
International Conference on:

Payments for Ecosystem Services and their Institutional Dimensions



November 10-12, 2011
Berlin, Germany

- Conference Program -



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Welcome!

Welcome to the international conference on "Payments for Ecosystem Services and their Institutional dimensions". The conference will focus on the institutional frameworks and governance structures of PES schemes in both, developing and industrialized countries.

Ecosystem Services (ES) are broadly defined as the benefits humans obtain from ecosystems. Their delivery is increasingly threatened by unsustainable economic, technological and social developments, especially as many ES are public goods and common pool resources characterized by open access or imperfect property rights. Thus, a gap between private interests and societal benefits from land use practices arises. This situation is aggravated by current market signals, which encourage and push land users to increasingly convert unmanaged into managed ecosystems and to intensify commodity production.

Societies need to find adaptive management instruments to halt these developments and to mitigate environmental degradation. Payments for Ecosystem Services (PES) - a type of market-based environmental policy instrument - are discussed as a relatively new and innovative response to these problems. As a voluntary mechanism PES aim at creating financial incentives to balance private land use decisions with social interests.

So far, most research regarding PES schemes is focused on developing countries, frequently emphasizing in particular the potential to leverage PES instruments as a pro-poor growth tool. Certainly, industrialized countries have advantages regarding the overall institutional structure backing PES instruments. Apart from PES-like government-financed agri-environmental measures, the PES concept has not been analyzed much within the latter countries. What do PES schemes look like there? For the management of which ecosystems and cultural landscape services and under which institutional framework is the concept a well-suited approach in those countries? What are the limits for this kind of schemes?

The conference aims to take a look beyond the PES concept in mere theory, investigating the different actors and their institutional arrangements that make a PES work in practice.

It is intended to (1) examine in particular the concept of PES schemes in industrialized countries. What is the institutional environment there and what are its (dis-) advantages? Which governance structures exist? Who are the key stakeholders? Furthermore it is planned that participants may learn from the experiences of the developing countries through (2) discussing and comparing the diverse institutional settings between developing and industrialized countries (3) elaborating their respective strengths, weaknesses and pitfalls for PES schemes (4) highlighting the various lessons learned from current schemes, to finally (5) enabling a mutual dialogue of suggestions between developing and industrialized countries regarding the potential to further and actively consolidate the PES concept.

The following questions will be of specific interest:

- What are the institutional arrangements behind PES schemes?
- What are the roles of the different actors (state, economy, civil society) in PES schemes and why? How do they cooperate and share responsibilities?
- What is the specific capacity of actors from civil society in PES schemes?
- What do or how should governance structures look like?
- What participation mechanisms are in place and why?
- What is the role of property rights in PES initiation, design and implementation?
- What difficulties must be overcome in PES designs (e.g. commodification of ES, validation and monitoring of ES delivery etc.)?
- What are the strengths and weaknesses as well as the limits and obstacles of PES when compared to other approaches (such as e.g. crowding out effects, etc.)?

Organizers:

Facilitators of the conference are the research group CIVILand based at the Leibniz-Centre for Agricultural Landscape Research (ZALF) in cooperation with the Professorship of Environmental Policy and Economics at ETH Zurich and the Professorship of Ecological Services at the University of Bayreuth.

CIVILand research group

www.civiland-zalf.org

CIVILand is a junior research group chaired by **Bettina Matzdorf** focusing on Payments for Ecosystem Services in the context of civil society initiatives. Through their work, CIVILand hopes to raise a new perspective in the current international discussion on PES. The research group is based at the Leibniz-Centre for Agricultural Landscape Research (ZALF) and is funded by the Federal Ministry for Education and Research (BMBF) through the research program "Social-ecological Research". CIVILand conducts research in cooperation with various partners in Germany, the United States and Great Britain. CIVILand consists of an interdisciplinary team, which brings together relevant scientific expertise from applied environmental research, sociology as well as economics and political science. This way, the research subjects are explored from different perspectives to finally produce a joint new concept.

The research team is composed of three post-doctoral associates and four PhD students supported by project assistants and students.

