

The logo for EFD (Environment for Development) features the letters 'EFD' in a bold, green, sans-serif font. Above the letters are two horizontal black bars, and below them is a single horizontal black bar.

Environment for Development

The logo for CATIE (Center for Tropical Agriculture and International Forestry) features the word 'CATIE' in a bold, blue, sans-serif font, followed by a stylized green wave or leaf symbol.

Solutions for environment and development  
Soluciones para el ambiente y desarrollo



EFD INITIATIVE CENTER REPORT

# CENTRAL AMERICA 2011/12

The Research Program in Economics and Environment for Development in Central America hosted at CATIE (EFD) aims to contribute to the design and evaluation of public policies and local institutional arrangements that affect environmental protection, sustainable natural resources management and poverty alleviation by strengthening the understanding of the causes and consequences of human decisions as key inputs into policy making, and by increasing the interaction between academia and policy makers in Central America.



# THIS REPORT

This report presents the Research Program in Economics and Environment for Development in Central America hosted at CATIE (EfD), its members and work during 2011/12. The Central American node of the Environment for Development initiative is based at:

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**Cover photo: Nicoya Peninsula in the**  
**Guanacaste Province, field work area for the**  
**Tinker-PES project in 2011.**





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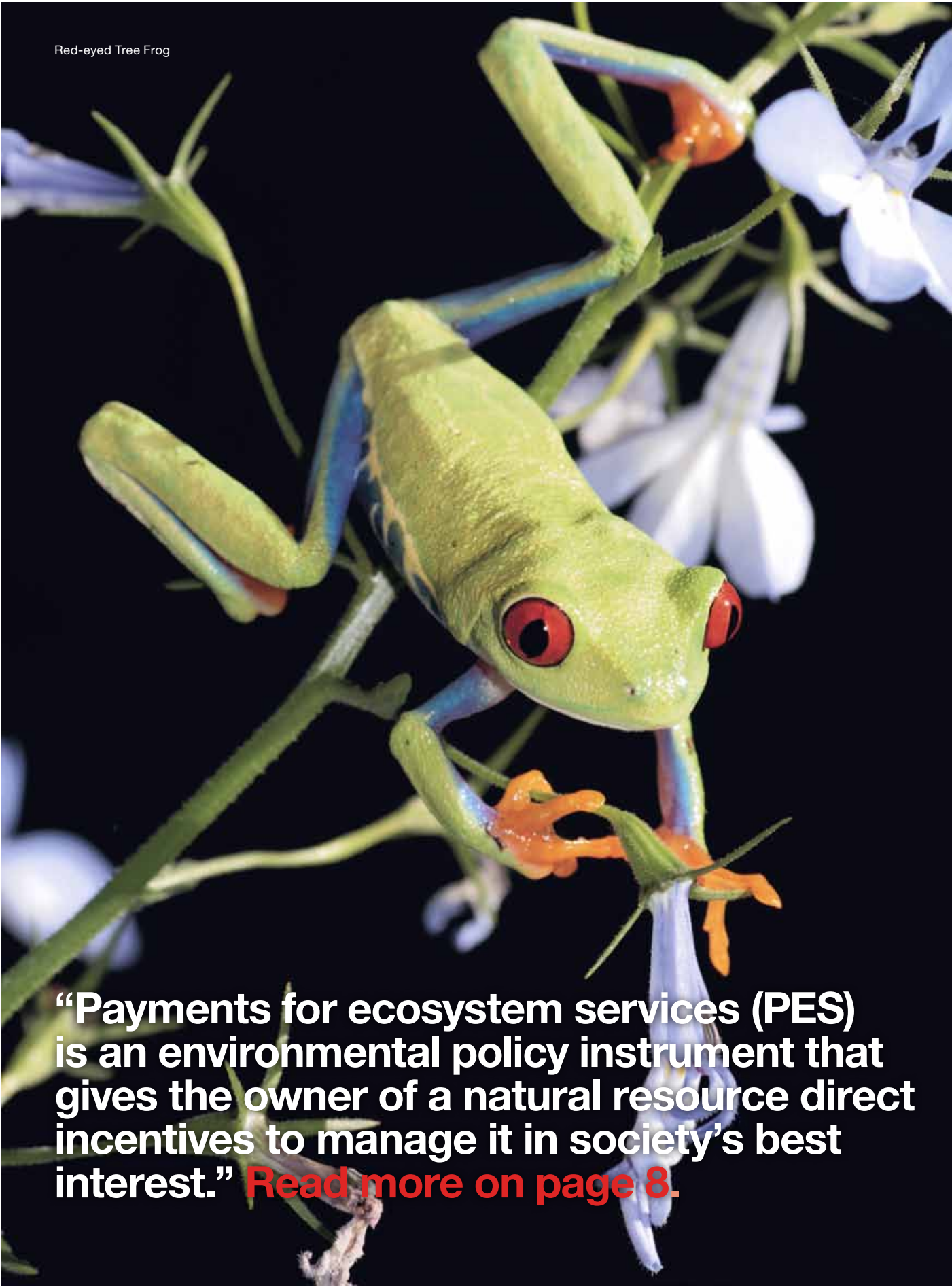
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EfD Research fellows Carlos Muñoz, Francisco Alpizar, and Maria Naranjo, Rio Llorona, Llorona Station, Corcovado National Park.



Red-eyed Tree Frog



**“Payments for ecosystem services (PES) is an environmental policy instrument that gives the owner of a natural resource direct incentives to manage it in society’s best interest.” [Read more on page 8.](#)**



María A. Naranjo, Deputy Director, and Francisco Alpízar Director

## MESSAGE FROM OUR CENTER DIRECTORS

The year 2011 marked the beginning of the new phase for Research Program in Economics and Environment for Development in Central America hosted at CATIE (EfD Central America). We have managed to establish a think tank that sets the standard for high-quality policy-relevant research in the Central American region, and more broadly in Latin America. The key to success is a combination of (1) a small but strong in-house team of senior researchers, (2) an active networking effort to attract scientist from top European and North American universities to work with topics prioritized in our research agenda, (3) the creation of a nurturing environment for young researchers, who gradually acquire increasing responsibilities, and (4) the use of EfD funding to enable creative thinking around our prioritized topics and attract other sources of research funding to support the resulting research agenda. These four synergetic elements have created a dynamic and creative environment, and consolidating it into the future is the main goal of our strategic thinking.

An important development in 2011 was Maria Naranjo's appointment as deputy director of EfD. Her energy and exceptional organizational skills led to very successful 2011 from an administrative perspective. Her success was underlined by Francisco Alpízar's sabbatical at Gothenburg University for most of the year. His stay led to much research interaction and many new research projects that will support the center's finances during coming years.

This report presents some of the most important results during 2011 and highlights a few

of the interaction stories between our team of researchers and policymakers. These stories capture well the efforts that in both high-quality research and policy incidence. In some cases success in these two dimensions requires that policymakers get on board a highly technical research program from its very beginning, for example in our work in the field of payment for ecosystem services. In other cases careful navigation among multiple stakeholders with a myriad of diverging interests is required, as in our work with concessions in national parks.

Following our 2011 research agenda, we forged new alliances both in the region and outside Central America. CATIE and the National Forestry Financing Fund (FONAFIFO) signed a framework agreement of cooperation with the goal of contributing jointly to support rural development and sustainable forestry in Costa Rica; to this end our program will work as the liaison between the organizations. Also, we engaged in a three-year partnership between EfD, LACEEP and the Center of Economic Development Studies (CEDE) at University of Los Andes in Colombia, with financial support from the IDRC-Climate Change and Water initiative, to strengthen research capacity in environmental economics, adaptation to climate change and hydrological resources in Latin America. Late in the year, we were able to secure a grant from the German government's International Climate Initiative of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) in support of joint research activities with Conservation International on the project Ecosystem-Based Adaptation for Smallholder

Subsistence and Coffee Farming Communities in Central America. The grant will cover five years of research.

In terms of capacity building and the creation of a nurturing environment for academic thinking, we maintain throughout the year a very active seminar series, as a place to learn about peers' research and share ideas. Our researchers also had the opportunity to participate in two courses in environmental economics through LACEEP. One was taught by Steve Polasky from the University of Minnesota on the Economics of Ecosystem Services and Biodiversity. The second was by Paul Ferraro from Georgia State University on Policy and Program Impact Evaluation. Ferraro joined us again as visiting researcher for six months in January 2012.

None of this would be possible without the commitment of each individual member of our staff, from scientist to administrative personnel. Moreover, having the trust of research partners and funding organizations is both an honor and source of inspiration for the year to come.

In 2012 we will have the pleasure of hosting the Annual EfD initiative's Meeting and Policy Day, so we welcome you in advance to our house and promise to do everything in our power to organize a great event. See you soon!

Francisco Alpízar      María A. Naranjo  
Director                  Deputy Director





The EfD Policy Day 2011 in Arusha, Tanzania, brought together more than 80 researchers and policy makers in a dialogue on Opportunities for sustainable natural resource use with national and local benefits.

## THE EFD ANNUAL MEETING 2011 IN TANZANIA

**The EfD Annual Meeting 2011 was held in Arusha, Tanzania (October 27-30). The annual meeting is a forum to bring together researchers from EfD centers and their collaborators and other key stakeholders for exchange of research ideas and discussion of research proposals and results from EfD research projects. About 50 participants attend the meetings each year.**

### Discussions on Research

One of the key note speakers in 2011 was Peter Martinsson, Professor of environmental and behavioural economics, Department of Economics University of Gothenburg. Martinsson spoke on the potential of field experiments in undertaking effective research at EfD. The other key note speaker was Pushpam Kumar, Chief, Ecosystem Services Economics Unit, United Nations Environment Programme (UNEP), who spoke on Economics of Ecosystem Services and the need for effective transdisciplinarity in research.

In line with its objective of promoting high quality relevant research, the EfD used the 2011 workshop as an opportunity to launch the new "Collaborative Research Process", which involves a multiple of EfD centers. EfD researchers developed collaborative research projects

focusing on various highly relevant research proposals that were consequently evaluated. Decisions on funding have been made by the research committee at the EfD secretariat.

