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Environment for Development



EFD INITIATIVE CENTRE REPORT

# SOUTH AFRICA 2013/14

The Environmental-Economics Policy Research Unit (EPRU) is a collaborative association of academic researchers specialising in environmental and natural resource issues. EPRU works to promote sustainable development and poverty reduction in southern Africa.

Cover: Coastline near Cape Town.

## THIS REPORT

This report presents EfD South Africa, its members and its work during 2013/14. The South African node of the Environment for Development Initiative is based at:

**EfD South Africa/Environmental-Economics  
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University of Cape Town, School of  
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Table Mountain National Park, South Africa.



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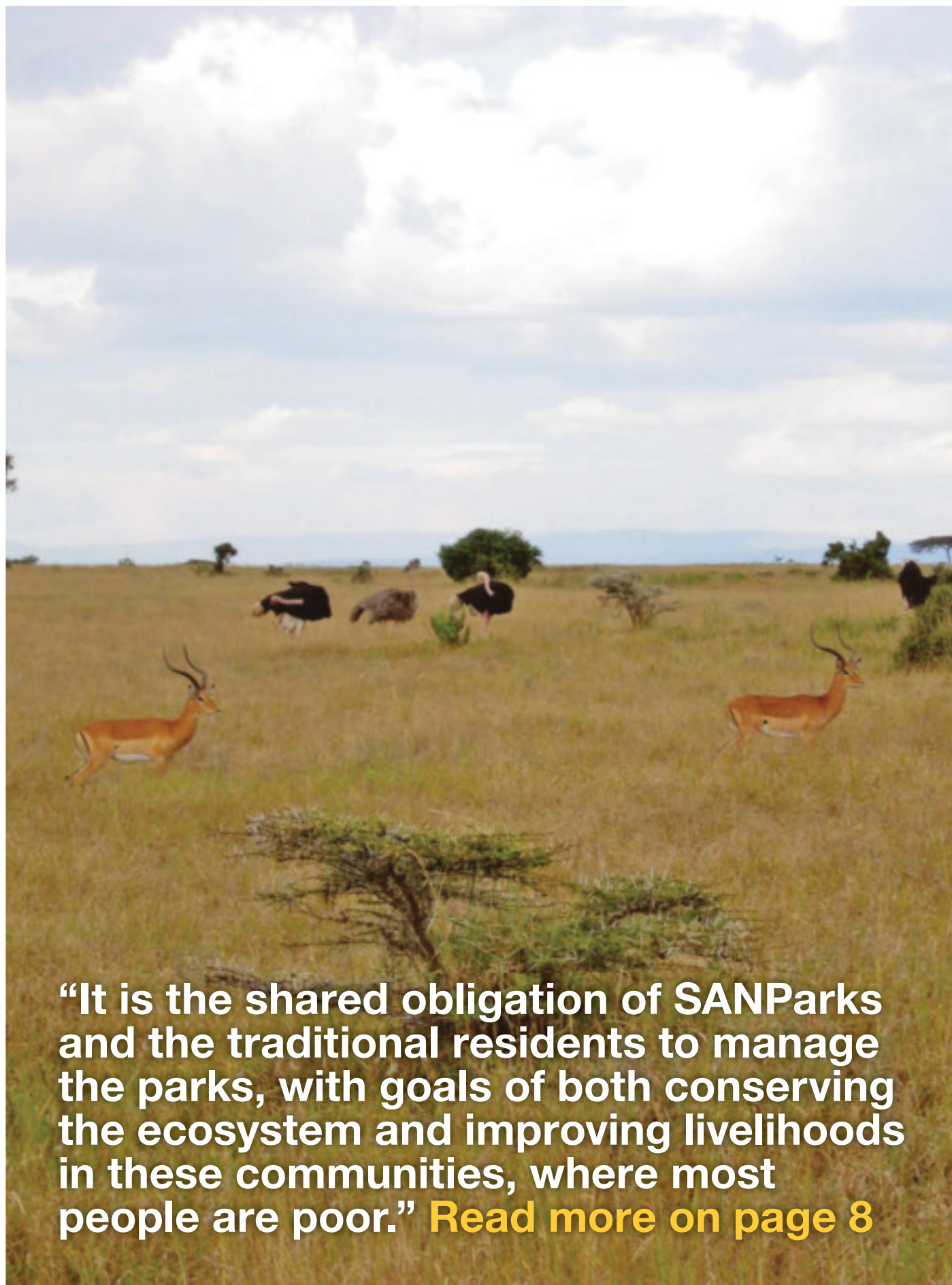
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Table Mountain National Park, South Africa.

EfD Research Fellow Susan Snyman at Chilongozi Village,  
adjacent to South Luangwa National Park, Zambia.



**“It is the shared obligation of SANParks and the traditional residents to manage the parks, with goals of both conserving the ecosystem and improving livelihoods in these communities, where most people are poor.” [Read more on page 8](#)**





Anthony Leiman, Director



Jane Turpie, Deputy Director

## MESSAGE FROM OUR CENTRE DIRECTORS

Since its establishment seven years ago, EPRU has striven to produce policy-relevant research in areas important to South Africa. Topics such as community/wildlife interactions and management, air and water pollution, and natural resource management all remain central to our work, especially in respect of property rights and poverty, climate change, sustainability and issues of irreversibility and resource depletion. Our close collaborations with the South African National Biodiversity Institute, the Department of Agriculture, Forestry and Fisheries, the Water Research Commission, and the City of Cape Town illustrate our continued commitment to the economics of environmental policy and development. Also important is our continuing interaction with other EfD centres, particularly those in Tanzania and Kenya. Four of our senior fellows are engaged in international collaborative research and policy work with EfD members.

In 2013, EPRU was jointly coordinated by Anthony Leiman and Jane Turpie. We continued to meet off-campus on a quarterly basis to discuss our research ideas and outputs, thrash out research problems, and discuss policy interaction issues. These interactions have been important in strengthening the group and improving research. The final quarter of the year, however, was marked by two signifi-

cant events: our first 'five year' audit, and our hosting of the EfD annual conference. The latter was preceded by a 'policy day' in which EPRU and EfD staff interacted with senior environmental staff from central and provincial government departments, and was followed by a training workshop for EfD members on the conduct and design of randomised control trials. All four events were a great success.

