

The Environment for Development Initiative Activity Report 2007-2009



Cover photo: Hugo van Tilborg

Photos:

Karin Backteman, Francisco Bascope, Jonny Cohen,
Rolf Hallin, Karin Jonson, Gunnar Köhlin, Róger Madrigal

EfD Secretariat
EEU, Environmental Economics Unit
Department of Economics
University of Gothenburg
Vasagatan 1
Box 640
SE-405 30 Gothenburg Sweden
+46 31 786 10 00
www.efdinitiative.org

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Executive summary

The Environment for Development initiative started in 2007 and this is the report for the first three-year period. EfD is an initiative to support environmental economics capacity to conduct research, academic training and policy outreach. The six EfD centers are expected to make a difference by contributing to better environmental management and thereby reducing poverty in developing countries. The initiative is funded by Sida (Swedish International Development Cooperation Agency) and builds on the environmental capacity building program that Sida has been supporting at University of Gothenburg since 1991. The Environmental Economics Unit at University of Gothenburg is coordinating the initiative and Resources for the Future in Washington DC is a partner involved in research and publication of the EfD/RFF discussion paper and book series.

In order to reach its objective the program is addressing the following gaps:

The capacity gap – that there are not enough trained environmental economists is addressed by supporting academic education programs.

The analytical gap – that there are not enough applied research carried out on poverty and environmental management is addressed by supporting policy relevant research, both with research grants and international collaborations.

The communication gap – that the existing academic knowledge is not communicated to policy makers and civil servants is addressed by policy outreach and dissemination activities.

The institutional gap – that in many countries there is no institutional platform to ensure that available resources reach domestic academic capacity in order to analyze pressing environmental and poverty concerns is addressed by setting up environmental economics centers and making them visible.

A key activity is thus to give **core support** to the establishment of the six EfD centers in Central America, China, Ethiopia, Kenya, South Africa and Tanzania. As can be seen in this report the initiative is already well on its way to create viable research environments with close links both to academic programs and policy makers.

Since its creation in 2007, **the EfD Central America** is an integral part of the thematic program on Governance and Socio-economics of Environmental Goods and Services (GSEBSA) of CATIE. CATIE is the leading regional research and higher education institution in the fields of agriculture, agroforestry and natural resource

management. GSEBSA is running a popular master program that educates the environmental leaders of the region. It is also the host of a regional research network in environmental economics (LACEEP). Through EfD, GSEBSA has been given greater opportunities to have an impact through its own research, which also have had positive spill-over effects both on the academic programs and policy interactions.

During the past three years, EfD Central America has built a strong research infrastructure, a domestic and international network of collaborating scholars, a permanent dialogue with policy makers, and a research agenda that satisfies high quality standards. The research is rapidly expanding into new fields. There is still research on management of parks, but this is now complemented also by water management, land conservation and adaptation to climate change as well as more urban research on energy and transportation. The center has very strong international collaborations and this has been further strengthened during 2008 when Allen Blackman from RFF was a resident advisor at the center.

With CATIE's good reputation and international backing (CATIE is founded by the Organization of American States) it is an ideal platform for policy interaction. Close relationships have been developed with policy makers, but trust is built slowly. A valuable experience is that government officials must be included from the very initial stages of research. Particularly close ties have been developed with the National Conservation Agency and Ministry of Environment, Energy and Telecommunications. The Costa Rican experiences have great regional relevance. For instance, the research related to the decentralization of drinking water management in Costa Rica could be a key input into similar processes that are also taking place in Guatemala, Nicaragua, and Honduras.

The Environmental Economics Program in China (EEPC) is established at College of Environmental Sciences and Engineering of Peking University. It is the largest EfD center, with more than 20 employees, and it has the most diverse funding. Although the activities are diverse, the program has a special strength in the forestry sector. Based on unique data sets and a long-term collaboration with the State Forestry Administration, EEPC is the leading academic group giving policy advice on the current forest tenure reform.

EEPC was launched in October 2007, when Ms Maud Olofsson, Deputy Prime Minister of Sweden, inaugurated the Institute of Environment and Economy together with Professor Thomas Sterner of EEU. EEPC has rapidly developed into one of the most productive and influential environmental economics groups in China. The center is

established within a highly prestigious academic institution, Peking University (PKU). So far the major focus has been on forestry and natural resource management, but the EfD center in China also has a number of projects dealing with other environmental issues such as pollution control and urban air quality. EEPC hosts a Ph.D. program and a master program, with around 15 students in total, under College of Environmental Sciences and Engineering, PKU. Incorporating PKU's strength in economics and natural sciences, EEPC has been able to develop a comprehensive curriculum for its Ph.D. program, so that students can develop their skill in a multi-disciplinary environment. The leadership of the College of Environmental Sciences and Engineering serves as the governing body of EEPC.

EEPC, since its inauguration, has enjoyed success with wide policy impacts. Building upon rigorous field surveys and quantitative analyses, EEPC researchers have provided forest authorities rich information on collective forest tenure changes. EEPC is also invited by the State Forestry Administration as main participant in the study of state forest reform.. EEPC is also Lead Expert Group within the China Council for International Cooperation on Environment and Development. Indications of success include invited policy briefs, lectures in government held training workshops, and policy conferences jointly held by EEPC, SFA, the World Bank and international NGOs.

EEPC researchers also produce high quality academic outputs, appearing e.g. in *Land Economics*, *American Journal of Agricultural Economics*, *World Development*, *Nature*, etc. International collaborations have taken off utilizing data collected by EEPC and with active support from the EfD network. In addition, EEPC researchers have assumed the duties of associate editors on two international journals (*Environment and Development Economics* by Cambridge, and *Regional Environmental Change* by Springer).

The Environmental Economics Policy Forum for Ethiopia (EEPFE) was established in 2004 and became one of the centers of the EfD initiative in 2007. The forum is hosted by the Ethiopian Development Research Institute (EDRI) which is a semi-autonomous government research institute and the most influential economic think tank in Ethiopia. The EfD research fellows at EEPFE are specialized in various aspects of sustainable land management and share their time between teaching at Addis Ababa University and policy research at EDRI. While agriculture was the original focus, the policy demand has now led to an increased focus on forestry, energy and thus also climate change. The studies have been done in close collaboration with international col-

leagues and have been financed by a number of institutions beyond Sida, including the World Bank, IFPRI and DfID which has increased the impact of the work.

There are strong policy links to the Ministry of Agriculture and Rural Development (MoARD) and the Environmental Protection Authority of Ethiopia both at federal and state levels. Working in close collaboration with government ministries/agencies and development partners increases the likelihood of the results being used for policy making and implementation. The Forum has e.g. already played an instrumental role in shaping the GEF funded nation-wide Country Partnership Program on Sustainable Land Management.

Environment for Development Kenya is hosted by Kenya Institute for Public Policy Research and Analysis (KIPPRA) and is closely affiliated with University of Nairobi. KIPPRA has a leading role in economic policy analysis in Kenya today and has been rated as one of the most reputable public policy research institutes in Africa. In collaboration with the mounting capacity at the University of Nairobi it is expected that the same impact will be made in the area of environmental management related to poverty alleviation.

Since the establishment of EfD Kenya in 2007, it has made considerable progress in building research infrastructure, establishing both national and international networks, building dialogue mechanisms with policy makers and setting research agenda to upscale policy impacts. The research has focused on agriculture and forestry related issues but other issues such as water supply and environmental fiscal reform have also been featured. During the same period, the project has also provided support to academic institutions in research and teaching.

Strong policy links have been established with Ministry of Environment and Mineral Resources, Ministry of National Planning, Development and Vision 2030, Kenya Environmental Information Network initiative (KEIN), National Environmental and Management Authority (NEMA), and United Nations Environment Programme (UNEP). These experiences have shown how important it is to maintain good relationships with policy makers and to involve them in identification of research ideas. This ensures local ownership and alignment with government policy processes. It is also important to engage in proactive research to provide inputs and guide the implementation of new programs. Another critical lesson learnt is that dissemination of research outputs should be a continuous process whereby policy makers are engaged in inception, mid-term reviews and final dissemination workshops. This gives the opportunity to learn from the policy makers and incorporate their comments early in the research process.

The EfD center at University of Cape Town in South Africa is called the Environmental Policy Research Unit, (EPRU). EPRU operates as an independent research entity within the University of Cape Town since October 2008 closely linked to the School of Economics. EPRU has been growing at a steady rate throughout the project period, and now consists of 9 members of staff. UCT is the highest ranked academic institution in Sub-Saharan Africa. The Department of Economics is one of six departments selected to give the core courses in AERC's Sida-supported collaborative PhD program. The ambition is to tap this academic potential and through its environmental economists increase the involvement by UCT in environmental research and policy advice. A dialogue has also been initiated to ensure as much synergy as possible between this activity and the support given by Sida to CEEPA at the University of Pretoria.

EPRU has built up extensive policy relevant experience in research pertaining to ecosystems management, biodiversity conservation, air quality and water quality. There is also considerable previous research experience relevant to agriculture, fisheries and conservation. EPRU has worked in partnership with a number of organizations, including: The South African National Parks in the wildlife sector; The Department of Water Affairs and Forestry in the water sector; The Department of Environmental Affairs and Tourism on marine and coastal management; and The City of Cape Town in air quality management and energy savings. The benefits from these partnerships are threefold. Firstly, the partnerships create a demand for EPRU expertise, thereby enabling EPRU to sustain itself as a productive research unit. Secondly, the demands from these partnerships ensure that EPRU focuses on relevant research and thereby enhances the influence of EPRU in environmental policy-making. Thirdly, by establishing a reputation in these partnerships, EPRU creates job opportunities for its graduates.

Environment for Development Tanzania (EfDT) is based at the Department of Economics, University of Dar-es-Salaam (UDSM) - the leading economics department in Tanzania and also a core department within the AERC master's and PhD programs. It has strong capacity in environment and poverty research. The Department of Economics has initiated a plan to transform itself into a school and establish a number of units. In that plan, EfDT is one of envisaged units with great potential of expanding in capacity and impact.

The research has mostly been focusing on forestry and fishery. In the case of forestry the team has evaluated participatory forest management while the fishery research has been focusing on the artisanal fishery in Lake Victoria. In this work the Research Fellows have

collaborated with local and international researchers. There have also been strong policy linkages, including support to the revision of the Poverty Reduction Strategy, and particularly with the Ministry of Natural Resources - tourism and fisheries division. EfDT has also forged a close collaboration between the university and the National Environment Management Council (NEMC). The potential is already visible in the recently developed research agenda of NEMC. EfD is also instrumental in supporting the implementation of this agenda, and thus affect the efficiency of Tanzanian environmental policy.

Policy relevant research within environment, natural resource management and development is a core element of the EfD. The initiative is building research capacity and creating conducive research environments for environmental and development economists and policy makers in developing countries.

Research priorities at each center were formulated based on the strategic policy documents of the countries, such as Poverty Reduction Strategy Papers (PRSP). These were also discussed at EfD annual meetings and various domestic and international workshops. Research projects, developed and approved at center level, go through another screening and evaluation process at the EfD Secretariat in Gothenburg. Proposals were screened and evaluated mainly based on their policy relevance for environmental and poverty issues and academic relevance as a topic suitable for environmental and development economics research. The screening and evaluation process involves considerable interactions between the EfD research officer and those research fellows who proposed research projects. Finally, the research officer presents revised proposals along with comments to the research committee for approval. The research committee is comprised of the Research Committee chairman (Prof. Thomas Sterner), the EfD Director, and the Research Officer.

Over the last three years, 57 research projects with a number of research deliverables (outputs) were approved. Research projects increased by 131% in 2009 compared to the base year (2007). EfD research activities were focused on five thematic areas: Agriculture, Forestry and energy, Parks and wildlife, Policy design, and Climate change. About 180 policy relevant research outputs including peer reviewed articles (57), book chapters (18), and discussion papers (105) were produced during 2007-2009. This is a considerable quantity given the duration of the initiative. Additionally, centers have also produced quite a number of reports, proceedings, news articles and policy briefs between 2007 and 2009.

The EfD centers were not only producing and publishing research outcomes but they have also brought some

policy impacts through their research activities. For instance, the Central American center has worked jointly with local and international organizations to construct a standardized methodology for setting entrance fees to the Costa Rican protected areas. That methodology has been tested and piloted in several protected areas in the country and is now formally approved as the official national policy for setting entrance and user fees to protected areas. This will enable the government to generate sustainable income to sustainably manage protected areas. The Ethiopia center has, with its sustainable land management (SLM) stakeholder analysis study, affected the allocation of resources for up-scaling and demonstrating SLM benefits from low to high potential areas of the Ethiopian highlands. The social capital and technology adoption study by Kenyan center has also helped rural farmers for government to reintroduced extension services which were stopped for long time.

Academic training is an integral part of the program. By strengthening the quality and the policy relevance of the academic programs, it is expected that the future impact of environmental economics will be greatly enhanced. This link is a prerequisite for all the centers and hundreds of students are being trained every year at undergraduate, MSc and PhD levels. EfD funds are primarily used to make MSc and PhD theses more policy relevant by linking them to the policy concerns of key ministries.

The readers of this report is particularly encouraged to review the **policy interaction** activities of the centers. A common problem is that academics don't communicate their findings. This report gives ample evidence of the actual demand that exists among policy makers for "knowledge based decision making". In a short time, the EfD centers have become key academic sources of policy advice. This policy outreach is further strengthened by specific dissemination activities. The EfD website (www.environmentfordevelopment.org) receives many hits and is the official window for all the centers. Each center also has dedicated staff responsible for dissemination. In this report we have highlighted one policy interaction example from each center, in order to give a flavor of the impact EfD has in various policy processes.

The initiative is supported by a **secretariat** at University of Gothenburg which consists of a director, a research officer, a communications officer, an administration officer and backstopping from the Environmental Economics Expert Function. The secretariat hosts the Research Committee that is screening the proposals from the centers and the EfD discussion papers editor. The program also draws on the Sida supported capacity

building program at EEU, not least in the implementation of research.

The three-year report attempts to present the vitality of the program, not least at the centers. However, EfD is more than the sum of the centers. In the "integration of environment in policy" and "research meetings and workshops" sections of this report a lot of joint activities are described. Particularly the "South-South" collaboration has proved to be very productive, and, as expected, EfD has also generated a lot of international research collaborations. This is not least due to the very active dissemination activities that are also presented in the report.

Introduction

This is the summary report for the first phase of the Environment for Development Initiative 2007-2009. EfD is supported by Sida (the Swedish International Development Cooperation Agency). Sida has since the 1980's singled out environmental economics as an important tool to implement sustainable development. The EfD Initiative is founded on the premise that a major challenge in developing countries is the lack of informed decision making on the use of environmental goods and services and that this has led to unsustainable use of resources, environmental degradation and poverty. Part of reason for this has been lack of rigorous empirical research on environmental resource management and poverty. In the preparations for the program the following gaps were identified:

A capacity gap – that there are not enough trained environmental economists;

An analytical gap – that there are not enough applied research carried out on poverty and environmental management;

A communication gap – that the existing academic knowledge is not communicated to policy makers and civil servants;

An institutional gap – that in many countries there is no institutional platform to ensure that available resources reach domestic academic capacity in order to analyze pressing environmental and poverty concerns.

The EfD initiative is designed to address these gaps. In this report you will find evidence of how this is done. The institutional gap is addressed by establishment of EfD centers in Ethiopia, Kenya, Tanzania, South Africa, China and Central America. The ambition is to create viable, creative research environments with strong links to ongoing policy processes as well as to graduate academic programs. This kind of institution usually takes a long time to create. This report is proof that the initiative already is well under way, with an impressive amount of research, policy interaction and capacity building under way. We hope that you will find the time to read about all the exciting research, policy interaction and teaching that are carried out at the EfD centers.

The centers have received core support for core administration, applied research, policy advice and academic training. In addition, the centers have been connected in an international network with backstopping from EEU. In the following sections, these components are presented in greater detail and examples of outcomes over the last three years are given.

Background and Objectives

The poverty-sustainability challenge

Despite major international efforts, commitments and achievements, including the Rio-convention, Multilateral Environmental Agreements and the World Summit on Sustainable Development in Johannesburg 2002, widespread poverty, depletion and degradation of natural resources and ecosystem services continue to be key development challenges to the World. Forest-, soil-, fisheries- and water resources are being depleted in all developing countries; air and water pollution are widespread in the poorest communities. The World's poorest people, who make less than 1 US\$ per day ("the Bottom Billion") are disproportionately affected by these problems. They are the most vulnerable populations to global environmental change that is proceeding at an alarming rate as exemplified by climate change, more frequent environmentally-related disasters such as (floods and droughts) and continuing threats to biodiversity through accelerated rates of habitat and species extinction.

Since the environmental problems generally hit the poorest the most, they pose a major obstacle to attaining the Millennium Development Goals (MDGs) and sustainable development. Fundamental reasons why the poorest are most affected are that they have insufficient means to protect themselves, or too limited resources (including natural capital such as own arable land) to invest themselves out of their situation, and high dependence on common property environmental resources such as forests, pastures, rivers, coral reefs or fishing areas. However, poor people depend on these resources for survival and as assets to improve their welfare, e.g. crucial ecosystem services such as storm protection, climate stabilization, fresh water, food, medicines, fodder, fuel and so forth. If the ecosystems are degraded the poorest people are hurt in the most immediate manner. Maintaining these resources and ecosystem services are essential preconditions for disaster risk reduction, poverty alleviation, and sustainable economic and social development. Denying people access to a clean environment (air, water) and access to essential natural resources not only sustain economic poverty, but also deprive people of their human rights. Hence, broad-based environmental management promotes good governance and human rights, and is a key instrument to reduce world poverty.

Environmental economics as a sustainability tool

Already in the Brundtland Report environmental economics was identified as an important tool to support

sustainable development. It is a useful and cost-effective tool (i) to analyse and understand many of the driving forces behind environmental degradation and negative poverty-environment links, (ii) to reveal the economic costs of this degradation, and the benefits of sound environmental management, and (iii) to design efficient instruments to deal with these environmental problems. While the need for such analysis is evident, actual implementation is difficult and requires specialized and dedicated training.

Environmental economics is common sense in the same way as it is broadly applicable to large swaths of development issues. Development of forestry, infrastructure, agriculture, energy, fisheries etc. in low-income countries provides many examples where it is clear that one has to prioritize protection of the underlying ecosystems that guarantee future productivity in these sectors. Thus the goal is, in principle, clear but the analyses and the methods can be complex. With external effects, common property resources, risks and uncertainty in ecosystems that may exhibit thresholds, we leave the world of simple economics behind us. Environmental economics bridges economics and natural sciences and other disciplines necessary to adequately address sustainable development issues. The ability to do research of an inter-disciplinary nature is important in environmental economics. However, such a skill is scarce and this program put considerable energy into encouraging and developing inter-disciplinary research and applications in policy processes, with a focus on enhancing understanding and finding solutions.

Shared vision

Since the beginning of the capacity building program in 1991, the long-term shared vision has been to support the development of domestic capacity to analyze the underlying reasons for environmental degradation, and evaluate the impact on welfare and design cost efficient approaches to deal with these problems. The importance of such domestic capacity has been further stressed in the Paris Declaration where focus is given to the necessity that countries themselves take responsibility for their long-term strategic plans, that interventions support institutional capacity development, harmonization and coordination, and enhanced use of strategic environmental assessment. This program contributes to these objectives. Specifically, in order to achieve this vision, past experiences indicate that we need to address at least the mentioned four existing gaps.