The following CIVILand members were involved in the conference organization:

Bettina Matzdorf, Claudia Sattler, Claas Meyer, Sarah Schomers, and Lina Yap
Their biographies can be found in section "CIVILand team".

Professorship of Environmental Policy and Economics at ETH Zurich

www.pepe.ethz.ch

The Professorship of Environmental Policy and Economics (PEPE) chaired by **Stefanie Engel** is part of the Institute for Environmental Decisions (IED) and the Department of Environmental Sciences at ETH Zurich. The Professorship integrates economics, political science, and law in the analysis of environmental policy, environmental governance, and environmental decisions. Research issues include the policy and econom-

ics of ecosystem services, and the role of networks, information, and preferences in policy making and for commons management. Our geographic focus ranges from Switzerland and other industrialized countries to developing countries such as Brazil, Ethiopia, India, and Indonesia. Teaching at PEPE focuses on the role of environmental, resource and behavioral economics, political science and law for understanding human-environment systems.

Stefanie Engel's biography can be found in section "Keynote speakers".

Professorship of Ecological Services at the University of Bayreuth

www.pes.uni-bayreuth.de

The main goal of the Professorship of Ecological Services (PES) chaired by **Thomas Koellner** is to establish a research and teaching program to understand the societal relevance of ecosystem services given global change scenarios. For stimulating high practical relevance the research on ecosystem services is embedded in "real" decision contexts. The research program focuses on spatial-temporal models of the supply of and demand for ecosystem services aiming to investigate the complex of human decision-making, resulting land use/cover, biodiversity and ecosystem services given scenarios of climate change, market change and policy development. The teaching program shall equip students with knowledge and methods to address complex environmental problems in science and practice from an interdisciplinary viewpoint.

Thomas Koellner's biography can be found in section "Expert panelists".

Program overview:

A sessions: Kurfürsten- und Ostseesaal
 B sessions: Schinkelsaal

Day 1: Thursday, November 10, 2011

11:00	Registration opens	
13:00 - 13:10	Welcome and Introduction	
13:10 - 14:10	<u>Plenary session 1:</u> Payments for Ecosystem Services and their Institutional Dimensions	
14:10 - 16:10	<u>Breakout session 1A:</u> PES and its Institutional Setting	<u>Breakout session 1B:</u> Identification of Demand and Supply
16:10 - 16:30	Coffee break	
16:30 - 18:30	<u>Breakout session 2A:</u> User-Financed PES Schemes	<u>Breakout session 2B:</u> The Issue of Commodification
18:30 - 19:00	Coffee break	
19:00 - 20:00	<u>Poster session:</u>	
20:00	End of official program Day 1 (Gathering for the conference dinner)	
21:00 - 23:15	Conference dinner	

Day 2: Friday, November 11, 2011

8:00	Registration opens	
8:30 - 9:30	<u>Plenary Session 2:</u> PES and their Institutional Dimensions	
09:30 - 11:30	<u>Breakout session 3A:</u> PES and its Actors	<u>Breakout session 3B:</u> New Approaches to Improve Efficiency and Effectiveness
11:30 - 11:45	Coffee break	
11:45 - 13:45	<u>Breakout session 4A:</u> Agri-Environmental Measures	<u>Breakout session 4B:</u> Experience and Experiments on Institutional Design
13:45 - 14:45	Lunch Break	
14:45 - 16:25	<u>Plenary session 3 - Expert panel:</u> PES and their Institutional Dimensions - Lessons Learned	
16:30 - 17:00	Summary of conference outcomes and final discussion	
17:00	End of official program Day 2	

Day 3: Saturday, November 12, 2011 - Spreewald excursion, 8:30-16:30

Detailed program:

