

International Society for Tropical Foresters

Tropical Forests For Sustainable
Development:
*Shaping Our Future with
Knowledge from the Field*

August 2016



Disclaimer

The positions expressed in this paper are strictly those of the authors and represent neither the opinion of the Yale School of Forestry & Environmental Studies nor of the Tropical Resources Institute.

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Throughout this publication look out for the following icons. They refer to key information sections within each case study.



Opportunities identified by the case studies, and the lessons they provide for other projects also seeking to identify unique opportunities.



Challenges faced by the case studies that provide unique and interesting insights on the project implementation process.



Partnerships formed in the case studies that are interesting and/or surprising, along with lessons learned from these collaborations.



Results & Indicators generated by the case studies that are noteworthy, and how these connect to the Sustainable Development Goals (SDGs).



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Introduction

Around the world, 200 million people live in forests and 1.6 billion people depend on forests for their livelihoods¹. Half of the watersheds that supply the 100 largest cities of the world are forested and it is estimated that forest protection and restoration in urban watersheds could improve water quality for 500 million people worldwide. In terms of carbon emissions, 10% of all greenhouse gas emissions come from deforestation, and 20% of abatement potential is in the world's forested regions. A March 2014 CIFOR study of 8000 households across 24 countries shows that income from natural forests and other non-man-made areas contributed 28% of total household income and that women and men generated roughly equal amounts of income from forests². There is a reason forests are often referred to colloquially as the “lungs of the earth.” From climate, to water, to food and economic wellbeing, for many of the world's people, understanding how to use and sustainably manage forests is the key to sustainable development.

In recent years there has been a flurry of mega-regional and global commitments to restoration and reforestation at a multinational level. Initiatives like the Bonn Challenge³, Tropical Forest Alliance 2020, Initiative 20x20⁴, AFR100⁵, and landscape-level initiatives have united governmental, policy and grassroots actors for implementation. These mega-commitments present key opportunities to integrate forest sector and sustainable development sector priorities for an increased combined impact on environmental and human wellbeing. However, a lack of communication and integrated planning on the part of subnational and local efforts can mean that forests fail to be seen as a part of the integrated landscape on the ground. At the same time, because forests are often seen as an isolated policy issue, they are often undervalued in global and regional strategic planning and financing processes for sustainable development⁶.

Born out the Millennium Development Goals (MDGs), the Sustainable Development Goals (SDGs) were adopted in September 2015 at the U.N. Sustainable Development Summit. The SDGs resulted from the timely recognition that the MDGs should address and incorporate all three dimensions of sustainable development (environment, economics, and society) and their interconnectedness. The integration of forests into the post-2015 sustainable development agenda demonstrates the increasing acknowledgment that forests play an important role in eradicating poverty, as well as addressing climate change. Forests, as shown throughout this publication, are a key resource that permeates a wide range of issues connected to post-2015 development, such as food security, human wellbeing, water conservation, gender empowerment, and sustainable economic growth. The U.N. Secretary-General, Ban Ki-Moon reinforced this message at the eleventh session of the U.N. Forum on Forests, when he said: “To build a sustainable, climate-resilient future for all, we must invest in our world's forests. That will take political commitment at the highest levels, smart policies, effective law enforcement, innovative partnerships and funding”⁷.

In order to achieve the political, legal and financial commitments necessary to invest in forests, the world must recognize their broad importance for building a sustainable and climate resilient future. Although forests are explicitly integrated into the post-2015 sustainable development framework in SDG 15, they are not mentioned or emphasized in many others. Thus, there is a need for forest actors to understand the post-2015 sustainable development framework and for sustainable development policy analysts to understand the far-reaching benefits of forest use and protection in order for the full importance of forests to be realized in the post-2015 sustainable development agenda. Local and regional projects geared towards community resiliency, development, and conservation, empower indigenous peoples, reduce

pressure on biodiversity and alleviate poverty. These projects illustrate how initiatives that connect forest conservation and community development may translate into sustainability and pave the way towards the SDGs.

The recognition of the importance of highlighting the pivotal role forests play in achieving a broad cross-section of the SDGs was the impetus for the 2016 conference of the International Society of Tropical Foresters (ISTF) hosted at Yale University. From January 28-30, 2016, field researchers and practitioners gathered with policy actors and specialists in a discussion about the role tropical forests and associated communities play in enhancing our ability to achieve the SDGs. The ISTF conference tackled the challenges, failures, and successes of implementing tropical forestry projects⁸ at a community level⁹. There were over 150 participants from 20 different countries presenting and discussing 40 projects in implementation in the tropics. The interaction among practitioners and discussions about the projects created a unique opportunity to exchange knowledge and generate new approaches to link tropical forestry to the adoption of the SDGs. The conference participants' work also underscored the crosscutting importance of tropical forests in achieving multiple SDGs. Some of the topics covered included: agroforestry; community-based forest management; indigenous peoples; forest restoration; deforestation monitoring systems; sustainable agriculture; women's empowerment and inclusivity; and more.

While academics frequently use research publications to share their work, practitioners do not always have the same avenues to disseminate their findings. Some grassroots organizations have limitations on financial and human resources, which impedes a broader dissemination of their work. On the other hand, these organizations' constraints also hinder their access to other experiences that could provide innovative insights. Practitioners house a wealth of information that should be shared more widely. While conferences provide

an instrumental initial platform for knowledge sharing, the question remains: how do we share these key messages with a broader audience?

This publication hopes to do just that. A combination of applied research and grassroots projects, the case studies in this publication connect disciplines and provide an avenue for practitioners to share their experiences with others hoping to find ways to use forestry to achieve the SDGs. These 10 case studies demonstrate ways that tropical forests can be enlisted in the pursuit of sustainable development. Following Ban-Ki Moon's challenge, each case study details the specific challenges, opportunities, and partnerships that propelled the project to success.

This publication is meant to inform the ongoing conceptualization of post-2015 global development actions and define a path forward for tropical forest and development communities. The main goal is to determine how existing initiatives can leverage their current work with forests to help achieve the sustainable development goals over the next decade. Each case study presented relates to at least one of the 17 sustainable development goals. Whether they are helping to eradicate poverty or improving gender equality, these case studies demonstrate the powerful role forest and forest communities can play in reshaping and improving our world, not only for wildlife or watersheds, but for livelihoods and cultures as well. We hope that you find them just as enlightening and useful for your future work as we have.

