



BIANNUAL REPORT 2003 - 2004

IMAZON
AMAZON INSTITUTE OF
PEOPLE AND THE ENVIROMENT



BIANNUAL REPORT

2003 - 2004

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ACRONYMS

Acronyms

Arpa - Amazon Region Protected Areas Program	Inpa - National Institute for Amazon Research
Basa - Bank of Amazonia	Ipaam - Institute of Environmental Protection of the Amazonas State
CI - Conservation International	Ipam - Amazonian Institute for Environmental Research
Cifor - Center for International Forestry Research	Inpe - National Institute for Space Research
Cites - Convention International Trade in Endangered Species	ISA - Socio-Environmental Institute
CNPq - National Council of Technological and Scientific Development	LBA - Large Scale Biosphere-Atmosphere Experiment in the Amazonia
DFID - Department for International Development – UK	MFC - Community Forest Management
Embrapa - Brazilian Agricultural Research Corporation	MMA - Ministry of the Environment
Esalq - Luiz de Queiroz School of Agriculture, University of São Paulo	MIN - Ministry of National Integration
Flona - National Forest	Nasa - National Aeronautics and Space Administration
FNO - Constitutional Fund of the North	NGO - Non-governmental Organization
FSC - Forest Stewardship Council	PFCA - Amazon Certified Forest Producers
Funbio - Brazilian Biodiversity Fund	PNF - National Forest Program
GTZ - German Agency for Technical Cooperation	Pronabio - National Program for Biological Diversity
GTMFC - Forest Community Management Working Group	Resex - Extractive Reserve
Ibama - Brazilian Institute of Environment and Renewable Natural Resources	GIS - Geographic Information System
IBGE - Brazilian Institute of Geography and Statistics	Ufac - Federal University of Acre
Ibio - BioAtlantic Institute	UFMA - Federal University of Maranhão
IFT - Tropical Forest Institute	UFPA - Federal University of Pará
IEB - International Institute for Education in Brazil	Ufra - Federal Rural University of Amazonia
Imac - Acre Environmental Institute	UFRJ - Federal University of Rio de Janeiro
Imaflora - Institute of Forestry and Agricultural Management and Certification	UnB - University of Brasília
Imazon - Amazon Institute of People and the Environment	UPI - United Press International
	Usaid - United States Agency for International Development
	WHRC - Woods Hole Research Center
	WRI - World Resources Institute
	WWF - World Wildlife Fund

LETTER FROM THE EXECUTIVE DIRECTOR

Letter from the Executive Director

In the past two years, Brazilian society and the international community have demonstrated great concern about increasing human pressure and destruction of tropical forests. During this period, the annual deforested area increased to approximately 23,500 km² - compared to an average of 16,800 km² between 1997 and 2001. In response to this increase, there has been a growing demand for information on the causes of deforestation and the alternatives to balance development and conservation in the region. Therefore, Imazon intensified its work of generating and making available strategic information and analysis to promote development with socioeconomic and environmental quality.

The Institute contributed decisively to the creation and adoption of public policies to combat deforestation and to promote sustainable development. For example, Imazon collaborated directly, through technical studies, in the creation of conservation units in Acre, Amazonas, Pará and Rondônia. In addition, the Institute has contributed fundamental information to the federal government's plan to combat deforestation, launched in March 2004. The Imazon has also had a crucial role in developing a conservation policy and management guidelines for mahogany, as well as in the creation and discussion of the proposed Public Forest and Administration Law that is currently under analysis in the National Congress. Finally, Imazon has collaborated in the adoption of forest management

(especially, forest certification) in the region. In 2004, the Brazilian Amazon had already 1.3 million hectares of native forest certified by the FSC. This is a notable advance when considering that less than 0.4 million hectares were certified in 2002.

Despite the advances achieved, we recognize that effective change of the natural resources use patterns in the region will require even greater efforts. Market demands (especially for timber, meat and soy), massive public investments in infrastructure and subsidized rural credit indicate that pressures to exploit natural resources, usually in a predatory manner, will continue to be strong in the next years. Therefore, it will be necessary to increase our capacity of monitoring the effects of these tendencies on the landscape and on the regional economy. It also will be necessary to elaborate and strengthen public policies that support sustainable development. Additionally, market mechanisms (such as certified timber, fair trade, etc.) should be intensified. Therefore, Imazon will broaden its agenda in the next two years (2005-2006) to meet the increasing demands of the users of the Institute's information and ideas.

In the past two years, Imazon kept a tradition of aiming its publications at academics and decision-makers. In 2003-2004, the Institute published 33 studies including scientific articles and books. In addition, Imazon's researchers increased their participation in lectures, reaching an audience of 5,000 people, mostly decision-makers, in 2004. The

dissemination of articles and books increased impressively. For example, the number of *downloads* of Imazon's studies available on our website increased from about 10,800 in 2003, to approximately 19,200 in 2004 – a growth of about 77%. The news media increased citations of Imazon's research and researchers – from 115 articles in 2003 to more than 200 in 2004. We also organized 5 major events with partners, to share information and discuss solutions to regional problems. More than 4,000 people participated in these events.

This report presents the main activities and results of Imazon's studies during 2003-2004. For the next period, Imazon will have a new Executive Office guided by Carlos Souza Júnior (Executive Secretary) and Brenda Brito (Vice Executive Secretary). I leave the Imazon Executive Office, but I will continue in the Institute, coordinating research projects. I thank my colleagues at Imazon and external collaborators for their trust and help during my six-year mandate (1998-2004).

Paulo Barreto

Executive Director until November 2004

PROFILE

Profile

Imazon is a non-profit research institution, with the mission of promoting sustainable development in the Amazon through studies, dissemination of information, support and development of public policies and professional training.

Founded in 1990, the Institute's headquarters is located in metropolitan Belém, Pará state, Brazil. In its 14 years of operation, Imazon has published about 190 technical studies, of which 81 were featured in international scientific journals or as chapters in peer reviewed books. The Institute also edited 24 books, 9 booklets and 20 issues of its Amazon Series.

Research

Imazon's research activities have 4 prerequisites: interdisciplinarity, an empirical approach, scientifically rigorous analysis, and a search for solutions. This way, the biological, legal, institutional, economic, cultural and social aspects of each topic are studied. The geographic scope is the Legal Amazon, but many of the Institute's studies focus on more specific geographic and socioeconomic situations. In some cases, the search for solutions involves testing hypotheses in demonstration projects. In other cases, the Institute supports economic stakeholders (communities, smallholders and entrepreneurs) in the development of alternative uses and market opportunities for

products originating from the best existing management practices. In all areas of intervention, Imazon prioritizes a systematic collection of primary data, because it leads to constant verification of the actual conditions of natural resources use in the Amazon.