A sessions: Kurfürsten- und Ostseesaal
B sessions: Schinkelsaal

Day 1: Thursday, November 10, 2011

11:00	Registration opens	
13:00 - 13:10	Welcome and Introduction <i>Bettina Matzdorf (ZALF)</i>	
13:10 - 14:10	<p><u>Plenary session 1:</u> Payments for Ecosystem Services and their Institutional Dimensions</p> <p>Keynote speaker 1: <i>Stefanie Engel (ETH Zürich, Switzerland)</i> Institutional Dimensions of PES - An Overview of Selected Research</p> <p>Keynote speaker 2: <i>Erik Gómez-Baggethun (Universidad Autónoma de Barcelona, Spain)</i> Payments for Ecosystem Services and the Commodification Process</p> <p>Chaired by: <i>Claudia Sattler (ZALF)</i></p>	
14:10 - 16:10	<p><u>Breakout session 1A:</u> PES and its Institutional Setting</p> <p><i>Claudia Sattler, Bettina Matzdorf, Sarah Schomers, Claas Meyer (ZALF)</i> Multi-Classification of Payments for Ecosystem Services</p> <p><i>Thomas Legrand, Géraldine Froger, Jean-Francois Lecoq (CEMOTEV)</i> Institutional Performance of Payments for Environmental Services: An Analysis of the Costa Rican Program</p> <p><i>Irina Prokofieva, Elena Górriz (Centre Technologic Forestal de Catalunya)</i> Institutional Analysis of PES Schemes for the Provision of Forest Goods and Services in Catalonia (North-East Spain)</p> <p><i>Akhmad Fauzi, Zuzy Anna (Bogor Agricultural University)</i> Firms, Forest and Fiscal: Complexity of Institution of Indonesian Payment for Environmental Services Programs</p> <p><i>Guillaume de Buren (idheap)</i> Why Does the Potential for PES Implementation Differ?</p> <p>Chaired by: <i>Christian Schleyer (Berlin-Brandenburg Academy of Sciences and Humanities)</i></p>	<p><u>Breakout session 1B:</u> Identification of Demand and Supply</p> <p><i>Fongwa Ernest Anye, Albrecht Gnauck (Brandenburg University of Technology)</i> Establishing Potential Payment for Intangible Ecosystem Services: The Case of UNESCO Biosphere Reserve Spreewald</p> <p><i>Frank Wätzold, Martin Drechsler (Brandenburg Technical University Cottbus)</i> Agglomeration Payment, Agglomeration Bonus or Homogeneous Payment?</p> <p><i>Ernst-August Nuppenau (JLU Giessen)</i> Value Detection of Species through Payment for Eco-System Services and Landscape Management: Integrating Willingness to Pay for ESS and Nature Provision in Approaches of Biodiversity Management</p> <p><i>Tobias Wünsch, Mercelyne Khalumba, Karin Holm-Müller, Mirijam Büdenbender (University of Bonn)</i> The Cost-Effectiveness of Combining Reforestation Auctions with Performance Based Payments - A Field Trial in Rural Kenya</p> <p>Chaired by: <i>Stefanie Engel (ETH Zürich)</i></p>
16:10 - 16:30	Coffee break	

16:30 - 18:30

Breakout session 2A:

User-Financed PES Schemes

Marcela Munoz Escobar, Camilo Pineda Weffer, Robert Holländer (University of Leibzig)

Institutional Analysis of Payment for Watershed Ecosystem Services. Lessons from Two Case Studies in Colombia and Germany

Janita Volkers, Christian Albert, Christina von Haaren, (Leibniz University of Hannover)

Paths and Pitfalls of (Monetary) Compensation for Ecosystem Services. A Comparison of Monetary and Non-Monetary Compensation Approaches in German Environmental Intervention Regulation

Fabien Quétier, Sven Wunder, Sandra Lavorel (LECA-CNRS)

Habitat Banking in France: Experimenting with a Nascent PES Framework for Biodiversity Conservation

Silvia Cristina Rodríguez Valladares, Cecile Brugere (University of York)

Assessment of the Potential for Payments for Ecosystem Services and Mechanisms for Implementation in the Case of Shrimp Aquaculture Development in Thailand

Chaired by: *Sarah Schomers (ZALF)*

Breakout session 2B:

The Issue of Commodification

Stefan Baumgärtner, Morith Drupp, Jasper Meya, Jan Munz, Martin F. Quaas (Leuphana University of Lüneburg)

Income Distribution and Willingness to Pay for Ecosystem Services

Angela Kopmann, Katrin Rehdanz (Kiel Institute for the World Economy)

A Human Well-being Approach for Assessing the Value of Ecosystem Services

Bas Amelung, Machiel Lamers (Wageningen University)