SDG index

Use this index to find case studies that relate to the SDGs you are most interested in

Case Study (Abbreviated Title)	Pp.	1 No Poverty	2 Zero Hunger	3 Good Health and Well-being	4 Quality Education	5 Gender Equality
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Tropical Forest Carbon in Indigenous Territories

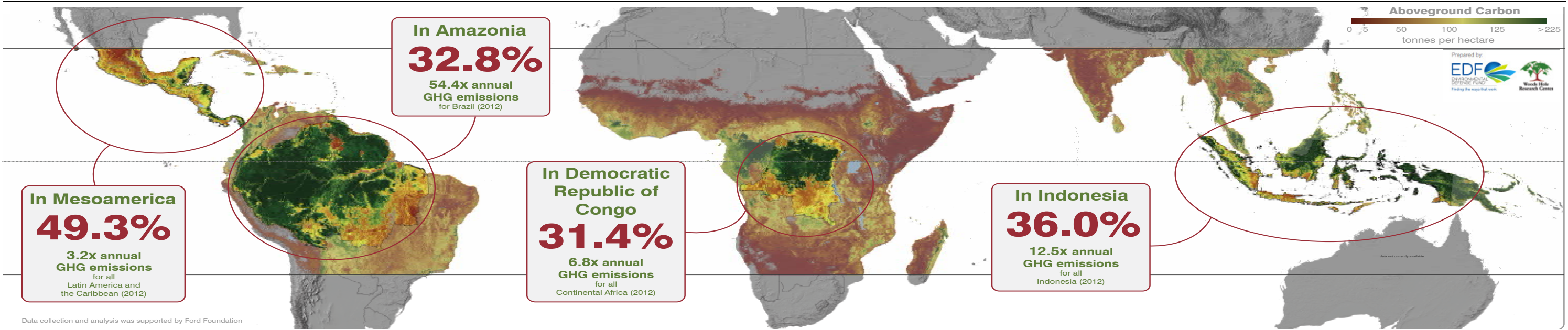
A Global Analysis

Organization: Woods Hole Research Center
www.alianzamesoamericana.org

Project start date: 2009

Project Location: Pantropical (Mesoamerica, Amazonia, Democratic Republic of Congo, and Indonesia)

Author: Wayne S. Walker
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Carbon sequestration is an increasingly valued function of tropical forest ecosystems. However, until recently the information needed to assess the carbon storage capacity of indigenous territories remained either lacking or out of reach. Global indigenous leaders, cognizant of discussions centered on the role of tropical forests in international climate negotiations, united behind an analysis undertaken to better understand the contribution of indigenous territories and inhabited protected natural areas to global carbon storage. Our analysis suggests that the carbon stored across landscapes in Mesoamerica, Amazonia, the Democratic Republic of Congo (DRC) and Indonesia is of a magnitude not previously appreciated in global terms. These landscapes, which are generally thought to be out of harms way, are at risk, and contain sufficient carbon to either destabilize or contribute to the stabilization of the planet's atmosphere depending on the collective impact of ongoing and planned development projects.

The project highlights a strategic opportunity for carbon funds to be used to support impactful policy interventions that help to both secure land rights for indigenous peoples and prevent significant carbon loss through

deforestation. The indigenous organizations that contributed to this analysis proposed five such interventions necessary to ensure the long-term conservation of tropical forests in their territories: 1. Title all currently unrecognized indigenous territories. 2. End the persecution of indigenous leaders. 3. Recognize indigenous peoples' contributions to climate change mitigation/adaptation in the context of Nationally Determined Contributions (NDCs). 4. Implement Free, Prior, and Informed Consent (FPIC). 5. Provide direct access to climate financing for indigenous peoples organizations.

The foremost challenge was in building and maintaining trust among the diversity of cultures, languages, and worldviews present among the consortium members. This challenge manifested itself most directly in the process of sharing among the various members; sensitive and/or proprietary sources of spatial data related to the boundaries of titled and claimed indigenous territories.

Indigenous organizations and communities actively participated in the process of data gathering and interpretation. Participating indigenous and NGO networks, scientists, and policy experts included: Coordinators of Indigenous

Organizations of the Amazon Basin (COICA), Mesoamerican Alliance of Indigenous Peoples and Forests (AMPB), the Network of Indigenous Peoples and Local Communities for the Sustainable Management of Forest Ecosystems in Central Africa (REPALAC), Indigenous Peoples Alliance of the Archipelago (AMAN), Woods Hole Research Center (WHRC), and the Environmental Defense Fund (EDF).

A peer-reviewed publication in the academic journal Carbon Management, a report released at COP 21 in Paris, and the press coverage in approximately 40 media outlets including BBC, Reuters, Rolling Stone, and Science all increased awareness of the social, economic and political inclusion to be gained by indigenous peoples through the titling of unrecognized territories.

The research revealed that the tropical forests of Mesoamerica, Amazonia, DRC, and Indonesia contain nearly 60% of the carbon stored aboveground in the tropical forests of the world. By themselves, indigenous territories within these regions account for just over 1/5th (20.1%) of the aboveground carbon stored across the forested tropics.

This number demonstrates both the considerable role that indigenous territories – and the forest dwelling people who inhabit them – have played in conserving these forests throughout history and their potential for addressing a key challenge in the long term maintenance of climate stability: keeping tropical forests intact.

The project increased the awareness of the criminalization of indigenous peoples for defending their basic human rights to their territorial lands. Swedish and Norwegian governments announced at the Equator Award ceremony funding for Indigenous Peoples' territories to ensure land rights are recognized and human rights are respected.

Promoting Inclusion, Justice & Accountability

Through Open Forest Data

Organization: World Resources Institute (WRI)
www.globalforestwatch.org

Project start date: 2014

Project Location: Global

Author: Jessica Webb
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Global Forest Watch (GFW) is an online, interactive, forest and land use monitoring platform, that leverages cutting edge science, technology, and open data, to reveal when and where trees are disappearing in order to address the on-the-ground drivers of deforestation. This information is generated rapidly and affordably using satellite imagery, advanced computer algorithms, and the capabilities and contributions of over 70 partners. This online system has demonstrated how governments, companies, and civil society can transform information into local action for forests and people. Major commodity buyers are adopting GFW tools to help eliminate deforestation from their supply chains. Government agencies in Brazil, Peru, the Democratic Republic of the Congo, Indonesia, Liberia, and beyond are formally engaging with GFW to combat illegal forest conversion and improve land use planning by monitoring deforestation so that law enforcement can respond more effectively. Civil society organizations, journalists and researchers around the world are using GFW in their fieldwork and advocacy, to better understand deforestation drivers, monitor protected areas, and identify where illegal forest conversion is occurring in order to hold those responsible accountable.



This online platform is important since maintaining and expanding global forest cover are critical for supporting human societies and protecting the planet. Globally, nearly one out of every five people in the world relies on forests for basic needs, and forests store over one trillion tonnes of carbon, which is more than twice the amount currently in our atmosphere. Yet, deforestation and related carbon emissions are steadily increasing across the tropics. Studies reveal that the world lost 18 million hectares of tree cover in 2013, which is a five percent increase over the previous 12-year annual average.

The first step to combatting deforestation is knowing when and where it is occurring. Advances in technology and the politics of data sharing created a unique opportunity for a platform like Global Forest Watch to emerge in early 2014. For example, the availability of satellite data has greatly expanded in recent years. Data streams like MODIS, an instrument on the Terra satellite, are able to give us crucial information on the earth's systems as they view the entire planet's surface in 1-2 days. Long term series like Landsat help us tell a story over decades, so that we are able to detect temporal change. Advances in the ability to process big data, such as the cloud computing power provided by Google Earth Engine, allows for the processing of huge datasets in seconds and the ability to display it on non-technical user interfaces. And the rapid spread of high speed internet, mobile phones and social media enables users to share data faster than ever before. By using technology and an easy-to-use interface, the GFW aids governments, companies, and civil society to monitor forest loss in 30x30 meter resolution—an area roughly the size of two basketball courts). This helps reduce the time authorities and other users require to find out when and why forest loss is occurring.