The 2011 annual meeting also served as an important venue through which the views and comments on the future of EfD have been entertained from all the workshop participants. The session was chaired by Francisco Alpizar, Director of EfD Central America, and useful insights were obtained from the floor which helped enormously in the development of the EfD strategic plan for sustainability.

### EfD Policy Day at the Annual Meeting

The EfD Policy Day 2011, in Arusha, Tanzania (October 27), brought together more than 80 researchers and policy makers in a dialogue on Opportunities for sustainable natural resource

use with national and local benefits. More than 20 representatives from Ministries, Departments and Agencies participated. About one third of them, were members of the EfD Tanzania Research Policy Board (see table).

"Our objectives of the Policy Day is to communicate selected work of EfD's research and its potential contributions to key policy institutions and other key stakeholders present at the meeting. We also want to increase our learning on how to translate research to policy and make a difference with environmental economics tools, and share information across EfD centers on successful research-policy interactions," says EfD Director Gunnar Köhlin.

In Arusha 2011 the news media was invited for the first time. Two press releases on EfD research findings were issued, titled: Benefit



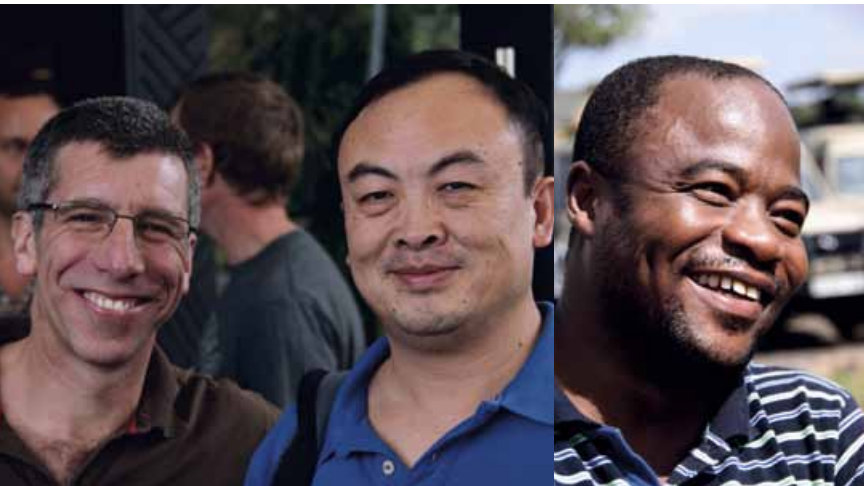
EfD members Razack Lokina, Selma Oliveira, Kofi Vondolia, and Edwin Muchapondwa.



Ruzika N. Muheto, Director, National Environment Management Council, Tanzania, Razack Lokina, EfD Tanzania Director, Wilfred Nyangena, EfD Kenya Director, and Amon Manyama, Chairman, EfD Tanzania Policy Board.



Felix Mwakyembe, Journalist at the Kiswahili weekly Raia Mwema, interviewing Elizabeth Robinson, Associate Professor, University of Gothenburg and University of Reading.



Professors Randall Bluffstone, Portland State University, and Jintao Xu, Director EfD China/EEPC



Kofi Vondolia, UNEP, Nairobi and EfD Kenya Research Associate.



Professor Thomas Sterner, Dr Ping Qin, Policy analyst Olof Drakenberg, and Dr Yonas Alem at the EfD Coordination Committee meeting in Arusha 2012.

sharing is key for the success of REDD in Tanzania and Wildlife conservation can help poor communities survive. Journalists came, and reports were published in Kiswahili weekly, Raia Mwema, The Guardian, The Daily News, The Citizen, and broad-casted in the tv-channels ITV and Channel Ten. EfD media coverage can be found under the heading EfD in media on [www.efdinitiative.org](http://www.efdinitiative.org)

Julius Ningu, Director, Environment Division, Vice-President's Office, opened the meeting by discussing about greening the economy through better management of wildlife and forestry. Claude Mung'ongo, Professor at the University of Dar es Salaam's Institute of Resource Assessment, spoke about implementation of Tanzania's REDD+ strategy and key challenges. Elizabeth Robinson, Associate Professor, University of Gothenburg and University of Reading, spoke about experiences of successful forest management in Sub-Saharan Africa and its implications for REDD+ policies and the private sector. Allan Kijazi, Director Tanzania National Parks (TANAPA), spoke about sustainable management of Tanzania's wildlife resources and its contribution to development.

The importance of giving landholders strong

use rights and encouraging the commercialization of wildlife, including trade and developing of new wildlife products was discussed by Edwin Muchwapondwa, Associate Professor at the University of Cape Town and in charge of coordinating EfD research in 2011. This was followed by a presentation by Randy Bluffstone, EfD research associate, EfD Ethiopia, on the determinants of agricultural investment and productivity over the long term-implications for East African policy makers. The policy day ended with a closing speech by Amon Manyama, Chairman, EfD Tanzania policy board and head of poverty unit, UNDP Tanzania.

The final panel discussion on Key actions to attain sustainable natural resource use with benefits for local communities – Tanzania and other examples included also (in addition to some speakers mentioned above) Blandina Cheche, Poverty Environment Coordinator, Vice-President's Office, Olof Drakenberg, Policy Analyst and Chairman, EfD Policy Day Committee, Ruzika Mheto, Director, Environmental Planning and Research, National Environment Management Council (NEMC), Aloyce Nzuki, Director, Tourism Division, Ministry of Natural Resources, and Professor Jintao Xu, EfD Research Fellow and Director, EfD China.

During the Policy Day, members of the policy board also took the opportunity to challenge EfD researchers. Several news media reported from the day (see EfD in media on [efdinitiative.org](http://efdinitiative.org)) and for example The Guardian reported (October 29, 2011) under the heading Researchers challenged to reach out to ordinary people:

Blandina Cheche, Poverty Environment Coordinator, Vice-President's Office, said research findings could influence positive changes in policy directions and society in general. "But researchers must ensure they bridge the gap between themselves and ordinary people in society and that their research findings reach them in a simple language," said Cheche. She also asked researchers in the country to ensure the research conducted and recommendations are used to address burning issues on the ground: "By doing so, we will be helping people out of the poverty gap." According to The Guardian the board member, Ruzika Mheto, Director, Environmental Planning and Research, National Environment Management Council (NEMC) "concurred with the idea, urging researchers to translate their research into Kiswahili: "Research acts as a stimulus to development in a particular locality but its research findings should reach the grass roots."



Blandina Cheche, Vice-President's Office, Claude Mung'ongo, Professor at the University of Dar es Salaam's, Arnold Mapinduzi, The National Environment Management Council (NEMC), and Salvatory Macha, EfD Project Administrator.



Alemu Mekonnen, Director EfD Ethiopia at the EfD Coordination Committee meeting in Arusha 2012. In the background Adolf Mkenda and Yonas Alem.



EfD Central America Research fellows Francisco Alpizar, Maria Naranjo and Roger Madrigal.



# RESEARCH POLICY INTERACTION

The EfD initiative is built on the premise that if relevant applied research is introduced in policy making processes, then this will result in improved policies and subsequently poverty reduction and a more sustainable development. The Research Program in Economics and Environment for Development in Central America (EfD) is designed with the clear purpose of providing proactive science-based advice on available policy options and a critical analysis of existing initiatives that affect environmental protection, sustainable natural resource management and poverty alleviation. It is based on the construction of a research agenda that prioritizes problems and policy processes in close interaction with stakeholders at all levels.

We believe this is particularly important for the Central American region for several reasons. First, governmental institutions as well as local governments in the region are frequently characterized by low in-house capacity, resulting in little, if any, analysis of available policy options and no ex-post evaluation of the impact of alternative policies.

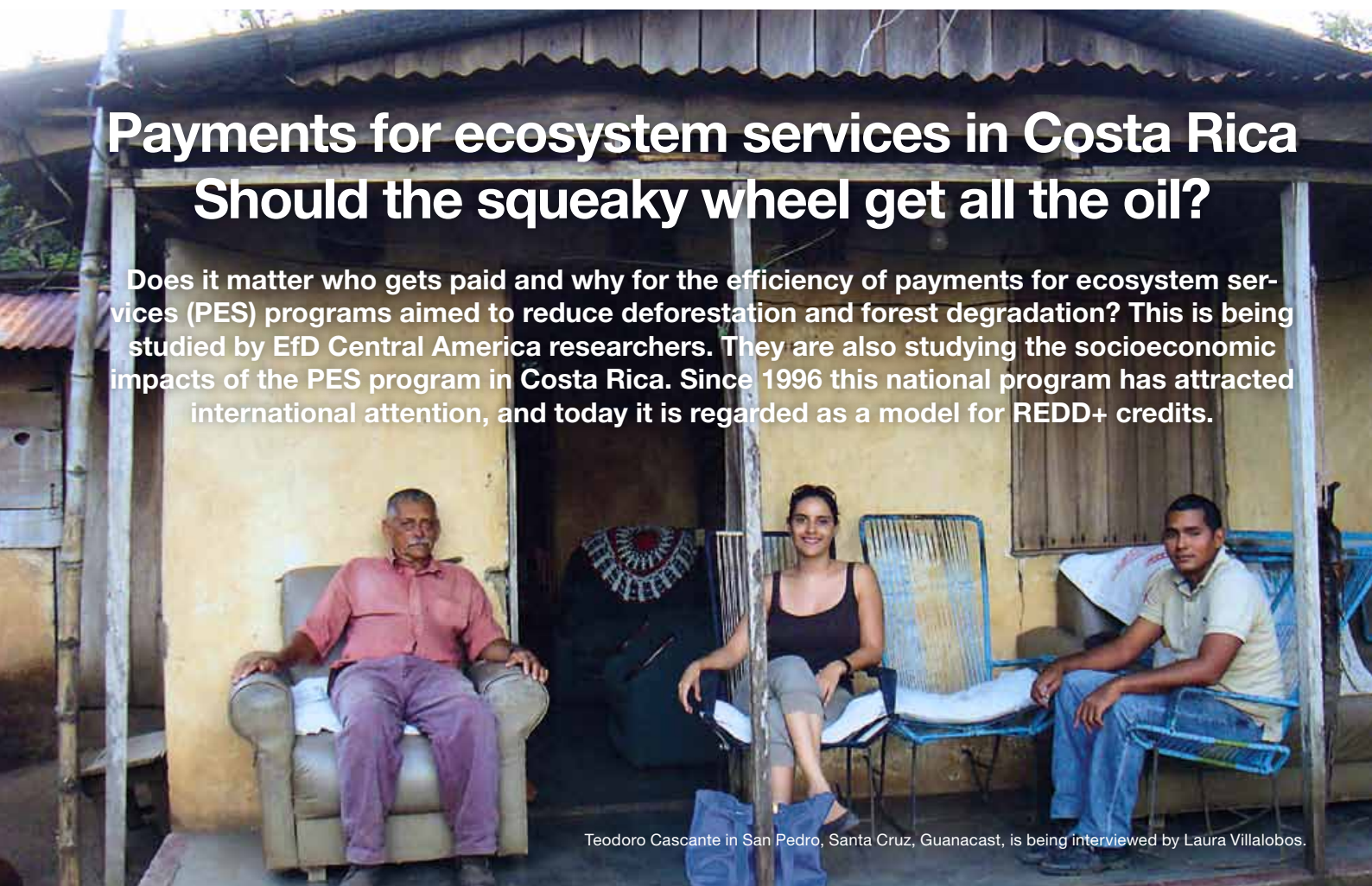
Second, nongovernmental institutions are focused on the implementation of projects and technical assistance. Even in the cases in which solutions are constructed with a bottom-up approach that involves com-

