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TRANSFORMING LIVES AND LANDSCAPES

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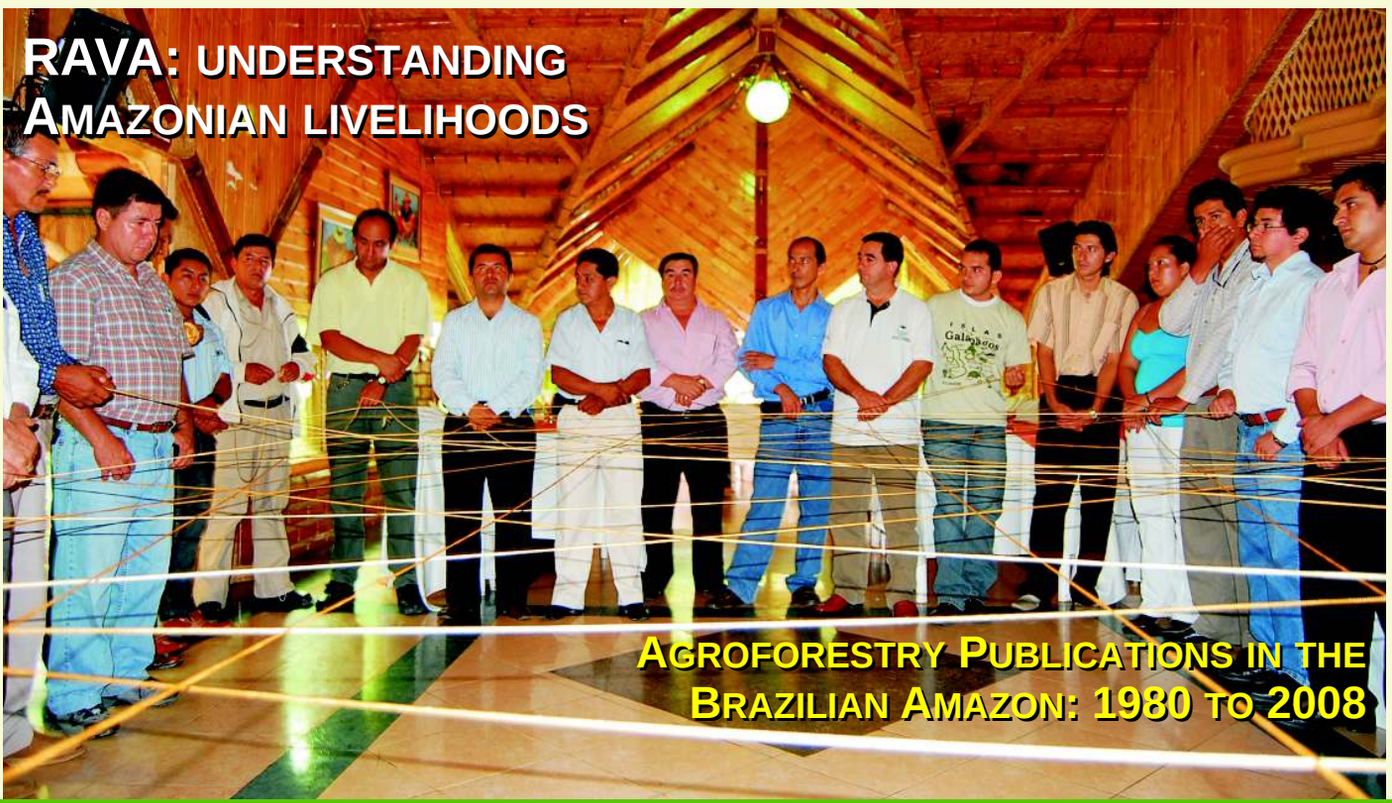
STRENGTHENING AGROFORESTRY ALLIANCES IN THE AMAZON

FRUTAMAZ AND ECONEGOCIOS: IMPROVING THE QUALITY AND VALUE OF GERMPLASM



RAVA: UNDERSTANDING AMAZONIAN LIVELIHOODS

AGROFORESTRY PUBLICATIONS IN THE BRAZILIAN AMAZON: 1980 TO 2008

Content

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On the cover:
(top) Cocoa producers - Chazuta community, Tarapoto, Peru
(bottom) Collaboration among participants of Amazon Agroforestry Alliances (AAA) workshop - Zamora, Ecuador

Presentation Letter

It is with great satisfaction that ICRAF presents the first edition of its quarterly newsletter, Amazon Agroforestry. Resulting from the combined efforts of various professionals within ICRAF and the Amazon Initiative Consortium, this newsletter aims to set in motion a process that provides greater visibility to the activities of our Centre in the Amazon, reinforcing the proposal for a viable agroforestry alternative throughout the region.

The basic structure of Amazon Agroforestry consists of four main sections. The first, Institutional, aims to present institutional information about ICRAF, both within the region and on a global level, as well as relevant material concerning ICRAF's partners within the Amazon region. In this first edition, we present basic information about ICRAF to those who are unfamiliar with the Centre. In subsequent editions this section will offer information about projects developed and undertaken by ICRAF in its different regions of operation. The second section, ICRAF in the Amazon, presents material concerning research, development, and extension activities that ICRAF implements in the Amazon region. The third section, Agroforestry in the Amazon, includes three sub-sections that focus on presenting the various contexts in which agroforestry practices are carried out in the Amazon, the description of regional projects with an agroforestry emphasis, and in each edition, the presentation of a different species used in agroforestry practices in the region. Finally, the last section, Agroforestry Knowledge and Opportunities, will present in each edition material about cooperation agencies and announcements concerning different agroforestry projects, details of events and other agroforestry happenings both in the region and on a global level, bibliographical information focusing on a specific theme pulled from the Agroforestry Databases for the Amazon Region – an initiative being developed by ICRAF – and finally, summaries of key publications pertaining or relating to the field of agroforestry.

At a moment in which we find ourselves discussing the need to reconcile efforts to contain or reverse deforestation in the Amazon with initiatives to strengthen productive strategies that make viable the livelihoods of the smallholders and communities that inhabit the region, Amazon Agroforestry seeks to direct the attention of public opinion to a joining of initiatives that present us with the agroforestry alternative as something that will contribute significantly to the realization of these goals.