Tradable Visitation Permits as a Management Tool for Remote Areas: An Application to Antarctic Tourism

Karsten Grunewald, Ralf-Uwe Syrbe, Olaf Bastian (Leibniz Institute of Ecological and Regional Development)

Costs of Landscape Management - Exemplarily Calculation for Saxony (Germany)

Chaired by: *Angela Meyer (IDC)*

18:30 - 19:00

Coffee break

19:00 - 20:00

Poster session:

Bunafsha Mislimshoeva, Thomas Koellner (Bayreuth University)
PES for Forest Rehabilitation in Tajikistan

Regina Neudert, Melanie Mewes, Frank Wätzold (Universität Cottbus)
Challenges of Designing a PES-Scheme in South-Western Madagascar

Karin Reiter, Achim Sander (Johann Heinrich von Thünen-Institute)
Supply of Ecosystem Services by Natura-2000-payments- Analysis of the Instrument and its Implementation

Valérie Bossi Fedrigotti, Christian Fischer, Francesco Marangon, Stefania Troiano (Free University of Bolzano)
Payments for Ecosystem Services (PES) for Traditional Land-use Systems in South Tyrol, Italy: The Case of Chestnut Orchards and their Recreational Benefits

Pierre Alexandre Maizière, Froger (CEMOTEV/UVSQ)
Exploring Socioeconomic Impacts and Governance of Payments for Environmental Services. Lessons from the Democratic Republic of Congo.

Isabel van de Sand (Deutsches Institut für Entwicklungspolitik - DIE)
Payments for Ecosystem Services and Adaptation to Climate Change - Insights from a Watershed in Kenya

JF Le Coq, G Froger, T Le grand, D Pesche, F Saenz (CIRAD / ART-Dev)
The Evolution of the Costa Rican Program of Payment for Environmental Services: A Learning Process and Stakeholders' Balance of Power Perspective

Sandra Derissen (University of Kiel)
What are PES? - Discussion of Terms and Some Definitions

Ines Freier, Benjamin Kiersch (HTW Berlin / FAO in Santiago, Chile)
Voluntary Environmental Standards as Payments for Ecosystem Services

Heini Vihemäki (World Agroforestry Centre)
Institutional Challenges for Ensuring Conditionality and Fairness of Payments for Ecosystem Services in Tanzania

20:00

End of official program Day 1 (Gathering for the conference dinner)

21:00 - 23:15

Conference dinner

Day 2: Friday, November 11, 2011

8:00	Registration opens	
8:30 - 9:30	<u>Plenary Session 2:</u>	
	PES and their Institutional Dimensions	
	Keynote speaker 1:	
	<i>Sven Wunder (CIFOR, Brazil)</i>	
	Payments for Environmental Services: Institutional Preconditions in Developing Countries	
	Keynote speaker 2:	
	<i>Stuart Whitten (CSIRO, Australia)</i>	
	Landholder Engagement in Conservation Tenders as a Function of Institutional Design: A Case Study of Biodiversity Tenders in the Wimmera CMA Region, Australia	
	Chaired by: Thomas Koellner (<i>University of Bayreuth</i>)	
09:30 - 11:30	<u>Breakout session 3A:</u>	<u>Breakout session 3B:</u>
	PES and its Actors	New Approaches to Improve Efficiency and Effectiveness
	<i>Bettina Matzdorf, Claudia Sattler, Sarah Schomers (ZALF)</i>	<i>Timm Kroeger (The Nature Conservancy)</i>
	The Relevance and Role of Civil Society in PES Schemes - A Case Study Analysis of PES Schemes in Germany and the US	Designing the Optimal PES: Theory, Reality and the Challenge of Measuring Biophysical and Welfare Returns on Conservation Investments
	<i>Cecilia Michellis, Elena Borzenkova, Kirsten Boer, Paula Rolffs (Ecologica Institute)</i>	<i>Bernd Hansjürgens, Paul Lehmann (Helmholtz Centre for Environmental Research - UFZ)</i>
	Lessons Learned from the Carbon Markets in Brazil	Using Auctions to Allocate Payments for Ecosystem Services - Experiences from the US Conservation Reserve Program
	<i>Linda Bigga, Robert Holländer (Universität Leipzig)</i>	<i>Sandra Derissen (University of Kiel)</i>
	Financial Involvement of Private Actors in the Revitalisation of Urban River Spaces	Implementing Performance-Based Payments for the Enhancement of Chlidonias Niger (Black Tern) in Eiderstedt/Germany
	<i>Marie Hrabanski, Jean-Francois Lecoq, Bidaud Cécile, Méral Philippe (CIRAD)</i>	<i>Wain Collen, David Elliott (International Institute for Industrial Environmental Economics, Lund University)</i>
	The Role of the Main Environmental NGOs in the Spread of "Ecosystem Services" Notion and PES-Instruments: a Madagascar, Costa Rica and France Comparison	Benefit Distribution from Common-Pool Resource Management: Lessons from a Case Study in the Ecuadorian Amazon
	<i>Chaired by: Tim Schloendorn (ETH Zürich)</i>	<i>Chaired by: Erik Gómez-Baggethun (Universidad Autónoma de Barcelona)</i>
11:30 - 11:45	Coffee break	