munities and stakeholders, the very nature of project implementation (in terms of time, budget and narrow objectives) reduces NGOs' capacity for critical, scientific analysis. CATIE is by no means an exception to this rule, and EfD is expected to provide scientific backstopping to these types of institutions in general and CATIE in particular.

Third, policymakers and decision makers in the Central American region are proudly distrustful of top-down, overgeneralized solutions, and even more so if they are perceived to have been designed for other contexts.

## Payments for ecosystem services in Costa Rica Should the squeaky wheel get all the oil?

Does it matter who gets paid and why for the efficiency of payments for ecosystem services (PES) programs aimed to reduce deforestation and forest degradation? This is being studied by EfD Central America researchers. They are also studying the socioeconomic impacts of the PES program in Costa Rica. Since 1996 this national program has attracted international attention, and today it is regarded as a model for REDD+ credits.



Teodoro Cascante in San Pedro, Santa Cruz, Guanacast, is being interviewed by Laura Villalobos.





EfD research at Cahuita National Park contributes with information about its unique donation system

Issues of monitoring, the lack of available resources, and technical requirements are too easily put forward as reasons for disregarding policy advice. Hence, a local research center that involves policymakers in the research agenda from the outset is fundamental to increasing acceptance of policy recommendations.

## EFD RESEARCH AT CAHUITA NATIONAL PARK CONTRIBUTES WITH INFORMATION ABOUT ITS UNIQUE DONATION SYSTEM

A big sign made by EfD and CATIE provides information for visitors and the importance of giving a donation when entering the Cahuita National Park.

In 2007 and 2008 Francisco Alpizar, senior research fellow of EfD, and Peter Martinsson and Anna Nordén (currently a PhD student) conducted a study about Cahuita National park and its unique donation system for entrance to the park. This park depends on voluntary donations for its management and operations. One of the conclusions from this research is that information affects visitors' willingness to give a donation to the park.

The researchers working on this study had considerable support from the park administration and the local community. As a token of gratitude, the research team designed a sign with information about the park's unique donation system and the importance of donations for the management of the Cahuita National Park and the community. In December 2011 the park rangers placed the sign where a many visitors would see it (not at the entrance to the park but by the showers).

**PAYMENTS FOR** ecosystem services (PES) is an environmental policy instrument that gives the owner of a natural resource direct incentives to manage it in society's best interest. Today Costa Rica's PES program is paying forest landowners for ecosystem services, since they conserve forests. But if this payment program is to create additionality, that is, benefits for society that would not be there in the absence of the program, then payments should target landowners at high risk of deforesting their land and those who would not have planted trees without the program.

"The problem is to identify who is at high risk for deforestation, which is expensive; it requires a deforestation model and lots of information. Policymakers in charge of the program are typically not convinced that targeting high risk landowners will pay off. There are two broad justifications for policymaker's reluctance to focus solely on high risk landowners. First, they frequently argue that leaving forest guardians (that

is landowners with no or very little risk of deforestation under current conditions) outside of the payment program is unfair to them and might lead to changes in their behavior. A second aspect is that targeting based on high deforestation risk makes sense as long as the objective is to reduce deforestation and forest degradation. As soon as you have additional objectives, such as reduced poverty and improved livelihood of landowners, then targeting based on risk of deforestation becomes just one part of a larger equation," says Francisco Alpizar, senior research fellow and director of EfD Central America.

Together with EfD researchers Juan Robalino, Alexander Pfaff and Anna Nordén, Alpizar is conducting interviews and economic experiments with around 400 households of landowners living all over Costa Rica. The study is supported by the Tinker Foundation. The findings will be presented at the next EfD Policy Day in Costa Rica in connection with the annual meeting of EfD in 2012.



Carlos Muñoz is interviewing Antonio Montero Alvarado in Monteromos, Nicoya as part of the EfD-Tinker PES project in 2011.

"In our experiments we study the responses of people who receive payments and people who don't in order to evaluate how different selection rules affect their behavior. Our preliminary results support the hypothesis that if you pay only the landowners at high risk of deforesting their lands, then some forest guardians will react negatively. We observe people reacting angrily at being excluded from payments because of their already good behavior," says Alpizar.





CATIE's Director General José Joaquín Campos and FONAFIFO's Executive Director Jorge Mario Rodríguez signing an agreement. Photo: OCI-CATIE

According to park guards, the information is now well-read and visitors are coming back to the entrance to give a donation.

## CATIE AND FONAFIFO TO COOPERATE FOR RURAL AND FOREST DEVELOPMENT

The work of both organizations will be more effective through this alliance, which promotes sharing technical assistance and experiences. In

March 2011 CATIE and the National Forestry Financing Fund (FONAFIFO) signed a Framework Agreement of Cooperation with the goal to "contribute jointly, in the most efficient way possible, to promote and accelerate rural development and a sustainable forestry in Costa Rica, by exchanging experiences, promoting mutual cooperation, technical assistance in the area interest of each of the institutions."

### In service training

This year EfD and partners held several courses on issues related to environmental economics, environmental services and policy analysis and evaluation. Here are some examples of service training during 2011.

### LACEEP's XI Biannual Short Course: Economics of ecosystem services and biodiversity

The Latin American and Caribbean Environmental Economics Program (LACEEP), a partner of EfD, hosted its XI Biannual Short Course April 8–10, 2011, at CATIE in Turrialba, Costa Rica. The course was on the economics of ecosystem services and biodiversity and was taught by Stephen Polasky, Fesler-Lampert Professor of Ecological and Environmental Economics at the University of Minnesota. The course covered issues such as integrating economics and natural science to value ecosystem services and biodiversity; landscape modeling of ecosystem services and biodiversity and bioeconomic modeling; policies for provision of ecosystem services; and natural capital and sustainable development.

### Capacity building: 28 trained in policy and program impact evaluation

Participants from Latin America and the Caribbean completed the Environmental and Resource Economics Training Course on Impact Evalua-



One important conclusion from the study will be that a combination of incentives that includes both targeting and fairness considerations is needed. If implemented separately, the efficiency of the PES program will be endangered.

For this study, the EfD Center in Central America is cooperating with the National Forestry Financing Fund (FONAFIFO), which is the government institution that implements the PES program in Costa Rica.

In 1996 Costa Rica was the first country in the world to implement a national program for payments for ecosystem services. The program immediately became a common focus of research around the world, and many of the researchers' suggestions have been imple-

mented by policy makers in different countries, for instance in Mexico.

But the pioneering Costa Rican program was not perfect. It was for example criticized for its narrow focus on forestry and its exclusion of the role of agriculture. Not targeting land owners at high risk of actually deforesting their land was also seen as a problem. And it still is. The program, which is mainly funded through fuel taxes, also receives funding from the World Bank, which together with evaluators has pushed for better targeting.

Both additionality and targeting of PES in Costa Rica have been studied for a long time by EfD researchers Juan Robalino and Alexander Pfaff. In essence they have found that additionality is low, but there is a capacity for improvement through improved targeting.

Jennifer Hernandez is conducting an interview for the Tinker-PES project in Cartago in January 2012.





Professor Paul J. Ferraro and course participants at CATIE campus

tion held by LACEEP at CATIE. Twenty-eight practitioners and students from countries across Latin America and the Caribbean completed the environmental and resource economics training course on Impact Evaluation. The course was organized by EfD partner LACEEP. The course was held at CATIE July 18–27. LACEEP is directed by Juan Robalino senior research fellow of EfD.

The course was taught by Paul J. Ferraro, Department of Economics at Georgia State University and Rodrigo Arriagada, Department of Agricultural Economics at Pontificia Universidad Católica de Chile in Santiago.

## POLICY LINKS

- CATIE—Tropical Agricultural Research and Higher Education Center
- LACEEP—Latin American and Caribbean Environmental Economics Program
- MINAET—Costa Rica Ministerio de Ambiente Energía y Telecomunicaciones
- SINAC—Costa Rica National System of Protected Areas
- FONAFIFO—Costa Rica National Forestry Financing Fund
- CNE—National Commission for the Prevention of Risks and Emergencies (Comisión Nacional de Prevención de Riesgos y Atención de Emergencias)
- AyA—Costa Rican Institute of Aqueducts and Sewers (Instituto Costarricense de Acueductos y Alcantarillados)
- Costa Rican Water Authority (Dirección de Agua)
- FCRA—Forever Costa Rica Association
- TNC—The Nature Conservancy
- CEDE—Center of Economic Development Studies, Universidad de Los Andes, Colombia
- INE—Mexico National Institute of Ecology
- The Sanford School of Public Policy at Duke University
- Inter-American Development Bank
- Inter-American Institute for Global Change Research
- GIZ—German Agency for International Cooperation
- The Tinker Foundation
- IDRC—International Development Research Centre Climate Change and Water Program
- The School of Business, Economics and Law at the University of Gothenburg

The World Bank has also requested that FONAFIFO explore the socioeconomic impacts of the PES program. The EfD initiative is funding part of this new study, of which the results will feed directly into policy. It is conducted by EfD researchers Laura Villalobos, Juan Robalino, and Francisco Alpizar. Among the factors that will be studied are income, schooling, and infrastructure. The data comes from around 400 household interviews conducted by EfD. Census data will also be used.