While endeavouring to develop and improve its policy interaction strategy, EPRU has also been working hard toward diversifying its funding sources. In 2012, we became tied to two UCT-based groups: the African Climate Change Development Initiative (ACDI) and Aquad'UCT (dealing with water issues), which will bring many opportunities for collaborative and policy-relevant research. It was therefore particularly gratifying to see this translated into real funding this year as Martine Visser succeeded with a R (Rand) 3.65 million funding application to SANCOOP on the Role of Behavioural Interventions in Climate Change Mitigation and Adaptation. She has another R2.3 million of applications still awaiting finalisation and has also confirmed funding from the South African Water Research Commission on a new behavioural economics project on water savings, to be undertaken with Kerri Brick in 2014.

EPRU continues to attempt to convert all research into high-quality academic outputs. Four have been published, four are awaiting publication and a number are currently under revision. In the course of the year, EPRU fellows have published four articles in peer-reviewed journals and two chapters in peer reviewed books, as well as 12 discussion papers and 16 conference papers. Two of our Senior Research Fellows – Edwin Muchapondwa and Martine Visser – and their postgrad students continue to dominate our publications. EPRU contributed three of the four PhDs who graduated in the Faculty of Commerce this semester; one of them, Sue Snyman, has punched far above her weight and has added one paper, four conference papers, and three papers in press. We have invited her to continue her association with us as an EPRU research fellow. Also joining us as a research fellow this year has been Dambala Gelo, who has a post-doctoral position in the School.

Anthony Leiman  
Director

Jane Turpie  
Deputy Director



The 7th Annual Meeting of the Environment for Development (EfD) Initiative at Noordhoek, South Africa.

# THE EFD ANNUAL MEETING 2013 IN SOUTH AFRICA

## DECISIONS AND DISCUSSIONS ON RESEARCH

A wide representation of research organizations attended the academic part of the 7th EfD Annual Meeting in Cape Town, South Africa, October 24-27, 2013. Apart from a strong presence from all six EfD centers and a selection of their associated researchers, all EfD partner organizations were present: the Research Nucleus on Environmental and Resource Economics (NENRE) of the University of Concepción, Chile; Resources for the Future from Washington, DC; and the Environmental Economics Unit of the University of Gothenburg. Also present were other organizations with which EfD collaborates, such as the World Bank, Environmental Defense Fund (EDF), International Development Research Center (IDRC), Swedish Environmental Protection Agency, Beijer Institute of Ecological Economics and Stockholm Resilience Center.

The meeting opened with an enthusiastic welcome by Gunnar Köhlin, followed by welcoming remarks by Anthony Leiman, director of EfD South Africa (EPRU), based at the University of Cape Town. During the four-day meeting, there were four keynote speeches and three other special sessions with invited speakers taking place in a plenary setting. The first keynote speech was by Peter Berck, Professor of Agricultural and Resource Economics, University of California, Berkeley on **Identification: the problem that just won't die**, discussing the problem of untangling cause and effect in complicated interactions. The second, about **Systematic Conservation**, was given by Juha Siikamäki, Associate Research Director and Fellow, Resources for the Future (RFF).

The third keynote on **Modeling Land Use** was given by Jo Albers, Professor of Applied Economics, Oregon State University. The fourth keynote speech about **Accounting for Ecosystem Services**, should have been presented by Urvashi Narain, Senior Environmental Economist, World Bank, but since she was delayed, Dr Francisco Alpizar substituted and gave the speech in her absence. "Accounting for Ecosystem Services" is a process of assigning values to the services provided by natural resources – for example, the services that natural water sources provide to farmers – which, until very recently, have been ignored in calculations of national income.

The special sessions in the program had a focus on leading the way for EfD to partner in new collaborative research projects.

First out was a session about **REDD** (Reducing emissions from deforestation and forest degradation), where Randall Bluffstone, Professor of Economics, Portland State University, presented **World Bank supported REDD projects**. REDD is a program to pay people in developing

countries to avoid cutting or damaging forests so that forests can continue to sequester carbon. This was followed by a presentation of Environmental Defense Fund's (EDF's) REDD projects, where opportunities for potential new collaborations between EDF and EfD were elaborated on. Presentations were made by Richie Ahuja, Regional Director, Asia, EDF and Ferdinand Vieder, Social Science Research Center, Berlin. Another focus was **Accounting for Ecosystem Services**, and contributions to the discussion were made by Jeff Vincent, Professor of Forest Economics and Management, Duke University and Jessica Alvsilver, Swedish Environmental Protection Agency (Naturvårdsverket), who made a proposal to EfD centers to collaborate on a number of case studies to be carried out from 2015 and beyond.

Finally, Michael Toman, Research Manager, Development Research Group, World Bank, talked about **The World Bank's Environmental Research Priorities**, a fruitful discussion to reflect on what is already on the EfD center's research agendas in light of World Bank needs.



Jane Turpie, Deputy Director, EfD South Africa, Randall Bluffstone, Professor of Economics, Portland State University, Sue Snyman, EfD South Africa Research Fellow, Yonas Alem, EfD Research Coordinator and EfD Ethiopia Research Fellow, and Razack Lokina, Director, EfD Tanzania



Thomas Sterner, Visiting Chief Economist EDF and EfD Sweden Research Fellow, Randall Bluffstone, Professor of Economics, Portland State University, Ferdinand Vieder, Social Science Research Center, Berlin and Richie Ahuja, Regional Director, Asia, EDF



In addition, 66 presentations were made during the parallel sessions. These covered the following themes; **Land Use, Energy, REDD, Agriculture, Parks and Wildlife, Forestry, Climate Change, Fisheries, Ecosystem Services and Water, Bioenergy, Environmental Policy Instruments, Experiments, Transport and Health.**

The next EfD Annual Meeting will be held in Tanzania in October 2014.

## POLICY DAY

Since 2010, EfD has hosted a separate Policy Day as a starting point for the annual meeting. The aim of the Policy Day is to make EfD research available for primarily local policy makers and also to get policy makers and other stakeholders' input into the ongoing research.