Imazon's studies are implemented in the areas of assessment of land use activities including logging, harvesting of non-timber forest products, cattle ranching, agriculture and mining; development of remote sensing techniques to evaluate and monitor land use activities; implementation of demonstration projects; analysis of public policies regarding the use of natural resources; measurement of urban living standards; and elaboration of scenarios of sustainable development for these activities.

Dissemination

Imazon's scientific articles are published in national and international peer reviewed scientific journals such as *Science*, *Nature*, *Forest Ecology and Management*, *World Development*, *International Journal of Remote Sensing* and *Ciência Hoje*. Imazon's studies are also disseminated through manuals, videos, booklets, books, technical articles and reports on public policies. The majority of these publications are available for free (in PDF format) in Imazon's website (www.imazon.org.br). In addition, Imazon researchers have participated

as speakers at scientific and political events at the regional, national and international scale. Finally, Imazon's studies are widely disseminated through special interviews for high-circulation national and international newspapers and magazines.

Public Policies

Imazon has been increasingly asked to contribute to the formulation of public policies in the areas of conservation and sustainable use of natural resources and urban quality of life in the Amazon. On many occasions, Imazon has been invited on technical committees, to support decision-makers in the development of public policies by providing insights about complex and emerging topics in the regional debate. To meet this demand, Imazon has given technical assistance to the federal government (MMA, Ibama) and the states of Acre, Amazonas, Amapá and Pará in the areas of forest management, monitoring of forest cover, economic and ecological zoning, and the establishment of conservation units (especially national and state forests). Imazon has also contributed to the elaboration of programs for forest development, such as the Ministry of Environment's National Forest Program.

Training

One of Imazon's objectives is to train researchers with analytical capability and field experience related to the understanding and solution of Amazon environmental problems. This task involves the elaboration of a research project, collection and analysis of data and presentation of results in scientific articles and professional

meetings. More than 120 professionals have received training by Imazon in the areas of ecology, forestry, environmental law, rural and mining economics, geoprocessing, regional planning, and public policy. The excellence of Imazon training program was recognized in 1997 by the Henry Ford Award for Environmental Conservation in the category of Science and Capacity Training of Human Resources.

ACTIVITIES

Activities

Research

During 2003-2004, Imazon strengthened two new programs: Sustainable Cities and Social Forests. The Forest Economics and Policy Program expanded its activities with emphasis on studies in the area of environmental law, logging sector economics and support to forest management. The Landscape Monitoring Program contributed to the detection of environmental degradation, as well as to the identification of areas for the establishment of conservation units. Meanwhile, the Ecology and Forest Management Program advanced knowledge about the autecology of timber species with high biological and economic value. Studies of cattle ranching developed within the Scenarios of Occupation Program have been crucial for understanding the dynamics of economic and social occupation of the Amazon.

In this period, Imazon published 19 scientific articles, 9 non-peer reviewed technical articles and 7 books for a total of 35 publications. The scientific articles were published in journals such as *Nature*, *Science*, *Forest Ecology and Management*, *Ecological Applications*, *International Journal of Remote Sensing* and *Ciência Hoje*. The books encompassed a broad range of topics, including non-timber products, biodiversity, forest economics, ecology, urban environment, and environmental law.

Dissemination

Lectures. The participation of Imazon's researchers in lectures and seminars increased significantly. In 2003, there were a total of 39 lectures presented to about 2,400 people, while in 2004 there were 59 lectures that drew approximately 5,000 people. Audiences included academics, entrepreneurs, social and environmental leaders, prosecutors from the Public Ministry, decision-makers from the federal and state spheres and public leaders, represented by the governors of the states of Acre (Jorge Viana) and Pará (Simão Jatene), the President of IBAMA (Marcus Barros), the Minister of the Environment (Marina Silva) and the Minister of National Integration (Ciro Gomes).

News Media. In the last two years, Imazon's exposure to the media also increased significantly, with approximately 330 articles making direct reference to the institute. In 2003, there were about 115 articles, while in 2004, this number increased to more than 200.

In the national media, Imazon's studies were featured in major newspapers such as *Folha de São Paulo*, *Estado de São Paulo* and *Gazeta Mercantil*. In magazines, there were articles in *Época*, *Isto É* and *Veja*. On the internet, *O Eco* (www.oeco.com.br) featured 11 articles about the Institute. In the international media, there was news coverage by *NBC News* and the British newspaper *The Guardian*,

and by the news agencies *Reuters* and *United Press International* (UPI).

In the local media, the newspaper *O Liberal* published 45 articles, while *O Diário do Pará* published 21. One of the most highlighted studies was the book *Belém Sustentável* (Sustainable Belém), which had 8 citations in front page articles of *O Liberal* in 2003.

Imazon was also featured on television. Nationally, there was a special report on the *Globo Rural* Show about forest management, and special interviews on *TV Cultura* and *Canal Futura*. Locally, there were many reports on *TV Cultura Pará* and on the affiliates of *TV Globo*, *Record*, *Bandeirantes* and *SBT* networks.

Internet. The number of downloads of Imazon's studies from our website increased from 10,800 in 2003 to about 19,200 in 2004. In addition, there was a major increase in the access of these studies through the *Amazônia* website link (www.amazonia.org.br).

Public Policies

Mahogany. Imazon participated actively on the development of a new mahogany management and conservation policy, based on the inclusion of this species in the appendix II of CITES. The rules were defined in 2003. Representatives from Imazon included Paulo Barreto, Edson Vidal and Adalberto Veríssimo.



Biodiversity. Imazon collaborates with the technical committee of the ARPA project, a federal government initiative to support the establishment and consolidation of protected areas in the Amazon. Veríssimo is Imazon's representative in this effort, in addition to participating on the Board of Directors of Funbio since 1995.

Community Forest Management. Imazon has contributed strongly to the GTMFC since its establishment in 2002. Paulo Amaral is Imazon's representative and one of the leaders of this initiative.

Forest Credit. Imazon collaborated with a working group headed by Basa (Bank of Amazonia) to increase the availability of public credit for forest management in the Amazon. In 2004, there was a significant increase in public credit availability, which reached R\$ 41 million through FNO-Forest.

ZEE Pará. Imazon assisted the government of the state of Pará in the elaboration of a proposal to establish state forests as part of a large proposal for the ecological-economic zoning of the State of Pará. The proposal was submitted to the Legislative Assembly of Pará in February 2005.