The principal researchers of this field study are very proud because it emerged from a simple discussion to become an innovative project that turned out to be attractive enough to call the attention of the Tinker Foundation out of many others seeking financial support. The actual field experiments and the survey technique used to collect data have never been applied in Costa Rica before: In this way, this is a groundbreaking study in the country for its use of elements of game theory in a natural field

experiment and because it included a payment to the participants and voluntary donations to a public cause.

Francisco Alpizar says that when and if REDD+ (a carbon trading system based on reducing emissions from deforestation and forest degradation) becomes a policy of the world community, it might look very similar to FONAFIFO's program for ecosystem services in Costa Rica.

### About REDD and REDD +

Since 2005, the effort to create incentives for reducing emissions from deforestation and forest degradation (REDD) has gained prominence as a way to reduce global greenhouse gas (GHG) emissions. In 2010, the UN climate conference in Cancun established an incentive mechanism for REDD+ (including conservation, sustainable management and enhancement of forest carbon stocks), and opened the door for countries to generate tradable emission reduction credits from forest carbon in the future. Source: Resources for the Future (RFF)



- RFF—Resources for the Future
- Regional REDD Program
- Focali—Forest, Climate and Livelihood research network
- Water Diplomacy Program

## POLICY SEMINARS, WORKSHOPS AND CONFERENCES

### **An overview on the climate change negotiations under the UNFCCC hosted in Cancun, Mexico**

In January 2011, fellows at EfD, in collaboration with CATIE's Office of the Director General and the climate change program, presented an overview on the climate change negotiations under the UNFCCC hosted in Cancun, Mexico. The event took place at the European Community Conference Room on the main campus of CATIE in Turrialba, Costa Rica.

### **Workshop on climate change and water, Panama 2011**

A highly selected interdisciplinary group of experts working on water and climate change in Latin America and the Caribbean met in Panama City, Panama, from September 29 to October 1, 2011. A group of 24 experts from 12 countries met to define research priorities on the relationship between climate change and water in Latin America and the Caribbean (LAC). Participants included policymakers, practitioners and academicians from the social and natural sciences. The objective was to provide inputs on defining a research agenda relevant to the socioeconomic dimensions of climate change and water in LAC, with emphasis on impacts and adaptation measures.

Participants identified some of the most important research questions having significant academic relevance and incidence for the design of

public policies. The work departed from the central question: Defining research on what? The group also worked to select the regions or countries where it is relevant to conduct studies based on the priority research questions, to help pinpoint where to implement the research agenda. Much discussion revolved around how to do the research and what scientific methodologies to apply in economic research questions.

The workshop was an integral part of the ongoing project Strengthening Research Capacity in Environmental Economics for Climate Change Adaptation, a collaborative effort involving EfD, LACEEP and CEDE, with financial support from IDRC's Climate Change and Water program.

### **Umaña spoke at workshop on ecosystem services and human well-being**

Experts from around the world converged to discuss new approaches and policies for understanding the links between ecosystem services and evaluating the effects of agricultural development strategies and human well-being. Alvaro Umaña, senior research fellow of EfD spoke at a workshop on "Uncommon Dialogues on Ecosystem Services and Human Well-Being." The event was organized by the Rockefeller Foundation and Stanford University Woods Institute for the Environment in Palo Alto, California, both in the United States, held December 7–8, 2011.

Some of the central questions addressed by the participants related to ways the poor have benefitted from ecosystem services and conservation approaches, either directly through compensation or indirectly as beneficiaries from the improvement in their delivery. The discussions also revolved around what is needed to integrate these issues in policy design and implementation for new approaches to benefit the poor.

"It's not simple. Costa Rica has a history of good environmental stewardship, strong institutions and little corruption and still achieving credible credits through reduced greenhouse gas emissions from deforestation and forest degradation (REDD+) in Costa Rica will be difficult. Imagine how much so will it be in countries with a high level of corruption, weak institutions, and no history of protecting nature," says Francisco Alpizar.

Layli Moreno is interviewing a lady land owner in Peninsula of Nicoya for the Tinker-PES project.



# RESEARCH

Applied, policy relevant research is a core activity for the EfD initiative. Research is a critical input in a long-term strategy to reduce environmental degradation, eradicate poverty and to ensure sustainable use of natural resources. A major challenge in developing countries is, however, the lack of comprehensive research on environmental resource management and poverty alleviation which can inform national strategic plans and policies. Policymakers, farmers, donors, and others need research based information not only to design policies but also to evaluate their efficiency in reaching their objectives.

## RESEARCH 2011: PUBLICATIONS

### PEER REVIEWED

Blackman, A. and J. Rivera, 2011, "Producer-level Benefits of Sustainability Certification." *Conservation Biology*, Volume 25, No. 6, 1176–1185 *Conservation Biology*.

Alpizar, F. and P. Martinsson, 2012, "Paying the price of sweetening your donation- Evidence from a natural field experiment", *Economics Letters* 114, 182–185.

Alpizar, F., F. Carlsson and M.A. Naranjo, 2011, "The Effect of Ambiguous Risk and Coordination on Farmer's Adaptation to Climate Change-A Framed Field Experiment", *Ecological Economics*, Vol 70:12, pp.2317-2326.

Chacón Cascante, A. and A. M. Featherstone, 2011, "On the relationship between openness to trade and efficiency levels in low income countries: Evidence from the Latin American and the Caribbean countries", *International Research Journal of Finance and Economics*, ISSN 1450-2887 Issue 74.

Madrigal, R; F. Alpizar, A. Schluter, 2011, "Determinants of performance in rural water community organizations in Costa Rica", *World Development*, 39 (9).

Christel Cederberg, U. Martin Persson, Kristian Neovius, Sverker Molander, and Roland Clift, 2011, "Including Carbon Emissions from Deforestation in the Carbon Footprint of Beef", *Environmental Science & Technology*, 45 (5), pp 1773–1779.

### EFD DISCUSSION PAPERS

Róger Madrigal, Francisco Alpizar, and Achim Schlüter, 2011, "Individual Perceptions and the Performance of Community-Based Drinking Water Organizations", *EfD Discussion Paper Series*, EfD DP 11-07.

Allen Blackman, , 2011, "Does Eco-Certification Boost Regulatory Compliance in Developing Countries? ISO 14001 in Mexico", *EfD Discussion Paper Series*, EfD DP 11-08.

Martin U. Persson, U. and Francisco Alpizar, 2011, "Conditional Cash Transfers and Payments for Environmental Services: A Conceptual Framework for Explaining and Judging Differences in Outcomes". *EfD Discussion Paper Series*, EfD DP 11-06.

Dora Carias Vega, and Francisco Alpizar, 2011, "Choice Experiments in Environmental Impact Assessment: The Toro 3 Hydroelectric Project and the Recreo Verde Tourist Center in Costa Rica", *EfD Discussion Paper Series*, EfD DP 11-04.

### OTHER DISCUSSION PAPERS

M. Ibañez and A. Blackman, 2011, "Does Ecocertification Have Environmental Benefits? Organic Coffee in Colombia" Working Paper, *Resources for the Future*: Washington, DC.

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Huacas Hojancha, Guanacaste, field work area for the Tinker-PES project in 2011

## PROJECTS 2011

### **Impact of uncertainty and pro-social attitudes on household's solid waste management decisions: starting from scratch in a developing country**

Solid waste management is a severe environmental problem in many urban areas in the developing world. Costa Rica has been faced with an increasing amount of waste generation, with one quarter of total waste collected and disposed of by households only. Therefore, a good understanding of households as the source of waste generation and their response to policy incentives is necessary to achieve effective and efficient environmental protection.

This project addressed whether increasing uncertainty about the beneficial consequences of collected waste or other aspects of the collection-recycling process affect contribution levels and in turn prosocial attitudes. The main purpose was to identify the implications that follow from these behavioral assumptions in order to select specific environmental policy instruments for solid waste management.

Our results suggest several insights into the roles of public policy. We found that social control is stimulated if feedback is available,

and people prefer not to receive negative feedback. This point, in turn, suggests that scarce public funds should be allocated much more to discouraging antisocial behavior than rewarding prosocial behaviors. Our results also suggest that the value of social control in social dilemmas may reach closer to efficient outcomes than can be produced with regulatory pressure. Regulations can come in different forms, such as fines, prohibitions and subsidies, where crowding-out of intrinsic motivation may be smaller than expected.

### **Exploring the potential of safety nets as part of an adaptation to climate change strategy in Central America**

In a climate change context, social safety nets (SSNs) are mechanisms to provide support to those who have been adversely affected by extreme weather events. These interactions shaped by the government, communities, organized groups or families are a key component of strategies to minimize expected losses from climate change. Studying collective responses to extreme climatic events is fundamental in the design of adaptation strategies in developing countries.

The limit on the capacity of safety nets to cope with systemic risks shows the potential consequences on social welfare of a widespread moral hazard. A resourceful interaction between private adaptation and SSNs is crucial to reducing social costs. Researchers at EfD systematically investigated risk, with the aim of finding ways to increase insurance take-up and to promote cooperation aimed at the prevention of natural disasters, such as flooding. (Another project focuses on the definition of guidelines for the implementation of vulnerability case studies in the region).

### **The role of coastal communities on the management of marine turtles in Central America: The case of Ostional Wildlife Refuge**

The livelihoods of poor people in many coastal areas of Central America depend heavily on marine ecosystems. The direct consumption of marine turtles (meat, eggs, shell, leather and bone) and their nonconsumptive uses (mainly tourism) have had important economic and cultural benefits for these people. Beyond these, marine turtles are considered as a flagship species for conservation. Still, different factors (mostly human) threaten the biological sustain-



ability of these endangered species and hence, the well-being of people who depend on them.

