

# Environment for Development Central America



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The Environment for Development Initiative is a research program in environmental economics that focuses on policy-relevant research and teaching in China, Central America, Ethiopia, Kenya, South Africa and Tanzania. The overall objective of the EfD initiative is to support poverty alleviation and sustainable development through increased use of environmental economics in the policymaking processes.

## Research

The main activity of the EfD initiative is international research collaboration on poverty-environment issues. Environmental economists identify underlying problems, evaluate their environmental impact and propose efficient solutions. We use policy instrument analysis, nonmarket valuation techniques, and behavioral and experimental economics as tools for conducting research on the management of natural resources, climate change and environmental policy.

## Policy advice

EfD researchers focus on issues that are of real concern for policymakers. We strive to integrate the environment into strategic policy processes and to meet the demands of domestic institutions as well as those of international organizations. The EfD centers offer workshops, seminars, training of civil servants and publication of policy briefs and research reports.

## Teaching

Academic training is fundamental for domestic capacity building in environmental economics. The EfD initiative supports national graduate programs in environmental economics at all EfD centers.



## EfD-Central America

The Environment for Development Program for Central America (EfD-CA) is located at CATIE (Tropical Agricultural Research and Higher Education Center) in Costa Rica. CATIE is a premier regional research, education and development center working since 1973 to improve the livelihoods of rural people in Latin America and the Caribbean. CATIE brings science, graduate education and technical cooperation together to reduce rural poverty through integrated management of agriculture and conservation of the environment.

### EfD-CA's main areas of work and expertise are

- Socioeconomic analysis of conservation policies
- Socioeconomic dimensions of climate change
- Management and valuation of environmental goods and services



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## Our purpose

EfD-CA 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 understanding of the causes and consequences of human decisions as key inputs for policymaking and increasing the interaction between academia and policymakers in Central America.

## Responding to regional needs

The problems in the region demand a deep understanding of environmental issues in urban areas and the management of natural resources in rural areas, which are of special importance due to their linkage with poverty and income distribution. Considering the specifics of these aspects, EfD-CA has a research agenda that addresses topics such as water management, land conservation policies and payments for ecosystem services (PES) in rural areas as well as quality of life, flood risks and air pollution in urban areas. The objective is to continue to improve the understanding of these issues and to address new challenges that the region may face in the future.

## Research areas

Central America, as well as the rest of the Latin American and Caribbean region, relies heavily on its natural resources. Therefore, the EfD-CA focus is on developing the following key thematic research areas.

### Socioeconomic analysis of conservation policies

- Evaluation of conservation policies
- Pricing and financing of protected areas
- Prosocial behavior in conservation initiatives

At EfD-CA, we are especially interested in the interaction between biodiversity, conservation and economic welfare. Our efforts have focused on the evaluation of the role of protected areas on the reduction of deforestation. Given the relevance of income and poverty issues in the region, our research analyzes how implementation of conservation policies affects local welfare. Furthermore, we address questions related to how local communities can profit from conservation by considering tourism activities and defining appropriate entrance fees for protected areas.

### **Socioeconomic dimensions of climate change**

- Adaptation strategies and policies
- Evaluation and costing of mitigation alternatives
- Impact on rural livelihoods
- Risk, productivity change and socioeconomic resilience in agriculture

Climate change is beginning to be perceived by policymakers as a real threat to human well-being in Central America, where increased drought is predicted in already dry areas and an increase in precipitation is forecast for humid areas. Desertification on the one hand and an increased risk of floods and landslides on the other are opposite effects arising from the same problem. In relation to adaptation, we focus on public policies, local institutions and farmers and household behavior under uncertainty. In mitigation, the focus is on the economic and social costs of implementing REDD—Reduced Emissions from Deforestation and Degradation in Developing Countries. We are particularly interested in assessing the impact on the most vulnerable groups of society.

### **Management and valuation of environmental goods and services**

- Community-based management of common-pool resources
- Institutions and public policies for water provision and sanitation
- Economic valuation of public policies for the provision of ecosystem services
- Gender and income equity

We are interested in how communities make decisions and design institutions for the use and management of common-pool resources such as water, forest and coastal resources. With respect to water, we focus on participatory approaches to water management, including safe water supply and irrigation. We also focus on the analysis and development of public policies for water and wastewater management, as well as the design, implementation and evaluation of PES programs, in particular associated with small watersheds. Additionally, we are interested in the role of governmental policies, local communities in coastal development, income equity, and gender in the management of environmental goods and services.

## Capacity development and training

One of the priorities at EfD-CA is educational support at different levels. In particular, our objective is to increase the local capacity of people in 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.

The educational support to academic institutions is mainly provided through different courses taught at CATIE by EfD-CA scholars as well as through the tutoring of students for their dissertations. EfD-CA supports the M.Sc. Program in Environmental Socioeconomics at CATIE by offering high-quality courses that are continually updated with recent research results and methodologies.