This report presents a combination of activities that addresses the gaps (that impede poverty alleviation and

sustainable environmental management). The EfD Initiative meets the objectives of Swedish development assistance (Policy for Global Development) and the Paris Declaration on Aid Effectiveness. These EfD centers have the necessary enabling environment for policy research and have created a conducive interface between academic institutions and policy making bodies. These characteristics make them ideal partners in analysis, implementation and follow-up of Swedish and international initiatives in support of poverty alleviation and sustainable environment management. Specifically, the research-based knowledge and the resource persons supported in this program are particularly useful in enhancing integration of environmental issues in Poverty Reduction Strategies, National Development Plans or equivalent key policy documents, budget-, sector- and program support, public expenditure- and revenue reviews, implementation and evaluation of environmental issues of the MDGs, identifying costs of environmental depletion and degradation, identifying economic values of ecosystem services and economic benefits of environmental management, analyzing the economics of climate change, Natural Resource Accounting and development of environmental economic indicators to assess progress.

To promote sustainable development there is a need to i) enhance our understanding of the driving forces behind environmental degradation, and ii) identify and implement interventions and activities, which cost-effectively address these driving forces. For this to happen there is a need to strengthen and develop existing analytical capacities, promote more inter-disciplinary analyses and interactions, and strengthen institutions and individuals, which facilitate knowledge-based policy engagement and can bridge the communication gaps between research/researchers and government. To have lasting impacts there is a need to build and sustain long-term efforts for environmental analysis and management, and promote synergies between activities (e.g. between training, research and policy advice) and between various stakeholders (e.g. between teachers, researchers, planners and decisionmakers).

The six EfD centers were selected in a highly competitive context of potential institutions. The choices were based on the existing potential in terms of human capital, available institutional structure and domestic interest and ownership. The guiding principle was to choose centers in order to achieve maximum policy impact for the money spent. In order to reduce risk and ensure sustainability the candidates were selected based on past experience of good performance. The selection was thus heavily biased towards graduates from past capacity building activities. The centers that are currently supported all share some

common characteristics including (i) strong links to policy making bodies (ii) a good environment for applied research, (iii) close association with an academic graduate program.

The geographical spread was also taken into consideration. The geographical focus of the program is East Africa, where poverty and environmental problems are particularly prevalent. However, to ensure a maximum of learning between centers, both in terms of research findings and institutional lessons, other countries were also included. This has provided a network with excellent dynamics. It also provides a healthy counter-weight to the trade flows. Through the program, Chinese researchers gain eg valuable insights in the environmental problems that stem from resource extraction in Africa. Similarly, African researchers gain insights in the institutional reforms that have been carried out in China. Another example is the dominating role of South Africa in Southern Africa. Through the EfD the researchers can independently evaluate policies that emerge from South African experiences.

Center core support

Our gap analysis has pointed to the lack of domestic institutions that can channel external resources to help match policy needs with local academic capacity. Such institutions are also needed to help implement international environmental initiatives at the local level. The outcome objectives/expected results from the Logical Framework Analysis table (LFA) in the 2006 proposal to Sida, can now be considered as being fulfilled: “Six sustainable centers with the appropriate institutional framework in place by 2009” and “Each center has successfully put in operation the three main activities; training, research and policy advice, for improved policy formulation.” (Appendix 1)

The core administration capacity varied a great deal between the centers at the starting point in 2007. This is reflected in the current differences in number of staff in the centers. However, during the time the initiative has been running, most centers have been growing at a steady state, both in terms of number of staff and number of donors. Each EfD center now has the capacity to carry out international workshops, manage research projects and take responsibility for dissemination. Central administrative functions, such as coordinator, assistant, and dissemination officer, will be continuously supported. Although this can be fully funded initially in a second phase, centers are encouraged to diversify their funding sources during the coming contract period.

During the first three years of running the program, the centers have built strong teams devoted to rigorous, high quality research. New members have been incorporated including: Research Fellows with PhD’s in environmental economics, domestic and international Research Associates, Junior Research Fellows, assistants and the necessary administrative staff. The basic administrative aim has been to strengthen the capacity at each center with a resource base of well-trained people, interacting in an encouraging, rich, interesting, and rewarding environment. Each center is now run by a strong team of technical and support staff working together in a motivated and empowered mentoring environment with a clear sense of purpose.

The centers are focal points for external researchers to collaborate with the local team on topics relevant to both. The hosting of visiting researchers has created strong scholarly link.

The concept of “Resident Advisors” was also part of the first phase experience.

Resident advisors were recruited for a limited period of one year to 4 out of the 6 EfD centers. During the first

phase of the initiative the following people were recruited as resident advisors:

Name	Affiliation	EfD Center	Time period
Randall Bluffstone	Professor, Portland State University	Ethiopia	2006-2007
Allen Blackman	Senior Research fellow, Resources for the Future	Central America	2007-2008
Håkan Eggert	Associate Professor, University of Gothenburg	Tanzania	2008-2009
Mahmud Yesuf	Senior Research fellow, Environmental Economics Policy Forum for Ethiopia	Kenya	2009

Table 1. Resident advisors with the EfD initiative 2007-2009

Sustainability of EfD

The EfD program is designed to address the fact that available academic capacity is not matched by existing resources to meet pressing sustainability problems. It is therefore expected that the centers will gradually diversify their sources of funding as they become organized and better known. This is already evident from the sustainability indicator- number of donors, collected in previous annual reports and presented in each center summary in this report. In the risk-assessment in the LFA of the EfD-proposal from 2006, the following measures of action are listed as a response to the risks of lacking sustainability;

Keep cost levels low, Revolving leadership, Diversify funding, Strategic focus and organic growth, Independence, Integrity and anti-corruption awareness. During the first phase of EfD, these issues have continuously been considered and dealt with. Cost levels have been strictly regulated in agreements- both in terms of salaries being in line with host institution, as well as travelling costs.

Leadership has been revolving. This can be illustrated by the change of coordinators in 3 centers during 2007-2009.

Independence from host organisation can be exemplified through the higher level of identity that has marked several EfD centers in this first phase. For example, the South African center EPRU gained independence and recognition as an independent research unit in 2008.

Integrity and anti-corruption awareness is primarily strengthened through the annual financial audits performed at each center. We believe this contributes to transparency which is a very important signal to other donors. A thorough system of annual audits contributes to a sustainable infrastructure for fundraising of international research grants.

This leads us to the EfD effort of increased fundrais-

ing, both at center level and as a joint effort. The risk associated with limited funding should be avoided by ensuring that the centers generate a demand for their own products both locally, via close interaction with stakeholders, and among international donors and research funding institutions. This development has already been initiated by some of the centers, as can be seen in the following table. It should also be acknowledged that core support from Sida has enabled the centers to focus on core activities, thus relieving the pressure to solicit funds from various donors. This explains the decreasing number of donors for the Central America center.

Center	EfD share of center budget %			Nr of donors		
	2007	2008	2009	2007	2008	2009
Central America	85	40	40	5	2	2
China	62	40	35	8	5	6
Ethiopia	88	100	100	2	1	1
Kenya	100	100	100	1	1	1
Tanzania	100	90	90	1	2	4
South Africa	100	100	100	1	1	1

Table 2. EfD share of budget and numbers of donors 2007-2009

As a joint effort the EfD initiative as a whole or in parts have applied to the following grants during the first contract period:

Europe Aid, May 2009, BBVA Foundation Frontiers of Knowledge Award, June 2009, European Commission FP7 Call for Africa, January 2010 and ALCOA in collaboration with Resources for the Future, January 2010.

The sustainability of the whole EfD network and the research that it will embody will depend on the quality of the research that emanates from activities. Given the current trend that research grants become fewer and larger and necessitate consortia of international partners, this program (with its networking and signalling) could lead to increased involvement by researchers from developing countries in such international research projects. It is also expected that the core support could be increasingly focused on collaborative research as the centers evolve.

In terms of remaining impact, the expectations are substantial. The EfD program has initiated many research projects that will provide knowledge that will be used far into the future. At least some of the collaborations (South – South and South – North) that have been kicked off are likely to continue in one form or another. The institutional innovations that have been introduced are also expected to yield in the future, whether in current EfD form or in new constellations. Finally, the

academic capacity that has been created will continue to be active for many decades.

Here follows a short presentation of each of the EfD-center and their institutional setting with an overview of the platform building in a three year perspective.



EfD in Central America

Host and center

Since its creation in 2007, EfD-Central America is an integral part of the thematic program on Governance and Socio-economics of Environmental Goods and Services (GSEBSA) of the Tropical Agricultural Research and Higher Education Center (CATIE, by its Spanish acronym). CATIE is the leading regional research and higher education institution in the fields of agriculture, agroforestry and natural resource management. CATIE’s unique strength comes from an integrated approach that combines multiple disciplines (from economics to biotechnology) and various strategies that include research, higher education, training and technical assistance. GSEBSA is running a popular master program that educates the environmental leaders of the region. It is also the host of a regional research network in environmental economics (LACEEP). Through EfD, GSEBSA has been given greater opportunities to have an impact through its own research, which also have had positive spill-over effects both on the academic and research.

Research areas

Policy design, Parks and wildlife, Forestry

Policy links

- Sistema Nacional de Areas de Conservación (SINAC) *National Conservation Agency*
- Ministerio de Ambiente Energía y Telecomunicaciones (MINAET) *Ministry of Environment, Energy and Telecommunications*

Key achievements 2007-2009

During the past three years, we have been building a strong research infrastructure, a local and international network of collaborating scholars, a permanent dialogue with policy makers, and a research agenda that aims at satisfying high quality standards. This accumulated experience allows us to identify key lessons for strengthening and further expanding our influence in the region:

We have developed a close relationship with policy makers, but trust is built slowly. On the one hand, government officials must be included from the very initial stages of research. On the other hand, we are working to establish long term partnerships with

key actors and/or institutions, as it is impossible to cover directly all areas of public action.

We have created conditions for learning and for generating interesting challenges for scholars. The ability to attract highly qualified international collaborators and long term visitors, as well as junior researchers and outstanding students, depends on the provision of facilitating conditions such as openness to ideas and innovative methods, a multidisciplinary environment, available infrastructure and logistic facilities, the potential for personal growth, and the abundance of interesting and relevant research topics, among others.

The EfD Center for Central America is located in Costa Rica, which is a good laboratory to extract research lessons that can be carefully applied to other Central American countries. The relative abundance of data in Costa Rica compared to that of other countries in the region is one of the comparative advantages of Costa Rica. In addition, many problems and socioeconomic and geographic conditions are similar across the region, reducing the potential problems of comparing diametrically different countries. For instance, our research related to the decentralization of drinking water management in Costa Rica could be a key input into similar processes that are also taking place in Guatemala, Nicaragua, and Honduras.

Year	No of staff	Staff in full time equivalent	No of donors	EfD share of budget %
2007	7	5,5	2	40
2008	14	10,5	2	40
2009	13	11,5	2	40

Table 3. EfD Central America Core support 2007-2009



EfD in China

Host and Center

The EfD center in China, the Environmental Economics Program in China (EEPC) is one of the most productive and influential environmental economics groups in China. The center is established within the highly prestigious academic institution, Peking University (PKU). So far the major focus has been on forestry and natural resource management, but the center has also has a number of projects dealing with other environmental concerns such as pollution control and urban air quality. EEPC host Ph.D. and Master programs, with around 15 students in total, under College of Environmental Sciences and Engineering. Incorporating PKU’s strength in economics and natural sciences, EEPC have been able to develop a comprehensive curriculum for its Ph.D. program, so that students can develop their skill in a multi-disciplinary environment. The leadership of the College of Environmental Sciences and Engineering serves as the governing body of EEPC.

Research areas

Forestry, Pollution control

Policy links

- State Forestry Administration (SFA)
- Rights and Resources Initiative (RRI)
- Lead Expert Group within the China Council for International Cooperation on Environment and Development

Key achievements 2007-2009

EEPC was launched in October 2007, when Ms Maud Olofsson, Deputy Prime Minister of Sweden, attended and launched the program of EEPC together with Professor Thomas Sterner of EEU.

EEPC, since its inauguration, has enjoyed success in wide policy impacts. Building upon rigorous field survey and quantitative analyses, EEPC researchers have provided forest authorities rich information on collective forest tenure changes. EEPC is also invited as main participant in the study of state forest reform, also by the State Forestry Administration. Indications of success include invited policy briefs, lectures in government held training workshops, and policy conferences jointly held by EEPC, SFA, the World Bank and international NGOs.

EEPC researchers also strive for high quality academic productions. Publications in international journals by research fellows and associates has kept on growing. Our papers have appeared in Land Economics, AJAE, World Development, Nature, etc. International collaborations have taken off utilizing data collected by EEPC. The collaboration will produce more high quality journal articles. In addition, EEPC researchers have assumed the duties of associate editors on two international journals (Environment and Development Economics by Cambridge, and Regional Environmental Change by Springer). Under the EfD initiative, our graduate students obtained more opportunities in learning advanced theory and methodology. Recently two of our Ph.D. students were accepted to UC-Berkeley’s Agricultural Economics Department as visiting students. They are taking courses there while getting supervision from Berkeley faculty on their researches.

Key lessons learnt: Basing policy recommendations on rigorous field works and quantitative analyses; remaining on top of important policy trends; International collaboration.

Year	No of staff	Staff in full time equivalent	No of donors	EfD share of budget %
2007	14	9	8	62
2008	21	12	5	40
2009	24	17	6	35

Table 4. EfD China Core support 2007-2009



EfD in Ethiopia

Host and center

The EfD center in Ethiopia, Environmental Economics Policy Forum for Ethiopia (EEPFE) was established in 2004 and became one of the centers of the EfD initiative in 2007. The forum is hosted by the Ethiopian Development Research Institute (EDRI) which is a semi-autonomous government research institute. EDRI supports EEPFE by providing office space and administrative services including financial management. The EfD research fellows at EEPFE are specialized in various aspects of sustainable land management and share their time between teaching at Addis Ababa University and policy research at the most influential and well connected government economic think tank in Ethiopia. The Forum has already played an instrumental role in shaping the GEF funded nation-wide Country Partnership Program on Sustainable Land Management.

Research areas

Agriculture, Forestry, Climate change

Policy links

- Ministry of Agriculture and Rural Development (MoARD)
- Environmental protection Authority of Ethiopia
- Bureau of Agriculture in the Amhara Regional State
- International Food Policy Research Institute (IFPRI)
- World Bank.

Key achievements 2007-2009

EEPFE has been involved in research and policy studies especially in the areas of sustainable land management, land certification and land markets, energy, forestry and climate change. These works have been financed by various institutions including the World Bank, IFPRI and DfID as well as the Sida financed EfD initiative. Some of the research has been done in collaboration with researchers from other organizations such as IFPRI, the World Bank, Portland State University, the University of Maryland and the Center for Environmental Economics and Policy in Africa (CEEPA). Some of these works have been done for and in collaboration with government ministries such as the Federal Ministry of Agriculture and Rural Development (MoARD) of the Ethiopian government. Working in close collaboration with government ministries/agencies and development partners

increases the likelihood of the results being used for policy making and implementation. We may specifically mention the contribution of the Forum in the country's sustainable land management (SLM) program which is currently planned to be implemented at a national scale with the involvement of development partners. Workshops that the Forum has organized in collaboration with other institutions have been very useful in putting together what has been done so far as well as informing relevant stakeholders about the issues and possible solutions. The Forum has created good relations with institutions such as the MoARD and the Environmental Protection Authority of Ethiopia.

The Forum currently has the capacity to administer research with a number of support staff and research facilities that create a conducive environment for research and policy advice. A large number of high quality research outputs have been generated over the years and this has also improved the quality of the researchers which is an important investment. Contacts with relevant stakeholders have improved over time. With a continuation of similar and more activities in the future it is hoped that there will be more interaction with stakeholders and more scope to influence policy makers and other stakeholders. It is also important to note that it is necessary to make sure improved environment for research continues to exist and that sustainability of the activities of the Forum are strengthened.

Year	No of staff	Staff in full time equivalent	No of donors	EfD share of budget %
2007	6	4,5	2	88
2008	3	2,3	1	100
2009	8	7,67	1	100

Table 5. EfD Ethiopia Core support 2007-2009



EfD in Kenya

Host and Center

Environment for Development-Kenya, is hosted by Kenya Institute for Public Policy Research and Analysis (KIPPRA) in collaboration with the School of Economics, University of Nairobi. KIPPRA has a leading role in economic policy analysis in Kenya and has been rated as one of the most reputable public policy research institutions in Africa. Working through the host institution and in collaboration with local and international research associates, the center has established real impact in the area of environmental management and poverty alleviation.

Research areas

Agriculture , Forestry, Climate Change

Policy links

- Ministry of Environment and Mineral Resources (MEMR)
- Ministry of Wildlife and Forestry
- Ministry of National Planning, National Development and Vision 2030
- Office of the Vice President and Ministry of Home Affairs
- Kenya Environmental Information Network initiative (KEIN)
- National Environmental and Management Authority (NEMA)
- Kenya Forest Service (KFS)
- Kenya Wildlife Service (KWS)
- United Nations Environment Programme (UNEP)

Key achievements 2007-2009

Since its establishment in 2007, EfD-Kenya has made considerable progress in building research infrastructure, establishing both national and international networks, building dialogue mechanisms with policy makers and setting research agenda to upscale policy impacts. The center has established core research staff, and , for the last two years, the center has successfully run one-year internship program for up-coming researchers. The center has continued to carry out research and published its research outputs in peer reviewed journals, as EfD/RFF discussion papers and conference papers. The center has been active in policy outreach; it has shared and disseminated findings in several national policy forums, participated in several policy task forces and continuously engaged policy

makers in its research processes. In 2009, the center successfully hosted the Third EfD annual workshop.

The center has learnt valuable lessons in the first phase that will be useful in achieving greater impacts in the second phase. Foremost, it is important to maintain good relationship with policy makers and to involve them in identification of research ideas. This ensures local ownership and alignment with government policy processes. Second, it is more important to engage in proactive than reactive research to provide inputs and guide the implementation of new programs. Another critical lesson learnt is that dissemination of research outputs should be a continuous process whereby policy makers will be engaged in inception, mid-term review policy and final dissemination workshops. One final dissemination workshop is not effective in communicating research findings. It misses the opportunity to learn from the policy makers and incorporate their comments early in the research process. The center intends to build on the success of the first phase to achieve greater impacts in the second phase.

Year	No of staff	Staff in full time equivalent	No of donors	EfD share of budget %
2007	2	1	1	100
2008	4	2	1	100
2009	4	2	1	100

Table 6. EfD Kenya core support in numbers 2007-2009



EfD in South Africa

Host and Center

EfD in South Africa is Environmental Policy Research Unit, (EPRU). EPRU was initially established as a research unit within the Southern Africa Labour & Development Research unit (SALDRU) at the School of Economics, University of Cape Town. It has subsequently been accredited and now operates as an independent research entity within the University of Cape Town since October 2008. The Unit retains its affiliation with the EfD initiative. EPRU is still closely linked so the School of Economics given that three of its research fellows are employees of the School. EPRU has been growing at a steady state throughout the last three years, and now consists of 9 members of staff. UCT is the highest ranked academic institution in Sub-Saharan Africa. The Department of Economics is one of six departments selected to give the core courses in AERC's Sida-supported collaborative PhD program. The ambition is to tap this academic potential and through its environmental economists increase the involvement by UCT in environmental research and policy advice. A dialogue has also been initiated to ensure as much synergy as possible between this activity and the support given by SAREC to CEEPA at the University of Pretoria.