Our general objective was to better understand under which conditions a co-management alternative (a shared effort between the central government and the local community) might work to guarantee the sustainable use of a complex mobile common-pool resource such as marine turtles. In addition the project aimed to study, from the individual perspective, the compliance with locally devised rules for harvesting turtle eggs. Learning about the violations of these rules might teach us how well the institutions are working and how cooperation might be increased.

We found that the degree to which local harvesters obey some rules depends on their economic dependency from the income generated by egg sales. Since infractions represent an income reduction from these sales, those harvesters with fewer sources of income besides the commercialization of eggs have strong incentives to comply with some rules, especially those where noncompliance represents a high cost. However, we identified other factors that positively explain adherence to some rules, such as the individual perception on rule legitimacy. We also found that gender was a good predictor of compliance, with women more likely to comply. This might be linked to local aspects of local culture, as some activities may be perceived as a duty for women. In addition, in many of our interviews, women did recognize that the egg-harvesting project provides them with many benefits besides a significant monetary retribution: it also provides self-esteem, empowerment and economic independence.

### **Measuring the effects of flood risk on migration flows: An application for Costa Rica**

Extreme events induced by climate change have exacerbated risks associated with floods in vulnerable areas in Central America. Population displacement to less-affected or unaffected areas is one of the most abrupt socioeconomic consequences of extreme weather events. However, there are still many unanswered questions regarding the relationship between migration and flood risk.

The objective of this project was to estimate to what extent migration movements within a country are explained by occurrence of ex-

treme weather events in general and more specifically by floods. Preliminary results showed that migration flows behave as expected: they tend to increase as response to extreme weather events, both when considering migration in the short run (five-year span) and the long run (migration during a lifetime).

### **Impact evaluation of the Payments for Environmental Services Program on welfare in Costa Rica**

Payments for environmental services (PES) is a market-based instrument aimed to compensate suppliers of environmental services for the positive service provided. The first countrywide PES program started in Costa Rica in 1997, but this type of program is becoming more popular as a way to guarantee biodiversity conservation, mitigate climate change through carbon sequestration and protect watershed services. Even when substantial funding has been channeled to landowners, the question of what the impact of PES is on socioeconomic outcomes remains unanswered. There is no solid evidence yet about what the possible trade-offs are, or even if PES can be an effective policy to alleviate poverty or other social outcomes. For instance, we still do not know how these impacts differ according to farm size and economic characteristics of landowners. In this project we are using both spatial-explicit and socioeconomic data to address the impact of the PES on socioeconomic outcomes in Costa Rica.

We are measuring the impact at two separate but complementary levels: macro and micro. Evidence derived from the micro analysis will validate and support results at a macro level. For the macro level, our key question is whether regions with a higher share of land under payments are better off

in terms of employment, poverty and income compared with the no-payment situation. For the micro level, two objectives are pursued: first, to describe the potential impact of the program given its conditions at the baseline and second, to establish adequate treated and control groups as a baseline for impact evaluation. For the macro level we are using administrative data, while for the micro level household surveys are to be collected both for enrolled and not enrolled landowners in a specific area in Costa Rica.

By estimating the effects and identifying the conditions under which payments achieve higher social returns, more informed deci-

sions can be made and better results can be obtained from the investment. Learning how to better design the program with an eye to social objectives is also useful for replication in other countries since PES schemes are becoming a popular tool for carbon sequestration within the REDD context and are absorbing considerable amounts of money and effort.

### **Performance based payments for protecting turtles: Understanding the conditions for its success**

The direct consumption of marine turtle eggs and their nonconsumptive uses (ecotourism) provide important economic and cultural benefits to inhabitants of some Nicaraguan Pacific beaches. Beyond these local benefits, marine turtles are considered as a flagship species for conservation because of their importance for the health of marine ecosystems as well as the value that the worldwide community attaches to them. Despite the legal ban on turtle-egg harvesting, poaching and consumption are very common in Nicaragua.

This project aims to characterize local livelihoods and to understand the motivations of local villagers for devoting time and resources to extract and sell marine turtle eggs. Special attention is being given to investigating the role of external regulations, such as strong regulations with sanctions ("stick"-type policies) and performance-based payments ("carrot"-type policies) on the individual decision to harvest and sell eggs.

Because the performance-based program in La Flor has been recently implemented and little is known about the livelihoods of villagers, our findings would help local officials, local leaders and conservationists from NGOs increase the participation of villagers in this program and secure its effectiveness and long-term sustainability. Understanding the motivations to break existing regulations to protect turtles could help to design/modify institutions (incentives) to align private interests with those of conservation.

### **Understanding the trade-offs involved in implemented marine conservation policies in artisanal fishing grounds of Costa Rica**

Small-scale fishing constitutes a central component of local livelihoods and it is also the main source of marine products for Costa Rica. However, overexploitation is increasingly evident and INCOPESCA (the government branch

that regulates fisheries in Costa Rica) has been implementing seasonal fishing bans, primarily in the Gulf of Nicoya. Fishermen exert pressure on the government through local organizations to increase their participation in decision making and the defining the rights to decide who, where, when, what and how to fish. Further, the government has short-term plans to include coastal marine ecosystems under its National System of Protected Areas (SINAC). This plan includes the declaration of absolute protection in some areas and in others allowing management practices that include small-scale fishing. However, governmental experience in designing and implementing marine protected areas is quite limited.

This EfD project aims to identify local capabilities, assets and activities that characterize the livelihoods of small-scale fishers in Costa Rica. Special attention will be given to how different regulations (external and internal) defining who, where, when, what and how to fish might affect these livelihoods and the natural resource base.

#### **Strengthening the capacity building and research in environmental economics to study the links between water and climate change**

EfD at CATIE, with financial support from the Climate Change and Water program of IDRC of Canada, launched a new project called Strengthening the Capacity Building and Research in Environmental Economics to Study the Links Between Water and Climate Change. This project is a three-year collaboration between LACEEP, EfD, and CEDE at the Universidad de Los Andes in Colombia. This initiative seeks to promote capacity building for research, analysis and evaluation of the impacts of climate change and water, using environmental economics principles and tools. This project is envisioned in three stages.

The first stage focuses on identifying and defining a research agenda on extreme events and adaptation strategies in the management of water supply and services. As part of this first stage a workshop was held in October 2011 with top-level researchers and public decision makers working on water and climate change in Latin America and the Caribbean (LAC). The work during this international event revolved around establishing facts and projections about climate change and water in LAC to identify possible adaptation measures to extreme events such as precipitation, glaciers

retraction and rise of sea levels, among others. In addition, there were discussions on the socioeconomic dimension of climate change, with emphasis on adaptation measures.

The results of this workshop are the cornerstone of the next stages of the project, which involves development and design of methodological approaches to successfully address policy issues relevant to the topics identified during the workshop. This work will provide the basis for defining a research agenda for a public competition that will offer fellowships and grants for research in the identified priority areas and issues starting in 2012.

Finally, the research activities designed and consolidated in the second stage will be further developed using LACEEP's platform for the recruitment of researchers in different places and countries of LAC. At this third stage heavy emphasis will be given to the aspect of communication and policy incidence so that research results reach the relevant academic audience, policymakers, and other stakeholders working on the links between water and climate change in priority regions.

#### **Ecopayments design given behavioral responses: Who gets paid, why, and how do others respond?**

The project Ecopayments Design Given Behavioral Responses is a collaboration between EfD and Alex Pfaff from Duke University, with financial support from the Tinker Foundation. The goal is to assess motivations for and magnitudes of responses to ecosystem payments by unpaid as well as paid actors, then evaluate how new payment designs can affect them. The project's underlying objective is to help maximize efficiency and equity in payments programs. The first implied objective and methodology is to learn from extensive Costa Rican history with ecosystem-services-based payments that varied over space and time. Working directly with the agency that created the payments, we will interview: people who are receiving payments, past recipients who were not renewed, applicants who were not accepted and people who did not apply but are aware of application by and payment to their neighbors.

The second implied objective and methodology is to contribute some potential new designs that could address the motivations for and reduce the magnitudes of negative responses by

these groups to payments programs. We believe from anecdotal evidence that the details of the payment "selection rule," i.e., who gets paid as well as why, will affect the responses. Since we cannot simply alter Costa Rica's policy, and not all of our first ideas will be correct, we will refine scenarios with university students in decision experiments of two main types, each with selection rule variations. Testing experiments with students is standard practice that will keep us from wasting the time of actual land users as we refine the best scenarios. The third and final implied objective and methodology, and the one that will allow us to extrapolate to ecosystem services payments programs around the world, is to evaluate the reactions of relevant field populations (the landowners who are the current, past and also potential recipients) to the most promising experiments chosen based on our work with students. Here we assess the basis for offering advice to those designing new programs.

#### **Climate change impacts on biodiversity and ecosystem services with emphasis on protected areas: Synthesis 2009-2011 State of the Art**

This project provides a synthesis on the knowledge generated about the potential impacts of climate change on biodiversity and terrestrial ecosystem services in the Costa Rica. The outcome will be a series of recommendations for management and identification of research priorities as well as an analysis of the legal and political forces, both national and international, on issues of biodiversity and climate change, with special emphasis on terrestrial and marine protected areas.

This project is conducted in association with the Kenton Miller Latin American Chair for Protected Areas and Biological Corridors and EfD at CATIE, with financial support from the Forever Costa Rica Association. The results contribute to Costa Rica's goal of consolidating marine and terrestrial protected areas in alignment with its international commitments defined by the Programme of Work on Protected Areas (POWPA) under the UN Convention on Biological Diversity (CBD).

#### **Systematization of mechanisms of compensation, certification and credit in Central America and Dominican Republic**

This project examines the role of economic instruments in the protection, conservation and



sustainable use of forest resources in Central America. The study describes, from a theoretical point of view and based on empirical evidence, the main features of three selected instruments: programs of payments for environmental services (PES), certification and other financial mechanisms, its environmental effectiveness and social impacts commonly associated with its implementation. In addition, it looks at case studies focused on national experiences implementing those instruments in each Central American country. The German Technical Cooperation Agency (GIZ) provided the financial support under the Regional REDD Program of the Central American Commission on Environment and Development (CCAD), which is part of the Central American Integration System (SICA).