The policy day in Cape Town on October 23, 2013, hosted by EfD South Africa (EPRU), brought together policy makers from various governmental levels, practitioners, NGOs and international and national researchers. The purpose of the day was twofold: first, to identify South African policy makers' research priorities as inputs to EPRU's work; second, to highlight examples from EPRU's research and capacities. The policy day included three distinct sessions focusing on fishery economics, biodiversity and conservation, and climate change.

### Fisheries

In the first session, Kim Prochazka, Department of Agriculture, Forestry and Fisheries, presented a range of research questions where economics can provide valuable contributions. These included various efficiency and distributional implications of when to fish or not, who should be given the right to fish and how, how to monitor compliance, etc. Tony Leiman, EPRU center director, gave an overview of research questions that EPRU has worked on in recent years, acknowledging that economics can only be complementary to natural sci-

ences research. The discussion that followed allowed all participants to propose topics and ask questions. There was broad agreement that a particularly important research topic is to evaluate an upcoming reform related to communal rights for inshore fishing in South Africa. What are the impacts of reform on fisheries and fishers who previously had fishing rights, and how are benefits shared? Fisheries reform involves the well-known "tragedy of the commons" problem: if anyone can use a resource, no one has the incentive to conserve it. One solution has been to "devolve" responsibility for a resource to a group of users who can then cooperate to manage it. However, a number of participants from South Africa pointed out that experiences from devolution of other forms of communal rights for agriculture had performed poorly. Another strong message from policy makers to researchers was a call for more multidisciplinary work involving natural sciences, economics and possibly other social sciences. At least, researchers should be well informed of each other's work and make sure that case studies are made in the same area.

### Biodiversity and conservation

Jane Turpie of EPRU gave an overview of the toolbox of environmental economics and how it can be applied to a number of research questions of relevance for biodiversity and conservation. Mandy Driver from the South African National Biodiversity Institute (SANBI) presented its work and gave an overview of economic related research needs. She also pointed to the important role of intermediaries in bringing research findings to policymakers. Research topics included: what proportion of the wildlife industry is linked to biodiversity? What is the importance of South Africa's biodiversity assets to jobs and livelihoods? What are the returns from investing in ecological infrastructure?

### Climate change

The third session focused on climate change. Thomas Sterner, University of Gothenburg and

Visiting Chief Economist, Environmental Defense Fund, is lead author on the policy instruments chapter for the upcoming IPCC report. He discussed scientific background to the topic and the importance of taking action now despite the political challenges involved. He used Germany as a good example of political and technological leadership, not least through use of feed in tariffs, a policy to encourage investment in renewable energy, which has helped drive down the costs of solar and wind power. Martine Visser highlighted parts of EPRU's work, including the use of experimental economics to increase understanding of how vulnerable groups adapt to flood risk and how farmers respond to climate variability and change. Helen Davies, from the Western Cape provincial government, and Sarah Ward, from the City of Cape Town, gave their views of important research needs. Provincial examples ranged from the costs of not addressing climate change, to more analysis of the economics of the food-water-energy nexus, to efficient use of land, to provincial impacts of a carbon tax at the national level. Examples from the city of Cape Town included how to stimulate behavioural change for greater energy efficiency, economic impacts of green procurement and efficient revenue models for resource taxes to avoid perverse incentives (unintended effects that cause people not to save energy). Questions were asked to the panel, not least related to how provincial and city policies are aligned with decisions at the national level and how the government's agenda for growth and jobs is aligned with sustainable development. Participants appreciated the discussions and stressed the need to continue the dialogue at a more detailed level to narrow down the agenda.

Mare Sarr concluded the policy day by thanking the participants for valuable inputs to EPRU's research agenda and acknowledged EPRU's responsibility for and interest in continuing the dialogue to identify common grounds for research.



Wilfred Nyangena, EfD Kenya Senior Research Fellow, Jane Kabubo-Mariara, Coordinator, EfD Kenya and Senior Research Fellow, and Richard Mulwa, EfD Kenya Senior Research Fellow



Min Wang, EfD China Research Fellow, Marcela Jaime, PhD student at University of Gothenburg and Róger Madrigal, Senior Research Fellow EfD Central America



A delegate from the Climate and Development Knowledge Network poses a question to the panel on Policy Day

# RESEARCH POLICY INTERACTION

EPRU has two main objectives in terms of policy interaction: firstly, to be a resource where high quality research and economic opinion on environmental policy issues can be sought by policymakers. And secondly, to regularly interact with, and, where possible, assist policymakers who are engaged in agenda setting and policy design, formulation and implementation. EPRU does not restrict itself to South African policy and policy-makers; our fellows regularly assist domestic non-governmental institutions, international organizations and foreign governments.

EPRU research fellows have extensive links with policymakers and practitioners in South Africa and have worked with various government units. EPRU works with a number of local and national policy stakeholders on medium-sized projects, such as 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 on air quality management and energy savings.

## Conservation fees to visit national parks can help preserve South African ecosystems

Africa's wild animals are the world's heritage, but they live on the land of indigenous peoples. Researchers at EPRU have been working with the South African National Parks agency (SANParks) on the challenge of balancing conservation, affordability, and community land rights in the nation's famous wildlife areas.



Cheetahs in a national park



## POLICY INTERACTIONS

### EfD Policy Day 2013

On 23 October, 2013, the Environmental Economics Policy Research Unit (EPRU) hosted the EfD Policy day at Commodore Hotel, Cape Town, South Africa. The policy day brought together policy makers from various governmental levels, practitioners, NGOs, and international and national researchers. The purpose of the day was twofold: first, to identify South African policy makers' research priorities as inputs to EPRU's work; second, to highlight examples from EPRU's research and capacities. The policy day included three distinct sessions focusing on fishery economics, biodiversity and conservation, and climate change.

### Workshop on market-based incentives in watershed management

Organised by the United Nations Environment Programme (UNEP) and the University of Cape Town, the workshop took place 11-12 December, 2013, at the Spier Hotel, Stellenbosch, South Africa. The purpose of the workshop was to review case studies on market-based incentives and mechanisms to reverse water and land degradation in watersheds, and to obtain information on these incentives and identify pertinent policy issues in support of up-scaling the approaches. Each participant was



EPRU senior researcher Martine Visser and EfD Secretariat member Thomas Sterner at the Policy Day at Commodore Hotel, Cape Town, South Africa, October 2013.