11:45 - 13:45	<p><u>Breakout session 4A:</u> Agri-Environmental Measures</p> <p><i>Sarah Lynch, Leonard Shabman (WWF)</i> Addressing Institutional Challenges to Implementing a Contract Based Payment for Environmental Services Program: A Collaborative Approach to Program Design</p> <p><i>Ruth Waters (Natural England)</i> Delivering Nature's Services: Moving Towards a Payment for Ecosystem Services Scheme in the English Uplands</p> <p><i>Christian Schleyer, Tobias Plieninger (Berlin-Brandenburg Academy of Sciences and Humanities)</i> Obstacles and Options for the Design and Implementation of Payment Schemes for Ecosystem Services Provided Through Farm Trees in Saxony, Germany</p> <p><i>Philippe Bonnal, Caroline Maury, Jean-Francois Le Coq, Muriel Bonin, Thomas Legrand, Philippe Méral (CIRAD)</i> Payments for Environmental Services and Environmental and Territorial Governance: Lessons from Empirical Studies</p> <p>Chaired by: <i>Claas Meyer (ZALF)</i></p>	<p><u>Breakout session 4B:</u> Experience and Experiments on Institutional Design</p> <p><i>Nora Vogt, Kilian Bizer (Georg-August Universität Göttingen)</i> The Usual Suspects - Lock-in Effects and the Role of Social Capital in Multiple-sign Up Conservation Auctions. An Experimental Approach</p> <p><i>Tim Schloendorn, Marcella Veronesi, Astrid Zabel, Stefanie Engel (ETH Zurich)</i> Permanence in REDD+ Projects: The Case of Ecocharcoal Policies</p> <p><i>Lasse Loft, Torsten Krause (Biodiversity & Climate Research Center BiK-F)</i> From Global to Local - the Status and Design of Benefit Sharing Mechanisms Under REDD+, Cases from Ecuador and Cameroon</p> <p><i>Jetske Bouma, E Ansink (VU University Amsterdam)</i> Community Co-management and the Perceived Legitimacy of Conservation</p> <p>Chaired by: <i>Cecilia Michellis (EI)</i></p>
13:45 - 14:45	Lunch Break	
14:45 - 16:25	<p><u>Plenary session 3 - Expert panel:</u> PES and their Institutional Dimensions - Lessons Learned Experts will give a short input statement followed by a discussion</p> <p>Expert panelists: <i>Sarah Lynch (World Wildlife Fund, USA)</i> <i>Angela Meyer (Organization for International Dialog and Conflict Management, Austria)</i> <i>Cecilia Michellis (Ecologica Institute, Brazil)</i> <i>Timm Kroeger (The Nature Conservancy, USA)</i> <i>Thomas Koellner (University of Bayreuth, Germany)</i></p> <p>Chaired by: <i>Claudia Sattler (ZALF)</i></p>	
16:30 - 17:00	<p>Summary of conference outcomes and final discussion <i>Bettina Matzdorf and Claudia Sattler (ZALF)</i></p>	
17:00	End of official program Day 2	

Day 3: Saturday, November 12, 2011 - Excursion day (optional)

In Germany, the concept of payments for ecosystem services usually refers to the maintenance of cultural landscapes ("Kulturlandschaften") and multi-functional land uses. These are distinct geographical areas and landscapes created by mankind, which preserve and generate distinct ecosystem goods and services. Germany, as well as the EU in general, has a wider view on what constitutes a positive externality within agricultural lands. This includes for example traditional farming practices, cultivation of rare and ancient seeds, husbandry of certain endangered animal breeds as well as the maintenance of distinct landscapes.