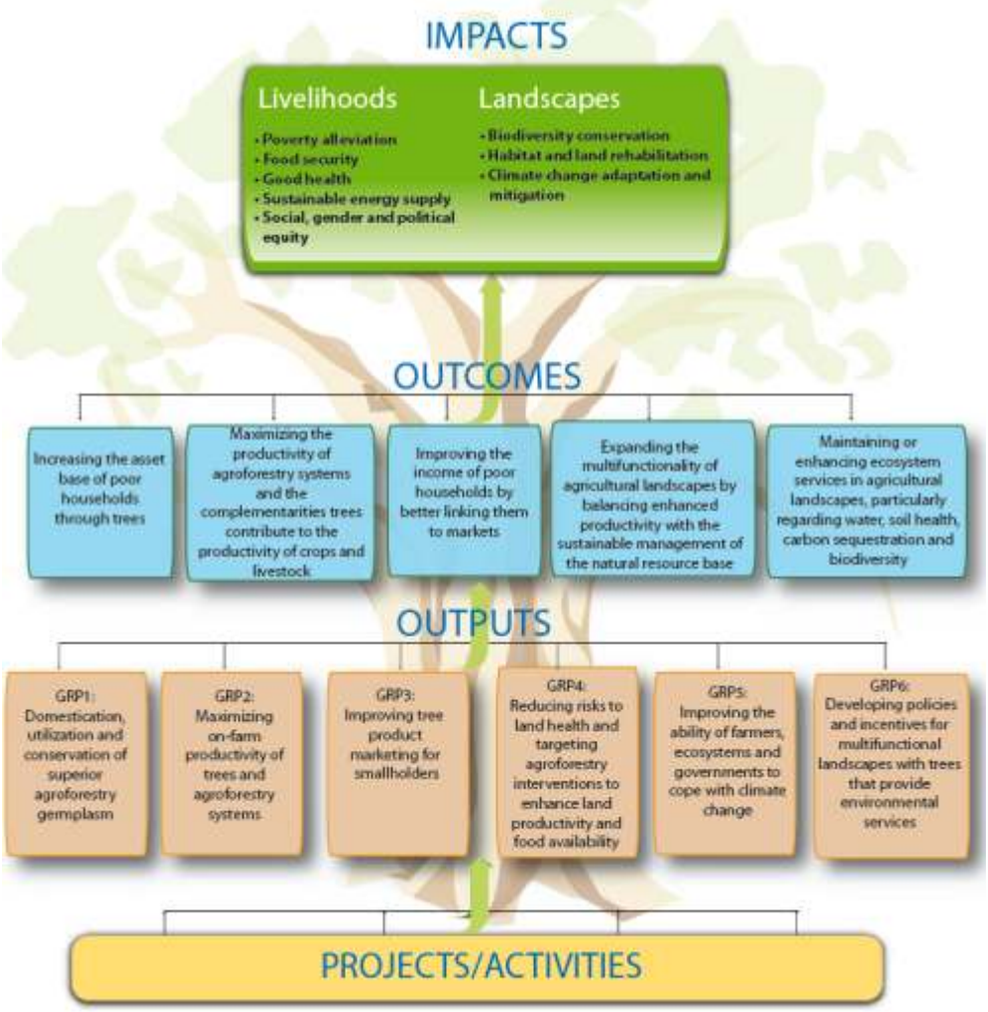
Roberto Porro
Regional Coordinator
ICRAF-Amazon

Transforming Lives and Landscapes in the Developing World

ICRAF's global headquarters in Nairobi, Kenya

The World Agroforestry Centre (ICRAF), founded in 1978, is an autonomous, nonprofit research organization, whose vision is one of transformation in the developing world, in which the rural population begins to adopt, in an ever-increasing manner, land-use systems that include the integration of trees and agricultural products to improve food security, generate income, and promote environmental sustainability, with positive impacts on nutrition, health, living conditions and energy sources. From a scientific perspective, ICRAF generates knowledge and awareness concerning the diverse roles played by trees in agricultural landscapes, and uses this knowledge to promote policies and practices that serve both society and the environment.

ICRAF is one of 15 centers belonging to the Consultative Group on International Agricultural Research (CGIAR). With its headquarters in Nairobi, Kenya, ICRAF is active in Africa, Asia, and Latin America, and has regional headquarters in India, Indonesia, Kenya, Malawi and Mali, in addition to its Latin American representation in the Amazon. The resources that support ICRAF's activities come from more than 50 different sources, including national governments, private foundations, international organizations and regional development banks.



Beginning in 2007 with strategic planning that included detailed consultations with its institutional partners, ICRAF established that its objectives through 2015 would be pursued though six global research priorities (GRP's) that seek to create an impact on a scale large enough to be able to respond to the challenges identified in the interface between development and the environment. Each of the GRPs, listed below, addresses both livelihood and landscape issues to some degree.

GRP1: Domestication, utilization and conservation of superior agroforestry germplasm - This GRP aims to increase farmers' access to improved germplasm of priority tree species and ensure better functioning of tree seed and seedling supply systems.

GRP2: Maximizing on-farm productivity of trees and agroforestry systems - The objective of this GRP is to develop better understanding of and approaches for enhancing on-farm productivity through improved agroforestry systems. This includes nutrient cycling among trees, animals and crops; using local ecological knowledge to develop improved agroforestry management principles; expanding tree species diversity; developing coping mechanisms for climate variability; and considering tree-soil interactions to match species to sites and systems.

GRP3: Improving tree product marketing for smallholders - Research under this GRP will focus on expanding smallholders' access to value chains for agroforestry tree products and improving their incomes and livelihoods through better marketing.

GRP4: Reducing risks to land health and targeting agroforestry interventions to enhance land productivity - This GRP will focus on developing multi-scale and widely usable methods of land health surveillance and will quantify and map major risks to land health on different scales. Efforts will be made to evaluate the cost effectiveness and outcomes of intervention programs and to develop national capacity in operational methods and tools of land health surveillance.

GRP5: Improving the ability of farmers, ecosystems and governments to cope with climate change - The research aims to improve the stability of farming systems and livelihood strategies of smallholder farmers in light of current climate variability and long-term climate change. This will be achieved through smallholders' increased use of trees for intensifying, diversifying and buffering farm systems.

GRP6: Developing policies and incentives for multifunctional landscapes with trees that provide environmental services - Through this GRP, we will support better policies and the creation of incentives for maintaining the multifunctionality of landscapes with trees. This work will be based on improved understanding of the roles trees play in securing watershed services, storing carbon and maintaining biodiversity in landscape mosaics.

Agroforestry Collaborations: ICRAF and its partners in the Amazon

ICRAF's participation in the framework of the Amazon Initiative (AI) Consortium dates back to 2003. During the past five years, ICRAF, together with the International Center for Tropical Agriculture (CIAT), has maintained the executive secretary of the Consortium. As such, ICRAF actively participates in the construction and implementation of AI's collaborative research agenda, whose four priorities are:

- Adaptation to and Mitigation of Climate Change
- Sustainable Use of Deforested and Degraded Areas
- Forest Benefits for Society and the Environment
- Added Value to Amazonian Products

Before the establishment of AI, ICRAF worked in Peru in partnership with the country's National Institute for Agrarian Innovation (INIA) and other national institutions (as discussed on page six). This collaboration, dating back to ICRAF's establishment in Latin America in 1994, has focused primarily on actions related to the domestication of agroforestry tree species.

Research sites of the Amazon Initiative Consortium

Partnerships and Collaborations

ICRAF's strategic plan for the Amazon region includes the strengthening of partnerships with national, state and local institutions. Except in the case of Peru, where the establishment of ICRAF predates that of the Amazon Initiative Consortium, partnerships throughout the Amazon were formed through collaborative processes in the framework of AI. Such processes resulted in the development of research projects and activities in which ICRAF has played a central role, and in many cases, agreements concerning responsibilities for the projects' execution. This is

the case, for example, with the activities carried out through RAVA (see material on page 9), in which are included 14 cooperative agreements. ICRAF's partner institutions in the Amazon include national agriculture research institutions (NARIS), other research and extension institutes acting on the regional or state level, universities working in the Amazon region, and local NGOs and social movement organizations.