A woman harvests Rattan in Indonesia. Photo credit: WRI/James Anderson

Background photo: In Myanmar, a logger herds timber elephants. Photo credit: WRI/James Anderson



Three key challenges for GFW are internet connectivity, language barriers and the political will or capacity to disclose forest information. Reliable internet access in remote areas, often where forests are present, makes using technology for monitoring a challenge. To address this, GFW and the Jane Goodall Institute developed a Forest Watcher mobile app that can be used offline to analyze and collect data. To provide greater accessibility to the platform, tools and data outside of English-speaking countries, GFW is translating the website and data into six languages. Lastly, access to high quality, accurate country-level data is an obstacle as many countries lack the political will or incentives to invest in making forest information proactively available. To this end, GFW is working within the Open Government Partnership, an international initiative with over 70 member countries and thousands of civil society organizations, which aims to make government information and processes more transparent, accountable and participatory.



Global Forest Watch would not be possible without its partners. 70 organizations from the private and public sector contribute data, funding, technology and expertise. Private sector partners include Google, ESRI, Cargill, Unilever, Urthecast, and Digital Globe. GFW is also working with the governments of Brazil, Peru, Colombia, Liberia, the Democratic Republic of Congo, Mexico, Indonesia, Madagascar and Georgia, to use GFW data for improved land use planning and monitoring of illegal and unwanted deforestation.



Stakeholders need information about biomass, carbon stocks and emissions from land use change to raise awareness about the importance of forests for climate mitigation and integrate land use planning into climate policy. GFW helps halt deforestation



and forest degradation by enabling users to identify and react to unwanted forest conversion. The Roundtable for Sustainable Palm Oil (RSPO) used the GFW Platform to publicly release for the first time maps of RSPO certified plantation areas. Companies that dominate global agricultural commodity trade like Unilever and Cargill are adopting GFW tools to help eliminate deforestation from the production of commodities, such as palm oil, soy and beef.



GFW is also helping to reduce land use conflicts and strengthen governing institutions by increasing public participation in the decision-making process. In Peru, GFW supported the Amazon Conservation Association's investigation and reporting of illegal forest clearing by the company United Cacao, which resulted in an order by the Peruvian Ministry of Agriculture to paralyze its activities. The Government of Indonesia adopted GFW data and technology to enhance fire monitoring efforts, subsequently reducing the response time to new fire outbreaks from over a day to less than four hours. The Cameroonian Ministry of Forestry and Wildlife (MINFOF) is updating the Forest Atlas of Cameroon to include a real-time connection to the GFW Platform, thus enabling MINFOF to integrate the powerful forest mapping and monitoring capacity of GFW into its day-to-day activities.



GFW has won major awards for innovation for the access it provides to information needed to establish baselines, monitor, report and verify progress in relation to the SDGs. These awards include the UN Secretary General's Big Data Climate Challenge and the ESRI special achievement in GIS award. One million unique users have accessed the GFW Platform from every country in the world, and it has been featured in nearly 2,000 news articles. Hundreds of researchers have downloaded GFW data from our Open Data Portal to support their analyses.

Tayap Eco-Orchards

Decreasing Poverty While Increasing Gender Equality in Cameroon

Organization: AGRIPO
www.agripo.net/programme-vet

Project Location: Central Region, Cameroon

Project start date: 2011

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The Tayap forests of Cameroon are some of the most important rainforests in the world. However, due to timber exploitation and the intensive practice of shifting cultivation over the past 15 years, roughly 120 hectares of Tayap forests are lost each year. Primary forests now represent less than 30% of the total area. Agricultural land is also increasingly scarce and, due to the emergence of new pests and diseases, Tayap's farmers are experiencing unreliable harvests. Tayap's farmers understood the need for urgency and took action to safeguard their forests and agricultural land through a climate mitigation and sustainable alternative revenue initiative. The Tayap Eco-Orchards (TEO) initiative, led by a local farmers' association, is an agroforestry system implemented through three lines of development: agroforestry, green economy, and climate funding. TEO uses nurseries of threatened tree species and fruit orchards to restore fallow land and enhance livelihoods. This inclusive project has a strong women and community component as well as a comprehensive training and communications program dedicated to sharing experiences, lessons and disseminating results.



Supporting women's empowerment by enhancing their livelihoods.

The community is crucial to the success of Tayap, as this project goes beyond civic engagement and responsibility. All 250 residents of the village are highly involved in TEO. Participation was the key to the successful use of resources and the adoption of the U.N. SDGs. Tayap also offers opportunities for youth who have returned to the village after studying internationally. With educated and open minds, returning youth developed new and innovative approaches to lift their village out of poverty and create sustainable livelihoods. For instance, these young people were the first ones to identify the many potential benefits of ending the long-lasting tradition of shifting cultivation in the village. Changing from shifting cultivation to more sustainable agricultural practices had undeniable ecological benefits, but also more practically, reduced the risk of seeing a year's worth of agricultural labor go up in smoke due to uncontrolled neighboring fires. Having been directly affected by such a fire in their first year right before harvest and aware of the environmental impact of such a practice, the young people of Tayap were instrumental in reducing the use of shifting cultivation by Tayap farmers by 60%. After founding an earlier project called Agripo, they were then able to incorporate scientific methods into TEO to quantify results.

Garnering support for reforestation of rare non-timber forest trees was a great challenge. To overcome this, Tayap used incentives-based approaches that offer carbon premiums to encourage families to restore fallow land and reintroduce species that were disappearing from the Tayap forest. It has been an arduous process to convince farmers due to the time needed for the trees to produce fruit. Concerns about the short-term profitability of agroforestry arose early on. Another set of challenges occurred during the establishment of a nursery of 125,000 forest trees. Some of the seeds needed were unavailable. Although it was ultimately decided to use different species, the constraint was linked to the availability of needed resources, and this, in turn, hindered implementation. In the second case, the lack of financial resources could have affected the development of local microfinance fund for women, which would not be as influential as is today, if it were not for the contribution of the UNDP-GEF Small Grants Programme's contribution of almost 85% of the funds.

Engineers Without Borders Cameroon is a key partner for TEO. They provide technical support for feasibility assessments and technical monitoring. The Supporting Entrepreneurs for Environment and Development (SEED) award gave TEO an opportunity for training and capacity building



Young Agripo farmers ready to sell their first fruitful and plentiful harvest.

and strengthened the credibility of the program. The UNDP-GEF Small Grants Programme (SGP) (2014) and the Education for Nature program of WWF USA (2015) have both financially supported Tayap and helped in a myriad of ways: The UNDP-GEF SGP grant was instrumental in launching the rotating fund for microfinance by offering a one million CFA franc subsidy to TEO as well as building the two ecotourism lodges. The WWF grant has been used to strengthen the knowledge and skills for capacity building of the local community and also their contribution led to a large-scale reforestation program for the village. Other sources of support include the U.N. Volunteers' Network (technical support and outreach to other partners), the Kokopelli association (seed donations), and the French Government (financial and technical support).

The Tayap project created and sustained 36 income-generating activities like beekeeping. The village has organized eco-tourism activities (ecological studies, cave walks and visits to agroforestry farms) and three annual green classes for village students and more than 60 people (including 35 women). In terms of economic diversification, 20 women have been trained in the management of revolving funds, creating a wider base for inclusive economic growth and ensuring economic autonomy and empowerment for women.



Two low-impact ecotourism lodges, equipped with solar panels, rainwater recovery systems and nearby gardens producing food were built with local labor and materials. Over 20 agroforestry products from the eco-orchards have been introduced into the market including mango and other trees. A 2-hectare seed nursery was also created.