Research areas

Parks and wildlife, Fisheries , Climate change

Policy links

- The South African National Parks (SANParks)
- The Department of Water Affairs and Forestry
- The Department of Environmental Affairs and Tourism on marine and coastal management
- The City of Cape Town

Key achievements 2007-2009

EPRU has built up extensive policy relevant experience in research pertaining to ecosystems management, biodiversity conservation and air quality and water quality. We also have considerable previous research capacity and experience relevant to socio economics of agriculture, fisheries and conservation. Specifically this strain of research has been concerned with farm worker's wages, land use and rural poverty, as well as, the role of inequality amongst subsistence fishers, and the role of community-based wildlife conservation in poverty mitigation. EPRU has worked to a large extent in partnership with a number of organisations.

These include: The South African National Parks in the wildlife sector, The Department of Water Affairs and Forestry in the water sector, The Department of Environmental Affairs and Tourism on marine and coastal management and City of Cape Town in air quality management and energy savings. EPRU's experience with these partnerships in previous years has highlighted the importance of ensuring that mutual benefits accrue to all partners. The benefits that EPRU derived from these partnerships were threefold. Firstly, the partnerships create a demand for EPRU expertise, thereby enabling EPRU to sustain itself as a productive research unit. Secondly, the demands from these partnerships ensure that EPRU focuses on relevant research and thereby enhances the influence of EPRU in environmental policy-making. Thirdly, by establishing a reputation in these partnerships, EPRU creates job opportunities for its graduates.

EPRU has built strong relationships and partnerships with external stakeholders and more particularly governmental agencies such as the City of Cape Town in air quality management and energy savings. The unit's academic skills in terms of environmental and resources economics was a core strength in this partnership because of its ability to recommend which interventions to prioritize and in what order: A constraint experienced by the unit is that good primary research (as opposed to desktop studies) that is aimed at propping up policy efficacy requires fieldwork and data collection, which is expensive. Effectively we cannot do much, no matter that the problem is clearly identifiable, unless the government commissions us. More often governments' commissioning of research teams is reactionary to problems that have already gone out of hand. There is a need for research teams to even be a source of policy innovation by also conducting supply-driven policy research rather than just demand-driven research.

Year	No of staff	Staff in full time equivalent	No of donors	EfD share of budget %
2007	5	2	1	100
2008	7	2,6	1	100
2009	9	2,6	1	100

Table 7. Core support EfD South Africa 2007-2009



EfD in Tanzania

Host and Center

Environment for Development Tanzania (EfDT) is based at the Economics Department. The Economics Department is the largest Department in the College of Arts and Social Science and at the University of Dar es Salaam, with about 45 academic staffs. Recent developments show a promising future. The department has initiated a plan to transform itself into a school and establish a number of units. In that plan, EfDT is one of the envisaged units with great potential of expanding in capacity and impact. The Department of Economics at the University of Dar-es-Salaam is the leading economics department in Tanzania and also a core department within the AERC master's and PhD programs. It has strong capacity and interest in environment and poverty research.

The policy interaction of the research has greatly benefitted from the active participation of the major policy stakeholder in a board governing the center's work. The board is now active in prioritization of policy relevant research, dissemination of research carried out as well as fund raising.

Research areas

Forestry, Fisheries

Policy links

- National Environmental Management Council (NEMC)
- Ministry of Natural Resources- tourism and fisheries division

Key achievements 2007-2009

For the past three years EfDT has been operating in Tanzania, building sound relationships with policy stakeholders local and international researchers in various aspects. The team has managed to build a strong link with the Government and Non governmental institutions and Ministries. In particular, the centre has been involved in policy advice by providing technical support into the drafting team of the National Strategy for Growth and Reduction of Poverty II (NSGRP II). With regards to this NSGRP review, two environmental related studies were commissioned to EfD-T by the government, namely Poverty-Environment Policy Analysis and Mainstreaming Environment into Mkukuta II Process. These two studies are intended to feed into the review process of Mkukuta

II. Through the coordinator of EfDT, a previous employee of the National Environment Management Council (NEMC), EfDT has a unique opportunity to forge collaboration between the university and NEMC. This is already visible in the recently developed research agenda of NEMC. EfDT is instrumental in supporting the implementation of this agenda, and thus affect the efficiency of Tanzanian environmental policy.

The policy advice is based on research. The focus has so far mainly been on the forest and fisheries sectors. In the forest sector the interest has been on assessing the effectiveness of the participatory forest Management (PFM). That is to what extent the program has attained its objectives to increase forest cover and improving the livelihood of the adjacent communities. Following the 1998 National Forest Policy and the Forest Act of 2002, participatory forest management (PFM) is being introduced in Tanzania, yet little rigorous analysis has been undertaken to determine the effectiveness of PFM, in terms of both protecting forest resources and improving forest-dependent livelihoods and thereby reducing poverty. In this respect EfDT has addressed a number of key questions concerning PFM: how do we define and measure the success of a PFM initiative; what factors are most important in determining how successful a PFM initiative will be; how is the contribution of non-timber forest products to rural livelihoods affected by the particular nature of the PFM initiative; and how do spatial aspects of forests and forest management influence the effectiveness of PFM.

In the area of fisheries the centre has among other things worked on the impact of fish exports on the welfare of local communities as well as regulatory compliance in Lake Victoria fisheries

Year	No of staff	Staff in full time equivalent	No of donors	EfD share of budget %
2007	6	3	1	100
2008	8	3	2	90
2009	8	3	4	90

Table 8. Core support Tanzania 2007-2009

Policy interaction

From the start of the EfD initiative, there has been a strong emphasis of the EfD centers to reach out to public planners, policy- and decision-makers and participate with their research findings in relevant fora. Policy advice and activities to strengthen capacity are also key objectives of the EfD initiative. The centers have produced policy briefs, organized in-service training for people from non-academic organizations, written commissioned reports, and organized policy workshops and seminars to encourage policy makers and development practitioners to practice research based policy decision making on environmental management and sustainable natural resources use. From 2007-2009, the centers produced 29 policy briefs, organized 62 meetings ranging from multiple-day policy workshops to policy seminars and conducted 25 in-service training courses on various environment related issues.

Research policy interaction features

A session titled EfD Policy Interaction of the Year 2009 was held at our annual meeting in 2009 in Kenya. All centers presented cases from the past year. Below are articles based on these presentations. (These and more examples of interaction are also found on the EfD website, please see the respective Center > Policy Interactions > Interactions.) These examples give an indication of the kind of interaction and impact that EfD research lead to. It is important to stress, though, that these only indicate the "tip of the iceberg" since every Research Fellow has multiple policy contacts. These are reported in "log-books" in the center annual reports. Experience gives that maximum impact is reached through such personal contacts over an extended period, sometimes over a decade.

Center	Policy briefs produced (No)			Policy seminars, workshops or conferences organized by center (No)			Other policy seminars, workshops or conferences that centre staff participated in (No)			In-service training courses for civil servants		
	2007	2008	2009	2007	2008	2009	2007	2008	2009	2007	2008	2009
Central America	0	2	8	5	8	4	0	5	7	4	1	5
China	0	0	0	2	6	2	5	5	1	2	0	0
Ethiopia	1	10	3	5	6	5	0	2	13	1	0	1
Kenya	0	0	4	2	1	1	2	3	2	2	1	2
Tanzania	0	1	0	2	1	0	3	1	1	2	1	1
South Africa	0	0	0	5	4	3	2	3	9	0	2	0
All centers /year	1	13	15	21	26	15	12	19	33	11	5	9
All centers/ 2007-2009			29			62			64			25

Table 9. No of Policy briefs, Policy seminars and in service training by EfD centers 2007-2009

Central America: Research-policy dialogue improves drinking water manage- ment

“To do high-quality research, you need to find out what policy makers need and nurture the interaction,” says Maria Angelica Naranjo, EfD researcher in Central America. Her research colleagues Roger Madrigal and Francisco Alpízar are exploring why some Costa Rican communities are successful in drinking water management while others are not. Policy makers and local communities are already using some of the researchers’ recommendations to bring change.

Maria Angelica Naranjo is a researcher and dissemination officer at the Environment for Development initiative (EfD) in Central America, hosted by CATIE, Tropical Agricultural Research and Higher Education Center. She feels that interaction between researchers and policy makers is crucial for high quality research, and gets them both to grow:

“You need to hear the demands of the policy makers, and be open to what we can achieve together. New research questions always arise through this interaction, and the interaction helps us get important information and data. We would simply not be able to do research of this quality without them. The interaction is very important from the researchers’ point of view, and I am sure that our research helps them make better policies, too,” says Naranjo.

In Central America, drinking water authorities are in a process of delegating the responsibility of management to small communities.

The EfD researchers are exploring the determinants of success as some drinking water resource management is becoming decentralized in Costa Rica. Simply put, why are some communities successful and others are not?

The design of the project was developed during a long research visit to Professor Elinor Ostrom in Bloomington, Indiana, before she received the prize in economics, in honor of Alfred Nobel.

The research project implies a lot of fieldwork, interviews, and interaction at all levels, from the Costa Rican Water and Sewer Service (Instituto de Costarricense Acueductos y Alcantarillados, or AyA) to the community committee in charge of drinking water resource management, the users, and the administrators of the aqueducts.

For instance, the environmental economists need to ask the communities about how often they collect samples to make sure the water is clean, how often the pipes are changed, and whether the money they charge is enough to sustain the aqueducts.

Results are presented in an accessible way

The EfD research team has conducted seminars and workshops to present their results, both at the AyA headquarters and in the assessed communities. They put particular emphasis on presenting their results in an accessible way to their mainly non-academic audience. This effort to build up a reputation helps the team gain access to important datasets held by governmental officers.

“Local organizations are already trying to follow our recommendations on how to measure their performance and regarding the need of having some explicit and well known rules to deal with day-to-day problems. This has been made possible as a result of their involvement in our research from the beginning and because we make an effort to present our results in an accessible way,” says Naranjo.

At the higher decision-making level, the researchers’ conclusion are being used as input for many changes proposed under a restructuration of DAR (the rural aqueduct division of AyA) towards a more effective support to water community organizations. For example the conclusions on performance measures were incorporated in the guidelines made by AyA, designed towards enhancing the financial capacity and overall long run performance of water community organizations. What the policy makers found particularly relevant was that academia, as an objective actor, was providing a set of recommendations that support the changes that they have been trying to push forward.

“In this sense, they were very enthusiastic about explicitly using the results to increase the awareness about the necessity of the new policies,” says Naranjo.

She doesn’t even have to wait for the results to guide a policy, signed by a minister, to see that her and her colleagues’ work has an impact.

“As a result of the research, people in the communities realize in what aspects they can do better. That already makes me happy!

Important to find key policy makers

Naranjo stresses the importance of researchers finding key persons in the policy making community to collaborate with, people who understand that research must be done in order to sustain the policy making process.

Darner Mora is an important key person for this

research project as well as for the EfD project on Costa Rica's Blue Flag Ecological Program. He is the Director of the National Water Laboratory at the Costa Rican Water and Sewer Institute (AyA) and also the Executive Director of the Blue Flag Ecological Program.

"Darner Mora is a proactive, science-based person, interested in our research questions and research results. His help and support is of utmost value for our work," says Naranjo.

The EfD researchers also bring in knowledge from their previous policy interaction experiences, for example with the Costa Rican Regulatory Authority (ARESEP) and the National System of Protected Areas (SINAC).



Maria Angelica Naranjo, Research Fellow, EfD Central America.



Rural Aqueduct, San Miguel, Costa Rica

China: Forests can both reduce CO₂ emissions and increase welfare.

For ten years he has pointed to forests as a major asset for sustainable development in China. Finally and just in time for the ongoing UN Climate Change Conference in Copenhagen, China's national leaders are as convinced as professor Jintao Xu: Forests have a unique potential to contribute to sustainable economic development and a reduction of China's massive carbon emissions.

A key challenge for the United Nations Climate Change Conference in Copenhagen, COP15 (December 7-18), was to combine efforts to address climate change with efforts to promote poverty eradication and growth in developing countries. The interaction between forests and climate is one important issue. It was discussed at Forest Day 3, an international conference with 15 000 participants, organized by the Danish government in collaboration with a number of international forest and environmental organisations.

Professor Jintao Xu, coordinator of EfD China and one of China's most highly respected experts in forestry economics, has witnessed a great difference in Chinese government's view on climate change. At the United Nations Summit on Climate Change in New York on September 22, President Hu Jintao presented China's National Climate Change Programme. China also pledged to reduce its so-called "carbon intensity" by 40-45 percent compared to the 2005 level by 2020.

EfD researchers analyzed a potential forest carbon market

What Jintao Xu and his EfD research team have done is to lay out a plan for how the Chinese forest sector can respond to national leaders' call for bigger contributions to the nation's climate change programme.

The work has included a comprehensive analysis of the potential size of a voluntary forest carbon market in China given different scenarios, namely a cap on emissions by 2012, 2030 or 2050.

The work was commissioned by the Forest Carbon Management Office, a proactive department within the State Forest Administration (SFA) that Jintao has been working with since its founding. In 2001 he arranged a conference on Payment for Ecological Services (PES), and then

took the opportunity to tell all the forest sector representatives to pay attention to the potential of forest carbon trading.

"At that time the most newsworthy thing in China was WTO, the World Trade Organization. China had recently become a member. But I kept telling everyone that forest carbon trading will be much more important than WTO," says Jintao Xu, smiling.

Senior forestry officials participating in the conference had taken notice. A series of follow-up events after the conference led to the establishment of the Forest Carbon Management Office.

Jintao Xu's team has provided the office not only with an analysis of the potential size of a voluntary forest carbon market, but also with recommendations on the policy needs to effectively develop the market. For instance, a national accounting system is needed to calculate how much carbon is sequestered and how much carbon is eligible for forest carbon trade. A national system for monitoring is also needed and requires for instance remote sensing and satellite images. They have also conducted policy deliberations on how to set up a national accounting system for forest carbon credits.

It is well-known that forests can absorb carbon dioxide and hence halt global warming. In order to reduce greenhouse gas emissions, it is important to make it more economically viable for forested countries to preserve them instead of logging them down. And one way is to create a global forest carbon market, where forest carbon credits can be traded between countries in the same way emission allowances already are.

EfD research focuses on China's forest reformation

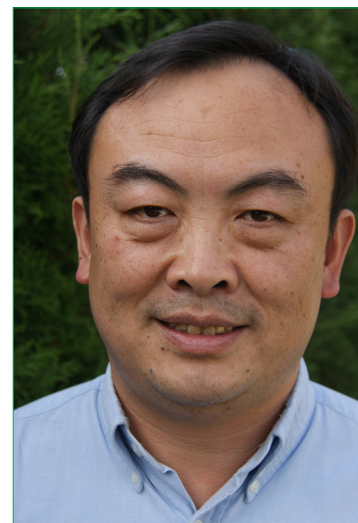
Research by EfD in China (the Environmental Economics Program in China, EEPC), also focuses on forest policy and in recent years on reformation of the state forest sector and the collective tenure system. The purpose of the reform is to establish individual household management and improve farmers' livelihood. Lack of appropriate mechanisms and incentives in the state forest sector, and lack of secure forest tenure for farmers in the collective forest sector, underpin severe poverty in forested areas and unsatisfactory performance of forest resource conservation.

"Current forest policies are therefore to decentralize and to relax the logging quota system. But this conflicts with the goal of forest carbon management since it requires regulation, and the easiest thing to do is then to maintain the logging quota system. So, we must figure out what to do. An economic instrument like PES is another way to encourage people not to harvest greatly, ensuring we have a predictable and operational forest carbon trading system, says Jintao Xu.

Finally the forest sector is on the national map

Jintao Xu says he is quite happy with the development – the establishment of the Forest Carbon Management Office and the incorporation of the forest sector strategy into the National Climate Change Programme. Already in 2007, at the Asia Pacific Economic Summit in Australia, Chinese national leaders proposed a network to address forest degradation and climate change. In September 2009, at the United Nations Summit on Climate Change in New York, China President Hu Jintao said that “China will energetically increase forest carbon sink. We will endeavour to increase forest coverage by 40 million hectares by 2020 from the 2005 levels.”

“Finally we have seen that the forest sector is on the national map. Many climate change experts basically ignored this sector for long. We have contributed to getting the ideas out, together with foresters and colleagues. And suddenly it happens – national leaders promote the forest sector at world summits,” says Jintao Xu.



Jintao Xu, Coordinator and Research Fellow, EfD China.



Chinese forest

Ethiopia: Networking and local language are keys to successful research communication

Networking with non-governmental organizations and use of the local language proved to be crucial for successful communication of Ethiopian research findings. “Thanks to this, our workshops attracted influential experts and policy makers, and their participation was very active,” says Dr Alemu Mekonnen, researcher at the Environmental Economics Policy Forum for Ethiopia (EEPFE) and coordinator of EfD in Ethiopia.

Research fellows at EEPFE in collaboration with the Center for Environmental Economics and Policy in Africa (CEEPA) have conducted research on natural resource accounts for Ethiopia. To read more about the research – See the article “Green accounting puts price on Ethiopian soil erosion and deforestation” on the EfD website.

Dr Menale Kassie is EfD research officer and EEPFE research fellows. As part of policy communication and to invite people to a small natural resource accounting workshop, Kassie and Alemu Mekonnen visited a number of organizations in Addis Ababa in the autumn of 2009. The Forum for Environment was one of the visited organizations.

“The director, Nigussu Aklilu, immediately recognized the value of being able to demonstrate how much money natural resource degradation costs. He suggested a larger, national workshop to communicate the research results,” says Alemu Mekonnen.

Hence, the Forum for Environment got involved in the organization of such a workshop, held in Addis Ababa in September 2009. The Forum helped with identifying important participants and supported with funding.

The workshop was mainly attended by experts in economics, forestry, soil sciences, ecology and related fields. These experts represented NGOs, civil society and the Government, including the Ministry of Agriculture and Rural Development, the Ministry of Finance and Economic Development, and the Environmental Protection Authority.

“What I have learned from visiting different institutions and from the workshop is that people generally



Alemu Mekonnen, Research Fellow and coordinator, EfD Ethiopia and Menale Kassie, Research Fellow and EfD research officer.

don't know what we do. I've also learned that we shouldn't focus only on governmental organizations in our policy interaction since non-governmental organizations are equally important to achieve the EfD mission,” says Menale Kassie. He notes:

“After the workshop the experts became very interested. Our next step is to convince the decision makers.”

Mekonnen stresses the importance of networking for communication of research results, for feedback and for identification of research issues.

One circumstance made the workshop very different from others.