Beginning with the next edition of Amazon Agroforestry, ICRAF will use this section to present its partner institutions in the Amazon region, putting special emphasis on highlighting the institution's activities related specifically to agroforestry practices.

ICRAF's Partner Institutions in the Amazon

	Bolivia	Brazil	Colombia	Ecuador	Peru	Suriname	Venezuela
National institutes	INIAF	Embrapa	Corpoica	INIAP	INIA	CELOS	INIA
Universities	UAB-Iifa	UFPA-Neaf	Uniamazonia	U. Loja	UNU UNALM	ADEKUS	UNEG
Regional institutes	CIAT	INPA IDAM	SINCHI	Parque Sumaco	IIAP	--	CAICET
Local organizations	IPHAE	MIQCB ASSEEFA	--	--	PROSEMA ACATPA CODESU	--	--

Human Resources

Currently, thirteen people work for ICRAF in the Amazon, distributed between offices in Peru (Lima and Pucallpa) and Brazil (Belém). Since 2003, the Centre's regional activities have been managed from Belém – headquarters of the Amazon Initiative Consortium – under the coordination of Roberto Porro, anthropologist and agronomy engineer. Julio Ugarte, forest engineer whose work with ICRAF began in 2002, acts as the national coordinator in Peru, and is responsible for regional activities under GRP-1 (germplasm) and GRP-3 (markets). Abel Meza, agronomy engineer and soil specialist, began working for ICRAF in 2007, and is currently responsible for the Centre's office in Pucallpa as well as activities related to GRP-2 (agroforestry system productivity). In 2008, agronomist Roger Piñedo joined the team in Pucallpa, lending support to activities in GRPs 1, 2 and 3. Silvia Dupuy (Lima) and Marjorie Avila (Pucallpa) are responsible for ICRAF's executive and administrative assistance in Peru. Midway through 2009, the team in Peru added Kristina Arevalo, an anthropologist who will be working on research projects related to traditional knowledge associated with soil quality, and who will be collaborating with GRP-4 (soils) and GRP-6 (environmental services).

In Brazil, only in 2007 did the ICRAF team in Belém begin to expand with the arrival of Marcos R. Tito, forest engineer and researcher in the areas of climate change (GRP-5) and environmental services (GRP-6). In 2009 ecologists Jamie Cotta and Javier Ruiz joined ICRAF in Belém. Both dedicate themselves to research related to the interplay of livelihoods and environmental issues in the Amazon region, contributing principally to GRP-3 and GRP-6. In addition to its researchers, the ICRAF-Belém team is composed of Juliane Frazão, executive assistant; Walbert Monteiro, computing intern; and Brendan Rohr, communications intern. ICRAF also receives direct support from the Amazon Initiative management team in Belém: María Eugenia Isnardi, Flávia Cunha and Paulo Alves (communications), and Sandra Holanda, Zíngara Azevedo and Katiane Silva (administration).

Left to right: R. Porro, A. Meza, S. Dupuy, M. Tito, J. Ugarte, M. Ávila and R. Piñedo

Clockwise, from left: W. Monteiro, J. Ruiz, B. Rohr, P. Alves, F. Cunha, E. Isnardi, J. Cotta and J. Frazão

FRUTAMAZ and ECONEGOCIOS: improving the quality and increasing supplies of germplasm

By Julio Ugarte and Roberto Porro

Since the onset of ICRAF's involvement in Peru, the Centre, in collaboration with the National Institute for Agrarian Innovation (INIA-Peru) and the Peruvian Amazon Research Institute (IIAP), has focused on providing goods and services to rural communities through the promotion of agroforestry systems. The initiative responds to the necessities of the inhabitants in the rural zones of the Peruvian Amazon that live in conditions of poverty or extreme poverty, relying principally upon migratory agriculture and the selective extraction of timber and non-timber products from the forest – activities which eventually lead to environmental degradation and reduced quality of life for those very same inhabitants.

One of the main obstacles to increasing the productivity of agroforestry systems is the inability to offer quality germplasm (seeds and seedlings) of selected tree species. For this reason, the activities of the Global Research Programs (GRPs) related to germplasm (GRP-1) have been prioritized by ICRAF in the Peruvian Amazon region.

The GRPs set forth by ICRAF serve as a basis for the planning of the Centre's activities in each region. GRP-1 refers to the domestication, use and conservation of germplasm of superior quality belonging to species used in agroforestry systems. Its objective is to improve local communities' access to high-quality germplasm of species locally prioritized, and at the same time assure highly-functional provision systems for seeds and seedlings. The desired results are 1) improved tree germplasm and the development of pertinent information through appropriate methodologies and 2) supply chains for seeds and seedlings developed through strategic alliances with key actors.

Well before ICRAF developed its GRPs in 2008, the Centre, in collaboration with Peruvian partner institutions, was working on projects promoting the domestication of different Amazonian tree species. Established in 1994, the Domestication Program for Agroforestry Tree Species is a participatory project for producers inhabiting the forest lowlands of the Peruvian Amazon, in the regions of Ucayali (Pucallpa) and Loreto (Yurimaguas). The project's objectives are 1) to generate basic information concerning genetic variation in priority agroforestry tree species, 2) to conserve the valuable genetic resources of these species, 3) to produce high-quality germplasm for these species, and 4) to contribute to the economic and social development of rural communities in the region. The project's philosophy is based on the development and conservation of genetic resources through their use and commercialization by smallholders. In such participatory domestication, producers and researchers work together in the identification, collection, evaluation, selection, management and multiplication of improved germplasm of the chosen species. For this particular project, the species selected by producers were capirona

Peach palm (*Bactris gasipaes*) in full fruit

(*Calycophyllum spruceanum*), bolaina (*Guazuma crinita*), ice-cream bean (*Inga edulis*) and peach palm (*Bactris gasipaes*).

From the outset, the project's methodology focused on the development of collaborative activities with local scientific institutions and rural communities. The various steps involved included the collection of seeds from priority species, performing tests for origin and lineage in the producers' plots, the selection of the highest quality germplasm, and in the medium-term, the application of genetic test findings into a network of seed orchards to provide selected germplasm and timber, along with the production of seedlings in family-owned nurseries and the conservation of genetic resources by the communities. Before establishing the test plots on the producers' land, the following activities were first considered: selection of the producer, selection of sites suitable to the species

within the premises of the producer's land, and the preparation of a letter of agreement between each producer and ICRAF. The criteria used to select producers for the project included their level of knowledge, ability and availability to work in participatory projects, their membership in a socioeconomic group representative of the region, and their legal authorization to tend the land, among others.

Currently, through support provided by the project Innovation and Competitiveness for Agriculture in Peru (INCAGRO), the same participatory methodology employed for the improvement of tree species is being used with fruit species native to the Amazon region, including camu-camu (*Myrciaria dubia*) and aguaje (*Mauritia flexuosa*). Together with peach palm, these fruit trees comprise an initial portfolio of available species with the potential to improve the productive systems of disadvantaged rural inhabitants. The objective of the project, titled FRUTAMAZ, is to create and initiate a sustainable, interinstitutional program of genetic improvement and conservation of Amazonian fruit species, capable of responding to the national demand for improved germplasm of selected trees in the short, medium, and long terms.