Tayap has planted more than 10,000 agroforestry plants and fruit trees and restored at least 130 hectares of fallow land into eco-orchards. Since 2010, vegetation density has been reversing a decades-long trend in deforestation. A series of Moderate Resolution Imaging Spectroradiometer (MODIS) images show that vegetation cover has increased from 2012, when the community area had a vegetation index below 0.6%, to 2014, when it grew to 7%.



Development of the seed nursery and the recovery of the vegetation cover help reduce climate change effects through sustainable agroforestry.



Community Participation in Natural Resource Management

An Alternative for Sustainable Rural Development

Organization: Center for Research and Environmental Services

Project Location: Viñales National Park, Cuba

Project start date: 2008

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This project expanded the participation of rural communities that affect the management of natural resources and the search for ecological forest restoration, mitigation of forest fires, soil improvement and other conservation actions at the Viñales National Park.. Historically, communities around the protected area engaged in logging, forest resource use, extensive pig farming, and waste dumping near the National Park due to the lack of necessary infrastructure. Viñales National Park Staff involved communities in the use of best practices, strengthening productive agricultural systems and linking these with the management of the protected area, using 12 indicators (see Results & Indicators) to assess the sustainability of 9 smallholder farms. Together, the National Park and the community designed and implemented a new agrotourism legal modality. This legal modality of a co-designed forest farm increases the multifunctionality of rural areas and rural living standards by identifying new ecosystem services sustainable forest use provides for local people.

The creation of agrotourism farms added great value to Viñales as a tourism destination. This project helped to identify potential for agrotourism sites and recommended the inclusion and approval of the agrotourism modality as a part of the Viñales Valley as an integral part of the Park's UNESCO Cultural



Community participation in reforestation of degraded areas, c. Dr. José Luis Corvea Porras



Sustainable land management through traditional techniques, c. Dr. Yoel

Landscape World Heritage Site status. Agrotourism is also one of the main drivers of foreign tourism to rural areas in Cuba, and is one of Viñales' key attractions.

Through engaging local farmers, the project mitigates the effects of climate change on agricultural lands, and minimizes crop failure through increased use of local drought-tolerant varieties, water management, crop diversification and rotation, forest restoration, participatory biodiversity monitoring, agroforestry and silvopastoral systems, and soil conservation. The project assessed the sustainability performance and potential of each farm with the participation of farmers, local leaders and Park employees. As a result, the Viñales ecotourism industry incorporated these farms through approving local legislation on agrotourism farm status, improving the quality of life and providing new jobs, mainly for rural women.

One of the challenging aspects of implementing the project was that at first communities identified the protected area as a threat rather than an opportunity. To them it was an area that limited local peoples traditional use of the natural resources and their associated activities

and traditions, sustainable agricultural practices, soil conservation, and reforestation with endemic and indigenous species. In relation to agrotourism, the local government initially identified this method as an unauthorized activity not having a legal basis and partly identified the tourism component as a threat to its tourist product offered by travel agents.

The project involved nine farms in the buffer of Viñales National Park, as well as partnerships with local leaders, NGOs, government institutions and international organizations that financed project activities, such as the UNDP-GEF Small Grants Program, the Cuba UNDP office, Swiss Agency for Development and Cooperation (SDC), Cooperation for Development of Emerging Countries (COSPE, Italy), University of Santiago de Compostela (Spain) and the National Association of Small Farmers (ANAP, Cuba). Through the project, participants learned that the participation of surrounding rural communities in the management of protected areas increased management effectiveness and efficiency, and that protected area management is compatible with conservation agriculture, and participatory agro-ecological systems. The local population participates in biodiversity conservation and monitoring activities.

The participation and employment of rural women and youth was increased by 12.1%. Economic wellbeing of local residents increased as new jobs related to renewable energy maintenance and ecosystem services were created. As a result of the project, 53 new jobs were created for 39 women and 14 men. The average salary of each worker and complementary effects increased profits for local communities.

735 homes were electrified with renewable energy through photovoltaic cells.

This project reduced rural-urban migration. Before implementation of the project in the communities around the protected area, inhabitants of these rural communities migrated to the city, depopulating rural areas. RuralW depopulation was identified as one of the major social problems with Viñales National Park. This project attracted 12 new rural families and a total of 71 new settlers by creating organic, agrotourism farms near the protected area.

42 hectares of soil were rehabilitated in the protected area with native and endemic species, including 22 hectares of forest and 18 hectares of agricultural lands. The project used 12 indicators to evaluate the sustainability of local farms: depth of topsoil, soil erosion and compaction levels, agricultural and forest diversity, biological life of the soil, state of recycling system, maintenance of vital agroecosystem functions, agroecosystem capital resources, pest and disease management, energy resources and natural capital resources of the farm and its surroundings. The project also increased the agrobiodiversity of varieties used on farms by more than 50%.

The State Forestry Service and the administration of Viñales National Park developed a new classification for this reforestation as an ecosystem service forest, and added an official agrotourism farm legal status. These community initiatives have been extended to other rural communities in the country (Guanahacabibes National Park, Sierra del Rosario Biosphere Reserve, Cienaga National Park, Batabanó area in Havana province). Internationally, these experiences have been shared with agricultural areas of Spain, Fiji, the Solomon Islands, the United States, Belize and Brazil.

Connecting Human & Environmental Health in Indonesia

Organization: Alam Sehat Lestari (ASRI)
www.HealthInHarmony.org

Project start date: 2006

Project Location: West Kalimantan, Indonesia

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Founded in 2007, Alam Sehat Lestari (ASRI) connects human and environmental health. The Gunung Palung National Park (GPNP) in West Kalimantan, Indonesia serves as a water source for approximately 60,000 people, is a major site of orangutan habitat, and plays a major role in the ongoing adaptation to climate change. Because human and environmental health are inextricably linked, ASRI provides low-cost, high quality medical care and promotes conservation through training in alternative livelihoods. The model also builds social capital enabling meaningful community dialogues and partnerships to develop programs that reduce forest degradation and destruction. ASRI demonstrates how improved physical and financial health can mitigate environmental degradation around GPNP. Healthy forests equate with healthy people through cleaner water, reduced diseases, and better access to resources. ASRI developed this model after extensive community engagement, learning that financial stress felt by families after medical emergencies was a major factor driving deforestation.

development. To address the continued deforestation, ASRI has begun adapting our approach to support the conservation of forest areas outside GPNP and across a broader landscape. This requires working with new partners and developing and strengthening regional, national, and global liaisons to assist the project in applying new research to programming and providing advice on community-level management approaches.



Farmer groups practicing planting techniques in Sukadana, Indonesia.

ASRI builds the capacity of forest-dependent villagers to pursue low carbon livelihoods, reducing their impacts on forest resources. Designed to increase the independence of farmers groups, the 2016's portfolio of activities include producing organic produce, rice, and fertilizer. More groups are joining the project, meaning more opportunities for mutual support, knowledge sharing, and formation of collectives for marketing agricultural products. Strengthened public-private partnerships between the farmers groups and the local government also reduce reliance on donor funding, such that farmers groups are able to continue sustainable farming.