“We used the local language. People who attended came mainly from the federal level, and they use Amharic, not English, in their day-to-day conversations. Researchers, like me, are not used to using local languages in such workshops. It was a challenge for us, but also a key to success. It made the participants more active. I do believe we need to take measures to improve our use of local languages under these circumstances,” says Mekonnen. Mekonnen also notes:

“The workshop enabled us to show the participants the level of natural resource degradation in monetary terms. We also had the opportunity to discuss the concept of economic growth, and finally agreed that resource degradation and non-market benefits of natural resources have to be taken into account.”

Alemu Mekonnen believes that the workshop made the attending experts and policy makers more aware of the extent of the problems, and therefore more motivated to act to address them and convince decision makers.

“In this way I believe we can contribute quite a bit for Ethiopia. This kind of impact really makes me happy,” Mekonnen says and smiles.

Kenya: Kenya's natural resources need economic instruments

EfD researchers invited to public hearing: "Policy processes provide windows of opportunity to discuss research results, highlight the importance of natural resources to the economy – and get impact," says Paul Guthiga. Guthiga is one of the EfD research fellows who were invited by Kenya's Ministry of Finance to a public sector hearing held to discuss the draft budget proposal on Environment, Water and Sanitation for 2009-2011.

Last year, EfD research fellows Dr. Wilfred Nyangena coordinator of EfD Kenya, and Dr. Paul Guthiga were asked to review the draft budget proposal and then give their comments and suggestions at a public hearing that included senior policy makers, government officials, and representatives from the general public and from donor agencies including Sida.

The main message from the two environmental economists was that a larger share of the total government budget needs to be allocated to rehabilitate, restore and develop the country's natural resources.

Forests, rivers, and national parks are examples of natural resources that are crucial for Kenya's economy and development. The natural resource sectors contribute 42 per cent of Kenya's GDP and provide a wide range of direct and indirect goods and services. The indirect services i.e. ecosystem services, are not valued or captured in the national accounts. Despite their high contribution, the sectors receive proportionately less allocation from the government. For instance, less than 4 percent of the total 2009-2011 budget is allocated to the rehabilitation and development of these sectors.

"In the current development plan, the government says it will spend money on Kenya's five water towers – the five forested mountains, which are the country's major water catchment areas. Over 90 per cent of all water comes from rivers that flow from these mountains. But despite the critical importance of these areas, only 50 million Kenyan shillings is allocated for their protection and for reforestation. This is not enough. You can't first say that the water towers are very important and that you want to rehabilitate them and then allocate so little money," says Paul Guthiga.

In total, the Ministry of Forestry and Wildlife requested 9,600 million Kenyan shillings for the natural

resource sectors for the period 2009-2010. They received only 4,000 million, which is less than in the previous period. The reason for this is serious budget constraints.

"In spite of our plea, our input didn't change much in terms of allocating money this time. But the government can use our arguments to make a case and go to donors and ask for funding," says Nyangena.



Wilfred Nyangena, coordinator and Research Fellow and Paul Guthiga, Research Fellow, EfD Kenya

Recommendations for environmental management

Over the years, Nyangena and Guthiga have studied various issues affecting natural resources in Kenya. The public hearing provided an opportunity to share their research knowledge. During the presentation, the two researchers recommended an increased use of economic instruments for environmental management in addition to the predominantly used command-and-control methods. They cited the provisions of the Environmental Management and Co-ordination Act (EMCA), which provides for imposition of taxes on environmentally harmful behavior in order to raise revenues to invest in the natural resource sector. They also recommended speeding up the ongoing process of introducing natural resource accounting at the national level.

Both Nyangena and Guthiga are very pleased that researchers from EfD Kenya/KIPPRA were included in the hearing. The fact that they were included points to their reputation of being able to provide policy makers with research-based knowledge.

"We were able to draw on the competence of others within the EfD network. Once we got the request, we contacted Sida's External Expert Advice for Environmental Economics at the University of Gothenburg to get their views on what should be stressed", says Nyangena.

Participation in public hearings also means valuable contacts and opportunities for networking.

"Public hearings are good forums for sharing knowledge. Top officials are listening, and we can show them real information and data that they may eventually use to bring change. It is important to us to be part of the actual policy processes that have the potential of bringing real change," says Guthiga.

The letters of appreciation Nyangena and Guthiga have received from the Permanent Secretary (PS) Ministry of Finance indicate that the discussion was indeed well received.

South Africa: Anchovy - from fishmeal to food for people

South Africa's anchovy catch is predominantly used for fishmeal, despite the fact that a redirection of the resource towards human consumption could provide nutrition for the rural poor, create employment in coastal regions, and develop new opportunities in the fisheries industry. EfD researchers are sought out by the Marine and Coastal Management, Department of Environmental Affairs, to participate in an inter-disciplinary investigation of the feasibility of utilizing a portion of anchovy landings for direct human consumption.

"Such a redirection of resource usage could create new economic opportunities in the fisheries industry and go some way to addressing malnutrition of the rural poor," says Kerri Brick, researcher at Environmental Policy Research Unit (EPRU) at University of Cape Town.

Dr Antony Leiman, a senior researcher at EPRU and principle investigator in this project, explained that "anchovy product redirection is hampered by declining stock sizes, the manual labour required to clean and prepare each fish individually and quality problems stemming from a high lipid content, oxidation and rancidity."

The study is an interaction between the local fishing industry, a scientific monitoring group called CapFish, Marine and Coastal Management, and EfD/EPRU.

Demand-driven research

"As Dr Leiman was actively sought out by Marine and Coastal Management for participation, EfD/EPRU is providing demand-driven research. It was important for us to show that we can respond to policy makers' research needs. Working with Marine and Coastal Management on this inter-disciplinary project also increases our visibility to people working in different parts of the field, and helps build networks," says Brick.

CapFish is responsible for the scientific component while the environmental economists from EfD are adding the economic dimensions. For example, EfD researchers provide an analysis of anchovy products traded globally and imported into South Africa. Assessments of which anchovy products could be developed for the South African market and of the implications of expanding the anchovy industry for employment are also considered.

"Given the abundance of the resource, the South African Department of Environmental Affairs has noted that anchovy landings could potentially be doubled while still maintaining a sustainable fishery," says Brick.

Since the 1970s, South Africa's average annual anchovy landings have exceeded 300,000 metric tons. The Department of Environmental Affairs' vision is that a significant portion (at least 10 percent) of the anchovy resource be used for human consumption.

Peru uses anchovy as high-protein food resource

Several countries use anchovy for human consumption. Peru, for example, has turned a portion of its, until now, exclusively fishmeal-directed anchovy production into a high-protein food resource. Within three years, the human consumption of anchovy and anchovy products has increased to 100,000 metric tons annually. Though, Peru has a significantly larger anchovy fishery than South Africa. Additionally, the size of the local fish is far smaller in South Africa. Smaller fish means higher labor costs, since each fish must be cleaned and prepared individually and manually.

The investigation by EfD and CapFish found that in the past, several initiatives to divert the use of the anchovy catch had been undertaken in South Africa by local pelagic fishing companies aiming to utilize a portion of the anchovy catch for direct human consumption. Their products included cured anchovy, canned anchovy fillets with capers, anchovy paste and dried anchovies, and were sold on the local and export markets.

Smaller fish - higher labor costs

So why did the South African production of anchovy for human consumption cease? A decrease in the average size of the anchovies starting in the 1980s, and the manual labor required to prepare each fish individually are cited as the main reasons, and quality problems blamed on high lipid content, oxidation and rancidity have contributed as well.

While the recorded size of the anchovies caught ranged from 12 to 15 cm in the 1980s, analyses of the average length of anchovy catches since 2001 indicate that the average size has decreased to less than 8 cm. Though, larger anchovies are caught seasonally, south of 33° S and on the Agulhas bank. With a view to utilize anchovy for direct human consumption, the pelagic industry has investigated the possibility of targeting larger anchovies off the Agulhas bank. However, the attempts to use deeper purse-seine nets in these areas have been unsuccessful and found to be extremely dangerous due to the strength of the Agulhas current.



Fishing boats, Cape Town, South Africa

Researchers' recommendations

“Our recommendation is that the industry investigates the feasibility of targeting shoals of larger anchovies, and sets up onboard facilities to preserve the fish in chilled or refrigerated seawater,” says Brick.

Furthermore, EfD/EPRU and CapFish note in their research report that the robustness of larger fish (of 10 cm plus, preferably larger than 12 cm) facilitates more efficient and effective de-heading and cleaning, which is an essential prerequisite in the processing chain to utilize anchovy for direct human consumption.

In the South African context, the manual labour requirements could provide significant work opportunities for semi and unskilled labour. The manual labour required has the potential to create employment in the impoverished coastal rural communities. Making use of this opportunity, along with the opportunities for small and medium enterprises (SMEs) to utilize South African anchovies instead of imported products and set the platform for the development of new SMEs. The report is currently being reviewed by Marine and Coastal Management.



*Kerri Brick, Research Fellow,
EfD South Africa.*

Tanzania: Research to help protect Tanzania's forests

This Article , written by Damas Mwita, was based on an Efd Tanzania press release and published in the daily Tanzanian newspaper THISDAY 2009-02-23.

Researchers at Environment for Development Tanzania have identified a number of critical areas that will help both to protect Tanzania's forests and the livelihoods of those villagers living close to the forests.

Reacting to a call by Deputy Minister for Natural Resources and Tourism, Ezekiel Maige, to empower people living around forest reserves with forest management skills, researchers from Efd Tanzania, an initiative based at the Department of Economics at the University of Dar es Salaam, have suggested that there are three critical and interlinked issues.

The coordinator of Efd Tanzania, Dr Razack Lokina, and ResearchFellow Dr Elizabeth Robinson, told THISDAY that the critical and interlinked issues include how to fully realize the benefits of Tanzania's forests; how to share those benefits equitably among the nearby and countrywide residents; and how to enforce rules and regulations to protect the forest resources. "Managing Tanzania's forests is complex. Many of Tanzania's forests are biodiversity hotspots, valued by the international community; other forests provide critical ecosystem services such as the provision of water supplies for distant cities", says Dr Lokina. Yet, the coordinator said villagers living near these forests often realize few of the benefits but bear most of the costs, but the introduction of improved forest management approaches such as participatory forest management has left many nearby villagers feeling worse off.

He stated that although they understand the importance of protecting the forests, better forest management has sometimes resulted in villagers having reduced access to important forest resources such as fuel wood, and forest fruits, vegetables, and medicine.

Dr Lokina and Dr Robinson suggested that villagers living near to forests are more likely to observe the rules and regulations governing forest management in Tanzania if forest protection is directly linked to household benefits.

Bee keeping and butterfly farming, which have already been introduced into a small number of protected forests,



Razack Lokina, Coordinator and Research fellow, Efd Tanzania and Elizabeth Robinson, Reserch Fellow, Efd Tanzania.

provide an incentive for villagers to protect the forest, but typically only benefit a smaller number of households.

"Taking a landscape approach rather than considering forests individually, and allowing households to continue to collect important forest resources, even from protected forests, would provide benefits to many villagers, particularly the poorest households, and reduce the likelihood that villagers simply switch from more to less protected forests", Dr Robinson said.

One approach is to introduce buffer zones where regulated collection of forest products is permitted, often with little ecological cost. International and regional mechanisms such as the "Clean Development Mechanism" (CDM) and "Payment for Environmental Services" (PES) offer considerable scope for realizing significant income from forests.

But even if these benefits are realized, just as important is how the benefits are shared. For example, to what extent should nearby villagers be compensated for reduced access to forests; how will benefits be distributed among village households; and what proportion of the funds should be used for enforcement activities.

"Appropriately funded enforcement activities are critical. Community involvement in forest management does not automatically ensure that forests will be protected through voluntary restrictions."

EfdT research to help protect Tanzania's forests

DAMAS MWITA
On an Island

RESEARCHERS at Environment for Development Tanzania (EfdT), have identified a number of critical areas that will help both to protect Tanzania's forests and the livelihoods of those villagers living close to the forests.

Reacting to a call by the Deputy Minister for Natural Resources and Tourism, Ezekiel Maige, to empower people living around forest reserves with forest management skills, researchers from EfdT, an initiative based at the Department of Economics at the University of Dar es Salaam, have suggested that there are three critical and interlinked issues.

The coordinator of EfdT, Dr Razack Lokina and Associate Fellow Dr Elizabeth Robinson, told THISDAY yesterday that the critical and interlinked issues include how to fully realize the benefits of Tanzania's forests; how to share those benefits equitably among the nearby and countrywide residents; and how to enforce rules and regulations to protect the forest resources.

Managing Tanzania's forests is complex. Many of Tanzania's forests are biodiversity hotspots, valued by the international community; other forests provide critical ecosystem services such as the provision of water supplies for distant cities", said Dr Lokina.

Yet, the coordinator said villagers living near these forests often realize few of the benefits but bear most of the costs, but the introduction of improved forest management approaches such as participatory forest management has left many nearby villagers feeling worse off. He stated that although they understand the importance of protecting the forests, better forest management has sometimes resulted in villagers having reduced access to important forest resources, even from protected forests, would provide benefits to many villagers, particularly the poorest households, and reduce the likelihood that villagers simply switch from more to less protected forests", Dr Robinson said.

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THISDAY 2009-02-23

Integration in policy processes

Policy makers' uptake of research findings varies and is typically low in the shorter term. However, there are measures that help increase the chances of research feeding into policy making and these include credible research on issues perceived as important in policy circles, better communication of research findings and networking. Supported by the EE expert function at EEU, the EfD researchers- have shared experiences on successful engagement in policy processes and improved their understanding of concrete steps to increase the outreach of research finding. A workshop in Kuriftu, Ethiopia in 2009 was dedicated to this task and outreach activities are repeatedly highlighted at annual EfD meetings.

Development cooperation is increasingly moving towards sector and budget support with the aim to improve result by promoting national ownership and alignment with country priorities. There is an urgent need for better integration of environment, climate change and natural resources aspects in national and sectoral planning and implementation. Local capacity to inform important policy processes on economic aspects of sustainable land management or policy instruments for environmental management etc. will augment. The EfD centers are responding to this demand in various ways e.g. the Kenyan Vision 2030, the Tanzanian MKUKUTA and the Chinese preparations for COP 15.

Increasingly, the EfD centers have collaborated with the EE expert function in its efforts to integrate environment and climate change in Sida's development cooperation strategies. To exemplify, EfD centres in China, South Africa, Tanzania, Kenya, Central America and Ethiopia have provided input to Sida's processes of these countries, by co-authoring Environment and Climate Change Policy Briefs for these countries/regions (Latin America region, African region). EfD Kenya also collaborates with the EE expert function on institutions-centered SEA to assess and support the Kenya Forest reform in Kenya in a multi-year cooperation involving also the World Bank and the Netherlands Commission on Environmental Assessment. EfD South Africa has also provided analytical input to Sida's development cooperation strategies for Namibia and Botswana.

The EE expert function shares information about international policy processes pursued by PEP, OECD-DAC, the World Bank, UNEP/UNDP etc. and looks for opportunities to involve EfD centers. The EfD centres have participated as resource persons in various international processes for methodology development e.g. environmental fiscal reforms (under the auspices of PEP),

and integration in PRS in the context of PEI pursued by UNDP/UNEP, expert advice and comments in OECD DAC's methodology work on Strategic Environmental Assessment and "Greening development planning".

In November 2009, the EfD network responded to a demand from the World Bank to provide input to their new Environmental strategy. The EE expert function helped facilitate the input from EfD.

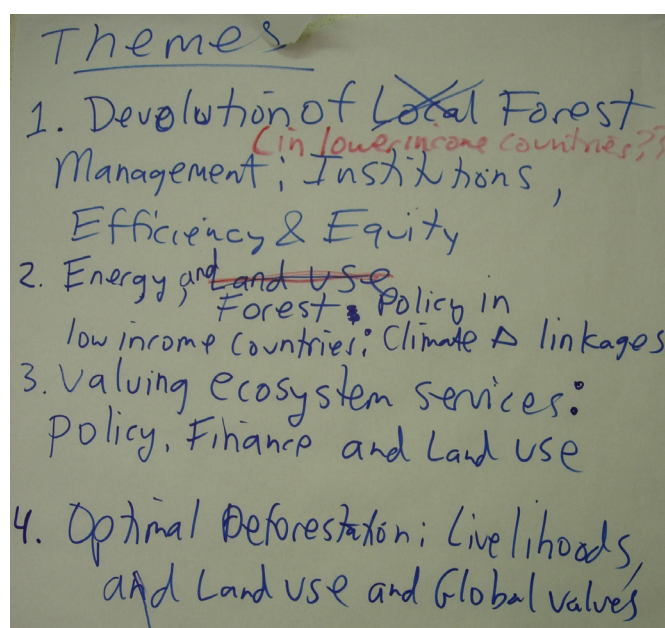
The EfD centers have also been heavily involved with collaborative work with UNDESA-New York regarding policy guidance on sustainable land use and conservation agriculture and a UN expert meeting on Sustainable agriculture was held in Gothenburg in April 2009.

Research activities

Policy relevant research within environment, natural resource management and development is the core element of the EfD initiative. In this section, we discuss the research administration, research performance of the initiative and research meetings carried out for the last three years.

In developing countries policymakers, farmers, donors, and others need research based information to achieve broader development objectives such as the Millennium Development Goals (e.g., environmental sustainability and poverty reduction). A major challenge in these countries to achieve these objectives is lack of comprehensive research, particularly high quality fundamental policy relevant research on environmental resource management and poverty alleviation which can inform decisions on the sustainable use of environmental goods and services. This is mainly caused by scarcity of analytical and skilled human capital in developing countries. Additionally, dissemination of available limited environment-development related research results in a systematic way is also a challenge in these countries. The Environment for Development (EfD) initiative is responding to these challenges through building research capacity and creating conducive research environment to environmental and development economists and policy makers of developing countries as well as through facilitating research outputs communication media such as website, policy workshops, in-service trainings, and policy briefs.

Since the inception of the initiative a number of research activities have been carried out through its six environment-development research centers located in Africa, China and Central America. The initiative research activities focused on Agriculture, Forestry and energy, Parks and wildlife, Policy design, and Climate change research themes. These themes were developed based on comparative advantage of countries, the centers are located. Since 2010 these research themes are re-structured systematically based on the initiative's three years research experiences and the international research agenda (see table 10).



Top: First draft of EfD research theme in a research workshop at KIPPRA, Nairobi, 2007.

Middle left: Representative from Kenya Wild Life Service, EfD Annual meeting, Naivasha, Kenya 2009.

Middle right: Lunyu Xie, Jiegen Wei, Thomas Sterner and Peter Berck.

Down: Precious Zikhali, Ping Qin, Jesper Stage.

Research clusters	Research themes
Natural resource management	Sustainable land management and agriculture
	Land tenure reform and land administration
	The Economics of Biodiversity and Ecosystem Conservation and Management
	Management of Commons: Enforcement, Compliance and Corruption
Climate and environment	Responses to climate risk
	Environmental justice and climate policy
	REDD and land use change
Local environment quality	Air, Water, and Solid Waste Pollution
	Wellbeing, Institutions and Basic services

Table 10. EFD research clusters and themes.