The smallholders that participate in FRUTAMAZ are organized in an association of producers of selected germplasm, and make up a business selling timber and non-timber products. Within this framework, activities related to the supply of germplasm are integrated with activities which seek to add value to agroforestry products and better develop markets for these products – objectives specified in ICRAF's GRP-3.

In addition, since in 2008 ICRAF has worked in partnership with the Consortium for the Sustainable Development of Ucayali (CODESU) – and with support from the Fund of the Americas (FONDAM) – in the development of a project titled ECONEGOCIOS (eco-business), whose mission is *The use of select germplasm from seed orchards of bolaina, capirona, ice-cream bean and peach palm for the improved income of small producers in the Amazon, from an eco-business perspective*. The Aguaytía High-Quality Seed and Timber Producers Association (PROSEMA) is the organization responsible for grouping together the producers of agroforestry seeds in the Ucayali region. The association participates proactively in ECONEGOCIOS, seeking to increase the competitiveness of agroforestry systems, and putting special emphasis on the sustainability of commercial seed production beyond the boundaries of the project.

As a result, it is hoped that PROSEMA can strengthen itself as an institution, and that it can develop its own vision through collaborations with commercial enterprises. In addition, it is hoped that the seed orchards of bolaina, capirona, ice-cream bean, peach palm and other selected species will satisfy national demand for these products while at the same time complying with Peruvian regulations concerning the production, commercialization, and certification of forest seeds.

Mr. Agustín Noriega, partner-founder of PROSEMA, observes his bolaina seed orchard in San Alejandro, Ucayali region, Peru.

The Damian Isidro family harvests seeds of bolaina for sale in a local market - Curimana, Ucayali region, Peru.

Producer Nemesio Damian measures the diameter of his bolaina trees near the town of Curimana, Ucayali region, Peru.

Counting on necessary work capital and infrastructure, the ECONEGOCIOS strategic alliance aims for the administration of the business to be carried out by the property marketing corporation of the partners of PROSEMA. The specific role of ICRAF in ECONEGOCIOS is centered on technical supervision of the project's productive component, as well as capacity-building among those local producers involved in the project. PROSEMA, meanwhile, is responsible for the direct implementation and carrying out of activities, in the process gaining institutional experience that will serve the organization in its future role as a provider of seeds. Through the strengthening of these institutions, it will become easier to maintain a constant flow of forest germplasm, as well as products and services from producers to markets. As such, the project will contribute positively to local quality of life, environmental conservation, and regional development.

Better understanding Amazonian livelihoods through RAVA

The mission of ICRAF in the Amazon is relatively straightforward: to promote agroforestry as a viable and productive alternative for smallholders throughout the region, and in turn help preserve the very forest which makes the sustainable practice possible. Nevertheless, properly promoting such an alternative first requires substantial knowledge. Especially crucial is the already existing relationship between local producers and the forest which provides their livelihood.

The Amazon Livelihood and Environment Network (RAVA, its Spanish acronym) was created in 2007 by ICRAF and other partner institutions within the Amazon Initiative (AI) Consortium, with financial support from the World Bank's Institutional Development Fund, and in-kind co-financing from ICRAF and other AI member institutions. The objective of the network is to analyze the living conditions of different Amazonian communities and develop a baseline on how forestry, agroforestry, and agricultural activities contribute to the wellbeing of these communities, as well as to the conservation of the surrounding environment.

Since field research activities began in late 2007, these socioeconomic studies have been carried out across 14 sites in seven Amazonian countries. Each location of the RAVA study is a well-defined territory equivalent to one or more districts, or to an Amazon river basin that is home to communities that are directly dependent on the forest and its products or on other natural resources.

RAVA uses a systematic, interdisciplinary and collaborative research methodology adapted from PEN (Poverty & Environment Network), a global research program carried out by AI member institution CIFOR (Center for International Forestry Research). The PEN approach, in this case, is performed through direct collaboration with Amazonian universities and local institutions. In each RAVA site, a small research team typically includes a university professor, a postgraduate student, and a researcher or a technician from a local institution. The teams visit households 4-5 times over a 12 month period, during which interviews are conducted and questionnaires applied to a random sample of at least 150 residences to assess and better understand their living conditions.


Photo: E. Isnardi

Integrating Amazonian knowledge: Since its establishment, RAVA has counted on yearly workshops in which researchers have come together to plan and coordinate, share experiences, resolve common difficulties that came up during the investigation process and receive training for data analysis. Above all, through these workshops RAVA researchers have built interpersonal relationships which they will carry into future collaborations in the region.


Photo: J. Cardenas

Family of the Cacataibo ethnic group during RAVA interview in Ucayali, Peru.

To date, researchers have finished collecting data in five of the seven countries, with site visits still occurring only in Venezuela and Suriname. A database comprising a total of 2,000 households in near 120 communities will be assembled through the integration of data from the 14 surveys. During the next six months, teams will be working on checking and cleaning the data already gathered and entered. In the meantime, teams will be receiving online training in Stata, a data analysis software package, and will continue work on joint investigation proposals. In addition, there are plans to produce an edited volume about RAVA research, as well as publications aimed at sharing useful study results with the subject communities themselves.

With a stronger understanding of Amazonian communities obtained from RAVA research, ICRAF's mission in the region will proceed with greater clarity, and the agroforestry alternative will be implemented to best benefit some of the most vulnerable communities in the Amazon region.

"Through RAVA I met some wonderful people and was able to truly understand how they live, what the babassu palm represents for so many families, the activities with which they generate income and the way they organize around the babassu palm as a common resource. As both a professional and a person I have grown through RAVA. I gained a deep understanding the context of this part of the Brazilian Amazon, and this is exactly what I want to share upon the completion of data analysis and the publication of the project's results."

Javier Ruiz, member of the RAVA team in Maranhão, Brazil.

Spreading the agroforestry message through third-country training

Photos: R. Porro

Photos: Participants of 2007 TCTP training course attending field sessions in Tomé-Açu (left) and Nova Ipixuna (above), state of Pará, Brazil.

In 2006, ICRAF and the Brazilian Agricultural Research Corporation (Embrapa), working within the framework of the Amazon Initiative (AI) Consortium, and with support from the Brazilian Cooperation Agency (ABC), joined efforts and successfully secured assistance from the Japanese government for an international agroforestry training program to be held in Brazil.

The initiative, scheduled to last through 2010, is part of the Third Country Training Program (TCTP), launched by Japanese International Cooperation Agency (JICA) as a way to allow developing countries to carry out training programs for participants from other developing countries, with financial support from Japan. As such, the International Training Course in Agroforestry Technologies allows participants from other Latin American countries to come to Brazil, where they are trained by Embrapa, ICRAF, and other invited specialists in agroforestry technologies. Participants then return to their home countries with newly acquired knowledge and skills, taking the training received in Brazil and applying it to participants in new regions. In this manner, they are able to spread knowledge to other groups and broaden the reach of agroforestry technology as an alternative for the recovery of degraded areas, combating poverty, and preserving biodiversity.

