforests, Protect Local Communities and Reduce State-Wide Greenhouse Gas Emissions [Draft]. The REDD Offset Working Group (ROW), San Francisco, California, p69. Available at: <http://stateredd.org/documents/2013/01/row-draft-recommendations-v1.pdf> Accessed on: 15 May 2013.

Sauer, S. 2005. Prevenção de Incêndios Florestais na Amazônia: Lições Aprendidas do Projeto Proteger. Série Estudos 1, Ministério de Meio Ambiente, Brasília, p63. Available at: http://www.mma.gov.br/estruturas/168/_publicacao/168_publicacao30012009111026.pdf Accessed on: 13 Jul 2012.

Silva, SMP. 2010. Estado e políticas públicas no mercado de castanha-do-brasil no Estado do Acre: uma análise pela abordagem do desenvolvimento local. *Revista IDEAS* 4: 103-128. Available at: http://r1.ufrjrj.br/cpda/ideas/revistas/vo4/no1/IDeAS-vo4_no1-Artigo_SHEILA_MARIA_PALZA_DA_SILVA.pdf Accessed on: 13 Dec 2012.

Smith, NJ, Dubois, J, Current, D, Lutz, E and Clement, C. 1998. Agroforestry Experiences in the Brazilian Amazon: Constraints and Opportunities. The Pilot Program to Conserve the Brazilian Rain Forest, Brasilia, p67.

Soares-Filho, BSA, Nepstad, D, Curran, L, Voll, E, Cerqueira, G, Garcia, RA, Ramos, CA, McDonald, A, Lefebvre, P and Schlesinger, P. 2006. Modeling conservation in the Amazon basin. *Nature* 440: 520-523.

Viagra, W and Scholz, SM, Eds. 2011. Assessment of the Risk of Amazon Dieback. The World Bank, Washington, DC, p97.

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About REDD+

REDD+ is not an island

REDD+ mechanisms must be part of broader efforts to reduce deforestation

Timing and budgeting

Designing the various aspects of a REDD+ mechanism requires distinct timeframes and adequate budget

Compatibility at various scales

REDD+ mechanisms need to be compatible at federal, state and municipal scales



Ample participation

Public consultations should permeate all stages of designing a REDD+ mechanism

Efficient and effective REDD+ benefits

Effective behavioural change depends on investments in the transformation of production systems



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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