The field trip to visit a German PES example in practice will be a guided tour to the Spreewald region, located about 100km south-east of Berlin. The region was designated as a biosphere reserve by UNESCO in 1991 and maintains a landscape characterized by traditional irrigation systems, alder forests on wetlands and traditional agricultural land use practices.

This field trip will highlight the marketing of and payments for the maintenance of the traditional cultural landscape and its ecosystem functions and services provided.

The schedule for this field trip is as follows.

- 8:30 Bus departs from Berlin City Centre (Conference Venue),
Vertretung des Landes Brandenburg beim Bund, In den Ministergärten 3
- 10:00 Arrival at the Biosphere Reserve Spreewald
Welcome and introduction to the Biosphere Reserve Spreewald at the "State Office for Environment, Health and Consumer Protection" in Luebbenau
- 10:30 Visit of the local farmers market in Göritz with lunch break.
Guided walk through the Biosphere Reserve Spreewald to explain how Payments for Ecosystem Services are applied in practice (approx. 3km).
- 15:00 Bus leaves for Berlin
- 16:30 Arrival in Berlin City Centre (Conference Venue),
Vertretung des Landes Brandenburg beim Bund, In den Ministergärten 3

Paper abstracts:

Day 1: Thursday, November 10, 2011

Invited keynote speaker presentations - Plenary session 1:

Institutional Dimensions of PES - An Overview of Selected Research

Stefanie Engel

(ETH Zurich, Switzerland)

Corresponding author: stefanie.engel@env.ethz.ch

The presentation starts by reviewing different definitions and economic conceptualizations of payments for environmental services (PES). Specifically, PES can be conceptualized as a kind of 'Coasian negotiation' or as an 'environmental subsidy-like' policy intervention. The distinction is important for understanding different types of PES, their potentials and limitations, and the role of different actors in PES. After briefly discussing these aspects, the presentation reviews insights from own research on other institutional dimensions of PES, including different aspects of payment design (payment design across space, payment design across time, and group payments).

Payments for Ecosystem Services and the Commodification Process

Erik Gómez-Baggethun

(Autonomous University of Barcelona, Spain)

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Since the late 1980s environmental policy has growingly used market forces for the design of economic incentives to promote sustainable use of ecosystems and ecosystem services. The market approach to environmental policy is being implemented through two main mechanisms: Market for Ecosystem Services and Payments for Ecosystem Services. The «polluter pays principle» underpinning the former is complemented with the «steward earns principle» underlying the latter.

Despite some countries have experimented with such mechanisms for at least fifty years, the notion that public ecosystem benefits can be the subject of appropriation, monetization, and commodification constitutes a relatively recent phenomenon in economic thinking, and its implementation has not escaped controversy. I review the historic development of the conceptualization of ecosystem services and examine critical landmarks in economic theory and practice with regard to the incorporation of ecosystem services into markets and payment schemes.

I analyze how the evolution of ideas within economic thinking have paved the way, first, for the conceptualization of ecosystem services as exchange values, and then, for the treatment of ecosystem services as actual commodities that can be freely sold and bought in markets through the range of mechanisms labeled as variants of Payments for Ecosystem Services.