Positive reactions from the course's participants have served to reinforce ICRAF's conviction that such a program is essential to promoting the agroforestry alternative in the Amazon region. According to participant José Fiallos, from the municipality of Mera, Ecuador, "the methodology used for the development of the event was quite effective, as it allowed us to analyze each theme, both in theory and in practice. It also allowed us to get to know the people working in specific areas, giving us the opportunity to continue the discussion outside of class."

In the course of five years, the International Training Course in Agroforestry Technologies is scheduled to occur in five times in Belém and surrounding municipalities in the state of Pará, Brazil. One of the program's highlights is a visit to the municipality of Tomé-Açu, in order to directly observe agroforestry systems implemented by Japanese settlers (see material on page 12). Although the TCTP Program is designed for Brazilian institutions to train participants from other countries, the event's organizers have helped fund and support Brazilian participants as well.

ICRAF has also provided support for five local follow-up training events that took place in 2007 after the first TCTP course. These courses took place in Riberalta (Bolivia), Mera (Ecuador), Florencia (Colombia), Pucallpa (Peru) and Boa Vista (Brazil), and helped to spread the lessons learned from the original course in Brazil.

To date, three workshops have already taken place, with the most recent occurring last November. Thirty-four technicians from Brazil, Colombia, Ecuador and Peru attended the 20-day course which included theory and practical training classes, field studies, and sharing ideas and experiences in agroforestry. The next course is scheduled for September of this year.

Some of the principal themes of the 3rd International Training Course in Agroforestry Technologies, held in November of 2008:

- Planning the AFS – adopted criterion in design and planning methods / management and evaluation of agroforestry systems
- Analysis of the biophysical and socioeconomic sustainability of agroforestry systems
- Economic analysis of agroforestry systems
- Phenological notions and collection techniques, and benefitting from forest seeds
- Successional agroforestry – concepts and experiences
- Agroforestry education – methodological proposal and experience in the rural reality
- Basic notions in forest management – selection of forest species for agroforestry systems
- Silvopastoral systems – strategy for sustainable rural development
- Software Silvia – forest management system

Strengthening Agroforestry Alliances in the Amazon

Participants at the completion of the first Amazon Agroforestry Alliances workshop in Puerto Ayacucho, Venezuela.

The terms sustainable development, agroforestry, and conservation are often only associated with modern day environmental initiatives, and the inception of ICRAF in the late 1970's appears at first to support such a line of thought. Yet while ICRAF's presence in Latin America is relatively young, the practice of agroforestry in the region dates back quite far. Long before Europeans first arrived in the Americas, Amazonian communities were practicing sustainable agriculture in harmony with the surrounding forest, recognizing the various benefits of utilizing key interactions between plants and their environment. Many of these practices in fact never died, and in fact form the basis for much of the agroforestry practiced in the region today.

Between August and December of 2008, ICRAF, along with partner institutions of the Amazon Initiative consortium (AI), organized a series of workshops designed to promote collaboration and sharing of ideas among already-existing agroforestry initiatives in the Amazon – many of whose roots date back to pre-modern times. The workshops, titled “Amazon Agroforestry Alliances” (AAA), took place in Amazonian cities in Peru, Colombia, Venezuela, Ecuador and Bolivia.

The primary objective of the workshops was to promote discussion and debate concerning the experiences of different initiatives dealing with the investigation and promotion of agroforestry systems throughout the Amazon region. Key to this discussion was the identification of the great variety of socio-environmental contexts in sites where agroforestry is practiced in the region, as well as the actual state of those systems, including their principal strengths, barriers to their widespread adoption, and those factors which still need to be further investigated.

According to Roberto Porro, Regional Coordinator of ICRAF in Latin America, an added emphasis on institutional partnerships has become increasingly central to the mission of both ICRAF and the Consultative Group on International Agricultural Research (CGIAR), of which ICRAF forms part. AAA constitutes a perfect example of building such partnerships. “In Africa and Asia, there already exist agroforestry networks that

During the first round of AAA workshops, groups worked to identify problems specific to local agro-productive systems. They identified the actions currently being undertaken in response to those problems, the participating institutions and producers, recommended strategies, and items remaining for further investigation. The chart at right exemplifies the context of cocoa producers in Padre Abad, Ucayali, Peru.

Problems identified	Who's doing what?	Agroforestry recommendations	Research necessities
Financing	Municipality, PDA: technical assistance, raw materials	Group credits with fewer prerequisites	Socioeconomic diagnosis
Soil fertility	CIDRA/ICRAF: fertilizer distribution	Use of organic fertilizers	Reduction of the compost period
Low quality germplasm	CIDRA/ICRAF: introduction and evaluation of clones	Orient products toward special markets	Identification and selection of local clones
Deficient post-harvest	Municipality, PDA, INIA: capacity-building	Practical methods for capacity-building	--
Monocultures	CIDRA/ICRAF, INIA: agroforestry systems	Diversification with forest species	Planning, management, and economic evaluation

are more developed, with a strong emphasis on agroforestry education. In the Amazon, specific priorities will be defined by the Alliances themselves, with the objective to strengthen regional collaborations relative to agroforestry practices."

Each workshop had an average of 30 participants and was divided into five sessions: (1) participants' previous experiences in agroforestry networks; (2) expectations of participation in an agroforestry network; (3) characterization of the socio-environmental context of the region; (4) priority actions in the short, medium and long terms; and (5) the next steps to follow. During these meetings, participants expressed willingness and commitment to forming and maintaining a dynamic network that presents a position that is neutral, transparent, easily-accessible, multifaceted, and that promotes the strengthening of local, regional, and national development.

Among those priority actions identified for the short and medium terms were the analysis of productive chains of agroforestry components, the definition of plans of action, the initiation of management for project and program financing, and the promotion of workshops for program monitoring and evaluation. For the long-term, the participants identified the following priorities: 1) strengthening access to markets; 2) strengthening business and proposal capacities; 3) promoting events for capacity-building and dissemination of the network's results; and 4) proposing policies and projects for agroforestry development at the regional and local levels.

Recently, during the months of May and June, a second round of workshops was held in each region. According to ICRAF researcher Marcos Tito, "The main idea behind these reunions was to continue the process initiated last year, prioritizing some of the activities, and principally, deciding on responsibilities and dates in which follow-ups can be performed." During these workshops, surveys of the local agroforestry situations were conducted by means of mapping out key actors and potential institutions; identifying unions of those producers interested in participating in the network; systemizing training and capacity-building initiatives, projects and agroforestry programs already in existence; and identifying technological demands and research needs from the perspective of producers.

Group work at the Amazon Agroforestry Alliances workshop in Pucallpa, Peru.

An additional activity during this second round of meetings was the presentation of an interview format detailed by Porro. The interview targets representatives of research and development organizations in the Amazon region, with the goal of documenting and systemizing their perceptions relating to agroforestry. Over the next several months, participants of the Alliances will be conducting these interviews, whose results, once analyzed, will be presented in a publication to be released by ICRAF at the beginning of 2010.

Agroforestry is not a new phenomenon the Amazon – but a viable, collaborative network of agroforestry initiatives is. ICRAF is determined to maintain the progress started in 2008, and to continue working through Amazon Agroforestry Alliances toward the widespread realization of the agroforestry alternative in the region.