The Kgalagadi Transfrontier Park (KTP) has been the setting for a series of EfD research projects on these questions. This park, with land in both South Africa and neighbouring Botswana, is home to lions and leopards, two of the so-called Big Five animals that attract international tourism, as well as huge herds of gemsbok. It is also home to the Khomani San and Mier peoples. "The South African government restored land rights in the park to these two communities as part of post-apartheid land restitution," explained EfD researcher Johane Dikgang. "It is the shared obligation of SANParks and the traditional residents to manage the parks, with goals of both conserving the ecosystem and improving livelihoods in these communities, where most people are poor."

Earlier research by EPRU confirmed that the indigenous peoples living near KTP believe in the importance of biodiversity and other attributes of the ecosystem in which they live. Another research project recommended setting park fees high enough to bring in more revenue, which could both improve conservation and benefit local communities. The next parts of the analysis worked on assigning monetary values to both sides of this equation.

The entrance fee to KTP is called a conservation fee because it pays part of the cost of protecting the ecosystem. While the Khomani San can enter the park for free, as part of restitution, other visitors, including the Mier, pay a fee. (This is because the Khomani San lost more land than the Mier when the park was created during the apartheid era.) The fee is higher for international visitors than for South African residents.



EPRU fellow interviewing residents of game areas, Northern Zululand.

When EfD's research project started in 2011, South Africans paid 45 Rand per person per day (less than US \$6) to enter KTP. "South Africans make up 80% of the visitors to the park," said Dr. Dikgang. "Both domestic and foreign visitors to remote parks such as KTP tend to be relatively well-off. For both groups, the entrance fee was a small fraction of the total cost of the visit, including travel and lodging." An EfD survey, and analysis of the data, revealed that fees could go up without having much effect on visits. Since the survey was conducted, SANParks has raised fees for both domestic and foreign visitors. For South Africans, for example, the fee at KTP is now R62.

If the park fees were high enough, there would be some money available for "payment for ecosystem services." These are payments to local people to encourage them to manage resources in a sustainable manner. In the case of KTP, for instance, many Khomani San gather firewood in the park,



EPRU members, EfD researchers, a UNEP representative, policy makers and researchers from different parts of the globe at the Market-Based Incentives in Watershed Management workshop held at Spier Hotel, Stellenbosch, South Africa, in December 2013.

asked to present at least one case study of a scheme where a local community and/or the private sector had participated in watershed conservation activities in response to market-based incentives. Participants were also asked to contribute to discussions about how new water conservation interventions would possibly be received in their contexts.

## IN-SERVICE TRAINING

EPRU research fellows are involved in teaching a number of environmental and resource economics courses in the School of Economics and the Department of Biological Sciences at the University of Cape Town. In 2013, members of EPRU participated in programmes run through the UCT School of Engineering, offering lectures on project appraisal and environmental assessment to civil engineers and civil servants as part of their ongoing training. However, we ourselves have not held any specific workshops for civil servants or municipal policymakers.

## POLICY LINKS

The following are the institutions where EPRU believes that it is having its greatest impact. The links to these institutions' websites are provided on the EPRU website pages.

- South African National Biodiversity Institute (SANBI)
- Department of Agriculture, Forestry and Fisheries
- Department of Environmental Affairs
- Department of Water Affairs
- South African National Parks
- Cape Nature
- City of Cape Town

## POLICY SEMINARS, WORKSHOPS AND CONFERENCES

EPRU arranged five seminars within the UCT School of Economics. Where possible, we attempted to run these within the confines of the School's existing seminar timetable, though in one case, when the system was completely full, we had to step beyond it.

The first was by Brian Levy (of the World Bank) who gave a paper on the **institutional dimensions behind the collapse of the Western Cape Rock Lobster resource.**

This was work in which he had been assisted by EPRU staff and it promises to become a foundation for future research. In particular, it points to the potential use of processing facilities in controlling illegal harvesting, a topic of growing interest to fisheries managers.

Dambala Gelo is a new post-doctoral fellow in the School and EPRU. He gave the second talk, entitled, **"Common Property Right Forestry and the Distribution of Welfare: Evidence from Ethiopian Villages."** It addressed the implications of changing prop-

and some engage in traditional hunting practices. Tourists, however, tend to want to see the landscape in pristine condition. By surveying both visitors and locals, EfD researchers determined that the sums the visitors are willing to pay are high enough to compensate the Khomani San and Mier for reducing their extraction of resources. "This could provide some much-needed income for very poor communities," said Dr. Dikgang.

One solution proposed by EfD is voluntary donations earmarked for conservation. "International visitors are accustomed to contributing donations at museums and parks," said Dr. Dikgang, "so the introduction of voluntary donations has the potential to contribute significantly." As for South African visitors, the researchers found that most of the park visitors were willing to pay into a special fund dedicated to conserva-

tion within the park, although not for conservation of similar ecosystems outside the park boundaries. "They were afraid it would be wasted outside the park," explained Dr. Dikgang. "However, their willingness to pay for conservation inside the park creates possibilities for the sharing of conservation revenue with local communities."

"Revenue sharing is one way to demonstrate the link between ecotourism and local communities' economic development," added Professor Edwin Muchapondwa, Senior Research Associate with EPRU. "Payments for ecosystem services in KTP would directly benefit poor local communities. Clearly distinguishing the part of visitors' payments going to local communities will help visitors connect with the indigenous people, who are co-owners of national parks."



Fauna at a national park.



EfD members at the 2013 EfD annual meeting held in Cape Town, South Africa.



erty rights systems (in particular, shifting from communal to private property ownership) on the welfare of the poor in rural Ethiopian communities.

Jules Schers from the Centre CIRED (International Research Centre on Environment and Development), Paris, gave a seminar on the **development of a South African version of the IMACLIM platform**. IMACLIM is a platform developed at CIRED in Paris and intended to integrate the knowledge of economists, engineers and other specialists. It combines macroeconomic top-down CGE-style modelling with bottom-up information from the energy sector to represent socio-technical boundaries to changes in the economy. While it has been used to evaluate GDP and welfare impacts of different carbon tax funds recycling schemes for France, a version is now being developed for South Africa. This work was a first attempt to include South African 'bottom-up' information from the energy sector and the labour market into a South African IMACLIM model.