The economic and political environment in which ASRI operates has changed significantly over the years and continues to evolve rapidly in accordance with Indonesia's own economic

Close collaboration with the Department of Health and other government agencies is critical to the project's success. These government agencies are highly supportive of ASRI's medical clinic. The project's reforestation site, located within GPNP, is managed by the national Ministry of Forestry. The Park's administration grants ASRI permission to reforest within the protected area, on the basis of a legal Memorandum of Understanding. In the past, Park officials have provided seedlings, built fire watchtowers within the site, and actively sought advice that can be applied in their own reforestation efforts. The Laman Satong Village Government and local community also support part of the project's efforts by providing staff, contract workers, and fire patrols. ASRI's close relationship with the district Department of Livestock enables the staff to independently administer medications to program beneficiaries and report disease for veterinary follow-up care.

Health has improved, reducing household expenditures and, subsequently, deforestation pressures. ASRI is beginning to show that revenue generated by clinic activities can be a reliable source of funding. The affordable fee-for-service activities provided by the medical program may be able to cover health care and conservation program costs within the next five years

A survey found that the number of active loggers declined by 68% between 2008 and 2012. Of those loggers that quit logging, 52% chose to become organic farmers. Nearly all loggers expressed willingness to quit logging if offered a viable alternative livelihood.

Over an 18-month period between 2013-14, 175 Forest Guardian meetings with individual loggers, shifting cultivators, and sawmill owners support this finding. One logger summarized the prevailing sentiment: "If there was any other stable work other than being a chainsaw operator, that would be better." ASRI trainings in sustainable agriculture, livestock husbandry, and reforestation provide this opportunity.

Within the first five years half of the 32 villages within the project area achieved the shared goal of zero-deforestation.



A proud farmer displaying his healthy crops.

Funding Forest Education

The Role of Science Camps on Thailand's Khorat Plateau


Organization: Sakaerat Environmental Research Station, Thailand Institute of Scientific and Technological Research
www.tistr.or.th/sakaerat/SakaeratE/index.php

Project start date: 2006

Author: Taksin Artchawakom
sakaerat@tistr.or.th

Project Location: Southeast Asia, Thailand


The Sakaerat Environmental Research Station (SERS) is located within dry-dipterocarp and dry-evergreen forests on the Khorat Plateau of Thailand. Since 2006, SERS has used an integrated approach to forest and biodiversity conservation through using funding generated via science camps to institute effective anti-poaching initiatives and support sustainable food production projects that alleviate pressure on local protected areas. Ultimately SERS has three goals: the promotion of first-class research on forest ecology, educating the public about the value of forests and the environment, and protection of local biodiversity. SERS aims to effectively and sustainably manage a Biosphere Reserve that supports both people and wildlife, and a key part of this is linking forest education at the national level to local grassroots initiatives.


 This project identified the potential to develop a high level

science camp at the research station to introduce students to Thailand's biodiversity, and through those camps, to sustain tropical forest research projects. Prior to the start of the project only several small student groups would visit SERS each year with no set curriculum, but by tailoring the science camp curriculum to the national education strategy, SERS is now attracting more schools. The science camp program currently funds nearly all other outreach and development activities through sustainable income.

SERS identified that while research institutions may not act as financial profit centers, supporting long term research teams can add value to existing community initiatives. For example, in 2014, SERS began working with a long term snake research unit to create a venomous snake removal service for the surrounding area. In addition to offering direct support, the research unit trained local emergency

response teams in safe handling methods to build local capacity in reducing human-snake conflicts in inhabited forest areas.

 Initially, many local police officers did not support increased biodiversity protection efforts. Some locals were living within the core area of the biosphere reserve and had to be relocated to nearby villages. Many locals were initially opposed to Sakaerat's anti-poaching stance and increased forest patrols, rangers and other protection efforts. Finally, while ecotourism was originally in place as a component of the biosphere reserve's funding, it was not managed properly and lacked the education component now present within the core area.

 SERS signed two memorandums of understanding with Dutch institutions and Kyoto University, leading to a constant influx of international researchers and interns to assist SERS in educational activities and field research. Additionally, SERS has partnered with the Sakaerat Conservation and Snake Education team and local emergency response stations to develop a network of trained responders to remove venomous snakes from people's homes, reducing human-wildlife conflict. Just this year the management team from the Cat Tien Biosphere Reserve in Vietnam visited the station and is in the process of creating tighter links to use SERS as a model for development and cooperation.



Visiting science camp students participate in locally integrated activities intended to broaden their understanding of the natural sciences.



With over 365 research projects completed and ongoing, SERS has had a noticeable impact on the scientific community. Over 15,000 students, from 54 of the 76 Thai provinces, visit SERS every year to learn about forest ecology and biodiversity.



SERS worked with 6 local schools to develop a mushroom cultivation project that teaches students how to sustainably grow edible mushrooms. Additionally, a collaboration between SERS and local farmers has created a sustainable population of farm raised wild boar for human consumption.



Anti-poaching and reforestation initiatives have halted the trend of degradation and fragmentation present 15 years ago. One study found that forest cover increased between 2002 and 2010, after decreasing from 1980 to 2002



The main research station compound within Sakaerat Biosphere Reserve is operated under the auspices of Thailand Institute of Scientific and Technological Research.

Village Development Committee of Ando-Kpomey Maritime Region

Organization: Comite Villageois De Developpement D'ando-Kpomey
facebook.com/cvdandokpomey

Project Location: Maritime Region, Southwestern Togo

Project start date: 1973

Author: Koto Koku Agbee
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After a devastating bushfire in 1973, the village of Ando Kpomey created a green belt around their community to prevent future fires. Over time the greenbelt began to function as a real forest and the community's vision expanded. Now more than 100 ha, the community has created a participatory management committee to monitor the forest and regulate its use. The community forest protects the town from bush fires and serves as a harbor for biodiversity. The community authorizes limited extraction of resources because community members rely on the forest for subsistence needs and manage the revenues generated by the sale of forest products. As the forest grew, the forest became a community focus, a contributor to the village economy, and a source of pride and recognition within the largely deforested region. The transformation has been so

impressive that five neighboring communities of Nyaméssiva, Kpenyuie, Zikpé, Setekpé, Klégbékopé and Akpuive have adopted the community's forest regeneration model.

Forest restoration is also commonly used as a teaching opportunity. Ando Kpomey encourages educational visits from other communities and regularly conducts awareness raising workshops. Because raising awareness and planting seedlings are jobs that even young people can do, restoration efforts frequently become a platform for environmental education and a way for local schools to contribute to the community endeavor.



Visiting fees to enter the forest are directed towards the town's

development. Most of this revenue is used to fund Ando Kpomey's school. Exchange visits have increased the importance of children's education among dwellers. A result of this has been the creation of a new environmentally focused primary school, which was recently recognized by the Togolese government.



Because of the relatively small size of the forest, it is incredibly difficult to garner financial, technical, and material support from the government to support the expansion of the forest. Water constraints also made it challenging to maintain consistent support from community members.



In 1991, the initiative attracted the attention of the Togolaise NGO, Togolese Association For Human Protection (ATPH), and in 1992, ATPH started providing support to the community's project. In 2000, the forest caught the attention of another NGO, Inades-Formation Togo. The management of the community forest is always designed entirely by the community, though ATPH provided technical knowledge for putting in place a vigilance committee and a management committee by the community. The administration is participatory and the regulations are generally very well-respected by the local residents.



This project increases the diversity of income generating activities. Forest-friendly, alternative livelihoods, such as snail farming and apiculture, provide reliable income and food while reducing pressures on forest resources.



This project improves access to medicinal plants. The forest contains edible mushrooms and medicinal plants that fulfill some of the community's healthcare needs.