Country, City	Workshops 2008	Workshops 2009
Peru, Pucallpa	August 26	May 19
Peru, Tarapoto	October 21	May 22
Colombia, Florencia	November 24	May 11
Ecuador, Coca (1) and Loja (2)	November 26	June 2
Venezuela, Puerto Ayacucho	December 4	May 15
Bolivia, Riberalta	December 8	May 29

Agroforestry Contexts in the Amazon

Fruits of the Japanese Colony in the Amazon

Of the many immigrant groups and their descendents throughout Brazil, the Japanese nationality is most prominently expressed in the state of Pará, in the eastern region of the Brazilian Amazon. In the 1920s, attracted by donations of productive lands and by the relative ease of colonization, Japanese immigrants came to the state with visions of developing and practicing some of the same agricultural activities that they practiced in their homeland. Since that time, contributing greatly to the growth and development of the state of Pará, the Japanese nationality had stood out principally for its perseverance and for its successful agricultural initiatives.

With the end of the rubber boom – which had brought the region much riches and prosperity for close to 50 years, until the beginning of the twentieth century – Amazonian governments were forced to find new alternatives for the development of the region. In 1923, Pará governor Dionísio Bentes, aware of the Japanese agriculture practices whose high productivity was accomplished in relatively small areas of land, authorized and signed an official donation of land to Japanese immigrants. In 1929, the first delegation of Japanese researchers arrived in Brazil, with the objective of selecting the best areas for establishing new colonies of producers. In September of that same year the first Japanese settlement in the Amazon was born in Acará (now Tomé-Açu), with 189 people divided among 43 families.

The first crops planted by the settlers were the same ones they had in Japan: principally rice and various vegetables, though at the time there hardly existed a market for such products. In 1931, the settlers united to form the Vegetable Company, which in 1949 was renamed the Mixed Agriculture Cooperative of Tomé-Açu (CAMTA), the name it retains to this today. CAMTA assisted small producers in refining cultivation practices for black pepper, a product adapted to the region in 1933 which only achieved success beginning in the 1950s, when the international market offered better prices. Nonetheless, the prosperity didn't last long. In the 1960's, diseases decimated the greater part of black pepper plantations.

Mr. Jorge Takahashi at his cocoa and peach palm (*Bactris gasipaes*) agroforestry system in Tomé-Açu, state of Pará, Brazil.

So it passed that the first agroforestry systems were established in the region. The Japanese began cultivating tropical fruits such as papaya, melon and passion fruit, with the aim of achieving productive systems more resistant to disease. In this same period, Mr. Michinori Konagano, today the director of CAMTA, arrived in Brazil. Konagano implemented the production of cocoa, which in the 1980's came to be widely cultivated by cooperative-members, as they integrated the plant with trees and other fruit species. “Agroforestry systems are more complex and resistant. With them it is possible to reduce the use of different toxins, and therefore they are less damaging to the environment. On my own property I have successfully recovered degraded areas through their use. The financial return is also good, and better in the long term”, he explained. Konagano also participates as a volunteer in a capacity-building project dealing with planting and management practices for smallholders throughout the region.

Agroforestry system of paricá (*Schyzolobium amazonicum*), açaí (*Euterpe oleracea*) and cocoa.

The Japanese were already very successful in Amazonian agriculture due exports of black pepper, but since the creation of CAMTA, their productivity in markets has expanded even more. Today, the Cooperative relies on a processing plant capable of producing an annual volume of 3,000 tons of fruit pulp, and capable of storing 1,000 additional tons. In addition, due to the adoption and practices of sustainable agriculture, the city of Tomé-Açu has become a point of interest for national and international research institutions. At the same time, the producers continue with the implementation of agroforestry systems, a practice which offers food security and income for their families and future generations.

More information:
www.iamazonica.org.br/conteudo/publicacoes/apresentWorkshop/livrosafs.pdf

Indigenous agroforestry systems in the savannas of Roraima, Brazil

By Sonia Sena Alfaia, Katell Uguen, Rachel Pinho and Robert Miller

The Wazaka'ye Project, conducted by the National Institute for Research in the Amazon (INPA), in partnership with the Indigenous Council of Roraima (CIR), is part of the Guyagrofor initiative - *Development of Sustainable Agroforestry Systems Based on Indigenous and Maroon Knowledge in the Guyana Shield Region*, funded by the European Union and involving Brazil, Suriname and Venezuela. INPA carries out its studies in the Araçá Indigenous Land, located in the Lavrado of Roraima, a region of savannas inhabited by the Macuxi, Wapixana, Taurepang, Ingarikó and Sapará tribes. In order to identify mechanisms that can strengthen agriculture and the economy of traditional communities as well as maintaining environmental quality, the Wazaka'ye project studies agricultural and agroforestry systems, soil characteristics, and socioeconomy.

The most visible traditional agroforestry practice is the planting and care of homegardens around indigenous dwellings, whose main function is the production of fruit. In a survey of 60 homegardens in the five communities of Araçá Indigenous Land, INPA student Rachel Pinho

Pau rainha (*Centrolobium paraense*) seedling 9 months after sowing – Araçá community nursery

Planting legumes in a banana grove – Mutamba community

Photos: R. Miller

found 79 tree species, of which 45 produce edible fruit. Of these, 21 species grow as spontaneous volunteers and are managed in the homegardens mainly for the production of fruit, which is the case of the genipap, the wild guava, the Indian jujube, the locust (*Hymenaea*), and others. Lime and mango are among the principal species found in homegardens, and some families sell their fruit.

In a comparison of the soil properties of new and old homegardens (older than 40 years) with those of surrounding savanna soils, soil fertility was observed to increase over time, with higher levels of calcium, potassium, magnesium, phosphorus and zinc, as well as organic matter.

The challenge, therefore, is how to incorporate the positive effects of trees and homegarden practices in the establishment and maintenance of more extensive agroforestry systems.

With the help of indigenous farmers of Mutamba community, the use of legumes for green manure in traditional slash-and-burn fields in forest islands was studied by INPA student Juliana Rocha. Of the legumes tested (jack bean, pigeon pea, ice-cream bean (*Inga edulis*) and palheteira (*Clitoria racemosa*), pigeon pea showed the greatest growth, reaching a height of 2 m in only 3 months. The experiment with green manure was expanded to mechanized areas of savanna adjacent to the forest islands, where soils are sandier, less fertile, and more fragile, especially under mechanization. If successful, the use of legumes as cover crops in areas of savanna may permit cultivation without soil degradation, and relieve pressure on the forest islands.

In accordance with the interests of the communities, the project also studied pau rainha (*Centrolobium paraense*, Leguminosae), the principal timber species used locally for building, and which grows in the forest islands. Because the species is becoming scarce, indigenous farmers have begun to manage the stump sprouts in their fields, which in a few years provide rafters and with more time, posts. This form of management was studied by University of Brasília forestry student Jessica Pedreira, who installed permanent plots to measure sprouts of different ages in a new field and in young secondary forest. The information collected on the number of sprouts per stump and their size should help in generating recommendations on the management of this important timber resource. Studies were also carried out on the germination of pau rainha, and resulting seedlings were planted in different environments to evaluate their growth.