Among overall results, a highlight is that PES is the instrument that recognizes the most eco-

system services, while certification is located at the other end of the spectrum, focusing exclusively on the production of wood under sustainability standards. In this scenario, other financial instruments such as green credits are seen as complementary to certification because they might be used to grant credits for additional ecosystem services provided by forests and forest plantations, such as biodiversity conservation and carbon fixation. In relation to the required levels of governance, PES programs require the greatest government involvement at several levels, while certification is the instrument that requires less state involvement due to its private character.

Each case study examined the historical and legal context in which forest conservation policies have been developed based on three main aspects: (1) land security, (2) political context and (3) experience in the implementa-

tion of each of the three instruments. From this analysis it was concluded that the legal security of land is one of the most limiting aspects in sustainable forest management. With regards to the political context, in most countries, with the exception of El Salvador and Costa Rica, the adoption of specific laws for sustainable forestry is young, beginning in the 2000s. Finally, it is concluded that the application of financial instruments in the management of the forest sector has been relatively limited in Central America. Three main aspects are (1) most countries have developed experiences in forest certification, (2) there has been a limited use of other mechanisms, such as differentiated credits and tax exemptions and (3) PES are emerging programs— in many cases they focus on the protection of water resources and not necessarily on the forestry sector as such.

## RESEARCH PRESENTATIONS

### ACADEMIC CONFERENCES

#### **Conference on Globalization and Development: Rethinking Interventions and Governance, 22–23 November 2011**

- Francisco Alpizar: Conditional Cash Transfers and Payments for Environmental Services: A Conceptual Framework for Explaining and Judging Differences in Outcomes

#### **European Association of Environmental and Resource Economists (EAERE), 18th Annual Conference, 29 June–2 July 2011, Rome**

- Francisco Alpizar: Donations Versus Fees in Protected Area Finance: Evidence from Stated Behavior in Cahuita National Park

#### **Association of Environmental and Resource Economists (AERE), Inaugural Summer Conference, 9–10 June 2011, Seattle**

- Francisco Alpizar: Nature Lovers Make Good Cooperators: A Study of Conditional Cooperation in the Field

#### **Latin American Carbon Forum, San José, Costa Rica, 30 September 2011**

- Alvaro Umaña: Global Challenge and Local Action: The Case of Costa Rica

#### **Third International Conference on Sustainable Tourism: Planet, People and Peace, EARTH University, 4 October 2011**

- Alvaro Umaña: C-Neutral and Sustainable Tourism

#### **Dialogue on Energy for Central America, Brookings Institution, Washington, DC, 1 December 2011**

- Alvaro Umaña: Opportunities for Energy Development in Central America

#### **International Association for the Study of the Commons, Hyderabad India**

- Roger Madrigal: Rule Compliance in the Context of Marine Turtle Co-Management, and: What Affects the Capacity of Community-Based Organizations to Provide Good Drinking Water Quality in Small Rural Communities?

#### **The Ninth International Conference of the European Society for Ecological Economics, 14–17 June 2011, Bo aziçi University, Istanbul, Turkey**

- Anna Nordén: Raising Funds for Protected Area Finance: Using Donations and/or Entrance Fees

#### **Conference of the European Society for Ecological Economics, June 14–17 June 2011, Bo aziçi University, Istanbul Turkey**

- Maria A. Naranjo: Does Eco-Certification Have Environmental Benefits?: Organic Coffee in Costa Rica, and: Assessing Reduced Emissions due to Reduced Deforestation and Forest Degradation Mechanism (REDD) for Conservation Policies and Their Role in a Policy Mix

#### **European Association of Environmental and Resource Economists (EAERE), 18th Annual Conference, 29 June–2 July 2011, Rome**

- Maria A. Naranjo: Does Eco-Certification Have Environmental Benefits?: Organic Coffee in Costa Rica.

#### **Environment for Development Fifth Annual Meeting, Arusha, Tanzania**

- Maria A. Naranjo: Green Certified Communities and Business Investment: The Case of the Blue Flag Program in Costa Rica
- Francisco Alpizar: Conditional Cash Transfers and Payments for Environmental Services: A Conceptual Framework for Explaining and Judging Differences in Outcomes

# PROJECTS 2012

## PES

### Impact evaluation of the Payments for Environmental Services Program on welfare in Costa Rica

Theme: Policy design and Forestry  
PI: Juan Robalino, Francisco Alpizar

## FISHERIES

### Understanding the tradeoffs between planned marine conservation policies and artisanal fishing in key coastal areas of Costa Rica

Theme: Policy Design  
PI: Róger Madrigal Ballester, Francisco Alpizar

## TURTLES

### Performance based payments for protecting turtles: understanding the conditions for its success.

Theme: Parks & Wildlife and Policy Design  
PI: Róger Madrigal Ballester, Francisco Alpizar

## SOLID WASTE

### Impact of uncertainty and pro-social attitudes on household's solid waste management decisions: starting from scratch in a LDC

Theme: Policy design  
PI: Francisco Alpizar (falpizar@catie.ac.cr)

## SAFETY NETS

### Exploring the potential of safety nets as part of an adaptation to climate change strategy in Central America

Theme: Socioeconomic dimensions of climate change  
PI: Francisco Alpizar (falpizar@catie.ac.cr) and María Naranjo (mnaranjo@catie.ac.cr)

## OSTIONAL

### The role of coastal communities on the management of marine turtles in Central America: The case of Ostional Wildlife Refuge

Theme: Fisheries & Parks and Wildlife  
PI: Róger Madrigal Ballester  
(rmadriga@catie.ac.cr)

## MIGRATION

### Measuring the effects of flood risk on migration flows: An application for Costa Rica

Theme: Socioeconomic dimensions of climate change  
PI: Adriana Chacón (achacon@catie.ac.cr)

- Roger Madrigal: What Makes Them Follow the Rules? Empirical Evidence from Turtle-Egg Harvesters in Costa Rica

### Conference "Mind the Gap: From Evidence to Policy Impact," organized by AusAID, IDB, IDRC, 3ie, INSP and the World Bank; National Institute of Public Health in Cuernavaca, Morelos, Mexico.

- Laura Villalobos: Impacts of Protected Areas on Population Growth, Inequality and Marginalization in Mexico

## ACADAMIC SEMINAR SERIES 2011

28 January, The Extreme Events in Costa Rica: Importance of the Systematization of Information About Impact, Roberto Flores Verdejo Secretaría Ejecutiva de Planificación Sectorial Agropecuaria, Ministry of Agriculture of Costa Rica

18 March, Conditional Cash Transfers (CCTs) and Payments for Environmental Services (PES): A Conceptual Framework for Explaining Differences in Outcomes and Criteria for Evaluation, Martin Persson and Francisco Alpizar, Research Fellows of the EfD Research Program at CATIE

25 March, The Value of Biodiversity: A View from Ecology, Fabrice DeClerck, Researcher in GAMMA, CATIE

1 April, Vulnerability of Water Availability from Climate Change in Costa Rica's River Basins, Marcos Adamson Badilla, Professor in the School of Economics, University of Costa Rica

15 April, Critical Perspective on Global Projected Energy Production and Consumption and Possible Implications for the Environment, Hermann Hess, Professor in the School of Economics, University of Costa Rica

6 May, Modeling the Social Dimensions of Conservation: The Influence of Protected Areas on Human Welfare in Central America, Maggie Holland, Researcher at University of Wisconsin-Madison and Conservation International (CI)

17 June, Perceptions and Practices from Producers About Trees on Their Properties in the Northern Sector of the Central Volcanic-Talamanca Biological Corridor, Costa Rica; Lucile Chamayou; Masters student at the Durrell Institute of Conservation and Ecology (DICE), University Kent

15 July, Potable Water Governance and Conservation in Rural Areas of Costa Rica: Perspectives from Community Organizations and National Policy; Renee Hill, Joint doctoral program CATIE-University of Idaho

12 August, Premium Estimation Inaccuracy and the Actuarial Performance of the US Crop Insurance Program, Octavio A. Ramirez, Professor and head of the Department of Agricultural and Applied Economics University of Georgia

24 August, Incentives in Development Lending: Technical Assistance, Josepa Miquel-Florensa, Assistant Professor, Toulouse School of Economics

21 October, Green Certified Communities and Business Location: The Case of the Costa Rican Blue Flag Program, Maria Angelica Naranjo, Research Fellow of the EfD Research Program at CATIE





Juan Robalino, Senior research fellow and Director of LACEEP, is one of the many scholars of EfD who teaches different courses at CATIE.

## ACADEMIC CAPACITY BUILDING

The EfD academic capacity building component is designed to minimize the shortage of trained environmental economists in developing countries by supporting undergraduate and postgraduate studies in environmental economics and by building the capacity of local public universities through teaching support, research grants, books and other support. Linking research with academia is one of the unique features of EfD.

One of the priorities of EfD at CATIE is educational support at different levels. In particular, our objective is to increase the local capacity of people at academic and nonacademic organizations (NGOs, public institutes and civil society organizations) to conduct, critically evaluate and interpret research on environmental and natural resource economics and policy. Our support for education is built on three pillars: (1). strengthening the quality and reach of CATIE's MSc program in environmental socioeconomics, (2). education of people from nonacademic organizations, and (3) mentoring of bright young researchers.

The educational support to academic institutions is mainly conducted by the different courses taught at CATIE by scholars of EfD as well as the tutoring of students on their dissertations. The plan is to continue its strong support of the master's program in environmental socioeconomics by offering high-quality

courses updated with recent research results and methodologies. Complementary to this objective, the supervision of MSc and PhD students will continue to be a priority, especially because some of the students are critical in developing many of our research projects.

In relation to education of people from nonacademic organizations, our main contribution will be offering capacity-building courses adapted to the target audience and updated with the most recent findings in policy design and evaluation in the region. In the last two years of operations at EfD, we have trained more than 50 people from all over Latin America in environmental economics and policy issues. The participants in these courses have included government policymakers at different levels, technical staff of NGOs and local leaders, among others. The presentation of Program's research agenda and results has been very

useful as a didactic tool as well as a mechanism to disseminate our work.