Conservation Units in Amazonas. Imazon is helping the government of Amazonas state, through the Office of Sustainable Development, with the establishment of conservation units in the southern part of the state. Imazon has elaborated technical studies about the potential for the establishment of national and state forests in the region.

Conservation Units in Pará. Imazon is cooperating with the Ministry of the Environment and IBAMA on the establishment of conservation units for sustainable use in the regions of Terra do Meio and BR-163 (western Pará).

Monitoring. Imazon is collaborating with Inpe and Imac in monitoring deforestation in Acre since

1993. As part of this analysis, Imazon is looking at the development of public policies related to road construction, conservation units and settlements.

Permanent Plots. Edson Vidal and Denis Valle represent Imazon in the Permanent Plot Work Group. This group was formed by IBAMA with the objective of promoting data exchange about the growth of the Amazon forest.

Forest Certification. Imazon participates on the Technical Council since 1998. In 2004, the representative of Imazon, Paulo Amaral, became one of the members of FSC's Board of Directors in Brazil.

Training

Imazon invested greatly in the professional and academic development of its researchers and staff. The institute financed at least 18 training experiences for interns; English courses for 7 people; data processing courses (principally in geoprocessing) and intensive training in financial management and administration. In addition, the researchers participated in various training courses in the areas of communication and environmental rights, offered by partner institutions such as IEB. Finally, Imazon's researchers (at the assistant level) received training internally on research definition, field survey data, data analysis and technical writing.

PROGRAMS

Programs

Landscaping Monitoring

This program develops techniques using satellite images to detect, quantify and monitor deforestation, logging, unofficial roads, and other forms of human pressure. The results of these surveys are stored in a database linked to a Geographic Information System. This database allows rapid generation of information to supply external demand in the area of regional planning and ecological-economic zoning. The projects of this program are:

Detection of Environmental Threats. Regional diagnostics of human pressure in the Amazon and economic models of land use activities (logging, cattle ranching and soy production). These studies provide a source of information to identify threats to protected areas and to potential conservation areas. In addition, they are useful to model future Amazon scenarios, such as the impacts of road paving and hydroelectric construction.

Mapping of Deforested Areas. Development of satellite image processing techniques for faster monitoring of forests. Implemented through programming languages (*Interactive Data Language, R Language, Visual Basic*). These methods have been transferred to final users such as Secretariats of the Environment and NGOs.

Mapping of Logging Activities. Imazon has pioneered the development of satellite image processing techniques to identify and map logging

activities and forest areas degraded by fire and recurrent logging. Currently, these techniques have been tested to evaluate forest management plans and the quality of forest management.

Mapping of Forest Types. We use techniques of satellite data fusion for a detailed mapping of forest types at the scale 1:50.000. The data used include radar images (JERS-1) obtained during drought and rainy periods, topography (SRTM), Landsat images and maps of deforested areas. This type of information is useful for detailed analysis of potential areas for the establishment of sustainable use conservation units such as national forests.

Mapping of Roads. We are mapping unofficial roads in the Legal Amazon using Landsat images. During this period, we concluded a survey of the central west region of the state of Pará, where we identified approximately 20,000 km of these roads. This information is useful to evaluate human pressure in the Amazon, identify priority areas for enforcement and land titling, and to develop economic models of environmental risks.

Coordinator: Carlos Souza Jr.

Remote Sensing Team: André Monteiro, Amintas Brandão Jr, Anderson Costa, Carlos Souza Jr., Cíntia Balieiro, Rodney Salomão and Sâmia Nunes

GIS Team: Carlos Souza Jr, Kátia Pereira, Rodney Salomão

Interns: Katiúscia Fernandes, Gleice Melry Gomes, Heron Martins

Support: Gordon & Betty Moore Foundation, Ford Foundation, USAID

GEOPROCESSING AND REMOTE SENSING LABORATORY

The laboratory develops research, analysis and modeling of environmental threats and landscaping monitoring. In addition, the laboratory collaborates with other Imazon research programs that need geographic diagnostics and/or analysis. Through internships and training experiences, the laboratory has contributed to the training of new professionals in geoprocessing and remote sensing..

The laboratory has 14 workstations and 3 servers (one Windows Server and two Linux), with a total capacity of 7 terabytes. The softwares used in geoprocessing are ArcView 3.x, ArcGIS 9.0, ArcInfo, Spatial Analyst, Geostatistical analyst, Spring, and Idrisi. In the remote sensing, the softwares used are Envi 4.0, Erdas 8.4, Multispec and Idrisi. The programming languages used are IDL – Interactive Data Language, Research Systems, Visual Basic, C/C++, R Language, Python and GSLib.

Scenarios of Occupation

Imazon has developed a series of studies to understand the scenarios of economic occupation in the Amazon. The central question of these studies is: How will the politics of infrastructure and the market demand for products (soy, meat, timber, etc.) affect the occupation of the Amazon in the coming decades? The specific objectives of this program are: (i) to map the ranching and agriculture centers in the Amazon; (ii) to diagnose the environmental and socioeconomic impacts of these centers in the region; and (iii) to model the future occupation and

the potential impacts of these centers on natural resources. This program has three components:

Ranching. Imazon finished a study that showed where cattle ranching activity would be currently viable in the Amazon, using technical coefficients from the 1996 IBGE cattle ranching and agriculture census. The analysis was refined with the use of technical coefficients collected in the field, which are more powerful than those used in the census and which reveal increased productivity. We also analyzed the impact of infrastructure, especially road paving, on the reduction of transportation costs and on the increased price paid to producers for cattle. Finally, we evaluated the impact of the opening of external markets for meat in the Amazon. Currently, the region does not export meat because of hoof-and-mouth disease. Nevertheless, the federal and state governments are trying to eradicate this disease by 2005.

Fire. The occurrence of forest fires resulted in great damage to the Amazon economy, destruction of extensive forest areas, and release of carbon emissions into the atmosphere. We are evaluating the factors that influence the quantity and distribution of fires in the Amazon, such as road paving, changes in the prices of agricultural products, and public policy implementation (for example, establishment of Flonas).

Boom-bust. To document the boom-bust dynamic, Imazon conducted a case study in Paragominas (Pará), an old economic frontier. According to the report by Imazon and the World Bank, if market forces are not contained, reproduction of the boom–bust model will be inevitable, especially in humid regions. This cycle is destructive to the local economy and to workers. Unemployment, loss of the economic base and

impoverishment of the population are legacies left to the local economy. This study should be published in 2005. Imazon plans to develop other case studies, especially in the area of the BR-163.