Evaluation of tree seedlings planted around the Araçá community nursery

The Guyagrofor project in Roraima is coordinated by INPA researcher Sonia Sena Alfaia, with the assistance of Vicenzo Lauriola (INPA), Katell Uguen (UEA), Robert Miller (FUNAI), INPA graduate students and technician Leovone Magalhães (FUNAI).

More information on the project can be found at www.guyagrofor.alterra.nl/guya_frame_page.htm

Agroforestry Species

The Açaí palm: non-timber forest product and agroforestry tree product

By Jamie Cotta and Roberto Porro

In recent years populations throughout the world have come to know the small purple fruits locally called açaí (pronounced AH-SIGH-EE). A palm that thrives in flooded forest areas, açaí (*Euterpe oleracea*) is a top-ranked staple food in the Amazon estuary, with major economic importance at both the household and regional levels. It represents up to 30% of energy intake by Caboclo (mestizo) communities of the Amazon estuary, and has become one of the region's most important export products to other parts of Brazil. The fruits are processed to make a juice (vinho) consumed by locals on a daily basis. Urban population growth in the Amazon has expanded markets for this juice, and its consumption in the capital city of Belém, for instance, is twice that of milk. In recent years, açaí – advertised as a "healthy and fashionable food" – has gained

Photos:

(above) Freshly harvested açaí fruit

(below right) Açaí harvest by smallholders near Ipixuna Miranda river, state of Amapá, Brazil

(opposite page, below) Floodplain homegarden managed for açaí production

popularity on a global level, and its juice and a whole range of smoothies, ice-creams and other derivatives have boomed in markets throughout Brazil and abroad. Production has grown rapidly since the 1990s, with 2008 seeing exports of açaí reach USD $35.9 million in the state of Pará alone[1]. Açaí now represents the primary source of income for many smallholders in the floodplains of Pará.

Açaí, native to inundated equatorial forests of the Americas, is found in Venezuela, Colombia, Ecuador, the Guyanas and northern Brazil. Besides fruits for consumption, parts of the palm utilized on a regular basis include seeds for handicrafts and fertilizer, leaves for roofing, stems for construction, and other parts for medicinal uses. In addition, the sale of açaí palm heart has increased since the 1960s, and of the various species harvested for this product, the large majority in Brazil is extracted from *E. oleracea*. Fruits and palm hearts are also harvested from the upland species, *E. precatori*, but management practices for the two species are quite distinctive. Palm heart collection compromises fruit production and represents a threat to *E. precatoria* populations. Due to the plant having only one main stem, the palm is inevitably killed at the time of harvest. Conversely, simultaneous fruit and palm heart collection remains viable in forests managed for the multi-stemmed *E. oleracea*.

Smallholders increase açaí fruit production by removing other species that compete for light in forest areas. As a result, impressive intensification of the production system has occurred, changing considerably the rural economic profile of the region. Increasingly cultivated by smallholders and large enterprises alike, açaí fruit has in some cases outperformed agricultural products of the region. The rapid intensification of açaí production presents a number of risks, including increased riverbank erosion, potential loss of soil quality, decreased availability of other food sources for humans and wildlife (i.e. other fruit-producing species), and a decline in useful floodplain forest resources such as lianas and medicinal plants. Moreover, such intensification provokes economic vulnerability associated with dependence on a single forest product.

Non-timber forest products have been promoted in recent years as a potential means of achieving both the improvement of smallholder livelihoods and maintenance of forest integrity. However, açaí can less and less often be considered a true forest product, as production becomes increasingly associated with extensive mono-cropping, in addition to the traditional use and management of the palm in homegardens by thousands of families inhabiting the Amazon floodplain. Research and policy actions toward the promotion of rural development in the Amazonian floodplain should consider açaí as a viable agroforestry option to restore forest cover in already deforested or degraded areas. More importantly, however, greater care should be taken in the management of existing forests that, in parallel with increased palm production, can help to guarantee the preservation of forest integrity and biodiversity.

[1]Press Agent of the Government of Pará. 2009. "Exportação de sucos do Pará bate recorde em janeiro (Pará juice exports break record in January)".

Article accessed 06/10/09 at www.portaldoagronegocio.com.br/conteudo.php?id=28958

Opportunities

Terra Viva Grants: online tool promoting development

Terra Viva Grants (www.terravivagrants.org/Home) is an internet site that systematizes information concerning cooperation agencies and opportunities directed toward the agriculture, energy, environmental and natural resource sectors of developing countries throughout the world. Jan Laarman and Caroline Amilien created and currently administer the initiative, backed by a professional history that comprises university teaching as well as research; non-profit organizations; consultancy firms; and international organizations. The site offers a qualitative, impartial and independent catalogue, presented in the categories of: "Foundations and NGOs", "Government Organizations", and "International Organizations". Aiming to fill the gaps left by search tools that often produce incomplete results, Terra Viva Grants achieves its objectives by:

a) Systematically searching for opportunities within hundreds of principal funding sources in the international "green sector", by combining a variety of information flows;

b) Selecting the most relevant sources of funding and dividing them into categories, allowing those who are seeking funding to screen for those profiles of highest interest;

c) Reviewing donor profiles throughout the year – adding new profiles, removing those which have become inactive, and continuously updating information throughout the site.

It is worth pointing out that in an attempt to serve a wider range of potential candidates for funding, great care was taken in the creation of the site to adopt connectivity patterns accessible to ninety-nine percent of the world population, and to translate the site from English into Spanish, Portuguese, and French. The focus of the initiative falls on agencies that provide subsidies to those regions where the majority of the world population is located, and where the majority of world funding doesn't arrive. This includes Southeast Asia and the Pacific islands, East Asia, South Asia, Eurasia and Central Asia, Eastern Europe and Russia, the Middle East and North Africa, Sub-Saharan Africa, and Latin America and the Caribbean. Laarman and Amilian confirmed that the majority of the funding still arrives from economically prosperous countries in North America and Western Europe, though they were able to identify concentrations of donations in other regions such as Asia-Pacific and Eastern Europe, among others.

Agenda

XIII World Forestry Congress
October 18-23, 2009 – Buenos Aires, Argentina

Taking place under the theme "Forest development, vital balance", the 8th World Forestry Congress will provide a setting for the analysis of forest functions in the local, regional, and global contexts. The event, which is held every six years, will count on the participation of renowned international debaters from the academic, productive and environmental sectors, in addition to indigenous and rural communities, public administrators, and politicians with connections to the forestry sector. Some 6,000 participants from more than 160 different countries are expected to attend the event. The Congress will include presentations, conferences, roundtables, side events and expositions. Among the various thematic sessions at the Congress, ICRAF – together with the Center for Tropical Agricultural Research and Education (CATIE) and the United Nations Food and Agriculture Organization (FAO) - will organize a panel titled "The Agroforestry Alternative and Emerging Challenges – When Financial, Climatic and Food Crises Demand New Solutions".