Severin Borenstein of UC Berkeley presented, **"A Microeconomic Framework for Evaluating Energy Efficiency Rebound and Some Implications."** This seminar was of particular interest to energy researchers and electrical engineers, and we endeavoured to invite all who might be interested. The issue was of particular interest to our audience, since electrification is widely held as a solution to both poor air quality and poverty. He argued that, perversely, increased energy efficiency usually lowers the cost of using energy-intensive goods and such energy savings may increase disposable income, both of which could increase energy use, causing an unintended "rebound" effect.

EPRU also facilitated the presentation given by Anke Leroux of Monash University entitled,

**"Multi-Attribute Risk Aversion in Charitable Giving."** Multi-criteria decision analysis is a growing feature of environmental project appraisal in South Africa, and the topic was felt to be of particular interest.

In addition to the above, Anthony Leiman gave a seminar to the UCT marine research unit (Ma-Re) on the **factors precluding the small pelagic trawl fishery converting from the processing of anchovy into fishmeal for agricultural use, to anchovy suited for human consumption**. The issue has been a point of concern for some years, especially given the growing shortage of affordable animal protein for human consumption. The seminar presented the business case explaining why South American and Chinese anchovy are widely consumed by low-income households, but South African anchovy are not.

We also hosted the launch of the OECD's Environmental Performance Review of South Africa. OECD staff contacted us for assistance in arranging speakers, venue catering, etc. We feel that this contact reflects a growing public awareness of our presence.

The local highpoint of the year was the annual EfD conference, which was hosted by EPRU in October 2013 at Monkey Valley, Cape Town.

### Course on randomised evaluations

The course was held between 28 October and 1 November 2013. The Abdul Latif Jameel Poverty Action Lab (J-PAL) course on Randomised Evaluations was a five-day, full-time course, and ran in the School of Economics, University of Cape Town, South Africa. The purpose of the course was to provide a thorough understanding of why and how to use randomisation in an impact evaluation and to provide pragmatic step-by-step training for conducting an impact evaluation. J-PAL affiliates and staff with experience in randomised impact evaluations in agriculture, the environment and governance conducted the course.

J-PAL is a research centre based at the Economics Department at the Massachusetts Institute of Technology. J-PAL is a global network of about 80 researchers who use randomized evaluations to answer critical policy questions in the fight against poverty. Please visit [www.povertyactionlab.org](http://www.povertyactionlab.org) for more details on J-PAL.



EfD participants from several countries attending the J-PAL course.

# RESEARCH

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



EPRU is investigating the potential impacts of increased marine protection on small-scale fishers along the Kogelberg coast.



Johane Dikgang in a park pricing workshop in Kruger National Park, South Africa.



# PUBLICATIONS 2013

## Peer reviewed

Mukanjari, S., B. Bednar-Friedl, E. Muchapondwa, and P. Zikhali. 2013. Evaluating the Prospects of Benefit Sharing Schemes in Protecting Mountain Gorillas in Central Africa. *Natural Resource Modelling* 26(4): 455-479.

Muchapondwa, E., and J. Stage. 2013. The Economic Impacts of Tourism in Botswana, Namibia and South Africa: Is Poverty Subsiding? *Natural Resources Forum* 37: 80-89.

Sowman, M., D. Scott, L. Green, M. Hara, M. Hauck, K. Kirsten, B. Paterson, S. Raemaekers, K. Jones, J. Sunde, and J. Turpie. 2013. Shallow Waters: Social Science Research in South Africa's Marine Environment. *African Journal of Marine Science* 35(3): 385-402.

Snyman, S. 2013. Household Spending Patterns and Flow of Ecotourism Income into Communities around Liwonde National Park, Malawi. *Development Southern Africa* 1-18.

## EfD Discussion Papers

Dikgang, J., and E. Muchapondwa. 2013. Conservation Fees in the Kgalagadi Transfrontier Park between Botswana and South Africa in the Presence of Land Restitution. EfD Discussion Paper EfD DP 13-09. Washington, DC: Resources for the Future and Environment for Development.

## Other working papers

Dikgang, J., and E. Muchapondwa. 2013. The Economic Valuation of Dryland Ecosystem Services in the South African Kgalagadi Area and Implications for PES Involving in the Khomani San. Economic Research Southern Africa (ERSA) working paper 384 (October).

Dikgang, J., and Edwin Muchapondwa. 2013. The Economic Valuation of Dryland Ecosystem Services in the South African Kgalagadi by the Local Communities. ERSA working paper 383 (October).

Thondhlana, G., and E. Muchapondwa. 2013. Dependence on Environmental Resources and Implications for Household Welfare: Evidence from the Kalahari Drylands, South Africa. ERSA working paper 370 (September).

Chacha, P., E. Muchapondwa, A. Wambugu, and D. Abala. 2013. Pricing of National Park Visits in Kenya: The Case of Lake Nakuru National Park. ERSA working paper 357 (July).

Dikgang, J., and E. Muchapondwa. 2013. The Effect of Land Restitution on Poverty Reduction Among the Khomani San "Bushmen" in South Africa. ERSA working paper 352 (June).

Visser, M., and J. Burns. 2013. Inequality, Social Sanctions and Cooperation within South African Fishing Communities. SALDRU working paper 117.

Visser, M. 2013. Fairness and Accountability: Testing Models of Social Norms in Unequal Communities. SALDRU working paper 116.

Hodkinson, B., and M. Visser. 2013. Effects of Objective and Subjective Income Comparisons on Subjective Wellbeing. SALDRU working paper 118.

## Book chapters

Globalization of Cost-Benefit Analysis in Environmental Policy, edited by Michael A. Livermore and Richard L. Revesz. OUP Chapter 11.

Snyman, S. 2013. Co-author Chapter 4.6 Sustainable Tourism. In Optimal Management of Natural Capital in Africa, *African Development Report 2012 – Towards Green Growth in Africa*. Tunis: African Development Bank.

# PROJECTS 2013

For more information on each project, please see the website.