Coordinator: Paulo Barreto

Team: Carlos Souza Jr., Eugênio Arima, Paulo Barreto, Ritaumaria Pereira, Rodney Salomão

Support: Usaid, Ford Foundation, William & Flora Hewlett Foundation

Forest Policy and Economics

The timber industry in the Amazon is going through a phase of change caused by three factors. First, there is great pressure from public opinion, tropical timber buyers, and environmental agencies for the adoption of forest management. Second, successful experiences with management in the region are increasing, revealing that this option is technically and economically viable. Lastly, there are increasing green market opportunities for FSC-certified timber, especially in international markets.

Although forest management is economically and technically viable, there are still serious obstacles to its adoption. These obstacles include public policies that are unfavorable for management (for example, lack of land titling) and scarce technical and economic information about management benefits. The objective of this program is to understand the dynamic, the barriers and the opportunities for development of the forest sector in the Amazon. As part of the program, Imazon has implemented three complementary projects:

Management and Forest Certification.

Demand for certified and managed timber has increased significantly in the last five years. This occurs mainly in the international markets

(especially in Europe and the United States). Nevertheless, the supply of certified and managed timber has increased in a slower fashion. In response to this situation, Imazon is acting on various fronts to support the adoption of management and, whenever possible, forest certification using FSC standards. In the last two years, Imazon collaborated in the launching and consolidation of the Amazon Certified Forest Producers Association (Associação dos Produtores Florestais Certificados da Amazônia – PFCA), an entity that brings together traditional communities and private companies certified by the FSC. In addition, Imazon has documented the obstacles and opportunities for non-certified forest management in the region. Finally, the Institute has made a great effort to promote forest management in seminars and discussion fora about public policies.

National Forests. Imazon has collaborated in the establishment of National and State Forests and other types of conservation units in the Amazon. For this, detailed studies were developed about the areas suitable for conservation units. These technical-scientific studies used advanced geoprocessing tools to detail, at a more refined scale, the conditions of forest cover, timber value, human pressure, and economic accessibility in the priority areas for the establishment of Flonas. In addition, Imazon is elaborating, in partnership with Imaflora, a manual to guide public consultations for the establishment of protected areas in the Amazon. This project has been developed in partnership with the federal government (MMA and Ibama) and the state governments of Acre, Amazonas and Pará.

Logging Centers. Initiated in 1998, this project has continually generated key data about the timber sector in the Amazon, including the

location of the major areas of timber production, the volume of processed wood and round wood produced, timber prices; and costs of logging operations, transport and processing. The logging census was repeated over the entire Legal Amazon in 2004. On this occasion, more than 680 timber companies were interviewed in 82 logging centers. The results of this survey will be disseminated in 2005. These two surveys (1998 and 2004) represent the most complete and accurate assessment of logging sector in the legal Amazon.

Environmental Law. Predatory and illegal activities harm sustainable development in the Amazon, causing direct damages to the environment and unfair competition with legal and sustainable activities. In other words, illegal practices usually involve lower costs than legal and sustainable practices. Therefore, sustainable development in the Amazon will depend on efficient efforts against illegal practices. In recent years, technological advances (such as the use of satellite images) and investments in enforcement have

allowed better detection of illegal activities. In addition, the approval of the environmental crimes law in 1998 and its regulation in 1999 created the expectation of severe punishment among violators. Nevertheless, analyses of the effectiveness of the implementation of this law and the barriers and opportunities to improve it are rare. This project has two main objectives. First, to evaluate the efficiency of the implementation of the environmental crimes law in the administrative and judicial arenas. Second, to identify opportunities to improve its application, considering the innovations and better practices in Brazil and other countries.

Coordinator: Adalberto Veríssimo

Team: Adalberto Veríssimo, Brenda Brito, Carla Costa, Danielle Celetano, Denys Pereira, Marco Lentini, Paulo Barreto, Rodney Salomão and Wandreia dos Santos

Associated Researchers: Anthony Anderson, Mark Cochrane

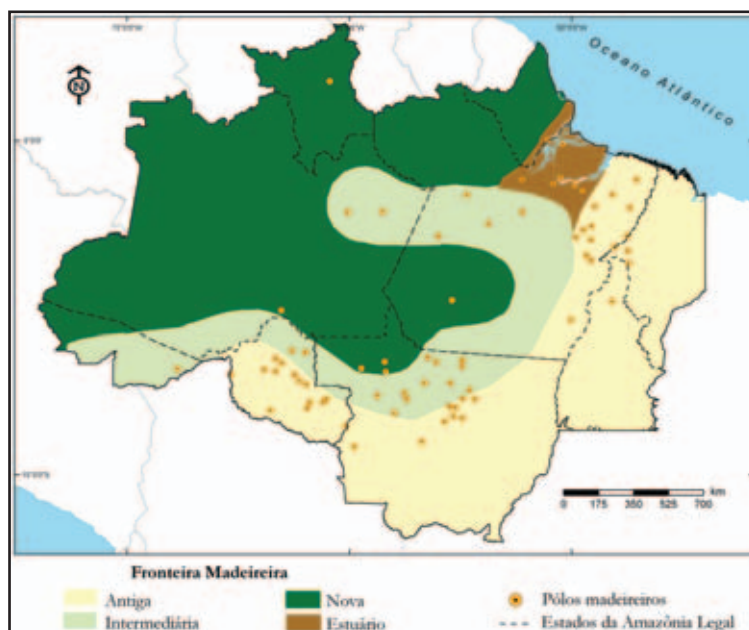
Collaborators: Roberto Palmieri and André Freitas (Imaflora)

Interns: Daniel Santos and Tatiana Silva

Support: Gordon & Betty Moore Foundation, AVINA Foundation, William & Flora Hewlett Foundation, WWF/DFID, GTZ and the Dutch Embassy

Ecology and Forest Management

The main objectives of this program are to examine the status of the forest management in the Amazon, to evaluate and develop sustainable forest management techniques, and to disseminate information about industrial and community forest management. Imazon's studies in this area permitted the



development of an integrated management model, which consists of selective felling; planning of roads, decks and skid trails; pre-harvest liana cutting; directional felling of trees; and planned skidding of logs. The program is divided into four projects:

Ecology of Timber Species. The objective of this project is to enhance the knowledge about the ecology of the main timber species that occur in the region. Among the project activities are the study of the population structure of 17 valuable timber species in logged and unlogged forests in the Brazilian Amazon, and the consequent forest management systems appropriate to these species.