Agroforestry: The Future of Global Land Use
II World Congress of Agroforestry
August 23-28, 2009 – Nairobi, Kenya

The practice of agroforestry began attracting the attention of the scientific community in the late 1970's. Today, having come of age after years of development, the agroforestry alternative for land use has established itself as a sustainable option throughout the world. Its potential as an instrument for achieving the objectives of key global environmental conventions – Climate Change, Biodiversity and Desertification – as well as the Millennium Development Goals, has captured the interest of researchers and policy makers alike. The role played by agroforestry practices in the struggle against environmental problems and global poverty was never as evident as it is today.

It is under these circumstances that the 2nd World Congress of Agroforestry will take place August 23-28 in Nairobi, Kenya. The first Congress, which took place in the state of Florida, in the United States, provided a global forum in which agroforestry professionals were able to exchange knowledge, experiences and ideas, as well as plan future strategies in agroforestry research, education and training. The 2nd Congress will strengthen the exchange of ideas and will further reinforce the growing interest in agroforestry alternatives that are increasingly being adopted throughout the world. The event will serve as a forum for researchers, educators, technical professionals and politicians from all over the world to achieve the following:

• Share new research findings, lessons, experiences, and ideas that will help influence decisions that impact on livelihoods and the global environment;

• Explore new opportunities and cement existing partnerships in agroforestry research, education, training, and development;

• Form new networks and communities of practice, and nurture old ones.

There will be plenary sessions and symposiums, as well as presentations of more than 900 different projects and initiatives through posters and numerous technical sessions, which will be organized in accordance with the three themes of the Congress:

• Food Security and Livelihoods

• Conservation and Rehabilitation of Natural Resources

• Policies and Institutions

ICRAF is the main organizer of the Congress, with co-sponsorship from the United Nations Environment Programme (UNEP), also headquartered in Nairobi, as well as the Institute of Food and Agricultural Sciences (IFAS) of the University of Florida.

More details concerning the event can be found at the Congress's Web site: (www.worldagroforestry.org/wca2009/).

Agroforestry Bibliographies

Agroforestry Publications in the Brazilian Amazon: 1980 to 2008

By Barbara T.T. Richers and Marcos R. Tito

The World Agroforestry Centre (ICRAF), operating within the framework of the Amazon Initiative, has developed a portal which gives free access to a database comprised of more than 1500 publications relating to agroforestry in the Brazilian Amazon since 1980. The principal motivation behind this initiative is to contribute to the development and dissemination of research, initiatives and experiences in agroforestry systems in the region, favoring open and unrestricted access to knowledge generated in the field.

The database includes technical publications (primers, manuals, project reports, etc.), scientific publications (articles, books, book chapters, theses, monographs, dissertations, materials published during events, seminars, etc.), and accounts and reports concerning agroforestry initiatives in the Brazilian Amazon. Using the portal, each publication can be accessed through its abstract or complete document in PDF format, according to the authors' licensing. Among the available search tools are: search by title, author(s), location of study, year of publication, document type, key words, and words found in the abstract; as well as search by categories such as: type of system, type of producer, and even specific themes such as "Economic Analysis", "Management", "Commercialization", etc.

In this first edition of the newsletter, we chose the theme "Climate Change" to present a list of relevant publications found using the database. The selection includes references that provide information about carbon flow, emissions and carbon quantities in different components of agroforestry systems. In addition, the implementation of agroforestry systems is emphasized as an alternative for minimizing the impact of agriculture on the generation of greenhouse gases. It is also highlighted as a way to increase the capacity of smallholders to adapt in the face of future environmental impacts of climate change in the Amazon ecosystem, like the process of desertification, for example.

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Agroforestry Publications

The Agroforestry Alternative for an Amazon in Transformation

The Agroforestry Alternative for an Amazon in Transformation is a collection of reviewed articles, that besides illustrating the dimensions of scientific understanding related to the processes of change through which the Amazon region is passing – and the opportunities and challenges for increased application of agroforestry research results – reflects the priority given by ICRAF and the Brazilian Agricultural Research Corporation (Embrapa), in the framework of the Amazon Initiative (AI) Consortium, to the establishment of new alliances in agroforestry research and development in the region.

The publication's 40 chapters distributed among five sections represent the efforts of nearly 100 authors in presenting the complexity of contexts for which the agroforestry alternative can be treated as a reality. *The Agroforestry Alternative for an Amazon in Transformation* focuses on the realities of agroforestry systems in different Amazonian countries and in the numerous Amazonian states of Brazil. The publication serves as an information source to be applied to activities involving training and capacity-building of personnel, as well as supporting the drawing-up and adoption of policies focused on the sustainability of natural resources in the Amazon.

In the first section – "Amazonia in transformation and the agroforestry alternative" – the reader gets to know the actual panorama of agroforestry systems from diverse points of view (economic, political, social and cultural), as well as how the systems relate to development, sustainable use of natural resources, and the challenges presented by climate change. In the second section – "Processes of degradation in the Amazon in transformation" – the articles are related to environmental degradation (in particular water and wind erosion), and also emphasize social aspects and socio-environmental relationships, culminating with examples of regeneration of degraded areas. The third section – "Criteria and perspectives to consider for the adoption, monitoring, and evaluation of agroforestry systems" – includes materials concerning the observation of biophysical, biogeochemical and socio-cultural processes and mechanisms, and their interactions in agroforestry systems, all the while dealing with environmental services associated with the systems and the search for indicators of sustainability. The content of the fourth section – "Contextualization of the diversified adoption of agroforestry systems in the Amazon" – expresses the variety of agroforestry systems adopted throughout Amazonia, both in terms of the systems' composition as well as approaches to uniting associated research and development activities. Finally, the fifth section – "Processes and participatory approaches in agroforestry research" – provides a rich set of examples of the adoption of this approach to research and sharing of information concerning agroforestry systems.

The volume was edited by Roberto Porro, ICRAF investigator and regional representative in Latin America, and can be acquired at Embrapa Technological Information: www.sct.embrapa.br

Vital Forest Graphics (UNEP/FAO June 2009)

Vital Forest Graphics is a joint effort publication by three entities within the United Nations; UNEP (United Nations Environmental Programme), FAO (Food and Agriculture Organization) and UNFF (United Nations Forum on Forests); to help communicate the value of forests to policy-makers and broader publics through the analysis and illustration of tropical forest issues. The publication provides an overview of the global trends in forest cover and looks specifically at the four largest forest ecosystems, analyzing the trends and challenges in their conservation and management. It scrutinizes some of the key drivers behind forest loss, including the increasing demand for commodities and energy. Finally, it reviews some of the best practices for sustainable forest management, including regulatory regimes, participatory management and economic incentives.

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Incentives to Sustain Forest Ecosystem Services: a Review and Lessons for REDD (IIED June 2009)

Decisions taken at the Conference of the Parties to the UNFCCC in Bali 2007 opened the possibility for reduced emissions from deforestation and degradation (REDD) payments to become part of the post-Kyoto framework agreement. Consequently, the governments of many industrialized countries are announcing significant new funds to tackle climate change. The Government of Norway, through its International Climate and Forest Initiative, will allocate up to NOK3 billion a year between 2009 and 2012 to mitigate greenhouse gases produced by land-use change. An assessment of the utility of payments for ecosystem services as a tool for REDD was commissioned by the Norwegian Minister for the Environment to inform the International Climate and Forest Initiative. This publication provides a summary of ten papers which made up the assessment.

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