Research Administration

In this section we discuss the process of research projects formulation, screening and approval. Research priorities at each center were formulated based on countries strategic policy documents such as Poverty Reduction Strategy Papers (PRSP), other policy documents, EFD annual meetings and various national and international workshops. Research projects developed and approved at center level will go through another screening and evaluation process at the Environmental Economics Unit at University of Gothenburg. Proposals were screened and evaluated mainly based on their policy relevance for environmental and development issues, academic relevance as a topic suitable for environmental and development economics research. The screening and evaluation process involve considerable interactions between EFD research officer and those research fellows who proposed research projects. Finally, the research officer will present final revised proposals along with comments to the research committee for approval. The research committee comprises of EFD Director, Research Cahirman (Prof. Thomas Sterner) and research officer.

To make this process more transparent and increase research quality starting from 2010 centers' coordinators will become member of research committee. This committee is not only responsible to approve proposals but also has a mandate to allocate research budget to centers and research themes. Additionally, proposals screening and research quality control will not only be handled by research officer and coordination committee, but they will be thoroughly reviewed and screened by internal and external reviewers.

Over the last three years, centers have submitted about 57 research projects which have a number of research deliverables. Figure 1 shows that there was an increasing trend in proposals submission by centers. Research projects increased to 131% by 2009 compared to the base year 2007. In the coming years, proposals submission will grow rapidly since most centers have well established research infrastructure.

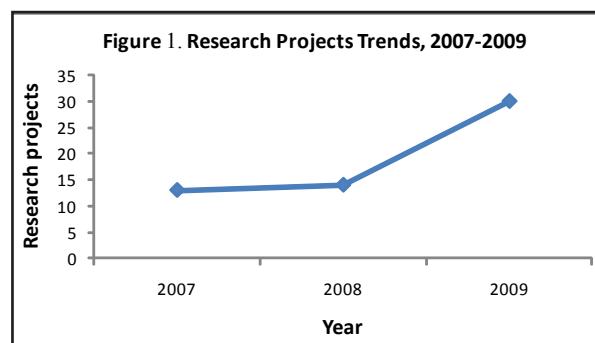


Figure 1. Research projects trends 2007-2009

Overall research performance statistics, 2007-2009

During the past three years (2007-2009), the EFD centers have produced about 180 policy relevant research outputs including peer reviewed articles, book chapters, and discussion papers. This is a considerable research outputs given the duration of the initiative. The number of research outputs grew over time (see figure 2). In the coming years more research outcomes are expected since most centers have the necessary research environment.

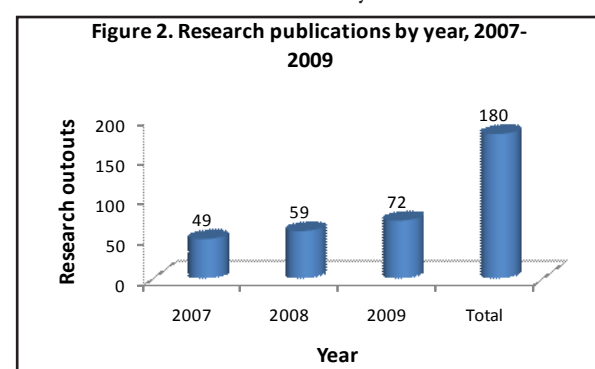


Figure 2. Research publication by year, 2007-2009

Research outputs by research themes

Figure 3 presents research outputs produced by research themes 2007-2009. This figure shows that research on agriculture and forestry and biomass energy are dominated during these periods. This is not surprising given that most of EfD centers are located in agrarian countries where agriculture and forestry is the foundation of their economy. This is one indication that EfD research fellows are undertaking policy relevant research.

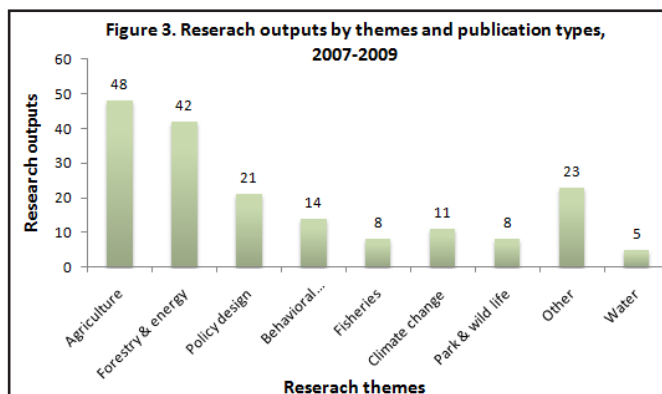


Figure 3. Research output by themes and publication types, 2007-2009

Research outputs by centers

Research outputs by center and year are presented in figure 4. As is shown in figure 4 there is variation in the performance of centers. The centers in Ethiopian, Central America and South African performed well compared to other centers. Human capital and well established research infrastructures (e.g. dataset) are culprit of this difference. Over the last two years, EfD China devoted its resources in collecting panel data set on forest reform and thus more research outputs is anticipated in the near future using the data set. Kenya and Tanzania centers need attention to build their capacity, particularly in terms of human capital.

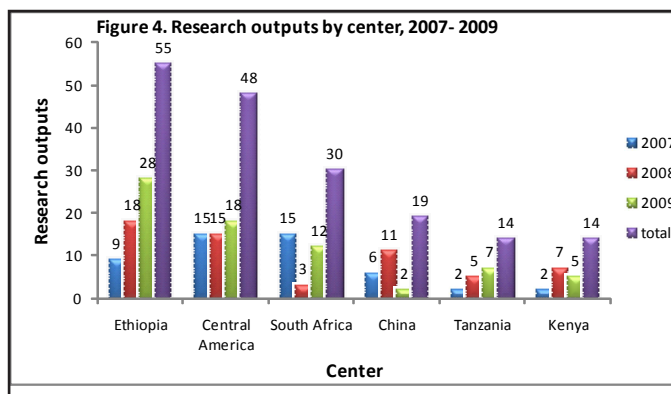


Figure 4. Research output by center 2007-2009

Research outputs by publication type

The initiative uses different media to disseminate its research results to policy makers, researchers, farmers and NGOs and donors communities. These include among other things publishing research outputs in different international, regional and domestic journals, publishing discussion papers on EfD and Resource For the Future (RFF) websites and publishing research outputs as book chapters. The discussion papers are jointly published by Resources For the Future (RFF), the first Think Tank devoted exclusively to natural resource and environmental issues and based in Washington D.C. Figure 5 indicates that concerted effort is required by EfD research fellows to convert discussion papers into peer reviewed articles including journals and book chapters. In addition to the above mentioned research outputs, centers have also produced quite a number of reports, proceedings, news articles and policy briefs.

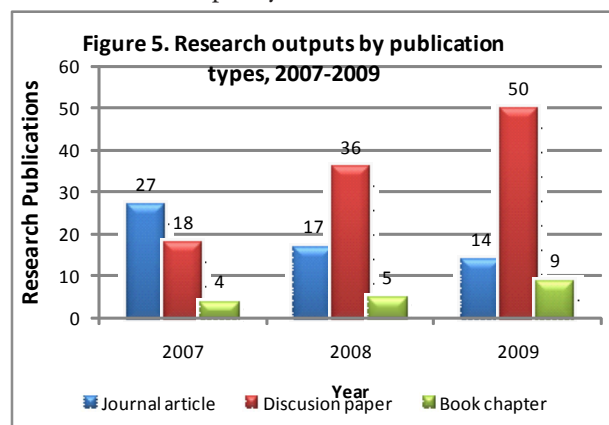


Figure 5. Research output by publication types, 2007-2009

Publication types by centers

The number of research outputs by publications types is displayed in figure 6. The EfD centers in Central America, Ethiopia and China have more journal articles compared to other centers. Centers like Ethiopia, Central America and South Africa are expected to devote more efforts to translate discussion papers into journals and book chapters.

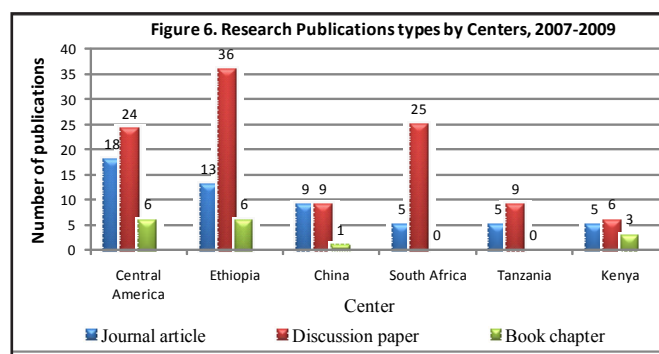


Figure 6. Research publication type by center 2007-2009

Research meetings and workshops

To identify research ideas, produce high quality demand driven research, bridge information/knowledge gaps on issues related to environment-development, disseminate research outputs, and promote active international and domestic research interaction the initiative was using different strategies where discussions can take place openly, where research results can be constructively criticized, and where feedback is generated. EfD Annual meetings, policy research and academic workshops were among strategies used in the initiative to achieve this. Three annual meetings in three countries (South Africa, China and Kenya) that comprises of participants from all centers and policy makers and development practitioners from the respective country were carried out between 2007 and 2009. During annual meetings a number of activities were undertaken. It includes presentations and discussions of EfD work in progress as well as interactions to develop next year's research program that improve the quality of the current year's research output, and develop next year's program ideas. It enables sharing of experiences and new skills regarding methodologies and policy interaction. It is used to instill new policy interaction and dissemination skills. The Coordination Committee meetings are also held in connection with the annual meetings. The aim is to discuss both research and organizational issues.

Various country specific policy research workshops on specific areas (e.g. such as sustainable land management and parks) that participated local policy makers, development agents and NGOs were carried out over the last three years. Additionally, three book workshops were also conducted during the last three years. Publishing books based on EfD research outputs is one strategy used by the initiative to disseminate research outputs and improve the research career of research fellows. The first series book published in 2009 and one is on pipeline.

Success stories based on research findings

The EfD centers not only produced and publish research outcomes but have brought some policy impacts through their research activities. For instance, the Central American center has worked jointly with local and international organizations to construct a standardized methodology for setting entrance fees to the Costa Rican protected areas. That methodology has been tested and piloted in several protected areas in the country and is now formally approved as the official national policy for setting entrance and user fees to protected areas. This enables the government to generate sustainable income to sustainably manage protected areas. Additionally, as a result of dissemination efforts of results of the project studying rural water utilities, the center was invited by the National Public Utilities Regulator to be part of consultations to construct a suitable model of setting prices for rural water utilities that promotes watershed management and community participation. Similarly, the Ethiopian center through its sustainable land management stakeholder analysis study convinced the World Bank to shift resources for sustainable land management (SLM) from low to high production potential areas of Ethiopian highlands and to entirely implement its SLM project in the high potential areas of Ethiopia highlands. Until recently resources for natural resource management were flowing to low potential or degraded areas of the country neglecting high potential or non-degrading areas. In Kenya, the social capital and technology adoption study outcome helped rural farmers for government to reintroduced extension services which were stopped for long time. For more examples of impacts and policy interaction, see the policy interaction section.

These are some indication that EfD centers are contributing to their respective country policy decision making and development process by doing policy relevant research.



EfD Annual meeting 2008, Beijing China

Academic capacity building

The EfD training component is designed to minimize shortage of trained environmental economics researchers in developing countries by supporting undergraduate and postgraduate studies in environmental economics and by building the capacity of local public universities through book, research grants and other supports. Linking research with academia is one of the unique features of EfD. Apart from research, research fellows are teaching and supervising a number of undergraduate and postgraduate environmental economist students. Students are getting a chance to learn evidenced based courses. In addition to teaching their university students, African EfD researchers are also assisting the African Economic Research Consortium (AERC) postgraduate economics program by teaching environmental related courses. Research fellows mainly teach environmental economics, natural resource economics, and environmental valuation courses. During 2007-2009, a number of students have attended these course and many students were supervised by research fellows at the centers. Table 11 below summarizes number of courses taught in Environmental Economics, total number of students attending these courses and thesis supervised by EfD fellows at respective center and level of education during 2007-2009.

Teaching and thesis supervision of undergraduate, MSc and PhD students

Most EfD-fellows are involved in teaching courses in environmental economics as well as the tutoring of students on their dissertations. The EfD initiative plans to continue a strong support of high quality courses in Environmental Economics at all levels. Courses need to be continuously updated with recent research results and methodologies. Complementary to this objective, the supervision of MSc and PhD students will continue to be a priority. These students are the researchers and policy makers of tomorrow. From the table below you can see that the different centers vary in their output of course level and students. In China, Kenya and South Africa, EfD fellows teach a number of courses and students in Environmental Economics already on undergraduate level. All centaers are heavily involved in teaching, supervision and course development on Msc level. Therefore EfD also offer a number of Msc thesis grants (see next section on thesis grants). China and South Africa are directly involved with the Ph.D programs in Economics at their respective institution. EfD fellows of all African centers are involved in teaching at the AERC PhD program in Economics. EfD fellows in Central America are involved in PhD supervision through LACEEP or directly linked to Universidad de Costa Rica in San José.

	Central America	China	Ethiopia	Kenya	Tanzania	South Africa
Undergrad courses	2	3	0	4	1	6
Undergrad students	31	434	0	760	20	214
Undergrad theses supervised	1	7	0	0	0	15
Msc courses	8	6	8	4	2	7
Msc Students	148	194	136	38	14	99
Msc Theses supervised	40	9	13	4	11	16
PhD Courses	0	2	0	0	1	1
PhD Student years	0	16	0	0	2	30
PhD theses supervised	2	2	0	2	5	4

Table 11. Aggregate number of courses, students and thesis supervised at respective center 2007-2009.

Master theses grants and mentoring future researchers

During the past three years, the initiative was encouraging and motivating students to study environmental economics and do environment related research by offering research grants and awards to high quality research outputs. This approach improved research quality and helped to increase number of environmental economists in countries where environmental economists are scarce. Some of the students are now becoming members of the initiative as junior research fellows and they are mentored and coached by senior research fellows to do advanced environment related research as well to pursue to next higher level education. Junior research fellows appreciate the benefit they are tapping from this system. The importance of this activity is best captured by one of its beneficiaries, Laura Villalobos, Junior Research fellow with EfD Central America (Textbox 1).

Post doctoral positions

One strategy to strengthen the EfD centers in terms of human capital is to recruit and hire Post Doctoral Researchers. The last three years has showed that this has been a very successful strategy of attracting talented young staff. In particular, this has become attractive to young researchers who have recently received a PhD abroad and that are looking for an enabling research environment where they can advance their research agenda as well as publish their thesis work. This approach may help to reduce the brain drain problem for developing countries that severely hampers the domestic academic capacity. They also provide new bright and “tooled-up” researchers to the centers. This way, there will be a solid basis for future recruitment and also a pressure from new members of the staff to expand the work program of the centers.



Student collaborations with EPRU, EfD South Africa. From Left to right: Grant Smith (Msc), Reviva Hasson (Msc and research assistant), Martine Visser (Coordinator EPRU), Feri Gwata (Msc), Adewara Sunday (PhD) Brennan Hodkinson (Hon).

Laura Villalobos, Junior Research Fellow, EfD Central America

As a junior researcher I can say that EfD Central America is not only deeply committed with first quality research addressed to cause positive impacts and changes on environmental and social policies, but also has as a priority to mentor new young professionals to face new challenges and make a change themselves. This is clearly noticeable by the trust, support, encouragement and motivation we are exposed to all the time through our learning process at the center. For me, this strong commitment is also reflected by the new opportunities they give us, not only to grow academically but also as leaders where the experience and good example of the head researches always push us to be better and to give more of ourselves. For instance, the EfD Central America center has given us the advantage of being in close contact with high-level professionals in different fields and from many different countries. This has allowed us to look very much further and to keep our minds and eyes wide open to learn about the most recent scientific topics and ongoing research. Also, we are encouraged to present and develop our new ideas and receive constructive feedbacks and guidance from all the team. In terms of capacity building, every new project we are part of, every weekly research seminar, and the training courses are very inspiring opportunities to learn and improve skills.

Since we are a small group of very committed and motivated people, a good communication between the team has always been the rule for the head researchers. Always willing and open doors to take some time to have meetings and discussions with the junior researches. It is very clear to me that this is more than employer-employee, it's a teacher-student or mentoring kind of relationship. I'm in no doubt that all junior researchers are very grateful for the opportunities and the team we have here, and I'm also sure they are proud of us as well!

From my personal experience at EfD Central America, I can say that I have learnt and grown in an unexpected way. Since I got here in 2008, I enrolled into the environmental socioeconomic masters program at CATIE, received several training courses, almost finished my first set of working papers, and presented our work for the first time in an international conference. Also, I have had the chance to improve my skills in written and spoken English language. Luckily I have made a very good network of colleagues and friends from all over the world. Now, I feel very motivated and supported by the team to start with the process to apply for a PhD abroad. For me, those are huge little steps in a very short period of time, and I'm convinced I couldn't do any better in doing what I love in any place else!

Textbox 1.



Laura Villalobos, Junior Research Fellow, EfD Central America.

EfD Communication

Environmental economists' research has the potential to make a difference. The overall objective of our research communication is increased use of environmental economics in policy making processes aimed at facilitating poverty alleviation and sustainable development. We must ensure that research results are spread within the research community and communicated to the areas of society where the findings can be used, for example within policy making and education. Communicating research to the media and the public is also significant. Influencing policy and contributing to change requires substantial efforts and communication activities, personal commitment to an ongoing, lively dialogue with policy makers, media engagement, and training at many levels. In return, research communication with policy makers and the public is often beneficial to the research process. Meeting the challenge of boiling down research findings to something brief and having to explain a problem and its possible solution in a way that makes sense to a wider audience can lead to focused thinking, improved arguments, better journal articles, and even more policy-relevant and sharpened research agendas.

EfD's research results are communicated within academia mainly through EfD discussion papers and other discussion paper series, academic meetings, workshops and conferences, and articles in scientific journals. On the EfD website, launched February 20, 2008, we continuously make all EfD output available.

Since the start of the EfD initiative, there has been a strong emphasis of the EfD centers to reach out to public planners and policy- and decision-makers and to participate with their research findings in relevant forums. Policy advice and activities to strengthen capacity are key objectives of the EfD initiative. The centers have produced policy briefs and books, organized in-service training, written commissioned reports, and organized policy workshops and seminars to encourage policy makers and development practitioners to practice research-based policy decision making on environmental management and sustainable natural resources use. The centers have continuously put publications and news on the website. Exchange of experiences of environmental policy integration between the different centers and the Sida's External Expert Advice for Environmental Economics has been important for the EfD initiative.

The EfD centers have also been heavily involved in collaborative work with United Nations Department for Economic and Social Affairs (UNDESA) regarding

policy guidance on sustainable land use and conservation agriculture, exemplified by a [UN Expert Meeting on Sustainable Agriculture in Gothenburg in April 2009](#). A UN policy brief on the contribution of sustainable agriculture and land management to sustainable development was written for the meeting by EfD researchers Dr. Menale Kassie and Dr. Precious Zikhali. It was downloaded more than 3,000 times from the UN website between its publication last May and November 2009. The same year, the EfD centers also contributed to the World Bank's Environment Strategy 2010. This input is posted on the World Bank's website together with summaries from other [World Bank Environment Strategy 2010 Consultation Meetings](#).