Forest Management. Initiated in 1992, this project monitors the dynamics of managed and

unmanaged logged forests, and compares their development with that of native forests. In addition, the project evaluates the potential regeneration of timber species, and tests silvicultural treatments to improve growth in managed forests.

Ecology and Management of Vines. The objective is to implement studies about the behavior of different vine species and their impacts on the regeneration of tree species. In addition, Imazon is analyzing the diversity of vines after logging and estimating vine biomass in the forest.

Forest Modeling. This project analyzes scenarios to determine the cutting cycle, maximum logging intensity, and silvicultural treatments using models. In partnership with Embrapa, IFT and the University of Florida, Imazon is working with growth models for logged forests. These models evaluate scenarios in forests with different productive potentials and in forests suitable to their users (industry or community).

Coordinator: Edson Vidal

Team: Denis Valle, Márcio Sales and Marcelo Almeida

Associated Researchers: James Grogan and Mark Schulze

Collaborators: Daniel Zarin, James Grogan, Mark Schulze and Johan Zweed (IFT)

Support: Usaid



Forest and Communities

In recent years, social and community forest management has been highlighted in debates about forest management in the region. The diversity of experiences with community forest management has generated many lessons. Nonetheless, there are few analyses and little documentation about the successes and failures experienced by such initiatives in terms of their technical, social and

economic aspects. Therefore, this program proposes to document, analyze, advise, and promote the interchange of community forest management initiatives in the Brazilian Amazon. The program is organized into two components:

Lessons about Community Management. This component seeks to identify and disseminate models and forms of technical and managerial monitoring for grassroots organizations, in the Brazilian Amazon and other Latin America countries, which will allow better appropriation and performance of community forestry activities. In addition, the project will promote regional and international exchanges to learn new forms of technical and managerial monitoring of initiatives in the Amazon and Central America.

Communities and Markets. This project seeks to identify and promote market opportunities for forest products generated by smallholders and communities in the Brazilian Amazon. The project activities are: (i) to analyze markets for forest products and environmental services; (ii) to analyze government policies and programs concerning the incentives and barriers to community management; (iii) to disseminate information about market opportunities for grassroots organizations, communities and promoters of community forest management in the Amazon.

Coordinator: Paulo Amaral

Team: Paulo Amaral and Edson Vidal

Collaborators: Manuel Amaral (IIEB) and Carmen Garcia (Cifor)

Interns: Suellen Santos

Support: Ford Foundation, Usaid, GTZ

Sustainable Cities

The Amazon is becoming increasingly urban. The last demographic census revealed that 73% of the 21 million inhabitants of the legal Amazon live

in cities, among which are metropolitan Belém, with 1.8 million inhabitants and Manaus, with approximately 1.4 million. The program “Sustainable Cities” is a pioneering initiative to evaluate the socio-environmental situation of the main cities in the Amazon, using indicators, environmental education, and support for the elaboration of public policies.

In 2003, Imazon published the book *Sustainable Belém (Belém Sustentável)*, which contains 23 indicators of socio-environmental conditions in this city. The book also presents a list of initiatives and concrete suggestions to minimize or solve identified problems. A second edition of Sustainable Belém is being prepared and should be finished in 2006. In addition, the program will collaborate with similar initiatives planned for development in Rio Branco (Acre) and Manaus (Amazonas).

Coordinator: Adalberto Veríssimo

Team: Valmir Santos, Adalberto Veríssimo and Carla Costa

Support: AVINA Foundation, Ford Foundation and William & Flora Hewlett Foundation



EVENTS

Certified Brazil – Expo of FSC-Certified Products

Imazon was one of the organizers of the Expo of Certified Forest Products, Certified Brazil (*Brasil Certificado*), which took place in São Paulo during April 2004,. About 50 exhibitors and more than 4,000 visitors participated in the Expo. The event was a milestone in the history of FSC and included the presence of government authorities such as the Minister of the Environment, Marina Silva, and the Governor of Acre, Jorge Viana. A second expo is anticipated for 2006.



Date: April 15-17, 2004, São Paulo (SP)

Sponsor: Imazon, Imaflora, Amigos da Terra and FSC - Brazil

Workshop on Community Management and Forest Certification in Latin America

This event was organized by Imazon and partners and brought together about 100 people including community leaders, researchers, and experts on community forest management in Latin America. In this workshop experiences were presented involving community management in Mexico, Guatemala, Ecuador, Bolivia, Costa Rica, Peru and Brazil. In the case of Brazil, there were presentations of community initiatives in Acre, Amazonas and Pará. The paths that led to their certification process were also detailed, as well as the access to credit and other policies that promote community management.



Date: October 28-31, 2003. Hotel Paraíso, Belém (PA)

Sponsor: Imazon, IEB, Imaflora, ProManejo, GTZ

International Seminar on the Management of Public Forests: Experiences and Lessons for Brazil

This international seminar convened about 350 representatives of the public sector, researchers, environmentalists, social and community leaders, loggers, professionals and college students. The seminar discussed international experiences (from Australia, Bolivia, Guatemala and Mexico), and the advances obtained in Brazil (Acre, Amazonas and diverse experiences of Ibama) on public forests management. In addition, the seminar provided an ample debate among the different segments involved, and served to strengthen the proposed federal law concerning the management of Brazilian public forests, before its submission to the National Congress.



Date: February 12-14, 2004. Hotel Regente, Belém (PA)

Sponsor: Imazon, Cifor and Embrapa in partnership with MMA and Ibama

Forum on Forests, Management and Development: Options for the Amazon

Imazon collaborated with Cifor in organizing this seminar about the main questions regarding the management of public and private forests in the Amazon. The event marked 10 years of Cifor's presence in the Amazon. The meeting convened 150 people among researchers, businessmen, community members, government authorities and public prosecutors.



Date: August 6, 2003. *Estação Gasômetro*, Belém (PA)

Sponsor: Imazon, Cifor, Embrapa and GTZ

Seminar on Forest Certification in the Amazon: Advances and Opportunities

The seminar discussed the advances and opportunities for forest certification in the Amazon. The meeting drew 650 people and included the presence of the Minister of the Environment, Marina Silva, and the Minister of National Integration, Ciro Gomes. During the seminar, Minister Ciro Gomes announced the approval of the first credit line from the Bank of Amazonia for forest management. Major international buyers of certified wood and certified producers from the Amazon (including both the private and community groups) participated in the seminar. Another highlight of the event was the official launch of the Amazon Certified Forest Producers Association (PFCA), the first association of this type in the southern hemisphere. Minister Marina Silva closed the seminar with a vigorous discourse in favor of a forest economy for the Amazon.