## Poverty, resource scarcity, and climate variability: constraints to adaptation

Theme: Climate Change  
PI: Martine Visser

## The role of institutions in wildlife conservation in South Africa and Zimbabwe: a social-ecological systems approach

Theme: Parks and Wildlife  
PI: Edwin Muchapondwa

## The demand for recreational angling in South Africa: implications of alternative management options for a depleted fishery

Theme: Fisheries  
PI: Jane Turpie

## Marine protected areas and small-scale fishing behaviour: a comparative analysis between South Africa, Tanzania and Costa Rica

Theme: Marine and Coastal Conservation  
PI: Jane Turpie

## Optimal pricing of parks and wildlife resources in eastern and southern Africa

Theme: Parks and Wildlife  
PI: Edwin Muchapondwa

## The economic impact of climate change in sub-Saharan Africa

Theme: Climate Change  
PI: Martine Visser



# PROJECTS 2014

## Bringing about behaviour change in provincial government: using behavioural nudges to reduce energy consumption in provincial government buildings

Theme: Climate Change

PI: Martine Visser

## Gender dimensions of natural resource use, farming and food adequacy: climate change risk, vulnerability and adaptation

Theme: Climate Change

PI: Martine Visser

# RESEARCH PRESENTATIONS

### Academic conferences

#### 20th Annual Conference of the European Association of Environmental and Resource Economists

26-29 June 2013, Toulouse, France

J. Dikgang and E. Muchapondwa: The Economic Valuation of Dryland Ecosystem Services in the South African Kgalagadi Area and Implications for PES Involving in the Khomani San

#### Biennial Conference of the Economic Society of South Africa

University of the Free State, Bloemfontein, South Africa, 25-27 September 2013.  
Dambala Gelo Kutela, Steve Koch and Edwin Muchapondwa: Common Property Right Forestry and the Welfare Distribution: Evidence from Ethiopian Villages

#### Land Divided Conference

University of Cape Town, 2013  
Anthony Black: Growing Trees in the Desert: Declining Government Agricultural Support and the Unfavourable Context for Land Reform (With Beatrice Conradie and Hein Gerwel)

#### EfD Annual Meeting

Cape Town, South Africa, 23-26 October 2013

Byela Tibesigwa, Martine Visser and Jane Turpie: The Impact of Climate Change on Large Scale Commercial Farmers in South Africa

Byela Tibesigwa, Martine Visser and Jane Turpie: The Impact of Climate Change on Subsistence Farmers in South Africa

Byela Tibesigwa and Martine Visser: Gender Dimensions of Natural Resource Use, Farming and Food Adequacy: Climate Change Risk, Vulnerability and Adaptation

#### IDEAS42/RUBEN

Martine Visser. Bringing about Behaviour Change in Provincial Government: Using Behavioural Nudges to Reduce Energy Consumption in Provincial Government Buildings

Grant Smith and Martine Visser: Behavioural Nudges as a Water Savings Strategy

Kerri Brick and Martine Visser: Risk Preferences, Adaptation and Insurance Uptake: A Framed Experiment. Forthcoming EfD Discussion Paper Series.

#### Climate Risk and Behaviour

ACDI Melting Pot, November 2012  
Martine Visser: Determinants of Adaptation and Insurance Interest in a Flood-prone Informal Settlement: Experimental Evidence from South Africa

#### Africa Climate Conference (ACC2013)

Arusha, Tanzania, 15-18 October 2013  
Advancing African Climate Science Research and Knowledge  
Byela Tibesigwa (joint work with Martine Visser and Jane Turpie): The Impact of Climate Change on Food Security

#### PSO7 Adaptation Thinktank

(SANBI/WCG 2013).

Determinants of Adaptation in a Flood-prone Urban Informal Settlement: Experimental Evidence from South Africa

Cape Nature Annual Meeting

Cape Town, November 2013

J. Turpie: The Role of Economics and Ecosystem Valuation in Conservation

#### Ecotourism and Sustainable Tourism Conference (ESTC)

Nairobi, Kenya, 24-27 September 2013  
S. Snyman: The Role of Ecotourism Employment in Poverty Reduction and Local Socio-economic Development in Six Southern African Countries

#### ATLAS Africa Conference

S. Snyman: African Tourism in Global Society: Central or Peripheral?

#### Kigali Institute of Science and Technology, Rwanda

3-5 June 2013

S. Snyman: The Impact of Ecotourism Employment on Rural Household Income and Social Welfare in Six Southern African Countries

#### Center for Environmental Economics and Policy in Africa CEEPA's 13th Research & Training Workshop

Kerri Brick (joint work with Martine Visser): Determinants of Adaptation in a Flood Prone Urban Informal Settlement: Experimental Evidence from South Africa





Real capacity building: Of the School of Economics' four PhD graduates, three were EPRU junior fellows! Above: un ménage à trois - Dr Sue Snyman, Dr Johane Dikgang and Dr Byela Tibesigwa.

## ACADEMIC CAPACITY BUILDING

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

EPRU's research fellows are actively involved in the School of Economics' teaching programs in environmental and natural resource economics as well as in the broader university. Our strong involvement in teaching has helped us attract promising postgraduate students.

The final aspect of our capacity building is the awarding of prizes to reward the authors of the year's best Honours and Master's Theses. This year, the former went to Alex Bailey for his paper, "The Presence of Natural Resources and the Probability of Civil War: An Examination of Diamonds in Sub-Saharan Africa," while the prize for best Master's thesis on an environmental topic went to Brendan Meehan for his dissertation on "Industrial Organisation, Efficiency and Resource Depletion in the West Coast Rock Lobster Fishery."

## COURSES TAUGHT BY EFD SOUTH AFRICA

### Undergraduate courses

- Resource Economics

### Graduate courses

- Honours Environmental Economics
- ACIDI Master's Environmental Economics and Climate Change
- Masters/PhD Coursework Resource Economics
- Environmental and Resource Economics Module for Conservation Biology MSc Course

### PhD Theses

Johane Dikgang

Land Restitution, Livelihoods and Co-ownership of International Parklands by the Khomani San "Bushmen" People in South Africa: A Case Study from the Kgalagadi Transfrontier Park

Susan Snyman

High-end Ecotourism and Rural Communities in Southern Africa: A Socio-economic Analysis

Byela Tibesigwa

An Economic Perspective on the Influence of Social Interaction on Risky Behaviours

### Msc Theses

Lydia Chikumbi

Optimal Pricing for National Park Entrance Fees in Zambia

Andrew Grant

Modelling Prospective Demand for Electric Vehicles in South Africa

Grant Smith

Demand Side Management of Household Electricity Consumption: A Natural Experiment

Duncan Lishman

A Critical Evaluation of Toll Roads and Road Pricing Policy in South Africa

Jessica Greenston (Co-Supervised)

Assessing the Suitability of an Individual Transferable Quota System to Address Unregulated Bycatch in South Africa's Inshore Trawl Fishery

Lisa Beem

Sustainability and Marketing in the South African Wine Industry: A Case Study of Eco-label Use at Backsberg Estate Cellars





Tourists crowding to see penguins near Cape Town, South Africa.