### **Master's program in environmental socioeconomics at CATIE**

EfD in association with two other programs at CATIE, is responsible for a Master of Science in Environmental Socioeconomics. We receive students from all over Latin America and the Caribbean. This master's program aims to prepare professionals with strong analytical skills and a critical, objective vision essential to confront the interrelated challenges of development and environment protection, whether in the private or public sectors, nongovernmental organizations or in academic institutions. One of the most appealing characteristics of this program is the strong participation of our students in projects and programs of CATIE and the permanent feedback from those programs into the academic curriculum.

**Master courses**

Public Economics I, University of Costa Rica I  
 Public Economics II, University of Costa Rica  
 Quantitative Methods, Graduate School CATIE  
 Master's courses in environmental economics

**Students**

20

20

14

19

8

16

20

5

**Fellow(s) teaching the course**

Juan Robalino

Juan Robalino

Juan Robalino

Roger Madrigal, Maria A. Naranjo, Francisco Alpizar, Carlos Muñoz

Adriana Chacon, Laura Villalobos

Roger Madrigal

Adriana Chacon, Maria Angelica Naranjo, Carlos Muñoz, Laura Villalobos

Anna Nordén, Laura Villalobos, Roger Madrigal, Juan Robalino, and Francisco Alpizar.

**PhD courses in environmental economics**

Environmental Valuation, University of Gothenburg

**Students**

20

**Fellow(s) teaching the course**

Francisco Alpizar

**THESES PHD & MSC AND NAMES OF STUDENTS AND SUPERVISORS**

Analisis ex ante del aprovechamiento maderable de árboles en potrero, con implementación de prácticas silviculturales en sistemas silvopastoriles en Esparza, Costa Rica.

By Oscar Plata, Graduate School, CATIE  
 Adriana Chacon (committee member)

Adicionalidad y áreas protegidas: Efecto de las áreas protegidas nacionales sobre la deforestación en las tierras bajas de Bolivia 1991–2005.

By Susan Lizette Butron Ledezma, Graduate School, CATIE  
 Juan Robalino (committee member)

Efectos del programa de pagos por servicios ambientales sobre la adopción de estrategias silvopastoriles.

By Catalina Zapata, Graduate School, CATIE  
 Juan Robalino (committee member)

Efectos de la educación sobre los salarios en Costa Rica.

By Francisco Rodriguez and Rebeca Arguedas, School of Economics, University of Costa Rica.  
 Juan Robalino (committee member)

Evaluation of the impact caused by the use of germplasm distributed in the period from 2003 to 2008 in Costa Rica and other countries and analysis of maintenance costs of the seed bank in CATIE

By Rita Carolina Giron, Graduate School, CATIE  
 Maria A. Naranjo (committee member)

Mejoramiento del desempeño en los servicios ofrecidos por pequeñas empresas rurales de plátano, casos: Cooperativa de Servicios Múltiples Julio Pineda, R.L. y Fábrica Las Huacas en Panamá.

By Lilliam Marquinez, Graduate School, CATIE  
 Roger Madrigal (committee member)

Eco-payments Design Given Behavioral Responses: Who Gets Paid, Why, and How Do Others Respond?

By Anna Nordén, PhD candidate, Gothenburg University  
 Francisco Alpizar (committee member)

Impact of uncertainty and pro-social attitudes on household's solid waste management decisions: starting from scratch in an LDC

By Elisabeth Gsottbauer, PhD candidate, Universidad Autónoma de Barcelona  
 Francisco Alpizar (committee member)



# SPREADING THE WORD

News about research and policy interaction

Read more on the website [www.efdinitiative.org/centers/central-america/news-press](http://www.efdinitiative.org/centers/central-america/news-press)



Senior EfD Research Fellow Alvaro Umaña was the first Energy and Environment Minister of Costa Rica from 1986 to 1990.

2011-12-07

## **EfD Fellow Umaña speaks at workshop on Ecosystem Services and Human Well-Being**

Experts from around the world converge to discuss new approaches and policies for understanding the links between ecosystem services and evaluating the effects of agricultural development strategies and human well-being.

2011-10-10

## **Experts Workshop on Climate Change & Water, Panama 2011**

A highly selected interdisciplinary group of experts working on water and climate change in Latin America and the Caribbean met in Panama City, Panama from Thursday, September 29th to Saturday, October 1st, 2011.

2011-08-25

## **Project will conduct socioeconomic studies of the links between water and climate change in Latin America and the Caribbean**

The project seeks to promote capacity building for research, analysis and evaluation of the impacts of climate change and water, using the tools of environmental economics.

2011-08-24

## **Arranca proyecto de estudios socio-económicos de los vínculos entre agua y cambio climático en América Latina y el Caribe**

Con el proyecto se busca promover la creación de capacidad de investigación, análisis y la evaluación del impacto del cambio climático y agua, utilizando las herramientas de la economía ambiental.

2011-07-29

## **María Angélica Naranjo named EfD Center Deputy Director**

2011-07-29

## **Capacity building: Twenty eight new trained in Policy and Program Impact Evaluation**

Participants from Latin America and the Caribbean completed the Environmental and Resource Economics Training Course on Impact Evaluation by LACEEP at CATIE.

2011-05-27

## **Field Survey Analysis of Conservation Policies and Deforestation Decisions**

Through gathering landowners' experiences and actual practices in situ, researchers at EfD Center work on confirming research findings, contextualize, validate research, and set new hypothesis.

2011-05-02

## **Two New Research Projects on Climate Change at EfD**

EfD at CATIE takes advantage of research synergies in institutional aspects of climate change, biodiversity, and water.

2011-03

## **CATIE and FONAFIFO to cooperate for rural and forest development**

The work of both organizations will be more effective through this alliance which promotes sharing technical assistance and experiences.

2011-03-01

## **Chacón to study mechanisms of compensation, certification and credit**

The project provides a systematization of cases studies in Central America and Dominican Republic.

2011-01-24

## **Success factors for rural drinking water supply identified by EfD Costa Rica researchers**

Why can some communities succeed in solving collective problems such as provision of drinking water while others fail? Róger Madrigal, EfD Re-

search Fellow, conducted fieldwork in 41 Costa Rican rural villages in order to identify success and failure factors. He made a substantial effort to present the results in an accessible way to people from all the communities as well as to academic peers and high level policy makers.

2011-01-23

## **Round Table: the positioning of CATIE and the experience of Costa Rica in the COP16/CMP6**

An overview on the climate change negotiations under the UNFCCC hosted in Cancun, Mexico.

2010-11-10

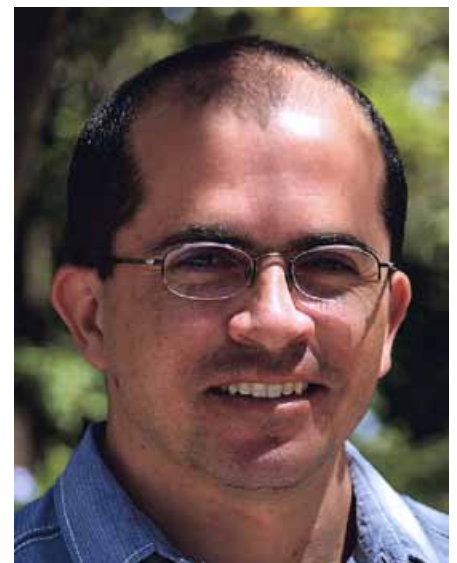
## **CATIE began research on payments for environmental services**

EfD at CATIE began study sponsored by The Tinker Foundation.

2010-11-09

## **Concessions of services in protected areas of Costa Rica incorporate methodology created by EfD**

Methodology based on environmental economics principles, to be replicated in wildlife protected areas.



Róger Madrigal, EfD Research Fellow



From left first row: Andrea Castro, Francisco Alpizar, Alberto Vargas. Second row: Adriana Chacón, Róger Madrigal, Laura Villalobos, Lizette Delgado.

## THE CENTRAL AMERICAN NODE IN THE EFD NETWORK

The Research Program in Economics and Environment for Development in Central America (EfD) aims to contribute to the design and evaluation of public policies and local institutional arrangements that affect environmental protection, sustainable natural resources management and poverty alleviation by (1) strengthening the understanding of the causes and consequences of human decisions as key inputs into policy making and (2) increasing the interaction between academia and policymakers in Central America and more broadly in Latin America and the Caribbean.

### Our purposes

- To continue developing the administrative capacity and the infrastructure that enables the Program to conduct high quality research on a broader set of topics, increase the number of local and visiting scholars, expand the number of international and national collaborators, and provide the tools and means for interacting with policy makers in the region
- To provide proactive, science-based advice on available policy options and critical analysis of existing initiatives that affect environmental protection, sustainable natural resources management and poverty alleviation based on the construction of a research agenda that prioritizes problems and policy processes in close interaction with stakeholders at all levels.
- To increase the center's capacity to conduct high-quality academic, policy-relevant research on poverty issues and environmental and natural resource economics in the Central American context.
- To increase the local capacity of people in academic and nonacademic organizations (NGOs public institutes and the civil society) to conduct, critically evaluate and interpret research on environmental and natural resource economics and policy.
- To communicate our research results

in an effective way given the variety of backgrounds, interests and technical capacities of our target audience, with the aim of not only affecting policy making but also receiving feedback on our research results and agendas.