Date: June 17, 2003. *Teatro da Estação das Docas, Belém (PA)*

Sponsor: Imazon, Imaflora, Amigos da Terra and PFCA

LIST OF PUBLICATIONS

List of Publications (2003-2004)

Peer Review Journals and Book Chapters

- Souza Jr., C. & Roberts, D. 2005. Mapping forest degradation in the Amazon region with Ikonos images. *International Journal of Remote Sensing* 26: 425-229.
- Grogan, J.; Landis, R.M.; Ashton, M.S. & Galvão, J. 2004. Growth response by big-leaf mahogany (*Swietenia macrophylla*) advance seedling regeneration to overhead canopy release in southeast Pará, Brazil. *Forest Ecology and Management* 204: 399-412.
- Veríssimo, A. & Barreto, P. 2004. National Forest in the Brazilian Amazon: opportunities and challenges. In D. Zarin; J. Alavalpati; F. Putz & M. Schimink (Eds.) *Working Forest in the America Tropics: Conservation through Sustainable Management?* New York: Columbia University Press. pp. 31-40.
- Simmons, C. S.; Walker, R.T.; Wood, C. H.; Arima, E.Y. & Cochrane, M. 2004. Wildfires in Amazônia: A pilot study examining the role of farming systems, social capital, and fire contagion. *Journal of Latin American Geography* 3(1): 81-96.
- Monteiro, A.; Souza Jr., C.; Barreto, P.; Pantoja, F. & Gerwing, J. 2004. Impactos da exploração madeireira e do fogo em florestas de transição da Amazônia Legal. *Scientia Forestalis* 65: 11-21.
- Gerwing, J. J. 2004. Life history diversity among six species of canopy lianas in an old-growth forest of the eastern Brazilian Amazon. *Forest Ecology and Management* 190: 57-72.
- Walker, R.; Drzyzga, S. A.; Li, Y.; Qi, J.; Caldas, M.; Arima, E. & Vergara, D. 2004. A behavioral model of landscape change in the Amazon basin: The colonist case. *Ecological Applications* 14 (4): 299-312.
- Powell, R. L.; Matzke, N.; Souza, Jr., C.; Clark, M.; Numata, I.; Hess, L. L. & Roberts, D. A. 2004. Sources of error in accuracy assessment of thematic land-cover maps in the Brazilian Amazon. *Remote Sensing of Environment* 90: 221-234.
- Roberts, D. A.; Numata, I.; Homes, K.; Batista, G.; Krug, T.; Monteiro, A. L.; Powell, B.; Chadwick, O. A. 2003. Large area mapping of land-cover change in Rondônia using multitemporal spectral mixture analysis and decision tree classifiers. *Journal of Geophysical Research* 107 (20): 40-1.40-18.
- Souza Jr., C.; Firestone, L.A.; Moreira, L.; Roberts, D.A. 2003. Mapping forest degradation in the eastern Amazon from SPOT 4 through spectral mixture models. *Remote Sensing of Environment* 87 (4): 494-506.
- Grogan, J.; Ashton, M.S. & Galvão, J. 2003 .Big-leaf mahogany (*Swietenia macrophylla*) seedling survival and growth across a topographic gradient in southeast Pará, Brazil. *Forest Ecology and Management* 186: 311-326.
- Veríssimo, A. & Cochrane, M. 2003. A risky forest policy in the Amazon? *Science* (299): 1843.

- Shanley, P. & Gaia, G. 2003. Equitable ecology: Collaborative learning for local benefit in Amazônia. *Agricultural System* 73: 83-97.
- Grogan, J.; Galvão, J.; Simões, L. & Veríssimo, A. 2003. Regeneration of big-leaf mahogany in closed and logged forests of southeastern Pará, Brazil. In: A. Lugo; J.C. Figueroa Colón & M. Alayón (Eds.) *Big-Leaf Mahogany: Genetics, Ecology, and Management*. Springer-Verlag: New York, NY, USA.
- Cochrane, M.A. 2003. Fire science for rainforests. *Nature* 421: 913-919.
- Monteiro, A. L.; Souza Jr., C. & Barreto, P. 2003. Detection of logging in Amazonian transition forest using spectral mixture models. *International Journal of Remote Sensing* 1 (24): 151-159.
- Grogan, J. & Barreto, P. Big-leaf mahogany on CITES Appendix II. No Prelo. *Conservation Biology*.
- Schulze, M.; Vidal, E.; Grogan, J.; Zweede, J. & Zarin, D. No prelo. As melhores práticas e normas de manejo atuais não sustentarão a produção de madeira nas florestas da Amazônia. *Ciência Hoje*.
- Arima, E.; Walker, R. T.; Perz, S. & Caldas, M. No Prelo. Loggers and forest fragmentation: Behavioral models of road building in the Amazon basin. *Annals of the Association of American Geographers*.
- Veríssimo, A. 2004. Florestas Nacionais para uma Amazônia florestal. In: B. Pokorny; C. Sabogal & F. Krämer (Eds.). *Forum sobre Florestas, Gestão e Desenvolvimento: Opções para a Amazônia*.
- Brito, B. & Barreto, P. 2004. Aplicação da lei de crimes ambientais pela justiça federal no setor florestal do Pará. Caderno de teses. *II Congresso Nacional da Magistratura e do Ministério Público para o Meio Ambiente. A Efetividade do Direito Ambiental Brasileiro*. Araxá: Abrampa. pp 45-71.
- Veríssimo, A. & Cochrane, M. 2003. Brazil's bold initiative in the Amazon. *Tropical Forest Update* 13 (3).
- Powell, R.; Matzke, N.; Souza Jr. C.; Clark, M.; Numata, I.; Hess, L. & Roberts, D. 2003. Sources of error in a video-derived reference data set for accuracy assessment of land-cover maps in the Amazon. *SBSR- XI Simpósio Brasileiro de Sensoriamento Remoto*. Anais XI SBSR, Belo Horizonte - MG, 5-10 de abril de 2003, Inpe. pp. 2877-2879.
- Valle, D.R.; Caixeta-Filho, J. V.; Vidal, E. & Grogan, J. 2003. Otimização da localização da infra-estrutura de exploração de impacto reduzido na floresta amazônica. In: *Anais do 4º Congresso Internacional de Economia e Gestão de Negócios / Networks Agroalimentares*. Ribeirão Preto/SP. pp.1-13.
- Veríssimo, A. 2003. *Flonas para uma Amazônia Florestal*. Folha de São Paulo, 7 de junho de 2003. (Tendências e Debates, p. 3).