This project increases access to education, focusing on the importance of environmental education. Visitors fees to access the community forest are used to fund local primary schools, increasing the number of children receiving formal education.



The community forest enhances the village's land tenure by clearly delineating the extent of Ando Kpomey land and protecting it from "land grabs". The forest also strengthens community pride and identity as it relates to stewardship of communal land.



A 100 ha green belt surrounding the village of Ando Kpomey protects endangered and threatened tree species. The community recognizes the benefits the forest brings them (there have been no bushfires in the town since 1973).



Traditional habitats rebound in villages that are members of the project



Women working together on the community development project.

Protecting Permanent Springs Through Dry Forest Restoration

Organization: Fundacion Pro-Bosque
www.bosquecerroblanco.org/es

Project start date: 1990

Project Location: Guayaquil, Ecuador

Author: Eric Horstman
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Water availability for human consumption is a major issue in Guayaquil, Ecuador. Many families rely on water distributed by trucks or natural water sources such as wells and springs. The Cerro Blanco Protected Forest lies on the outskirts of the city and protects 6,078 hectares of globally endangered dry tropical forest. A network of seven permanent springs is found in Cerro Blanco and provides free water to nearby residents who use the resource for household needs. This resource is threatened because of past deforestation that has left fire-prone pasture and secondary scrub with reduced water catchment and storage values.

Since 1993, Fundacion Pro-Bosque has worked to restore these impacted areas through the planting, maintenance and monitoring of close to 637 hectares of

land, with an average of 1,000 trees per hectare planted, using a half million trees from thirty native dry forest species.



This project speeds up the natural process of dry forest regeneration in higher micro watersheds to help insure a continued water supply to surrounding communities. The communities identified water as a priority because most depend on expensive water trucks to fulfill their domestic needs especially in two squatter settlements that border the Cerro Blanco Protected Forest. Recognizing the need to protect their water source, local community members began to participate actively in conservation programs including reforestation, community gardens and working as volunteer monitors recording sightings of endangered species such as jaguar, great green macaw, and gray backed hawk. Protecting their water source was a key reason



Jaime Lagos, nursery worker with recently transplanted tree seedlings.



why the local community participated. In the beginning the project faced open hostility by some of the local community members who had occupied land within the Cerro Blanco Protected Forest for more than eight years, in some cases which under Ecuadorian law gives them squatters rights. There was also illegal tree cutting to make charcoal or boards for construction, clearing of vegetation for shifting cultivation of corn plots and hunting of wildlife. Funds were obtained to buy the squatters rights of the eight families living in Cerro Blanco and they voluntarily moved out of Cerro Blanco, many already having homes in the city of Guayaquil.



The project works with community leaders, local teachers, landowners and governmental organizations. Interested local teachers, for example, incorporate environmental education and tree planting programs into their curriculums.



Close to a half million native trees have been planted in former pasture lands and secondary scrub in close to 500 hectares within the Cerro Blanco Protected Forest from 1990 to the present. Overall survival rate has been 73%. Some of the former squatters are now living outside of the reserve became active as community park guards hired by the Fundacion Pro-Bosque to work in the dry forest Restoration program.



Don Perfecto Yagual planting trees with local school kids.



This project protects ravines, springs and water capture and storage in the Cerro Blanco Protected Forest. 2470 cubic meters of water per year used by people in surrounding communities.



1,482 acres of dry tropical forest restored that form a part of the 15,000 acre Cerro Blanco Protected Forest. Oxygen produced for approximately 350,000 people living in surrounding areas of the city of



Environmental education training for community members living near the Cerro Blanco Protected Forest. Group of community park wardens trained and helping to support conservation of the flora and fauna of the Cerro Blanco Protected Forest.



This project conserves and protects the dry tropical forests of the Cerro Blanco Protected Forest. 350,000 tons of CO₂ are captured and stored in leaves, branches and other parts of trees.

Saving the Music Tree

Organization: International Pernambuco Conservation Initiative USA
www.ipci-usa.org

Project start date: 2004

Project Location: Brazil

Author: John W. Bennett
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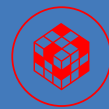
The finest bows for stringed instrument music depend on Brazil's national tree, *Caesalpinia echinata*, also commonly known as pernambuco or pau brazil, which grows exclusively in Brazil's Atlantic Rainforest. Today, over 90% of the rainforest has been depleted. As a result, pernambuco is listed in CITES Appendix II (2007, with an exception for bows), as endangered in the IUCN Red List and as a threatened plant species under the Brazilian law.

In 2004, bow makers formed the International Pernambuco Conservation Initiative (IPCI) to conserve and restore pernambuco and to promote its sustainable use. IPCI is the only organization dedicated exclusively to the conservation and sustainable use of pernambuco. Its efforts have been recognized by the government of Brazil and internationally.



Through its cooperation with Brazilian counterparts, IPCI identified an opportunity to help restore Brazil's national tree, to help create and

support rural livelihoods and agroforestry and, in so doing, to also help safeguard the future of stringed instrument music. Significant opportunities remain to expand pernambuco science, conservation and reforestation efforts and to support small-scale agroforestry.



IPCI has faced financial and administrative challenges, especially due to changes in government, which can severely affect policy-making. Much is being learned about existing pernambuco populations, regrowth conditions and the effectiveness of silvicultural approaches. For example, Associação Plantas do Nordeste (APNE), an IPCI partner, encountered difficulties in sustaining seedling growth in dry plantation settings, especially during drought conditions. IPCI and its partners have also discovered including non-pernambuco species, such as shade trees, in the mix of seedlings offered to its cacao-growing agro-forestry partners helps to promote engagement and uptake. The distances between mother trees

producing seeds, the nurseries where seedlings are grown, and the farms where they are ultimately donated can also pose logistical challenges (time and cost of transportation) as can monitoring progress after seedlings have been planted in order to apply knowledge to future research and silviculture efforts.



From its inception, IPCI has strived to establish partnerships with a wide range of Brazilian stakeholders. These partnerships have helped to build awareness about pernambuco and support for planting and agroforestry activities. IPCI has developed important partnerships with government agencies, such as the Brazilian Institute of Environment and Natural Resources (IBAMA), the Brazilian Forest Service (SFB), and the Comissão Executiva do Plano da Lavoura Cacaueira (CEPLAC), Brazil's federal cocoa research and extension agency within the Ministry of Agriculture; NGOs, such as Instituto Floresta Viva (IFV) in Bahia state and APNE in Pernambuco state, which work with local cacao farmers; scientific bodies, such as Jardim Botânico of Rio de Janeiro, Botanical Garden of Joao Pessoa, and the New York Botanical Garden; and agricultural scholars and universities, such as the Federal University of Paraíba and the Federal University of Rio Grande do Norte, to implement projects that invest in silviculture, science and education. For example, IPCI funded and developed a five-year project with CEPLAC that resulted in the planting of approximately 150,000 seedlings on smallholder farms in the state of Bahia. In 2012, following several years of cooperation with IPCI, the Brazilian government announced that it was launching its first-ever national pernambuco conservation program. After the CEPLAC project ended, IPCI has continued to monitor and plant an additional 10,000 seedlings per year and has incorporated pernambuco planting into its work plan. IPCI has also invested in research projects with CEPLAC and academic partners that have led to a better understanding of

pernambuco's distribution and genetic variation and the publication of numerous papers.