The policy dimension of the EfD was strengthened during 2009, for example through the [EfD/ODI policy advice workshop in Ethiopia](#), with one of the sessions devoted to how to write effective policy briefs. Another example is the session EfD Policy Interaction of the Year 2009, held at our annual meeting in 2009 in Kenya. All centers responded to our call to share their experiences from the past year by presenting the approach, achievements, and lessons learned from one particular case of policy interaction. Given the policy session at the annual meeting in 2008 in China and the policy advice workshop in early 2009, it was time for follow-up and sharing of best practice. The annual meeting is an important opportunity to discuss, improve, and set up new paths for EfD's policy interaction. The session proved to be a good way to identify key factors for success, get inspired by each other, and give recognition to important progress made by center staff. We intend to make such a session a permanent feature of future annual meetings. Articles on the policy interaction examples are found in chapter Policy Interaction, page 20-28. These and more examples are also found on website, please see the respective Center > Policy Interaction > Interactions.

EfD/RFF Discussion Paper Series

EfD researchers and the EfD Secretariat produce the EfD Discussion Paper Series in cooperation with Resources for the Future (RFF) in Washington DC, the world's leading environmental economics research organization. The aim of the discussion paper series is to make research available, improve the readability of the papers, and facilitate publication in international scientific journals, particularly for researchers working in the relatively weak research settings in developing countries. It was in order to improve the visibility of the centers' research output further that we in 2007 agreed with RFF that the research papers from the centers were to be published by

RFF in a joint discussion paper series. This also enables us to draw on RFF's resources for copy editing, which helps polish the language in the papers for our researchers who are not native English speakers.

The first EfD/RFF discussion paper was published in March 2008. An editor at the EfD Secretariat is responsible for the selection and reviewing of discussion papers. This editor receives the papers from the authors, and after a first check, they are sent over to RFF, who has contracted an external copy editor for language correction and proofreading. The papers are then sent back and forth between the researchers, RFF, and the EfD secretariat, before they are finally formatted and published on the EfD and RFF websites.

EfD/RFF Book Series

The EfD/RFF book series is produced by EfD researchers in collaboration with Resources for the Future Press. The intention with the book series is to facilitate the dialogue between researchers and policymakers, as well as inspire researchers to go further in their investigations and build an even stronger basis for good policies. EfD/RFF books focus on research and applications in environmental and natural resource economics as are relevant to poverty reduction and environmental problems in developing countries.

The first EfD/RFF book, titled *The Emergence of Land Markets in Africa* and edited by Stein T. Holden, Keijiro Otsuka, and Frank M. Place, was published by RFF Press in 2008. A new book, *Land Reforms in Asia and Africa – Impacts on Poverty and Natural Resource Management*, is planned for 2012. Editors are Professors Stein Holden and Keijiro Otsuka. All books are advertised on the RFF and EfD websites. They are also made available at workshops etc., and information about them is sent to selected target groups and individuals.

Policy Briefs as a Communication Tool

Policy briefs are one of the most effective tools that can be used for communicating research to policymakers, according to the Overseas Development Institute (ODI), one of UK's leading think tanks on international development issues. ODI defines policy briefs as short documents that present the findings and the recommendations of a research project to non-specialist readers.

EfD members write policy briefs in order to reach policy makers with reader-friendly and easily accessible information about research findings, implications, and recommendations. Use of policy briefs is one way to promote dialogue between EfD researchers and policy makers and to enhance the use of research-based environ-

mental economics knowledge in policy making processes. Reader-friendly texts from policy briefs can also serve other purposes by being re-used in for example news items on the website, press releases, etc.

We decided in 2008 to develop a template for EfD policy briefs. The first draft was presented by the EfD/EEU communications officer at the coordination committee meeting in June 2008, in connection with the EAERE conference. The template has since then been developed to suit the centers' needs and to make the content more accessible to readers. At the research/policy-interaction session at the EfD annual meeting in China in 2008, we provided guidance on how to grasp the key messages of research findings and how to write effective policy briefs. All centers have received our EfD guidelines for writing and formatting EfD policy briefs, as well as center-specific templates including host institutions' logotypes. A session of the policy advice workshop in Ethiopia in the beginning of 2009 was devoted to the subject of how to write effective policy briefs. Participants worked collectively with a brief, used the writing guidelines "checklist," discussed suggested changes, and shared their thoughts with the author.

It is clear from all the policy interaction examples sent by the centers for last year's annual meeting that EfD researchers' knowledge and advice is in high demand by decision makers. It is equally clear from all the meetings and workshops they are involved in that EfD researchers put substantial effort into this work. Face-to-face dialogue with policy makers from the beginning of a research project is often fruitful. However, at one point or another it is also important to have something in writing to put in their hands. Our EfD policy briefs serve this purpose.

To make the policy briefs even better, we decided at the coordination committee meeting held in connection with the annual meeting 2009 in Kenya that copy editing should be added during 2010. A pilot example of a copy-edited EfD policy brief was presented to all researchers attending the most recent annual meeting. The pilot example had been developed following the annual meeting in 2008, together with Juan Robalino, research fellow at the Costa Rican EfD center and Barbara Kiser, staff writer at IIED, International Institute for Environment and Development. What makes a good text for policy makers is not the same as what makes a good academic text. We wanted to test what a difference copy editing can make to policy briefs. The copy editing of the pilot brief clearly showed this, or as the author, Juan Robalino, put it

"To tell you the truth, it was kind of hard for me to let her

make changes even though I think they work out well for a policy brief. It is hard to get away from the researcher's mode and say things without caveats and without describing the methodology and letting the reader judge themselves. Having said that, I am very happy about how the brief turned out." Robalino's pilot policy brief, *Mapping Success in Protecting Forests*, can be found on the website together with other EfD policy briefs from different centers.

Website – EfD's window to the world

We continuously make all EfD output available on the EfD website (www.efdinitiative.org), which was launched on February 20, 2008. The number of visitors to our website is steadily increasing. The graph above shows the changes by week from the launch date to the end of February 2010. Over the whole period, the number of visits was nearly 61,000 (60,726) from 196 countries. The top-ten countries in terms of visitor origin were United States, Sweden, Ethiopia, United Kingdom, South Africa, Kenya, Costa Rica, India, Germany, and Canada. The number of unique visitors was nearly 40,000 (39,963). On average, people spent 3 1/2 minutes on the site. An average of 4 pages were presented per visit. The weekly record for number of weekly visits was set recently: From February 21 to February 27, 2010, the site had 1,395 visits. During the one-week period from November 29 to December 5, 2009, the site had almost as many visits: 1,350.

The statistics from Google Analytics indicate that we have a website that provides interesting and valuable information. Equally important, the statistics indicate that the content is highly ranked by search engines. This is important for making EfD work and researchers visible. Admittedly, it takes some time to receive a high rank when you launch a new website. While a search for the names of EfD coordinators gives EfD hits a top ranking today (in 2010), this was not the case 1 1/2 years ago. Thanks to the website structure, search engines like Google are indexing a large number of pages from our site. A publication often belongs to several

centers or website sections, and therefore appears not only in one place but under several different headings. This is how our publications get the most exposure on the EfD website and hopefully are read by the highest possible number of people. At the annual meeting in 2008, we started presenting website visitor statistics to all EfD members, as well as the tool used, called Google Analytics, which is accessible for all centers. Center dissemination officers have been given an introduction and have their own accounts.

The EfD website contributes to our communication objectives in several ways. A website is truly a fundamental asset and has great potential for the aim of exposing EfD research worldwide. The site shapes identity and provides visibility. It serves as a window by showing the initiative, presenting researchers and their publications of different kinds, and connecting researchers' policy work, outreach activities, and teaching to the different target groups of the EfD initiative. The website also provides a resources section for environmental economists. This section comprises an alumni site and provides information on conferences, jobs, and training opportunities. As a place on the web for information and contacts, the website also promotes networking. In all these ways, the website facilitates utilization of the environmental economics capacity continuously built by EfD members in different countries.

The EfD Newsletter is a tool for spreading the word about EfD's work to researchers, policy makers, civil servants, students, and others. At the same time, it is a tool to increase the number of visitors to the website. The newsletter collects, largely automatically, information from the website and presents our latest publications and news. Anyone can register as a subscriber via the website. At the beginning of 2010, the EfD Newsletter had around 1,300 subscribers. We began regularly producing and sending an EfD newsletter/update to all EfD members in the fall of 2008. The purpose was to provide members with an update on new research material and the events going on at the different centers. This first



The graph shows the change of weekly website visits from the day the website launched, February 20, 2008 to February 27, 2010. Source: Google Analytics

version of the newsletter was based on new website contents and was created manually by copy-pasting. In February 2009, we integrated the newsletter/update and the website. The result is our current newsletter.

The new web section called Resources was published in the beginning of 2009. It includes and makes visible different organizations' conferences, workshops, summer schools, and job openings, and also includes funding links and an alumni section, where alumni who have taken specialization courses or completed their PhD in environmental economics at the Environmental Economics Unit (EEU), University of Gothenburg, can be visible with contact information. New alumni will continuously be included. We encourage centers to include their respective alumni on the site. The heading Resources replaced the heading Policy Making in the main menu. The policy content is now found elsewhere within the website. The purpose of the new section Resources is to provide improved service to web visitors, and hence attract more visitors to the site.

The site is currently divided into these six sections: EfD initiative, Centers, Themes, Research, Resources, and News & Press. In the Centers section, each center can present itself under different headings in a second navigation. This works like "sites in the site." We have strived to offer multiple entry points and ways to navigate and filter content. (For instance, depending on the visitor's specific interest, Publications and Projects can be filtered out by Themes or by Centers using a Filter Content box on the site. EfD-website specific keywords on the site are used to make it possible to easily find other site publications on the same topic.) Additionally, there is an RSS service for getting continuous information about newly posted material. The start page contains the EfD logotype, developed in 2007, an introduction to what the EfD initiative stands for, and brief descriptions of the three pillars – research, policy advice, and teaching. The most recent publications are listed here, along with the most recent news items and calendar events. The top images change with section, center, and theme. The website is heavy on text, so the photos at the top are there to make a contrast. They have more of an emotional appeal and thereby catch the eye and, hopefully, bring the visitor's attention to the scientific articles. The photos at the top are black-and-white to keep them from being too heavy, and because it's part of the chosen design. The tagline is there to give a key message.

We are continuously trying to capture ideas, needs, and wishes of the centers regarding the website and regarding communication in general. In dialogue with the centers, we have made functional adjustments to suit the needs. One example is the researchers' individual

pages, where the possibility to upload material has been improved to meet demands expressed by the researchers.

The launching of the website required preparations. Some still-missing content was entered. We also compiled a list of EfD website-specific keywords for articles included on the EfD website. Before launching, we received feedback from RFF and others, and made both content adjustments and functional adjustments. We collected contact lists from the centers in order to coordinate the information dissemination activities for the launching. The Sida Helpdesk for Environmental Economics also provided a useful contact list.

The EfD Website was launched on February 20, 2008, thanks to great efforts made by many persons at all EfD centers and the EEU, the web agency Spiro Kommunikation AB, the proofreader Debbie Axlid, and Resources for the Future (RFF), who assisted us with highly appreciated feedback. We sent an email with information about the initiative and its new website to recipients within the environment and development research community and within Sida. Press releases were sent to relevant Swedish media. News items were posted on the websites of the EEU, the School of Business, Economics and Law, and the University of Gothenburg. We provided material for and encouraged all EfD Centers, as well as Sida's Information Department, to post news items including links to www.efdinitiative.org on their respective host institutions' websites.

The website was first introduced to EfD members at the 2007 annual meeting in South Africa. An overview of the site, its structure, and its purpose was presented. Although most centers in the end will have dissemination officers helping out, the researchers still need a very good understanding of how the website works and of its potential in order to create the right content. A website training session on the content management system was therefore held and attended by researchers from all centers.

The work on creating an EfD Website was initiated just before the summer of 2007. A number of international websites on environment and development issues were studied. The structure and content for an EfD site were thoroughly discussed and a draft structure was created and sent to all coordinators for comments. Our aim was to create a website that would work like a window for presenting the research, the researchers, the policy advice, and the teaching carried out by the centers. For this purpose, the EfD website needed its own identity in terms of graphical design and internet domain. In addition, it was crucial for the centers to be able to publish and update their own material. Consequently, the publishing tool and website domain of the School of

Business, Economics and Law, University of Gothenburg was not an option. Instead, we made inquiries to three web agencies, all using different systems. Spiro Kommunikation AB was chosen as the consultant. The EfD website is built with an open source-based content management system called Plone and an application server called Zope. Many of the publications now included on the site were sent to the EEU from the different centers, and we entered them before the EfD annual meeting in November. This was necessary in order to get started and to give all EfD members an idea of how the website and its database work. We developed step-by-step instructions on how to use the content management system, tutorials, and an introduction to the site and its structure. After the annual meeting, we entered the contents into all sections of the website in order to get it ready for launching. Functional adjustments were made as well.

Sustainable organization and communications support

To be successful in outreach and communications, and to promote local ownership of the EfD initiative, it is crucial to create a sustainable organization. Therefore, the importance of having an appointed dissemination officer at each center to support researchers has been emphasized from the start.

To ensure, for instance, that the website will be used and appreciated by external visitors and EfD members, it has to be maintained, updated, and developed continuously. This includes the respective section for each center. The responsibility of managing a center's website section includes, for example, writing and publishing texts of importance for outreach such as news items, calendar events, and informative texts on the center, publishing researchers' publications and projects, as well as supporting researchers with updating their individual web pages, creating new staff pages when needed, and developing and maintaining all web content. Formatting of EfD policy briefs is a task for center dissemination officers (while the formatting of EfD discussion papers is included in the work of RFF). A center dissemination officer should also write press releases, keep press-related mailing lists updated, make contacts with journalists, and support researchers in connection with their media contacts. Coordination of other dissemination and outreach activities can also be included, i.e., support for the preparation of activity reports of the center, coordination of the centre's production and dissemination of discussion papers and policy briefs, support for preparation of workshops, seminars, etc. For these needs and reasons, we have from the start encouraged

coordinators to recruit a dissemination officer where one has been missing. We have provided description of tasks and responsibilities of a dissemination/communications officer, including an ideal profile and background, which can be used when recruiting new staff. In May 2009, the result was that a designated dissemination officer was in place at all centers. This meant, of course, a more robust organization and a strengthening of the communications function, capacity, and activity at each center. Right now, the position is vacant in Ethiopia and the web publishing is maintained by a researcher.

In addition to their explicit responsibility for dissemination and communication, the center dissemination officers have other tasks as well; they work with various administrative tasks, most of them are doing research, and one is a master student. Since they all have these completely different tasks running alongside communications, and since they do not have any communications background, it is especially important to provide them with support and training to strengthen their position as responsible for communications. Hence, the EfD/EEU communications officer is continuously supporting and advising the center dissemination officers in web publishing and communication matters. This is mainly done by email correspondence. For instance, the dissemination officers get an introduction to the website publishing tool (content management system) through a presentation sent to them by email. The day-to-day management of the website is facilitated thorough step-by-step instructions collected in a website manual, which is continuously updated and dispersed. We solve many different issues involving communication matters via e-mail correspondence. In May 2009, the EfD/EEU communications officer was able to finally meet in person with the dissemination officers at all the African Centers and give some support. This was also a first step to meeting the demand of training of dissemination officers put forth by coordinators at the coordination committee meeting in connection with the annual meeting in 2009 in China. Support and training was provided to the dissemination officers in Ethiopia, Kenya, Tanzania and South Africa on: 1) using the web publishing tool, 2) using Google analytics to follow statistics about the visitors to the website and in particular to the center section of the site, 3) writing reader-friendly texts for presenting research to a broader audience in news articles and press releases, 4) making contacts with journalists, and 5) formatting policy briefs. During the visits, the dissemination officers also produced several examples of reader-friendly material, and included several academic publications on the website.

Regarding the website, each center has its own site in the site, and is hence promoted both individually and as a part of the whole. Thanks to ongoing communication among all center dissemination officers, researchers and the EfD/EEU communications officer, its functions are continuously tested, evaluated, and improved. For these reasons, it has been an asset to consult with a web agency that is skilled, professional and reliable.

To facilitate internal communication between EfD members, we have, in addition to annual meetings, emailing, and internal pages on the website, also used a wiki, a piece of server software that allows users to freely create and edit web page content using any web browser. It was published in the beginning of 2009 to enable easy sharing of internal documents among EfD members. We have also acquired the tool Telia Tele Meeting and used it for coordination committee meetings via phone.

Printed matters

The EfD logotype was developed in connection with the creation of the website. A two-page information flyer about the EfD initiative was produced in 2007, and posted on EEU and EfD websites. For the EAERE conference in 2008, we produced a roll-up on EfD. A two-page flyer on the Forest initiative for Climate and Livelihood initiative, which involves several EfD members, was also produced during 2008.

EfD News items

A total of 120 news items were produced and published on the EfD website between the launch on February 20, 2008, and December 31, 2009. All news items are available at www.efdinitiative.org/news-press/news

EfD in media

A number of 52 items covering EfD were published on the EfD website between the launch on February 20, 2008, and December 31, 2009. Newspaper articles, opinion articles, and other news media items about and by EfD researchers are available at www.efdinitiative.org/newspress/efd-in-media. During the same period 10 press releases have been published on the site.



In May 2009, Wairimu Mwangi introduced Maurice Ogada to his new position as dissemination officer of EfD Kenya

EfD program support

The EfD secretariat at The Environmental Economics Unit, Gothenburg University has been the administrative hub of the EfD centers. The secretariat serves the EfD centers with research and core support administration, central dissemination functions and as a networking support to help share experiences between the EfD centers and other relevant actors. That the secretariat is hosted at EEU has a number of historical and practical reasons. The most important reason for the location is the synergies that it enables with the capacity building (PhD) program and expert function. Having these three components located together enable cost efficient training of PhD candidates from the centers that carry out research as part of their studies and in collaboration with their supervisors and their home institutions. It links up the EfD centers to the international arena through the expert function, and the expert function can also draw on the centers for their advice to Sida. The more fundamental reason for the location is therefore the unique critical mass of environmental economists working on development issues at EEU. Without such a critical mass it wouldn't be possible to give the specialized PhD program and provide the expert advice to Sida. The fact that many of the Research Fellows at the EfD centers have earned their PhD at EEU provides the social capital that enables smooth functioning of the program. Finally, an important function of the EfD program is to link up the EfD centers to international research collaborations. EEU, being a leading international research center in environmental economics, is uniquely qualified to do that.

Organisation

Coordination committee

A coordination committee is in place to oversee the overall planning and organization of the EfD initiative. It consists of the coordinators from all six centers, the EfD Director and the Chair of the Research Review Committee. The coordination committee convenes twice a year, during the EfD Annual meeting and the European or World EE Congress. This is an important forum for sharing of experiences and identification of synergies between the centers and components. It is also an important forum to identify the relevant balance between the actors and components in the program. Plans and budgets have been reviewed and agreed upon in the coordination committee.

In particular, the Coordination Committee has been reviewing the respective roles and responsibilities of the centers and EEU on an annual basis, with the view on achieving long term sustainability of the centers.

The Coordination Committee thus has taken on a pivotal role in the project, balancing the interests of six independent centers, on the one hand, and controlling the executive powers of the secretariat, on the other.



Coordination committee meeting during the EfD Annual meeting in China 2008. Around the table starting from left: Martine Visser, Gunnar Köhlin, Thomas Sterner, Jintao Xu, Razack B Lonkina, Juan Robalino, Alemu Mekonnen, Menale Kassie, Wilfred Nyan-gena, Edwin Muchapondwa, Karin Jonson.