Non-Peer Review Articles

- Souza Jr., C.; Brandão Jr., A.; Anderson, A.; Veríssimo, A. 2004. Avanço das Estradas Endógenas na Amazônia. *Série O Estado da Amazônia N° 01*. Imazon, Belém.

BOOKS (2003-2004)

Books (2003-2004)

Frutíferas e Plantas Úteis na Vida Amazônica (Useful Plants and Fruits in the Amazonian Life)

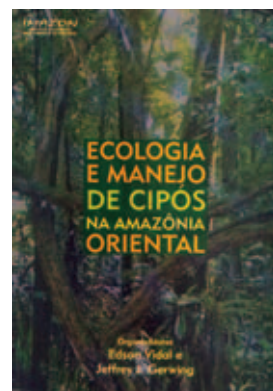
The book integrates scientific and traditional knowledge about ecology, economics, cultural aspects, nutrition and medicinal use of 21 tree species, lianas and palms. It discusses two distinct regions in the Amazon: the forests of the state of Acre and eastern Pará.



Shanley, P. & Medina, G. 2005. *Frutíferas e Plantas Úteis na Vida Amazônica*. Belém: Cifor, Imazon. 300 p. il.

Ecologia e Manejo de Cipós na Amazônia Oriental (Ecology and Management of Vines in Eastern Amazon)

Vines are abundant in the tropical forest, representing about ¼ of the plant species. Despite their importance, the studies about vines are scarce. This book synthesizes present knowledge about the ecology and management of vines in the Amazon, in a series of articles published by Vidal and Gerwing.



Vidal, E. & Gerwing, J.J. (Orgs.) 2004. *Ecologia e Manejo de Cipós na Amazônia Oriental*. Belém: Imazon. 141 p.

Biodiversity in the Brazilian Amazon (published in Portuguese and English)

The book identifies 560 priority areas for biodiversity conservation in the Amazon. For each one of the areas there is information about birds, aquatic biota, mammals, invertebrates, flowering plants, reptiles and amphibians, conservation units, functions and environmental services, traditional and indigenous people, human pressure and development centers.



Capobianco, J. P.; Veríssimo, A.; Moreira, A.; Sawyer, D.; Santos, I. & Pinto, L. P. (Orgs.) 2004. *Biodiversity in the Brazilian Amazon*. São Paulo: Estação Liberdade, Instituto Socioambiental. São Paulo. 535 p.

Belém Sustentável (Sustainable Belém)

This book documents the socio-environmental situation of Belém. Using non-technical language, the authors present indicators of the quality of life to show the tendencies of development of the city in the areas of transportation, green spaces, garbage production, water, sewage system, noise and visual pollution. The book also presents a series of suggestions to minimize or solve identified problems.



Paranaguá, P.; Melo, P.; Sotta, E. & Veríssimo, A. 2003. *Belém Sustentável*. Belém: Imazon. 111 p.

Forest Facts in the Brazilian Amazon 2003 (published in Portuguese and English)

This book summarizes the main statistics about the logging sector in the Legal Amazon during the period of 1998 and 2003. The book presents data about logging, timber sources, transportation, industrial processing and timber commercialization. The study contains important information about

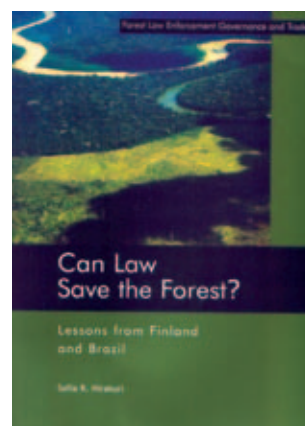


management and forest certification. In addition, it presents the costs and revenues of the timber sector.

Lentini, M.; Veríssimo, A. & Sobral, L. 2003. *Fatos Florestais da Amazônia 2003*. Belém: Imazon. 108 p

Can Law Save the Forest? Lessons from Finland and Brazil

Forests are increasingly threatened by illegal and unsustainable logging practices. In this book, the author shows the flaws in the implementation of forest law in Brazil, compared to the successes in Finland. A scrupulous examination of the Finnish forest law model reveals aspects that could be adapted and applied in Brazil, and potentially in other tropical countries as well.



Hirakuri, S. 2003. *Can Law Save the Forest? Lessons from Finland and Brazil*. Indonésia: Cifor. Forest Law Enforcement Governance and Trade Series. 120 p.

Videos



Title: Ouro Verde (Green Gold).

Authors: Imazon e WWF

Production: Vídeo & Cia, 2003

Duration: 35 min, NTSC

DIRECTORS AND STAFF

Directors and Staff

Board of Directors

Luis Carlos Estraviz Rodrigues (Ph.D.) – President of Imazon's Board of Directors. Professor of Forest Economics, Escola Superior de Agricultura Luiz de Queiroz (Esalq/USP).

André Guimarães – Vice-President of Imazon Board of Directors. Executive Director, Ibio.

Daniel Zarin (Ph.D.) – Professor, University of Florida - USA.

Garo Batmanian (Ph.D.) – Senior Environment Specialist (World Bank).

José Natalino da Silva (Ph.D.) – Researcher, Embrapa.

Maria José Gontijo – Executive Director, IEB.

Marcelo Carneiro – Professor, UFMA.

Executive Office

Carlos Souza Junior – Executive Secretary

Brenda Brito – Vice-Executive secretary

The members of the Executive Office receive help from the Financial Manager Elson Vidal and from Administrative Manager Greice Ferreira.

Advisory Council

Adriana Ramos. ISA

Jorge Yared (Ph.D.). Embrapa

Luis Gonzaga da Silva Costa. Ufra

Manoel Pereira. Cikel Madeiras

Peter May (Ph.D.). UFRJ

Rita Mesquita (Ph.D.). Inpa.

Robert Buschbacher (Ph.D.). University of Florida - USA.

Robert Schneider (Ph.D.). World Bank.

Robert Walker (Ph.D.). Michigan State University - USA.

Fiscal Council

Johan Zweed. IFT

Hélio Mairata. UFPA

Raimundo Moraes. Pará Department of Public Prosecution.

Researchers

Adalberto Veríssimo. Senior Researcher. Agronomy Engineer and M.Sc. in Ecology.

Amintas Brandão Júnior. Assistant Researcher. Environmental Engineer.

Anderson Costa. Environmental Engineer (Ufra). Assistant Researcher. Remote Sensing Technician.

André Monteiro. Assistant Researcher. Forest Engineer. Masters student in Forest Management with emphasis on Remote Sensing, UFPR.

Brenda Brito. Vice-Executive Secretary. Assistant Researcher. Lawyer.