## SPREADING THE WORD

News about research and policy interaction

2013-11-26

### **Wealth from Tourism is Not Hitting the Spot**

Some 7.4 million tourists come to South Africa each year, generating around R51 billion in revenue. But it's not trickling down to the poor. Tourism growth in developing countries has drawn enormous attention as a tool for poverty alleviation, particularly in Africa. Though Africa garnered only 5% of total international tourist arrivals in 2011, this generated an impressive US \$32.6 billion in income for the continent.

2013-10-31

### **Specialization Course in RCTs Offered to EfD Researchers at the University of Cape Town**

About twenty EfD researchers from around the globe have been in Cape Town to grow two trees from one seed: they took part in a unique course on Randomized Controlled Trials (RCTs) from 28 October-1 November 2013, right after participating the 7th EfD annual meeting.

A key component of EfD's research is impact evaluation of environmental and development interventions to inform policy makers. Traditional methods of impact evaluation often suffer from challenges of identifying the real impact of interventions from other factors that might affect outcomes. RCT is a promising method that addresses this problem head on. By randomizing interventions to control and treatment groups, it is possible to test their true impact.

2013-01-24

### **70 Million ZAR Fund Needed to Address Post-closure Pollution from Proposed Mine**

Within the unique wetland area Mpumalanga Lake District in South Africa lies the site of a proposed, and controversial, opencast coal mine, the Lusthof colliery. It will require a preliminary 'set-aside' of about R70 million (US \$9 million) to fund maintenance of water quality in the area's rivers and lakes for a hundred years after closure, EfD research shows. Such set-asides to meet mine closure costs are required by South Africa's mining legislation.







# THE SOUTH AFRICAN NODE IN THE EFD NETWORK

The Environmental-Economics Policy Research Unit (EPRU) is the South African branch of EfD. EPRU is a collaborative association of researchers specializing in environmental and natural resource issues, and is based at the School of Economics at the University of Cape Town.

EPRU was established in 2007 to promote sustainable development and poverty reduction in southern Africa. It has striven to achieve these goals by promoting effective environmental policymaking, focussing our efforts on a three-fold strategy of research, teaching and policy consultation.

During the last seven years, EPRU has built extensive policy-relevant experience in research pertaining to ecosystems management, biodiversity conservation, air quality and water quality. The centre also has previous research capacity and experience relevant to the socioeconomics of agricul-

ture, fisheries and conservation. Specifically, this strain of research has been concerned with farm workers' wages, land use and rural poverty, and inequality among subsistence fishermen, as well as the role of community-based wildlife conservation in poverty mitigation.



EfD South Africa/EPRU staff in May 2013 at the quarterly research workshop.

## EFD SOUTH AFRICA CENTRE STAFF

### Local researchers and staff

- Anthony Leiman, Director
- Jane Turpie, Deputy Director
- Anthony Black, Senior Research Fellow
- Edwin Muchapondwa, Senior Research Fellow
- Mare Sarr, Senior Research Fellow
- Martine Visser, Senior Research fellow
- Dambala Gelo, Research Fellow
- Sue Snyman, Research Fellow
- Byela Tibesigwa, Research Fellow
- Kerri Brick, Junior Research Fellow
- Reviva Hasson, Junior Research Fellow
- Esther Kimani, Junior Research Fellow
- Coretha Komba, Junior Research Fellow
- Grant Smith, Junior Research Fellow
- Libbi Downes, Financial Administrator
- Olivia Europa, Administrative Assistant

### Domestic research associates

- Stephanie Giamporcaro
- Precious Zikhali
- Harald Winkler
- Andrew Marquard

### International research associates

- Thomas Sterner
- Åsa Löfgren
- Gunnar Köhlin
- Wisdom Akpalu
- Mintewab Bezabih
- Andrea Mannberg
- Jo Albers
- Francisco Alpizar

More details about each person are available on the EfD website, in the “Centers” section of South Africa. [www.efdinitiative.org/south-africa/people](http://www.efdinitiative.org/south-africa/people)

## NETWORKS

EPRU has successfully worked with a number of local and national stakeholders on medium-sized projects, such as 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 on air quality management and energy savings. In the next few years, EPRU plans to bid for larger research projects that will enhance collaboration among EPRU research fellows, with other researchers and, importantly, with key stakeholders.

## DONORS AND FUNDING

We are fortunate that over half of our expenses are met by our parent institution, the University of Cape Town, which employs all but one of our senior fellows and also some of our junior fellows. Some of our fellows, most notably Martine Visser, have shown themselves assiduous and successful seekers of external research funding. In 2013, EPRU received funding from the School of Economics, University of Cape Town (UCT), the Swedish International Development Cooperation Agency (Sida), the United Nations Environment Programme (UNEP), the Carnegie Foundation, United Nations University – World Institute for Development Economics Research (UNU-Wider), the UCT Vice-Chancellor’s funds and Center for Environmental Economics and Policy in Africa (CEEPA).

### Number of donors

7

#### List of donors

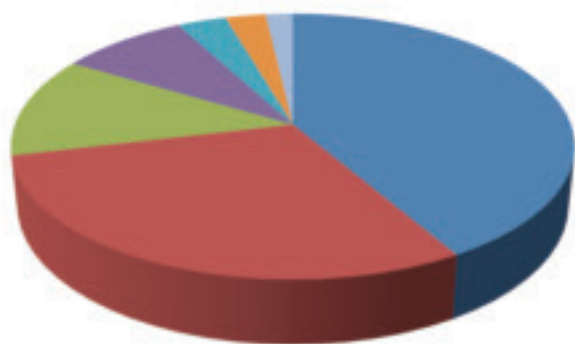
#### Funding by donor during 2013

UCT School of Economics	41.6%
Sida (EfD funding)	29.7%
UNEP	12.3%
Carnegie Scholarship (UCT School of Economics)	8.6%
UNU Wider	3.3%
VC Strategic Fund	2.7%
CEEPA	1.8%
TOTAL	100%

List of donors EfD South Africa



University of Cape Town campus.