EfD Secretariat (EEU)

The day-to-day management of the program and the support of the EfD centers is handled by a secretariat that consists of a Program director (50%), a Research officer (100%), a Program officer (70%), a Communications officer (50%) and a financial controller (50%).

The program director is responsible for overall planning, coordination and reporting of the program. The research officer is responsible for screening and management of research projects. The program officer is responsible for contracts, reporting, workshop logistics, as well as for day to day administration. The dissemination officer is responsible for communication and networking activities for the program at EEU as well as for supporting the centers in developing their own communication activities. The program assistant has been responsible for managing joint data-sets and give overall support to the EfD Secretariat. The representative from Sida's EE expert function is responsible for supporting the centers in their policy interaction processes and to find synergies with the EE expert function workplan. The financial administration is responsible for financial reports and is integrated with the Department of Economics administration.

Administration of contracts and payments

During the first EfD phase, types of agreements in force between the EEU and each EfD center: 3-year umbrella agreement, Annual work plan agreements and research agreements. All institutional agreements entail clauses that require annual activity- and financial reports of Sida-supported activities, as well as clauses on separate bank account and audit requirements. In addition to agreements between EEU and the EfD centers, EEU has entered into agreements with a number of organisations for EfD support functions. In cases when agreements have been renewed or additional partners have been contracted, these agreements have also followed Sida's requirements and EEU's routines for project management.

The work plan payments have during the first current contract period been made in advance, the research plan payments are made retroactively, upon deliverables. Also reimbursable costs from the Working capital have been paid out twice a year retroactively, against listed costs and activities.

Reporting and indicators of " success"

There is a common opinion among the coordinators at the centers that too much time is being consumed on reporting and the most complaints come from requests for intermediate reporting between the established reporting periods. We have therefore continuously been updating the reporting system to ensure close adherence to the identified indicators of success.

An in-depth dialogue was initiated with the centers already from the start to identify a system of indicators for project progress and success. In the EfD Annual reports, compilations have been made on a number of chosen indicators "*EfD in numbers from 2007, 2008, 2009*". There have also been suggestions of a number of additional indicators that can be used to follow up and evaluate the program. In discussions with coordinators and research fellows, it has become clear that indicators of success are important. However, since all centers have different strengths and weaknesses, and also varied pre-conditions, it is not clear that centers should be measured against the same indicators or against each other. Still, concerted efforts to identify and use a small and relevant number of success indicators has been made. Recommendations on preferred indicators from both internal and external evaluations of the EfD program has continuously been discussed and integrated in future strategy documents.

Appendix 1: LFA 2007-2009

	Intervention logic	Objectively measurable and verifiable indicators	Sources of verifications	Important assumptions
Development objectives/Goal	Increased use by Governments of national analytical capacity in policy making processes related to poverty alleviation and environmental sustainability	Participation of EfD centers in the policy making process. Environmental analyses enter policy making process.	Study of the use of environmental analyses in policy making process. Annual reports from EfD centers.	There is willingness by the Governments to interact with centers and make use of analytical work in policy processes.
Project objective/Purpose	Develop institutions, knowledge and interface between academic and policy-making bodies to improve sustainable poverty alleviation in planning and policy formulation.	EfD centers are successfully implemented in six countries with an institutional framework that enables them to effectively support national planning and policy formulation processes	Annual reports from each EfD center and program progress report.	“Host” institutions which facilitate smooth and effective development of EfD centers. Governments and policy makers recognize the added value of the EfD centers.
Results/Outputs	<ul style="list-style-type: none"> Six sustainable centers with the appropriate institutional framework in place by 2009. Each center has successfully put in operation the three main activities; training, research and policy advice, for improved policy formulation. 	<p>Centers are physically in place with staff, operating budget and on-going activities.</p> <p>Training, research and policy advice conducted by each center in all six countries and local indicators have been achieved.</p>	<p>Project staff from EEU visiting all sites, conducting review meetings and submitting progress reports (who, when, how?)</p> <p>Plan of operation and annual progress reports from each center.</p>	<p>Resources are available locally to establish the EfD centers.</p> <p>The development objective of the EfD initiative is embraced by all EfD centers and their host institutions.</p> <p>The poverty and environmental resource management continues be on the policy agenda in the selected countries.</p> <p>The political framework</p>

	Intervention logic	Objectively measurable and verifiable indicators	Sources of verifications	Important assumptions
	<ul style="list-style-type: none"> Each center is recognized as an important player and advisor in planning and policy formulation regarding poverty alleviation and environmentally sustainable development 	The EfD centers are called upon on a regular basis to provide policy analysis and advice in strategic policy processes	EEU staff meets regularly with stakeholders in each country to assess the effectiveness and impact on each center.	continues to be favorable for institutional establishments and credibility of academic advice continues to be in demand.
Activities	<p>Core support for institutional development and capacity building from EEU to establish the EfD centers.</p> <p>Support academic training by development of programs, provision of materials.</p> <p>Integration of key environmental aspects into strategic policy processes.</p> <p>Collaborative research and thematic policy analysis through training sessions, workshops, int'l research and thematic projects.</p> <p>Networking support by EEU to help share experiences between the EfD centers and other relevant actors.</p>	<p>Strategic plans with goals and action plans; secretariat; office infrastructure, research facilities.</p> <p>Number of programs, courses, students, theses.</p> <p>Actual environmental mainstreaming in key policy processes</p> <p>Thematic studies completed and published; Workshops, trainings and dissemination activities attended.</p> <p>International interactions, visitors, conference, attendance, diversified funding and research collaborations.</p>	<p>Quarterly and annual progress reports; visits; audits.</p> <p>Academic report; grades; publications; competitiveness.</p> <p>Stocktaking of key policy processes and demand for support in policy processes.</p> <p>Reports from the thematic studies. Impact on academic graduate programs and support to graduate thesis work.</p> <p>Annual and quarterly activity and financial reports (diverse?); Publications; Participation in international meetings and processes.</p>	<p>Local host able to supply the needed infrastructure.</p> <p>University program facilitating support to academic programs.</p> <p>Interest and capacity in agencies to make use of analytical work and advice.</p> <p>Sufficient academic capacity, collaborators and resources to carry out research.</p> <p>Interest among other actors to utilize the centers in policy processes, research collaborations etc.</p>

	Intervention logic	Objectively measurable and verifiable indicators	Sources of verifications	Important assumptions
Risk assessment	<p>The EfD project is designed to address the failure to make use of local analytical capacity for planning and formulation of policies for poverty alleviation and environmentally sustainable development. Initially the EfD centers will rely on external funding. As the EfD centers develop and become more known and used, they will gradually diversify their sources of funding. In order to be successful in achieving sustainability the centers need to be aware of the risks involved and take appropriate precautions:</p> <ul style="list-style-type: none"> • Keep cost levels low – in order to ensure sustainability in research with variable research funding facilities at hand, cost levels need to be kept low, hedging of funds allowed, and alternative incomes (for example from teaching) encouraged. • Revolving leadership – research centers have a tendency to rely on one individual for its development and maintenance. To ensure a broader ownership and less vulnerability to disruption from loss of such leading individuals, a system of revolving leadership should be institutionalized. • Diversify funding - the centers should strive to achieve diverse funding given the volatility of international funding. • Strategic focus and organic growth – built in stabilizers, such as incentives, should be used to give all members of the center clear signals as to when to hold back and when to actively look for new opportunities. • Independence – in order to reach policy impact the centers might need to strive for a closer association with implementing bodies. If this is done, then it is important to safeguard independence and ownership, in order to ensure survival and sustained provision of advice also after a change in government. This could otherwise turn out to be a killing factor for the center. • Integrity and anti-corruption awareness – corruption or that funds and positions are allocated with varying degrees of nepotism could endanger the quality, efficiency and integrity of the center. To secure a more fundamental understanding of this position on corruption, Sida's Anti-corruption Regulation will be disseminated to everyone with management responsibilities in the centers. Anti-corruption clauses will also be part of all formal negotiations and agreements. <p>Sustainability - the sustainability of the EfD centers and the network they form will depend on the quality of the research that emanates from its activities. The current trend that research grants become fewer and larger necessitate consortia of international partners. The EfD program is expected increase the involvement by researchers from developing countries in such international research projects. It is also expected that the core support could be increasingly focused on locally chosen research as the EfD centers evolve.</p>			

Appendix 2: EfD research projects and output per center 2007-2009

PR (Peer Reviewed)
DP (Discussion Paper)

* Indicates research outputs produced using EfD research funding

EfD Central America

Ongoing research projects

Project, Project start year

- 1 Social Norms and hypothetical bias in donations to national parks, 2007
- 2 Small farmers determinants of private adaptation strategies to climate change, 2007
- 3 What affect voluntary contributions to national parks? A field study in Cahuita National Park, 2007
- 4 Exploring the patterns of corruption in the Costa Rican forestry sector, 2007
- 5 Decentralization in water resource management: Exploring the determinants of success, 2007
- 6 Evaluating Land Conservation Policies in Developing Countries, 2008
- 7 Incidence of Fuel Taxes in Central America and the Caribbean, 2008
- 8 Adoption of Sustainable Management Practices by Costa Rican Coffee Growers, 2008
- 9 Reforming Transportation Price and Tax Policies in San José, Costa Rica, 2008
- 10 Voluntary Environmental Regulation in Central America: Costa Rica's Blue Flag Beach Certification Program, 2008
- 11 Motives and Effectiveness of Private Participation in a National PSA Program: Lessons from Costa Rica, 2008
- 12 Valuing the Attributes of Eco-labelled 'Blue Flag' Beaches: A Costa Rican Case Study, 2009

Research output

- 1 *Anonymity, Reciprocity, and Conformity: Evidence from Voluntary Contributions to a National Park in Costa Rica*, Alpizar, F., F. Carlsson, O. Johansson-Stenman, PR, 2008*
- 2 *Does context matter more for hypothetical than for actual contributions? Evidence from a natural field experiment*, Alpizar, F., F. Carlsson, O. Johansson-Stenman, PR, 2008*
- 3 *Land Cover Change in Mixed Agroforestry: Shade Coffee in El Salvador*, Blackman, A., B. Ávalos-Sartorio, J. Chow, DP, 2008*
- 4 *Deforestation Impacts of Environmental Services Payments – Costa Rica's PSA Program 2000–2005*, J.Robalino, A. Pfaff, G. A. Sánchez-Azofeifa, F. Alpizar, C. León, C.Manuel Rodríguez, DP, 2008*
- 5 *Location Affects Protection: Observable Characteristics Drive Impacts in Costa Rica*, A.Pfaff, J.Robalino, A.Sanchez, K.Andam, P.Ferraro, PR, 2008*
- 6 *Clean Technological Change in Developing Country Industrial Clusters: Mexican Leather Tanneries*, A. Blackman and A. Kildegaard. PR, 2008*
- 7 *Does Disclosure Reduce Pollution? Evidence from India's Green Rating Project*, N.Powers, A.Blackman, T. P. Lyon, and U.Narain, DP, 2008*
- 8 *Agroforestry Price Supports as a Conservation Tool: Mexican Shade Coffee*, B. Ávalos-Sartorio and A Blackman, DP, 2008*
- 9 *Land Cover Change in Mixed Agroforestry Shade Coffee in El Salvador*, A.Blackman, B. Ávalos-Sartorio, J.Chow, DP,2008*
- 10 *User Financing in a National Payments for Environmental Services Program: Costa Rican Hydropower*, A- Blackman and R.T. Woodward, DP, 2009*
- 11 *Park Location Affects Forest Protection: Land Characteristics Cause Differences in Park Impacts across Costa Rica*, A.Pfaff, J.Robalino, G. Arturo Sanchez-Azofeifa, K, Andam and P, Ferraro, PR, 2009*
- 12 *The Effect of Risk, Ambiguity, and Coordination on Farmers' Adaptation to Climate Change: A Framed Field Experiment*, F. Alpizar, F.Carlsson, and M. Naranjo, DP, 2009*
- 13 *Alternative Pollution Control Policies in Developing Countries: Informal, Informational, and Voluntary*, A. Blackam, DP, 2009*
- 14 *Conservation Policies and Labor Markets: Unraveling the Effects of National Parks on Local Wages in Costa Rica*, J. Robalino and L. Villalobos-Fiatt DP, 2009*
- 15 *Determinants of performance of drinking water community organizations: A comparative case studies analysis in rural Costa Rica*, R.Madrigal; F.Alpizar; A.Schlüter, DP,2009*
- 16 *Fuel tax incidence in developing countries: the case of Costa Rica*, A.. Blackman, R. Osakwe, F. Alpizar, DP, 2009*
- 17 *REDD Roads Rising? examining spatial variation in causal impacts of infrastructure on deforestation*, A. Pfaff, J.Robalino, DP, 2009*
- 18 *Don't tell me what to do, tell me who to follow! Natural field experimental evidence*, F. Alpizar, P. Martinsson, DP, 2009*
- 19 *Evaluating the Impacts of Protected Areas on Deforestation in the Brazilian Amazon :The implications for REDD of multiple past strategies*, A., Pfaff, J. Robalino, L..D., Herrera,DP, 2009*
- 20 *Spatial interaction in the adoption of soil conservation practices by Cost Rican coffee growers*, A.Blackman, J.Robalino, DP, 2009*

- 21 *What Drives Participation in State Voluntary Cleanup Programs? Evidence from Oregon*, A.Blackman, S. Darley, T.Lyon, and K. Wernstedt, PR, 2009*
- 22 *Voluntary Environmental Agreements in Developing Countries: The Colombia Experience*, A. Blackman, E. Uribe, and B. van Hoof and T.Lyon, DP, 2009*
- 23 *Environmental Policy Innovations in Developing Countries*. A. Blackman, Book Chapter, 2009*
- 24 *Costa Rica's Payment for Environmental Services Program: Intention, Implementation and impact*, Sanchez, A., A. Pfaff, J. Robalino, J. Boomhower, PR, 2007
- 25 *Land Conservation Policies and Income Distribution: Who Bears the Burden of our Environmental Efforts*, Robalino, J., PR, 2007
- 26 *Road Investment, Spatial Intensification and Deforestation in the Brazilian Amazon*,A., Pfaff, Robalino, J, Walker, R., Aldrich, S, Caldas, M, Reis, E., Perz, S., Bohrer, C. PR, 2007
- 27 *Payments for Ecological Services: Measurements with Impacts*, Alpizar, F., A. Blackman, A. Pfaff, PR2007
- 28 *Estimating Spatial Interactions in Deforestation Decisions*, Robalino, J., A. Pfaff, and A. Sánchez, Book chapter, 2007
- 29 *Integrated approach towards payment for forest ecosystem services schemes*, Campos,J., F., Alpizar, R., Madrigal, B., Louman, PR, 2007
- 30 *Double Dipping in Pollution Markets*,R., Woodward and M., Han, PR, 2007
- 31 *Meta-Functional Benefit Transfer for Wetland Valuation: Making the Most of Small Samples*, Moeltner, K, Woodward. R., PR, 2007
- 32 *Contiguous Development: Neighbors' Interactions in Deforestation*, Robalino, J., and A.Pfaff, PR,2007
- 33 *Human Choices Affect Conservation Impact*, A.Pfaff, and Robalino, J, Book chapter, 2007
- 34 *Existen posibilidades de cooperar?: Los experimentos económicos como herramienta de diagnóstico de campo rural*, Madrigal, R; Alpizar, F. ,PR, 2007
- 35 *Bienes y servicios ecosistémicos en AméricaLatina y el Caribe: buenas prácticas, mecanismos de financiamiento y rol del Estado*".Alpizar, F; Madrigal, R. Book chapter, 2007
- 36 *Payments for ecosystem services: a methodological approach*, R., Madrigal, DP, 2007
- 37 *Adaptative design and management of a payment for ecosystem services scheme in Copan Ruinas, Honduras* Madrigal, R., F. Alpizar, Book chapter, 2008
- 38 *Environmental Policy, Fuel Prices, and the Switch to Natural Gas in Santiago, Chile*, Coria, J., DP, 2008
- 39 *Taxes, Permits, and the Diffusions of a new Technology*, Coria, J., DP,2008
- 40 *Tradable Permits in Developing Countries Evidence from Air Pollution in Santiago, Chile*, Coria, J., Sterner, T. ,DP, 2008
- 41 *Unintended Impacts of Multiple Instruments on Technology Adoption*, Coria, J. , DP, 2009
- 42 *Taxes Permits, and the Adoption of Abatement Technology under Imperfect Compliance*, J., Coria; Á.,Lofgren, T.,Sterner, DP, 2009
- 43 *To Trade or Not to Trade: Firm-Level Analysis of Emission Trade in Santiago de Chile*, J. Coria, Á. Lofgren,T. Sterner DP, 2009
- 44 *Experiencias practicas de mecanismos de compensación por los servicios hídricos provenientes del bosque en Centro América y El Caribe*, Boscolo, M; Eckelmann, C; Madrigal, R; Mendez, B; Paveri, M; Zapata, J., DP, 2009
- 45 *Estimación de la demanda por servicios ambientales hídricos en Copán Ruinas, Honduras* Cisneros, J; Alpizar, F; Madrigal, R., PR, 2008
- 46 *Existen posibilidades de cooperar?: Los experimentos económicos como herramienta de diagnóstico de campo rural*, Madrigal, R; Alpizar, F., PR, 2007
- 47 *Bienes y servicios ecosistémicos en América Latina y el Caribe: buenas prácticas, mecanismos de financiamiento y rol del Estado*".Alpizar, F; Madrigal, R., Book Chapter, 2007

EfD China

Research projects funded by EfD and other sources

Project, Project start year

- 1 Sustainable forest management in Northeast China: An empirical analysis, 2008*
- 2 Building a Forest Sector Model for China: Analysis of Domestic and International Impact of Forest Policy Change, 2009*
- 3 Fuel Tax Reform in China: Potential Impacts, Tax Incidence and Policy Implications for vehicle Emission Control and Climate Change, 2009*
- 4 Tenure Reform of Collective-owned Forest, 2007
- 5 Research on Voluntary Forestry Carbon Market Establishment in the Chinese Context, 2009
- 6 Performance and Evaluation Research on Forest Product Processing Enterprises, 2009
- 7 Pre-policy Survey of Plastic Bag Project in China, 2009
- 8 Rural Energy, Environment, and Climate Change, 2009
- 9 Policies and Strategies for Achieving Beijing's Air Quality Targets, 2009
- 10 Cost-Effectiveness Analysis of Near Ground Ozone Control in Beijing and Surrounding Areas, 2009
- 11 Economic Analysis of Mercury emission Control for China's Coal Fired Electricity Plants, 2009