As for education of people from nonacademic organizations, our main contribution is to offer 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 operation at EfD-CA, 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 working at different levels, technical staff of NGOs, and local leaders, among others. The presentation of the EfD-CA research agenda and results has been very useful as a didactic tool as well as a mechanism to disseminate our work. The team has the capability of conducting research and teaching in both English and Spanish.

### Short courses

- Introductory courses in environmental economics
- Economic basis for valuation and management of ecosystem services
- Economics of climate change
- Evaluation of public policies
- Collective action and participatory approaches for natural resource management



### Policy advice

EfD-CA was designed with the clear purpose of providing proactive, scientific advice on available policy options along with a critical analysis of existing initiatives that affect environmental protection, sustainable natural resource management and poverty alleviation, tied to the effective dissemination of research results and working in close interaction with different stakeholders.

We have worked at all levels—from local managers and leaders to national-level decision makers in different countries of Latin America—which is particularly important 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, policymakers and decision makers tend to rely on generalized solutions, sometimes even designed for other contexts. Hence, a local research center that from the outset involves policymakers in the research agenda is fundamental for increasing acceptance and adapting the design of public policies to local conditions.

**Our team has developed an extensive research agenda that covers different countries in the Latin American region, particularly Mexico, Guatemala, Honduras, Nicaragua, Costa Rica, Colombia, Ecuador, Bolivia, Peru and Brazil. Some examples of our work in the region include the following:**

- For several years, we have been working closely with The Nature Conservancy (TNC) and the Costa Rican National System of Conservation Areas (SINAC) in the development and in-the-field implementation of methodologies for increasing revenues from tourism, including setting entrance fees to protected areas that balance visitation and carrying capacity, and strategies for using donations as a method to raise additional funding.
- We have been supporting local initiatives to design and implement PES schemes. In particular, we have developed strong collaborative networks with municipalities and local stakeholders in Honduras and Nicaragua to implement PES mechanisms related to drinking water. We have also supported initiatives from the Food and Agriculture Organization of the United Nations (FAO) and the Inter-American Development Bank (IDB) to provide methodological insights to central governments in Latin America and Caribbean that seek to develop PES programs at different scales.
- An IDB project about quality of life in urban neighborhoods in Costa Rica will allow policymakers, at both the national and local levels, to identify which urban areas are disadvantaged and determine what actions will be most effective for improving quality of life.
- The Regulatory Authority of Public Services (ARESEP) of Costa Rica seeks a new methodology to set the prices for electric power generation that uses renewable and alternative sources of energy. We conducted a study to incorporate in the tariff the environmental externalities and other economic benefits for reducing adverse effects on the environment when using other types of energy sources, such as fossil fuel.

## **Our team**

EfD-CA is composed of a strong team of empowered and highly motivated technical and support staff. Its activities and successes have allowed the center to become a focal point for collaboration with international and regional researchers and to establish strong partnerships with international and regional institutions involved in influencing policymakers.

## Capabilities and expertise

- Environmental valuation
- Institutional analysis and qualitative methods for social sciences
- Experimental methods in economics
- Quantitative methods and econometric analysis
- Evaluation of programs and conservation
- Evaluation of productivity and efficiency in agricultural production
- Decisions under risk and uncertainty



## Research fellows

**Ph.D. Francisco Alpizar**  
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**CATIE**

Francisco Alpizar is a research fellow and the coordinator of Environment for Development (EfD) for Central America, as well as the program director of the Latin American and Caribbean Environmental Economics Program ([www.laceep.org](http://www.laceep.org)) at CATIE. His fields of specialization include environmental policymaking and economic valuation of the environment. He has also worked on experimental economics applied to policy design. Recently, his work has focused on sustainable management and funding of protected areas, including both entrance fees and donations, as well as the interaction of communities and economies that interact with a given conservation effort. He has also been involved in the design of Coasian schemes to include negative and positive externalities of watershed management for the provision of ecosystem services. Alpizar has been a consultant to the Global Environment Facility (GEF), Inter-American Development Bank (IDB), United Nations Development Program (UNDP), World Wildlife Fund (WWF), International Union for Conservation of Nature (IUCN) and The Nature Conservancy (TNC), among others. He has been invited as a lecturer to universities in Sweden, the United States, Costa Rica and Colombia. ■

**Ph.D. Juan Robalino**  
**Research fellow**  
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**CATIE**

Juan Robalino is currently deputy director of the Latin American and Caribbean Environmental Economics Program (LACEEP) and a research fellow for EfD-CA. His fields of specialization are environmental economics, applied micro-economics and development economics. His current research deals with spatial econometrics and policy evaluation. More specifically, he looks at the causal and spatial effects of endogenous development and environmental policies in Brazil and Costa Rica. Robalino has been a consultant for the Development Economics Research Group at the World Bank. He received his Ph.D. from Columbia University in May 2005 and worked as a post-doctoral fellow at the Earth Institute. His dissertation, entitled "Essays on Environmental Economics and Development Economics," deals with deforestation, income distribution and land policies. His research has been published in *Environment and Development Economics*, the *Journal of Regional Science*, and *Conservation Biology*. ■

**Ph.D. Allen Blackman**  
**Resident advisor and research fellow**  
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**Resources for the Future (RFF)**