Through its cooperation with smallholder cacao growers, IPCI initiatives support livelihoods, help to reduce inequalities and promote responsible production. IPCI sponsors yearly workshops that gather Brazil's most knowledgeable pernambuco science and silviculture experts, government and NGO representatives, and bow makers to share lessons learned and strategize about future initiatives.

Several thousand new pernambuco trees are currently being planted in four Brazilian states through IPCI's past work with CEPLAC and current projects with IFV and APNE. Altogether, IPCI's projects have thus far resulted in the planting of approximately 200,000 pernambuco seedlings, initiative following IPCI's initiatives. IPCI has also supported youth orchestras in Bahia. IPCI has measured success in a number of ways, including seedlings planted, the health of plantings, strength of cooperation with farmers, scientific papers published, and by observing the growing interest in pernambuco conservation and silviculture by NGO, scientific and government partners.



Flowering pernambuco branch.



Pernambuco seedlings growing in nursery at Instituto Floresta Viva, Serra Grande, Brazil.

Income Generating Activities to Preserve the Uatumã's Reserve

Organization: Institute for the Conservation and Sustainable Development of Amazonas (IDESAM)
www.idesam.org.br

Project start date: 2008

Project Location: Uatumã's Reserve, Amazonas State, Brazil

Author: André Luiz Menezes Vianna
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In 2008, IDESAM started the Forest Management Project in the Uatumã Sustainable Development Reserve, Brazilian Amazon. The project goal is to preserve the forest and promote income-generating activities for the 300 families who live in the Reserve. The project supports three activities: legal timber extraction, commercialization of non-timber forest products (NTFPs) and the implementation of agroforestry systems. Through government grants provided by the Ministry of the Environment, the project propelled seven small scale forest management plans within the Reserve and regulated the timber extraction that occurs in the Uatumã's Reserve. The project established rules for the use and extraction of non-timber forest products (NTFPs) by local residents, as well as supported the commercialization of these products. The project also converts degraded areas into agroforestry systems under a GHG offset program namely Carbon Neutral. This program quantifies and converts GHG emissions from customers to an equivalent number of trees to be planted and sequester CO₂ with the goal of offsetting emissions. Customers are mostly companies, event organizers and individuals interested in offsetting their GHG emissions. The activities to be carbon neutralized are related to high electricity and fuels consumption, such as flights, other types of transportation, and lodging, among others. This mechanism has provided financial resources to manage the reserve.



Forest producer processing wood in the forest with a portable sawmill.



Two main opportunities contributed to the successful implementation of this project in the Reserve: 1. The Reserve residents have considerable knowledge of the forest, for example: they know about tree species, timber quality, timber harvest techniques and NTFP collection methods. Based on their knowledge, IDESAM has helped the community to adapt their techniques to existing legal requirements through technical courses. 2. The agroecological techniques taught during field activities in the community were largely accepted and implemented. The great acceptance resulted in reduced costs associated with low use of fertilizers and the significant high yields obtained from the agroforestry systems.



The Amazonas State did not have a regulation that would allow for logging within the boundaries of a Protected Area. IDESAM had to prompt a deep discussion with the state government about the need of such a policy, which resulted in new rules that regulate the activity in Protected Areas. The competition between legal and illegal timber reduces timber prices

and is one of the main obstacles to small-scale legal logging. With the aim of reducing the burden on small producers and promoting legal logging, a group of state agencies exempted small-scale loggers from paying a mandatory 17% tax on the value of marketed wood (namely ICMS). There was also an initial distrust associated with the capacity of agroforestry systems to offset GHG emissions and their maintenance over time. As a strategy, IDESAM has implemented tools to prove the accuracy of its initiative, such as carbon verification standards, satellite images and real time pictures that are regularly disseminated through the local media and the organization's website.



The main partners that support this project are: 1. Uatumã's Reserve Residents Association that plays a key role in mobilizing residents and building trust upon the project. 2. Secretariat of the Environment, responsible for driving changes in current legislation. 3. Ministry of the Environment and Sustainable Amazonas Foundation (FAS), that have funded activities to elaborate the forest management plans and make agreements for the extraction of NTFPs.



Performing the harvest control after the logging.



The achievements of this project went beyond the initial expectations.

The initial goal was to support five forest management plans and establish best practices for forest management to be implemented in the Reserve and followed by the residents. In addition to that, the money generated from carbon offsets supported the implementation of agroforestry plots. Furthermore, IDESAM supported the first timber harvest in the community and assisted the commercialization of NTFPs by evaluating potential ways for local residents to access markets and sell their products.



Income generation of USD \$12,800 in 2010-2011 in four communities through timber extraction supported by the sale of 3 tons of fruits and seeds and 400 kg of copaiba oil between 2012 and 2013.



The project diversified and increased the sources of income within the Uatumã's Reserve.



The project established 11,667 trees that absorbed 4,203 tons of CO₂ from 2008 to 2015.



This project contributed to the elaboration of seven small-scale forest management plans and the establishment of an agreement to use and extract NTFPs by local residents.

Conclusion

and Next Steps

The case studies in this publication present a wide range of concrete examples of how sustainable development can be achieved through tropical forest research and conservation. Researchers and communities working with tropical forests measure their success not only in terms of environmental progress toward SDG 13 (climate action) and 15 (life on land), but with socioeconomic indicators that address a broad cross-section of all of the Sustainable Development Goals (SDGs). These case studies provide examples of ways in which forest and policy practitioners can strengthen the implementation and measure the success of projects at the nexus of tropical forests and the SDGs. They also reveal some of the challenges encountered when working towards sustainable development in relation to tropical forests. Some of the key challenges mentioned are:

Achieving community buy-in

This challenge arises particularly when projects involve a component of changing livelihoods or delayed economic returns. Project managers struggle with inspiring people to experiment with new activities when the payoff is several years down the road.

Building trust

Innovative concepts proposed by leaders in this space are often mistrusted at the outset of a project, particularly if that project has seemingly intangible results. A critical mass of initial adopters must often prove new solutions work before more risk-averse sectors of society agree to experiment.

Data access and connectivity

People working and living in tropical forests often have limited internet connection, which is necessary to access existing data relevant to their project, engage with potential partners, and access available resources. Working in or with these remote communities makes sharing and articulating information among project partners or out to the larger community challenging.

Avoiding misinterpretations

Language barriers and differences between sector priorities and perspectives can lead to miscommunication between project partners and the general public

Government and political context

Local public policies and lack of political will and support from the administrative structure, i.e. police force and politicians, are common challenges when implementing innovative projects in forest conservation. Constant changes in the political and legal environment can also make it more difficult when trying to make such projects sustainable in the long run.

Economic and market incentives

Funding and lack of fiscal incentives for conservation and restoration initiatives are common challenges in countries focusing on economic growth and largely sensitive to market pressures.

Logistics

Due to the fact that forest conservation projects are usually carried out in geographically dispersed and physically isolated areas, there are significant difficulties in telecommunications and transportation.

Tropical forest practitioners discussed the implementation challenges that emerge when projects incorporate both tropical forests and sustainable development at the 2016 ISTF Conference. Field practitioners and forest researchers presented projects that demonstrated how work and research related to tropical forests could contribute to each of the 17 SDGs. Thinking about tropical forest work in terms of the SDG framework has helped participants to expand project focus and connect their projects to a broader perspective among different stakeholders. Project leaders were able to view their work on a global scale, and learn about how other projects are building resilience when facing similar challenges in different parts of the world.