- 1) UCT School of Economics (University Salaries)
- 2) EfD Funding
- 3) UNEP
- 4) Carnegie Scholarship (UCT School of Economics)
- 5) UNU WIDER

On behalf of all EPRU members, we would like to thank Sida for its continued support. Our thanks extend to the coordination team of the EfD Initiative for helping us build what we hope will soon become a centre of excellence in the area of natural resource management in southern Africa.

## CONTACT US

You are most welcome to contact EfD South Africa/Environmental-Economics Policy Research Unit (EPRU)

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Boats near Cape Town.

## THE EFD INITIATIVE IN BRIEF

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

The concept of the Environment for Development Initiative is simple – we believe that natural resources and the environment should be seen as the basis for, not the constraint on, sustainable growth in developing countries. But for that to happen, we need to apply our best analytical tools to how to manage these resources. And that is what we do in the Environment for Development Initiative!

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

Institutionally, EfD is now well underway to become a global network of environmental economics centres. The original six EfD centres in China,

Costa Rica (for Central America), Ethiopia, Kenya, South Africa and Tanzania have now been formally joined by three more centres: Resources for the Future (RFF), Washington DC, USA; the Research Nucleus on Environmental and Natural Resource Economics (NENRE) at the University of Concepción in Chile; and the Environmental Economics Unit, University of Gothenburg in Sweden. This is the first step in forming an independent international organization in support of high quality, policy-relevant research on development and the environment, as well as academic capacity building and in-depth policy interaction.

There have also been productive interactions with other partners, such as the United Nations Environment Programme, the African Development Bank, the Global Green Growth Institute and the Climate and Development Knowledge Platform. We are also happy that our unique way of stimulating policy-relevant research through our EfD Research Fund has attracted funding from the World Bank, in addition to our generous core funding from the Swedish International Development Cooperation Agency (Sida).



# EFD CENTERS

There are nine EfD centers hosted by academic institutions. For more information on each center, please contact the Center Director or Coordinator:

## EFD CENTRAL AMERICA

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

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## EFD ETHIOPIA

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## Sida

The Swedish International Development Cooperation Agency, Sida, provides core funding for the EfD Initiative.





**To find out more about our work and the EFD Initiative:**

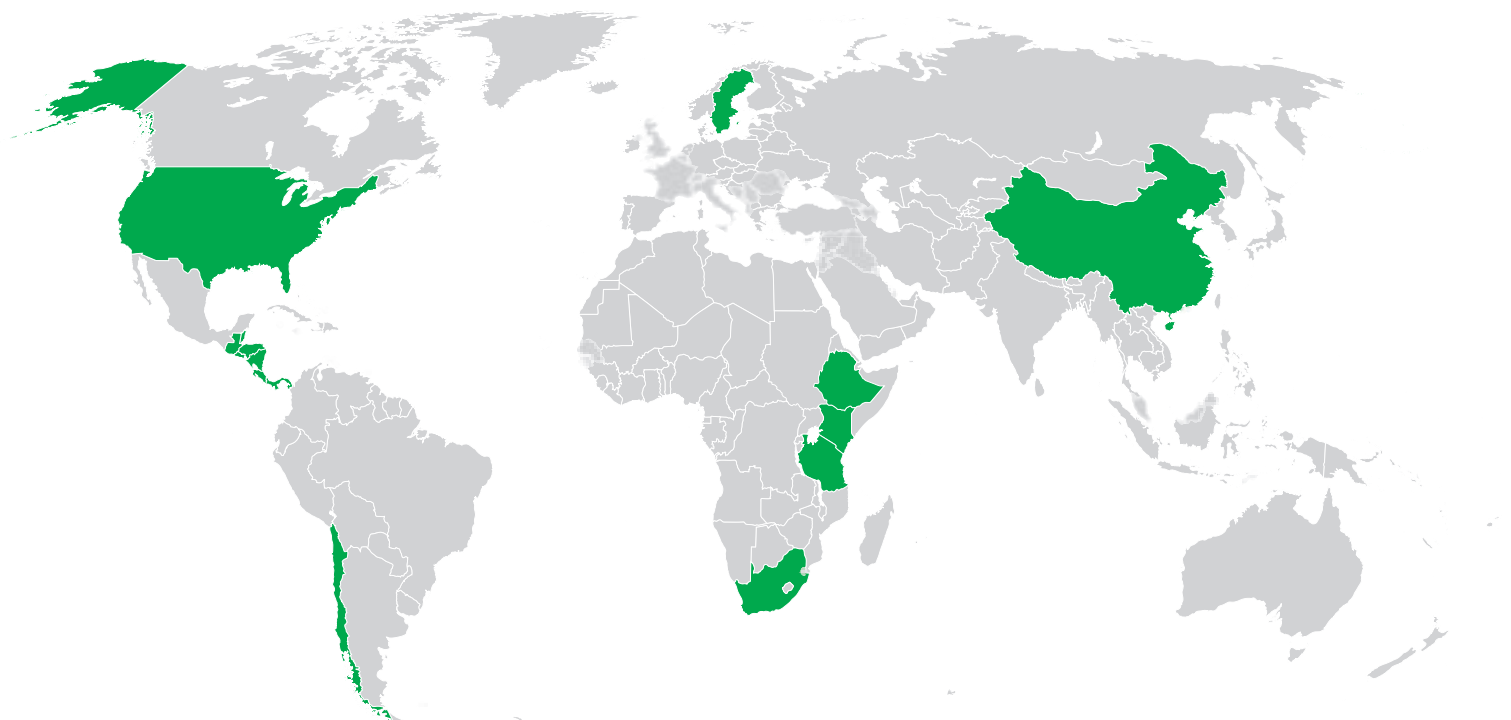
Please visit [www.efdinitiative.org/south-africa](http://www.efdinitiative.org/south-africa)

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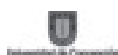


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