Carla Costa. Assistant Researcher. Environmental Engineer.

Carlos Souza Júnior. Executive Director. Senior Researcher. Geologist. M.Sc. in Soil Science with emphasis on Remote Sensing. Doctoral candidate in Geography, University of California - Santa Barbara (USA).

Danielle Celentano Augusto. Assistant Researcher. Forest Engineer.

Denis Valle. Assistant Researcher. Forest Engineer.

Denys Pereira. Forest Engineer (Ufam)

Edson Vidal. Sênior Researcher. Agronomy Engineer. Ph.D. in Environmental Engineer, USP.

Eugênio Arima. Senior Researcher. Agronomy Engineer. M.Sc. in Rural Economy. Doctoral candidate in Economic Geography and Quantitative Methods, Michigan State University.

Márcio Henrique Sales. Assistant Researcher. BSc. in Statistics.

Marco Lentini. Assistant Researcher. Forest Engineer.

Paulo Amaral. Senior Researcher. Agronomy Engineer. M.Sc. in Management and Conservation of Biodiversity and Tropical Forest.

Paulo Barreto. Senior Researcher. Forest Engineer. M.Sc. in Forest Science.

Ritaumaria de Jesus Pereira. Assistant Researcher. Agronomy Engineer. M.Sc. in Applied Economics.

Sâmia Nunes. Forest Engineer (Ufra).

Valmir Santos. Assistant Researcher. BA in History, UFPA.

Wandreia dos Santos. Assistant Researcher. Forest Engineer, Ufra. M.Sc. in Tropical Forest, Dresden University of Technology - Germany. Ph.D. in Silviculture, Dresden University of Technology – Germany.

Technicians

Cintia Balieiro. Agronomy Engineer (Ufra).

Kátia Pereira. BSc. in Chemical Engineering (UFPA). M.Sc. in Environmental Geochemistry (UFPA).

Marcelo Almeida. Field Assistant. Forest Technician.

Rodney Salomão. Forest Engineer (Ufra). Geoprocessing Technician.

Interns

Daniel Santos. Student of Environmental Engineering (Uepa).

Gleice Gomes. Student of Environmental Engineering (Uepa).

Heron Martins. Student of Environmental Engineering (Uepa).

Júlia Ribeiro. Student of Agronomy (Ufra).

Katiuscia Fernandes. Student of Environmental Engineering (Uepa).

Suelen Santos. Student of Agronomy (Ufra).

Tatiana Silva. Student of Law (UFPA).

Administration

Aline Ferreira. Administrative Assistant. Student of Administration of Information Systems (Faci).

Daniel Souza. Data Processing Technician. Student of Data Processing (Unama).

Elson Vidal. Financial Manager. BA in Administration and Environmental Management (Iesam).

Greice Ferreira. Administrative Manager. BA in Media and Communication Studies with focus on Public Relations (Unama).

Izabel Cristina Barros. General Services.

Júlia Beltrão. Accounting Assistant. Student of Accounting (Iesam).

Manoel Coelho. Maintenance Assistant.

Márcio Brilhante. Financial Assistant. Student of Accounting (Iesam). (in memorian)

Maria de Nazaré Costa. Cook.

Rosa Pinheiro. General Services.

Selma Ramos. Cook.

Verônica Oki. Accounting Assistant. BA in Accounting (Iesam).

Associated Researchers

Anthony Anderson. Biologist, Ph.D.

James Grogan. Ecologist, Ph.D.

Mark Cochrane. Ecologist, Ph.D.

Mark Schulze. Biologist, Ph.D.

*Effective staff in April, 2005

BALANCE SHEET

Balance Sheet

The 2003-2004 financial balance sheet is presented in the following table. Three trends should be highlighted during this period. First, the income had an impressive increase. Second, the administrative costs were maintained in 15% in 2003 and 14% in 2004 – a value similar to that in 2001-2002. Third, there was an increase on the sources of support to Imazon, from national and international institutions.

The surplus showed in this report does not imply that Imazon has earnings. The surplus results

mainly from the difference between the Brazilian fiscal calendar (from January to December) and the fiscal calendar of some international donors (from June to July). In other words, Imazon receives part of its income in the middle of the year and it has until the middle of the next year to implement its activities, that is, to spend all the resource. This way, at the end of the Brazilian fiscal year (December), there is still a significant balance for the next year.

YEAR 2003

Revenues	R\$	%
Government of Acre	23.245,00	1,0
Cifor	201.600,00	8,5
CI	64.000,00	2,7
Embrapa (Dendrogene)	11.910,00	0,5
Hewlett Foundation	287.280,36	12,1
Ford Foundation	522.462,85	22,1
WRI	95.623,54	4,0
Promanejo-IBAMA	65.213,62	2,8
LBA-NASA	17.605,61	0,7
PFCA	6.400,00	0,3
WWF	541.621,46	22,9
GTZ	211.595	8,9
USAID	261.650,40	11,1
Others	55.673,58	2,4
TOTAL	2.365.880,93	100,0
Expenses	R\$	%
Administrative costs	330.525,33	15,4
Research costs	522.925,37	24,4
Investments	373.994,44	17,5
Salaries	872.164,69	40,7
Training	41.981,95	2,0
TOTAL	2.141.591,78	100,0
SURPLUS		224.289,15

YEAR 2004

Revenues	R\$	%
Government of Acre	60.710,00	1,14
Imaflora	6.297,78	0,12
IEB	8.154,89	0,15
LBA-NASA	14.887,27	0,28
Embrapa (Dendrogene)	47.274,05	0,89
Cifor	50.252,67	0,94
Embassy of Holland	76.800,00	1,44
GTZ	80.332,07	1,51
Avina Foundation	155.227,99	2,91
WWF	251.014,23	4,71
Ford Foundation	383.306,78	7,20
Hewlett Foundation	768.381,71	14,43
Usaid	1.197.378,10	22,49
Moore Foundation	2.222.663,00	41,74
Others	2.514,54	0,05
TOTAL	5.325.195,08	100
Expenses	R\$	%
Administrative costs	467.183,49	14
Research costs	847.649,46	25
Investments	371.274,41	11
Salaries	1.647.468,52	48
Training	84.526,55	2
TOTAL	3.418.102,43	100
SURPLUS		1.907.092,65

This report presents the major activities and results of Imazon's work in 2003-2004. In these two years, the institute produced 33 publications among scientific articles and books.

These publications cover a large variety of subjects including geoprocessing, non-timber products, biodiversity, forest economy, ecology, urban environment, environmental law and economic geography.



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