The case studies in this report provide examples of projects that have formed the partnerships necessary to overcome many of the challenges mentioned here. Together, they provide a powerful collection of narratives about the importance of SDG 17 (Partnerships for the Goals) in achieving successful actions toward sustainable development in the field. Projects in this report have created collaborations among indigenous leaders and scientific networks, schoolteachers and landowners, data specialists and local communities, engineers and gardeners, botanists and local farmers, students and emergency first-responders, government officials and health providers, and fishermen and television broadcasters. The world needs such an eclectic and vibrant set of connections in order to achieve the Sustainable Development Goals by 2030.

As the world pivots toward aligning its development efforts with the new sustainable development agenda, this report provides a set of examples that highlight actions that are already being taken at the nexus of sustainable development and tropical forests around the world. However, for every case study in this report, there are hundreds more whose stories about their contributions to sustainable development in or near tropical forests remain untold. Partnerships between tropical forest actors and leaders working on other issues related to the sustainable development goals can unlock innovation, harness funding, and enhance networks to speed up progress toward achieving the SDGs. Our hope is that this publication, through providing examples of how grassroots implementation of projects in or near tropical forests can lead to sustainable development, will open up a space in which practitioners can discuss the opportunities, challenges, partnerships and results of their own projects in order to enhance progress toward the SDGs.

About Yale ISTF

The Yale chapter of the International Society of Tropical Foresters provides a forum for researchers, students and practitioners with interests and experiences in linking natural resource conservation and management with economic development. Attracting members worldwide from diverse sectors such as conservation finance, community development, stakeholder engagement, tropical ecology, and forest governance, the Yale ISTF Chapter stimulates participation of students and the broader academic community in issues relevant to conservation and development in tropical regions around the globe. The Yale ISTF group organizes an annual conference addressing emerging trends in tropical forest conservation and management.

2016 Conference

The Yale Chapter of International Society of Tropical Foresters held its 22nd Annual ISTF Conference at the Yale School of Forestry & Environmental Studies, on January 28-30, 2016. *Tropical Forests for Sustainable Development: Shaping our Post-2015 Future with Knowledge from the Field*. The world is at a pivotal junction as it considers strategies for implementation of the United Nations' Sustainable Development Goals that will inform the post-2015 global development agenda. Tropical forests play an important role in a wide range of issues connected to post-2015 development, including poverty alleviation; food security; human well-being; water conservation; gender empowerment; energy access; sustainable economic growth, production and consumption; combating climate change; and promoting sustainable resource use and development. The 22nd Annual ISTF Conference provided an exciting opportunity for field researchers

and practitioners to join with policymakers in a discussion about the role tropical forests play in the post-2015 development agenda and in enhancing our ability to achieve the **Sustainable Development Goals**. Because of the timely nature of this discussion, tangible products from the event are poised to inform the early conceptualization of post-2015 global development actions and define a path forward for tropical forest and development communities in determining how existing initiatives can support post-2015 sustainable development.

Past Yale ISTF Conferences

The Yale School of Forestry & Environmental Studies ISTF chapter has hosted annual conferences for 24 years. Conference titles for the last 15 years include:

- 2015:** Conserving biodiversity across multiple use landscapes through strategic governance and land-use planning
- 2014:** Forests as Capital
- 2013:** Food and Forests: Cultivating Resilient Landscapes
- 2012:** Strategies for Landscape-Scale Restoration in the Tropics
- 2011:** Communities, Commodities, and Carbon
- 2010:** Tropical Forests Under a Changing Climate
- 2009:** Conflict and Cooperation: Tools for Governing Tropical Forests
- 2008:** Biofuels and Avoided Deforestation: New Drivers of Land Use Change in the Tropics
- 2007:** Financing of Forest Conservation
- 2006:** Conservation and the Agricultural Frontier
- 2005:** Conservation in the Matrix
- 2004:** People in Parks: Beyond the Debate
- 2003:** Ecosystem Services in the Tropics
- 2002:** Illegal Logging in the Tropics

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Do you have a story to share that links tropical forests with sustainable development? Communicate these stories to the world through connecting with us at istf@yale.edu, [@YaleISTF](https://twitter.com/YaleISTF) or our Facebook page. ISTF's 2017 conference, "Tropical Forests in a Connected World: Collaborative Solutions for a Sustainable Future," will highlight the relationship that exists between different tropical forest activities, showcase the importance of partnerships for success, and strengthen the understanding of interconnectivity surrounding tropical forests around the world. Register to share your stories at istf.yale.edu

Authors



Pooja Choksi has worked on a community based wildlife conservation model in the Pench Tiger Reserve, central India. She holds a bachelor's degree in Banking and teaching experience in Cartagena de Indias, Colombia. She is interested in the application of geographic information systems (GIS) in wildlife conservation, and infusing inclusivity in wildlife conservation models in India.



David E. McCarthy is a Master of Environmental Management candidate at the Yale School of Forestry and Environmental Studies. He previously worked to end poverty & homelessness in Connecticut by developing an innovative shared-housing model & coordinated access system. Drawing inspiration from empowered communities he aspires become a future leader in climate change to further preserve the worlds biodiversity and the long-term health of the biosphere.



Michelle Mendlewicz is a Brazilian environmental lawyer pursuing her Master of Environmental Management at the Yale School of Forestry and Environmental Studies. Her main interest lie in the intersection between climate, forests and business. She believes that engaging the private sector is crucial for effectively reducing global GHG emissions and hopes to work with organizations committed to the environment to secure a sustainable future and a deforestation-free planet.



Ruth Metzel is, in addition to her work with ISTF, co-founder and Executive Director of the Azuero Earth Project, an organization that works on sustainable land management in Panama. She has a Master of Forestry and MBA from Yale, and a B.A. in Ecology and Evolutionary Biology from Princeton University. Her interests include agroforestry, silvopastoral systems, and engaging actors across sectors for positive environmental change.



Sarah Tolbert is a graduate from the Yale School of Forestry and Environmental Studies (MEM) and the Jackson Institute for Global Affairs (MA). Sarah worked in Benin for three years as a Peace Corps volunteer, implementing sustainable agriculture projects. She currently is working with indigenous groups to manage Community Forests in the DRC as a Fulbright Scholar and a Gruber Fellow in Global Justice.



Mariana Vedoveto is a graduate from the Yale School of Forestry and Environmental Studies. She grew up in Brazil and has been working in the Amazon since 2005. She is interested in financial and market incentives to reduce deforestation and promote ecosystem restoration in tropical areas. Mariana also works on bridging the gap between research and policy-making to support investments in natural infrastructure in Latin America.

Endnotes

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- 7 United Nations Forum on Forests. 2015. <http://www.un.org/esa/forests/news/2015/05/forests-pivotal-to-new-post-2015-development-agenda/>
- 8 Forests growing in tropical regions vary widely in composition, structure, function and productivity because of the diversity of climates, soil types and biogeographic conditions where they grow. Definitions of tropical forests are varied (FAO, 1993). The glossary of environmental statistics defines tropical forests as "a type of forest found in areas with high regular rainfall and no more than two months of low rainfall, and consisting of a completely closed canopy of trees that prevents penetration of sunlight to the ground and discourages ground-cover growth (GES, 1997).
- 9 Local forest communities largely depend on forest resources to fulfill their basic needs. They play a significant role in forest management and land use decision-making.