### LOCAL RESEARCHERS AND STAFF

**Ph.D. Francisco Alpizar**

DIRECTOR AND SENIOR RESEARCH FELLOW

**Ph.D. Juan Robalino**

SENIOR RESEARCH FELLOW



**Ph.D. Alvaro Umaña**  
SENIOR RESEARCH FELLOW

**Ph.D. Adriana Chacón**  
SENIOR RESEARCH FELLOW

**M.Sc. Róger Madrigal**  
RESEARCH FELLOW

**Anna Nordén**  
PHD CANDIDATE

**M.Sc. Maria A. Naranjo**  
DEPUTY DIRECTOR AND RESEARCH FELLOW

**MALD Carlos L. Muñoz Brenes**  
POLICY ANALYST AND RESEARCH FELLOW

**M.Sc. Laura Villalobos**  
RESEARCH FELLOW

**BSc. Irene Burgues**  
JUNIOR RESEARCH FELLOW

**BSc. Catalina Sandoval**  
JUNIOR RESEARCH FELLOW

**Susan Burton**  
JUNIOR RESEARCH FELLOWS

**BSc. José Fernando Jiménez Pereira**  
**MBA. Alberto Vargas**  
ADMINISTRATIVE SUPPORT

**Lizette Delgado**  
ADMINISTRATIVE AND SECRETARIAL SUPPORT

**Andrea Castro**  
SECRETARIAL SUPPORT

From left first row: Carlos Muñoz, María A. Naranjo, Andrea Castro, Francisco Alpizar, Alberto Vargas  
Second row: Catalina Sandoval, Adriana Chacón, Róger Madrigal, Laura Villalobos, Lizette Delgado



## DOMESTIC RESEARCH ASSOCIATES

**PhD. Raffaele Vignola**

ASSOCIATE RESEARCH FELLOW

**Pablo Imbach**

ASSOCIATE RESEARCH FELLOW

## INTERNATIONAL RESEARCH ASSOCIATES

**Thomas Sterner**

SENIOR RESEARCH FELLOW

**Ph.D. Allen Blackman**

RESEARCH ASSOCIATE

**Salvatore Di Falco**

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**Jorge Rivera**

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**Fredrik Carlsson**

RESEARCH ASSOCIATE

**Clara Inés Villegas Palacio**

RESEARCH ASSOCIATE

More details of each person listed above are available on EfD website, in the center section of Central America, [www.efdinitiative.org/centers/central-america](http://www.efdinitiative.org/centers/central-america).

## Networks

EfD Central America/Research Program in Economics and Environment for Development in Central America has an extended list of national and international partners which provide a wide range of network support to projects and initiatives around the core issues in research, policy advice, and training. This network has been built on throughout the years the Center has been in operation. Our goal is to solidify our current alliances and to broaden our network in order to achieve greater impact in Central America. We recently signed an agreement with Costa Rica's National Forestry Financing Fund (FONAFIFO) which would allow us to continue our work on Ecosystem Services and payments schemes. In collaboration with Alexander Pfaff from The Sanford School of Public Policy at Duke University, EfD-CA is working on evaluations of impacts of protected areas in Costa Rica, Mexico, and Brazil, with financial support from the Inter-American Development Bank and the Inter-American Institute for Global Change Research.

The work on protected areas in Costa Rica continues to tackle issues on evaluation, financing, and decentralization of the provision of basic services but is expanding by including institutional and policy analysis of the impacts of climate change on biodiversity and ecosystem services provision. This is done in collaboration with The Nature Conservancy, the National System of Protected Areas (SINAC), and the Forever Costa Rica Association.

## Contact us

You are most welcome to contact EfD Central America/Research Program in Economics and Environment for Development:

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[www.efdinitiative.org/central-america](http://www.efdinitiative.org/central-america)

## Donors and funding

EfD Central America/Research Program in Economics and Environment for Development in Central America offers an attractive opportunity for institutions providing financial support for research and partners interested in our activities and innovative programmatic agenda. We are grateful for the trust and support provided by donors and partners during 2011:

- 1) Latin American and Caribbean Environmental Economics Program (LACEEP)
- 2) The Tinker Foundation
- 3) Duke University
- 4) International Development Research Centre (IDRC)
- 5) Other sources of founding in minor research contracts include:  
The Nature Conservancy, Conservation International, GIZ, NINA, Interamerican Development Bank, among others
- 6) Swedish International Development Cooperation Agency (Sida) through the EfD Initiative

**Number of donors** 6

List of Donors	Funding by donor during 2011
1) LACEEP (IDRC, EPM)	20,90%
2) Tinker Foundation	8,40%
3) IDRC (Water and climate change project)	4,80%
4) Duke University	17,90%
5) Other via EfD	25,10%
6) Sida/EfD funding	22,80%

Sida/EfD funding as share of total center budget (incl. univ. salaries) 22,80%





## THE EFD INITIATIVE IN BRIEF

*Our vision is green economy; sustainable economic growth founded on efficient management of ecosystems, natural resources and climate change impacts.*

The Environment for Development initiative received its name from our conviction that with proper management the environment can be seen as a source of development and not as a constraint.

Our mission is to contribute to poverty alleviation and sustainable development through increased use of environmental economics' capacity in policy design and policy-making processes pertaining to management of ecosystems, natural resources and climate change impacts. We use environmental economics tools to both identify the roots to environmental problems in modern economies, and to find what social and economic mechanisms can be used to solve them.

The foundation of the EfD initiative is its members, environmental economists in a selection of countries. As research fellows and associates we

work for EfD centers hosted by well-established academic institutions in China, Costa Rica (for Central America), Ethiopia, Kenya, South Africa and Tanzania. EfD have an important partner organization in Resources for the Future (RFF), Washington DC, USA. Our associates are based at RFF and several universities across the world. One of them, University of Gothenburg in Sweden, hosts the EfD secretariat.

The Swedish International Development Cooperation Agency (Sida) is currently a major funder of the EfD research and capacity building program through core administrative support, a research fund, and funds to strengthen academic training and policy interaction

# EFD CENTERS AND PARTNERS

There are six EfD centers, hosted by universities or academic institutions in each respective country.

**For more information on each center, please contact the Center Director/Coordinator:**

## CENTRAL AMERICA

Research Program in Economics and Environment for Development in Central America. Centro Agronómico Tropical de Investigación y Enseñanza (CATIE)

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## KENYA

Environment for Development Kenya

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## EFD PARTNERS



UNIVERSITY OF GOTHENBURG  
SCHOOL OF BUSINESS, ECONOMICS AND LAW

### EEU, Environmental Economics Unit

EEU at University of Gothenburg, Sweden, has initiated the EfD initiative and acts as coordinator and secretariat. For more information please contact:

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### RFF, Resources for the Future

RFF in Washington DC, US, is an important partner of the EfD initiative. RFF's research fellows will work closely with their counterparts and RFF's communications staff will help to disseminate the new centers' research products. For more information please contact:

#### Senior Fellow Allen Blackman

Resources for the Future

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### Sida

Swedish International Development Cooperation Agency, provides the funding for the EfD initiative.





### More information & Contact us

Once you've read this report you might want to know more about our work and the EfD initiative:

Please visit [www.efdinitiative.org/centers/central-america](http://www.efdinitiative.org/centers/central-america)

You are most welcome to contact us:

EfD Center Central America

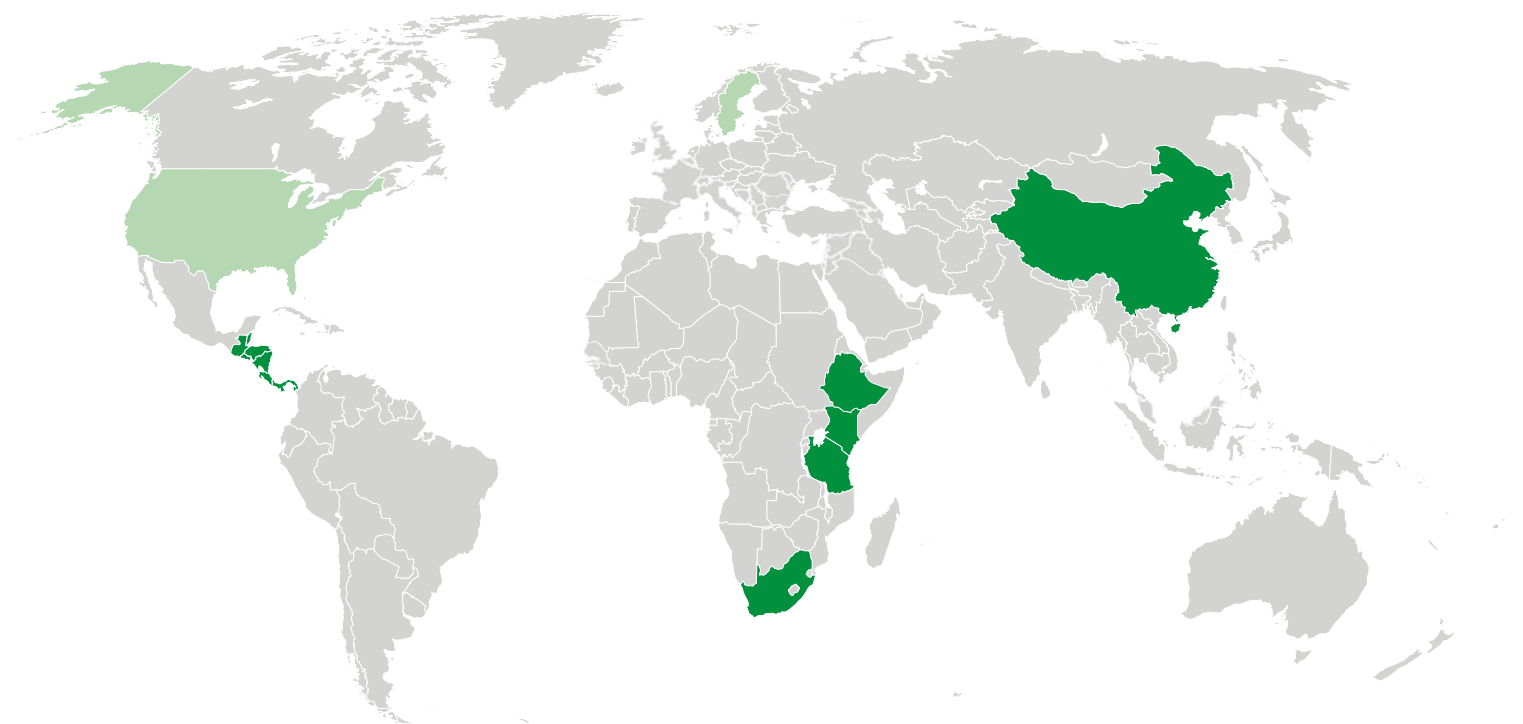
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### EfD CENTERS

Central America, China, Ethiopia, Kenya, South Africa, Tanzania

### PARTNERS

Sida, University of Gothenburg, RFF



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