Research output

- 1 *Effective Pollution Control Policy for China*, J. Xu, DP, 2007
- 2 *Are the poor benefiting from China's land conservation program?* Uchida, E., J. Xu, Z. Xu and S. Rozelle, PR, 2007
- 3 *Analysis of the Factors Influencing Urban Residential Water Demand*, Chen, Xiaoguang, J. Xu and Yongjie Ji, PR, 2007
- 4 *The Analysis of Sloping Land Conversion Program's Economic Sustainability and Follow Up Policy* Chen, Ke, Xiaojun Yang and J. Xu, PR, 2007
- 5 *Don't let Econ-Compensation Scheme be Reason for Land Expropriation*, Xu, J., Xuemei Jiang and Fujin Yi, PR, 2007
- 6 *Trend and Influential Factors of State owned Forest Resource*, Jiang, Xuemei, and J. Xu, PR, 2007
- 7 *Incomplete Property Rights, Exposure to Markets and the Provision of Ecosystem Services in China* Bennett, M., A. Mehta, and J. Xu., DP, 2008
- 8 *Household Income Growth, Diversification and the Implicit Costs of Reform: The Case of China's State Forestry Sector*, Bennett, M., X. Jiang, and J. Xu., DP 2008
- 9 *Co-benefits of Greenhouse Gas Mitigation Policies in China: An Integrated Top-Down and Bottom-Up Modeling Analysis*, Jing Cao, Mun S. Ho, and Dale W. Jorgenson, DP, 2008
- 10 *Economic Growth and the Natural Environment: The Example of China and Its Forests since 1978*, W. F. Hyde, J. Wei, and J. Xu, DP, 2008
- 11 *Forestland and Reform in China: What Do the Farmers Want? A Choice Experiment on Farmers' Property Rights Preferences*, P. Qin, DP, 2008
- 12 *It Is Better to Be the Head of a Chicken than the Tail of a Phoenix? A Study of Concern for Relative Standing in Rural China* F. Carlsson and P. Qin DP, 2008
- 13 *Collective Forest Tenure Reform in China: Analysis of Pattern and Performance*, J. Xu, Yan Sun, X. Jiang and J. Li, PR, 2008
- 14 *Forest Tenure Change Analysis in Shandong*, X. Jiang, L. Li, J. Xu, PR, 2008
- 15 *The Study of the Timber supply in Southern Collective Forest Region*, Z. Yan and X. Jiang, PR, 2008
- 16 *Social Capital and Its Impacts on Natural Resources Management*, J. Li, PR, 2008
- 17 *Theoretical and Empirical Study of China's Timber Supply*, H. He and J. Xu, PR, 2008
- 18 *Impact Analysis of Tenure Reform on Forest Management Model in Plain Forest Area: Investigation Report of Tenure Reform in Shandong Province* X. Jiang, L. Li and J. Xu, DP
- 19 *China's Sloping Land Conversion Program: Does Expansion Equal Success? Land Economics*, Xu, J, R. Tao, Z. Xu and M. T. Bennett, PR 2009

EfD Ethiopia

Research projects funded by EfD and others donors

Project, Project start year

- 1 Land management technology adoption: Production risk, risk aversion and crop productivity in Ethiopia: A comparison study, 2007
- 2 Biomass fuel consumption and dung use as fertilizer: some evidence from rural households in the Amhara region of Ethiopia, 2007
- 3 Common property forest management and private tree growing in the Ethiopian Highlands, 2008
- 4 Determinants of household fuel choice in major cities of Ethiopia, 2008
- 5 Public Safety Nets and Crowding Out Effects: Tree Growing and Livestock in Highland Ethiopia, 2008
- 6 Impacts of Land Certification on Tenure Security, Investment, and Land Markets: Evidence from Ethiopia, 2008
- 7 Ex-ante factors affecting rural-urban migration, 2008
- 8 The Structure of Taxation and the Prospect for Environmental Fiscal Reform in Ethiopia, 2008
- 9 Household forest values under varying management regimes in rural Ethiopia, 2009
- 10 Is there a link between common property forest management & private tree growing, 2009
- 11 Organic farming technologies and agricultural productivity in Ethiopia: Does agro-ecology matter?, 2009
- 12 Dynamics of rural fuel demand: a two-period model for Ethiopia', 2009
- 13 Household Tree Planting in Tigray, Northern Ethiopia: Tree Species, Purposes and Determinants, 2009
- 14 Urban Energy Transition and Technology Adoption: the Case of Tigray, Northern Ethiopia', 2009
- 15 Crop Biodiversity and Food Security in the Highlands of Ethiopia , 2009

Research output

- 1 *Estimating Returns to Soil Conservation Adoption in the Northern Ethiopian Highlands*, Kassie, M., Pender, J., Yesuf, M., Köhlin, G., Bluffstone R., Mulugeta, E., PR, 2007*
- 2 *Sharecropping Efficiency in Ethiopia: Threats of Eviction and Kinship*, Kassie, M., Holden, S, PR, 2007*
- 3 *Assessing the functioning of Land Markets in Ethiopia* , Deininger, K., Ali, A.D., Alemu, T., PR, 2007*
- 4 *Tenure security, resource endowments and tree growing: evidence from the Amhara region of Ethiopia*, Mekonnen, A., PR, 2007*
- 5 *Impact of Kinship and Threat of Eviction on Land productivity and input use in Ethiopia*, Kassie, M., Holden, S., Book chapter, 2008*
- 6 *Poverty, Risk Aversion and Path Dependence in Low Income Countries: Experimental Evidence from Ethiopia*, Yesuf, M., Bluffstone, R, PR, 2008*
- 7 *Determinants of Household Fuel Choice in Major Cities in Ethiopia*, Mekonnen A. Köhlin, G, PD, 2008*
- 8 *Rural Livelihoods, Poverty, and the Millennium Development Goals: Evidence from Ethiopian Survey Data*, Bluffstone, R., Yesuf, M., Bushie B., Damite, D., DP, 2008*
- 9 *Wealth and Time Preference in Rural Ethiopia*, Yesuf, M., Bluffstone, R., DP, 2008*
- 10 *Biomass Fuel Consumption and Dung Use as Manure: Evidence from Rural Households in the Amhara Region of Ethiopia*, Mekonnen, A., Köhlin, G., DP, 2008*
- 11 *The Role of Production Risk in Sustainable Land-Management Technology Adoption in the Ethiopian Highlands*, Kassie, M., Yesuf, M., Köhlin, G., DP, 2008*
- 12 *Economics of Soil Conservation Adoption in High-Rainfall Areas of the Ethiopian Highlands*, Kassie M., Holden, S., Köhlin G., Bluffstone, R., DP, 2008*
- 13 *The Role of Soil Conservation on Mean Crop Yield and Variance of Yield*, Kassie M., Pender, J., Yesuf, M., Köhlin, G., Mulugeta, E., DP, 2008*
- 14 *Do Discount Rates Change over Time? Experimental Evidence from Ethiopia*, Klemick, H., Yesuf, M., DP, 2008*
- 15 *Market Imperfections and Farm Technology Adoption Decisions: A Case Study from the Highlands of Ethiopia*, Yesuf, M., Köhlin, G., DP, 2008*
- 16 *Land Rental markets: Transaction costs and tenure insecurity in rural Ethiopia*, Alemu, T., Deininger, K., Ali, A. D., Book chapter, 2008*
- 17 *Is there a Link between Common Property Forest Management and Private Tree Growing?: Evidence of Behavioral Effects from Highland Ethiopia*, Mekonnen, A., Bluffstone, R., PR, 2008*
- 18 *Impacts of land certification on tenure security, investments and land markets: Evidence from Ethiopia*, Deininger, K., Ali, A.D., Alemu, T., DP, 2009*
- 19 *Ex-ante factors affecting rural-urban migration*, Deininger, K., Ali, A. D., Alemu, T., DP, 2009*
- 20 *Risk Implications of Farm Technology Adoption in the Ethiopian Highlands*, Yesuf, M., M. Kassie, G., Köhlin DP, 2009*
- 21 *Sustainable Agricultural Practices and Agricultural Productivity in Ethiopia: Does Agro-ecology Matter*, Kassie, M., Zikhali, P., Pender, J., Köhlin, G. DP, 2009*
- 22 *Impacts of the Productive Safety Net Program in Ethiopia on Livestock and Tree Holdings of Rural Households*, C. Andersson, A. Mekonnen, J. Stage, DP, 2009*
- 23 *Adoption of sustainable agriculture practices: Evidence from a semi-arid region of Ethiopia*, M. Kassie, P. Zikhali, K. Manjur, S. Edwards, PR, 2009*
- 24 *Household tree planting in Tigray, Northern Ethiopia: Tree species, purpose and determinants*, Z. Geberegiabher, A. Mekonnen, M. Kassie, G. Köhlin, DP, 2009*
- 25 *On the Role of Risk versus Economies of Scope in Firm Diversification*, Di Falco, S., Chavas, J-P, DP, 2009*
- 26 *Attitudes toward Uncertainty among the Poor*, H. Medhin, P. Martinsson, DP, 2009*
- 27 *Where does investment on Sustainable Land Management Technology Work? Empirical Evidence from the Ethiopian Highlands*, Kassie, M., Book chapter, 2009*
- 28 *Does Relative Position Matter in Poor Societies?* H. Medhin, P. Martinsson, DP, 2009*
- 29 *Risk Preferences and Technology Adoption: Comparative Studies from Ethiopian Highlands*, Yesuf, M., T/Wold, H., Book chapter, 2009*
- 30 *Soil Conservation and Small Scale Food Production in Highland Ethiopia: A Stochastic Metafrontier Approach*, Medhin, H., Köhlin, G., Book chapter, 2009*
- 31 *Does Fertilizer Use Respond to Rainfall Variability? Panel Data Evidence from Ethiopia*, Y. Alem, M. Bezabih, M. Kassie, P. Zikhali, PR, 2009*
- 32 *Urban Fuel Demand in Tigray, northern Ethiopia: an Almost Ideal Demand System Approach*, Z. Geberegiabher, A. Oskam, A. J.D. Bayou, DP, 2009*
- 33 *Social Capital and Weather Shocks in Ethiopia: Climate Change and Culturally-Induced Poverty Traps*, S. Di Falco, S., E. Bulte, M. Yesuf, DP, 2009*
- 34 *Urban Energy Transition and Technology Adoption: the Case of Tigray, Northern Ethiopia*, Z. Geberegiabher, A. Mekonnen, DP, 2009*
- 35 *Shifts in the Riskiness of Crop Portfolio as a Response to Weather Change: The Case of Multicropping Farms in Ethiopia*, M. Bezabih, S. Di Falco, S., M. Yesuf, DP, 2009*

- 36 *The Role of Crop Biodiversity in Sustaining Food Production in Developing Countries: Panel Data Evidence from Ethiopia*, M. Bezabih, S. Di Falco, M. Yesuf, DP 2009*
- 37 *Impacts of the Productive Safety Net Program in Ethiopia on livestock and tree holdings of rural households*, C. Andersson, A. Mekonnen and J. Stage, ., PR, 2009*
- 38 *Determinants of the Adoption of SLM practices and their Impacts in the Ethiopian Highlands*, M. Yesuf, J. Pender, (DP), 2007
- 39 *The cost of LD in Ethiopia: A critical review of past studies*, M. Yesuf, J. Pender, A. Mekonnen, M. Kassie, DP, 2007
- 40 *Stakeholder Assessment of Opportunities and Constraints to SLM in Ethiopia*, G. Zeleke, M. Kassie, J. Pender, M. Yesuf, DP, 2007
- 41 *The impact of climate variability on agricultural production: the case of Nile Basin, Ethiopia*, Yesuf, M., DP, 2007
- 42 *Reducing Vulnerability in Ethiopia: Addressing the Implications of Climate Change. Integration of Results from Phase*, D. Conway, L. Schipper, M. Yesuf, M. Kassie A. Persechino, B., Kebede DP, 2007
- 43 *The impact of climate change and adaptation on food production in low income countries: Survey data evidence from the Nile Basin, Ethiopia*, M. Yesuf, S. Di Falco, T. Deressa, C. Ringler, G. Kohlin, DP, 2008
- 44 *Accounting for Land and Soil Resources in Ethiopia* Esaya, A., M. Kassie, M. Yesuf, DP
- 45 *Live Animal and Meat Export Value Chains for Selected Areas in Ethiopia: Constraints and Opportunities for Enhancing Meat Exports*, Teklewold, H., Legese, G., Alemu, D., Negassa, A., DP, 2008
- 46 *Structure and Functioning of Chickpea Markets in Ethiopia: Evidence Based on Analyses of Value Chains Linking Smallholders and Markets*, Shiferaw, B., Teklewold, H., DP, 2008
- 47 *Analysis of Production Costs, Market, Opportunities and Competitiveness of Desi and Kabuli Chickpeas in Ethiopia*, Shiferaw, B., R. Jones, S. Silim, H. Teklewold, E. Gwata, DP, 2008
- 48 *Determinants of farmers' choice of adaptation methods to climate change in the Nile Basin of Ethiopia*, Deressa, T., R. Hassan, C. Ringler, T. Alemu, M. Yesuf, PR, 2009
- 49 *Global Carbon Markets: Are There Opportunities for Sub-Saharan Africa?* ,Bryan, E. W. Akpalu, M. Yesuf, C. Ringler, DP, 2009
- 50 *Risk implications of climate change adaptation measures in the Nile basin, Ethiopia*, Kato, E, M. Yesuf, M, Ringler, C., DP, 2009
- 51 *Accounting for Forestry Resources in Ethiopia*, Nune, S, M. Kassie, E. Mungatana, Book chapter
- 52 *The contribution of sustainable agriculture and land management to sustainable development*, Kassie, M. and Zikhali, P, UN-brief, 2009
- 53 *Agronomic and Economic Efficiency of Manure and Urea Fertilizers Use on Vertisols in Ethiopian Highlands*, Erkossa, T., Teklewold, H., PR, 2009
- 54 *Seasonal and Inter-market Differences in Prices of Small Ruminants in Ethiopia*, Ayele, G., M.A. Jabbar, H. Teklewold, E. Mulugeta, G. Kebede, PR, 2009

EfD Kenya

Research Projects funded by EfD

Project, Project start year

- 1 Improved Land Management in Smallholder Agriculture in Kenya, 2007
- 2 Household Water Demand and Health Impacts in Selected Urban Areas of Kenya, 2007
- 3 Ex-ante Economic Analysis of Kenya's Participation in the proposed Reduced Emission from avoided Deforestation (REDD) climate mitigation scheme 2009
- 4 Corruption, Reform and Environmental Policy in the Forest Sector in Kenya, 2009

Research output

- 1 *Determinants of Household Participation in Land Rental Markets in Rural Kenya*, Nyangena, W., , DP, 2007*
- 2 *Social Determinants of Soil and Water Conservation in Rural Kenya*, Nyangena, W., PR, 2008*
- 3 *Social Capital and Institutions in Rural Kenya: Is Machakos Unique*, Nyangena, W., Sterner,T., DP, 2008*
- 4 *Efficiency and equity impacts of land markets in Kenya*, Nyangena, W. Yamano, T., Place, F., Wanjiku, J., Otsuka, K., Book Chapter, 2008*
- 5 *Estimating Returns to Soil and Water Conservation Investments An Application to Crop Yield in Kenya*, Nyangena, W., Köhlin, G., DP, 2008*
- 6 *Economic Issues for Environmental and Resource Management in Kenya*, Nyangena, W., Book chapter, 2008*
- 7 *Farmers' Preferences for Crop Variety Traits: Lessons for On-Farm Conservation and Technology Adoption*, Sinfikeh, A., Yesuf, M., Carlsson, F., Wale, E., 2009*
- 8 *Production Risk and Farm Technology Adoption in Rain-fed Semi-Arid Lands of Kenya* Maurice, J., Nyangena, W, and Yesuf, M, DP, 2009*
- 9 *Socio-economic and ecological determinants in wetland fisheries in the Yala Swamp*, Samuel , M.M, Moses, M. Ikiara., R. Abila, PR, 2007
- 10 *Factors Influencing Local Communities' Satisfaction Levels with Different Forest Management Approaches of Kakamega Forest*, P .Guthiga., John, M. and Karin, H-M, PR, 2008
- 11 *Understanding local communities' perceptions of existing forest management regimes of a Kenyan rainforest*, P. Guthiga, PR, 2008
- 12 *Distributional Effects of Transport Fuel Taxes in Kenya*, Mutua, M.J., Martin, B., and Sterner, T., Book chapter, 2009
- 13 *Assessing opportunity costs of conservation: Ingredients for protected area management in the Kakamega Forest, Western Kenya*, Borner, J., John, M., Paul, G, Stephen, W., PR, 2009

EfD South Africa

Research Projects funded by EfD and others

Project, Project start year

- 1 Quantifying the Socio-Economic Impacts of Environmental Conservation: A Study of the Greater Addo Elephant National Park and its local economy, 2007
- 2 Climate change in an experimental setting: The effect of stochastic future disasters and country vulnerability on cooperation, 2008
- 3 CPRs, Land Tenure, Compliance, Enforcement and Corruption: South African Case Studies, 2009
- 4 Impact of Climate Policy on Environmentally Responsible Investment Behaviour, 2009
- 5 Quantification and valuation of the water treatment services of wetlands at a landscape scale, 2009
- 6 Economic value of the Okavango Delta, Botswana, and implications for management of water and wildlife, 2009
- 7 Abalone poaching, methamphetamine use, criminal activity in South Africa and the associated implications for resource management, 2009
- 8 The optimal pricing of national parks with nationality-based price discrimination and park substitution, 2009
- 9 Developing a system for sustainable resource use by the Khomani San in Kgalagadi Transfrontier Park and environs: Valuing sustainable resource use, 2009

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- 1 *Climate change in a public goods game: investment decision in mitigation vs adaptation*, R. Hasson, Å. Löfgren, M. Visser, DP, 2009*
- 2 *Abalone poaching, methamphetamine use, criminal activity in South Africa and the associated implications for resource management*, K. Brick, E. Muchapondwa, M. Visser, DP, 2009*
- 3 *Valuation of the water treatment function of western cape wetland*, J. Turpie, L. Day, , DP, 2009*
- 4 *Agricultural Risk Management through Community-Based Wildlife Conservation in Rural Zimbabwe*, E. Muchapondwa, T. Sterner, DP, 2009*
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- 29 *The Economics of climate Change mitigation: Green certificate trading* , Visser, M. and K. Brick, DP, 2009
- 30 *The Design, Compilation, and Interpretation of Satellite Accounts for South Africa's Fisheries: Some Critical Thoughts*, Leiman, A, Harris, T., DP, 2009

EfD Tanzania

Research projects funded by EfD and other sources

Project, Project start year

- 1 Improving the Effectiveness of Participatory Forest Management in Tanzania, 2007
- 2 Economics of artisanal Lake Victoria fisheries, 2008
- 3 Drivers of tree planting activities in Tanzania, 2008
- 4 The Scope for Environmental Fiscal Reforms in Tanzania the Case of Fuel Taxation, 2008
- 5 Booming Fish Exports and Relative Welfare of Local Communities: Empirical Evidence From Around Lake Victoria, Tanzania, 2008

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- 1 *Economics of forest products in Tanzania*, Lokina, R., Robinson, E., and Stage, J., DP, 2008*
- 2 *Regulatory Compliance in Lake Victoria Fisheries*, Eggert, H., Lokina, R., DP, 2008*
- 3 *Technical Efficiency and the Role of Skipper Skill in Artisanal Lake Victoria Fisheries*, Lokina, R., Peer reviewed, 2008
- 4 *Determinant of the Effectiveness of Participatory Forest Management in Tanzania*, Lokina, R., Robinson, E., DP, 2009*
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- 6 *The Implications of Improved Communications for Participatory Forest Management in Tanzania*, Robinson, E., Maganga, F, PR, 2009*
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