Allen Blackman's research has focused principally on tropical deforestation and industrial pollution in Latin America and Asia. A good deal of this work evaluates environmental management strategies that aim to overcome barriers to conventional regulation in developing countries. For example, his research

on industrial pollution control analyzes public disclosure programs, economic incentive instruments and voluntary regulation, while his research on tropical deforestation assesses mixed agroforestry systems and PES initiatives. He has also worked extensively on the U.S. environmental regulatory reform, including voluntary programs and mortgage innovations designed to affect land use. ■

**Ph.D. Alvaro Umaña**

**Research fellow**

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Alvaro Umaña is a research fellow for the EfD initiative for Central America. He has an important role in promoting the activities for EfD-CA, especially among policymakers, and making alliances with international institutions. Umaña was the first energy and environment minister of Costa Rica, from 1986 to 1990. He received international recognition for his contributions to nature conservation and achievements such as the creation of the National Biodiversity Institute (INBio). Recently, he has worked with the International Monetary Fund (IMF) as lead counsel for the executive director's Office for Central America, Mexico, Spain and Venezuela in Washington, D.C. He has had extensive experience in academia as professor at INCAE Business School in Costa Rica, visiting professor at Yale and visiting lecturer at American University, UC Berkeley, Duke, Harvard, Johns Hopkins, University of Maryland and University of Washington. He received his master's in economics and a doctorate in environmental engineering and science from Stanford University. He is the author of numerous books and scholarly articles. ■

**Ph.D. Adriana Chacon**

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**CATIE**

Adriana Chacon is a research fellow at EfD-CA and at the Program of Governance and Socioeconomics of Environmental Goods and Services (GSEBSA). She has a doctorate in economics with emphasis on agricultural economics. Her fields of specialization

are applied microeconomics and international trade. After graduating, she worked at as a postdoctoral research fellow, applying quantitative methods to the area of environmental economics. She received the Outstanding Graduate Student Award from the Gamma Sigma Delta honor society and her dissertation was nominated as the best doctoral thesis of 2006. Adriana has done research on international trade of agricultural products and on the impact of trade policies on national welfare for Latin America. She has also studied the socioeconomic effects of conservation practices in agriculture and has been invited as a lecturer at Kansas State University, the University of Costa Rica and CATIE. Her current research interests focus on certification, the relationship between agriculture and biodiversity and agricultural risk and productivity. ■

**M.Sc. Roger Madrigal**

**Research fellow**

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Roger Madrigal is a research fellow at EfD-CA. He has a master's degree in environmental economics and is currently enrolled in a doctoral program at Freiburg University in Germany. His scholarly interests are in the areas of community-based management of common-pool resources and institutional analysis of water policies. He has also extensive experience with the design and implementation of PES schemes in Latin America. His current research tries to understand the underlying causes of the observed disparity in performance of rural water organizations in Costa Rica. Madrigal has been invited to lecture in El Salvador, Argentina and Chile. He has also been a consultant to the IDB, TNC and FAO. ■

**M.Sc. Maria A. Naranjo**

**Dissemination officer and junior research fellow**

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Maria A. Naranjo is the dissemination officer and junior research fellow at EfD-CA. After

finishing her bachelor's studies in the School of Economics at the University of Costa Rica, she continued with a master's program at Wageningen University. She completed her thesis in environmental economics and natural resources and, in cooperation with INBio and SINAC, presented a study of the contribution of protected areas toward the socioeconomic development of communities in Costa Rica, applied in the southern communities near Braulio Carrillo National Park. She collaborates with several EfD research projects and had participated as a consultant for ARESEP and TNC. ■

**B.Sc. Laura Villalobos**

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Laura Villalobos is at present working as a junior researcher, collaborating with Juan Robalino. After finishing her bachelor studies in economics at the University of Costa Rica, she is pursuing a master's in environmental socioeconomics at CATIE. In the Governance and Socioeconomics of Environmental Goods and Services Program (GSEBSA) at CATIE, she collaborates in a project investigating the spillover effects of the national parks in Costa Rica. ■

**B.Sc. Rebecca Osakwe**

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Rebecca Osakwe is a junior researcher at EfD-CA. At GSEBSA she works with Allen Blackman on a variety of research projects, including a study on the potential distributional effects of a fuel tax in Costa Rica. She has a bachelor's degree in economics from Stanford University and is currently studying for a master's in environmental socioeconomics at CATIE. She holds a professional master's in environmental legislation from the University for International Cooperation (UCI). For purposes of her master's thesis at CATIE, her primary research during 2009 is related to the study of reforming the transportation price and tax policies in Costa Rica. ■

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Diego Herrera has a bachelor's degree in economics from the University of Costa Rica. He is currently working toward a licentiate at the same institution and writing a thesis on environmental economics. At GSEBSA he works with Juan Robalino as a junior researcher in a study about the impact of conservation areas and road infrastructure on deforestation in the Brazilian Legal Amazon. ■

## Associate research fellows

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**For more information about the team and publications please visit [www.efdinitiative.org](http://www.efdinitiative.org).**

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