Paper presentations – Breakout session 1A:

Multi-Classification of Payments for Ecosystem Services

*Claudia Sattler, Bettina Matzdorf, Sarah Schomers and Claas Meyer
(ZALF, Germany)*

Corresponding author: csattler@zalf.de

Payments for Ecosystem Services (PES) are defined in different ways and a wide variety of highly different approaches are currently summarized under this label. This paper introduces a system for the multi-classification of existing PES. The classification is based on a list of different criteria and their specifications. The list includes, amongst others, the following items: funding source (private vs. public), recipient of funds (e.g. land owner or land manager of agricultural vs. forest lands), types of actors involved (e.g. actors from the civil society, the state and the market sector), ecosystem service paid for (different types of services, single vs. bundled services), payment modes (e.g. input- vs. output-based), time scale (long vs. short-term), spatial scale (local to global), and targeted precision (open to everyone vs. addressed to a specific clientele). The developed system is used to classify more than 50 PES case studies from Germany and the United States as an example.

Institutional Performance of Payments for Environmental Services: An Analysis of the Costa Rican Program

*Thomas Legrand, Géraldine Froger and Jean-Francois Lecoq
(CEMOTEV, France)*

Corresponding author: geraldine.froger@uvsq.fr

Our contribution will focus on the case of Costa Rica to shed light on the debates over the assessment of "Payments for Environmental Services" (PES) thanks to an analysis of the Costa Rican PES program (PESP) instituted in 1996. After fifteen years of experience, more than two hundred million cumulative dollars invested, and over 700,000 ha of forest contracted in the PES program (PESP) (some 13% of the national territory), we attempt to answer the question "what is the institutional performance of the PESP as a conservation tool?" An extensive and dynamic literature exists about Costa Rica's PES but relatively few studies have taken into account the institutional nature of the Costa Rican PESP in their understandings of its performance. They rather adopt a cosean perspective on the program (Muranian et al. 2010), focusing on its cost-effectiveness (efficiency). Our objective is to provide an institutional understanding of the PESP performance. We focus on environmental and economic outcomes induced by this program. Thus, our aim is to go beyond traditional impact studies that focus on direct and short term performance of the PESP and consider also indirect and long term potential outcomes. We also assess how effectively the PESP interacts with other institutions in order to analyze if the PESP contributes or not to strengthen the effectiveness of the institutional framework for forest protection in Costa Rica. Our contribution focuses on the forest protection modality of the PESP, by far the most important. The PESP has had a low direct impact on the forest cover of the country but may have had an important indirect impact as it served as compensation for the prohibition of forested land uses change. This program appeared also quite competitive from the point of view of its costs before the institutional transformation of the National Forestry Financing Fund (FONAFIFO), the trust fund in charge of the PESP, which occurred in 2008. The PESP has also proved to be a very effective fundraising tool, but it has failed in the development of strong synergies with other institutions for forest protection and it has not supported the development of sustainable forest management. From a cosean perspective, a significant potential for improvement of the PESP cost-effectiveness exists on the short term through changes in the program's rules. However, these changes often deny the program's institutional nature and could jeopardize the program effects on the

long term. A safer way to improve the PES institutional performance is to focus on strengthening its management and governance.

Institutional Analysis of PES Schemes for the Provision of Forest Goods and Services in Catalonia (North-East Spain)

Irina Prokofieva and Elena Górriz

(Centre Tecnologic Forestal de Catalunya, Spain)

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Payments for ecosystem services (PES) have recently attracted attention as a potential solution for aligning the interests of landowners and society by remunerating forest owners for the goods and services their forests produce. As PES schemes are being extensively adopted around the world, many questions related to the institutional dimensions of these schemes, as well as the role of different actors and contextual factors in PES initiation, design and implementation, arise.

This paper attempts to gain understanding of these issues by analyzing three voluntary incentive schemes currently implemented in Catalonia: land stewardship (LS) - a predominantly private PES scheme aimed at enhancing biodiversity, mature forest reserves (MFR) - a predominantly public scheme for protecting old-growth forest stands, and a mixed public-private initiative for forest fire protection - forest defense groups (FDG). Drawing on the conceptual framework for analyzing social-ecological systems elaborated by Ostrom (2007), we focus our analysis on actor and institutional interactions and outcomes that are likely to result from schemes implementation and draw conclusions regarding the factors that influence the success and the durability of these schemes. We group these factors into those related to ecosystems and ecosystem services addressed by PES, instrument design characteristics, related stakeholders, related institutions and external factors.

Firms, Forest and Fiscal: Complexity of Institution of Indonesian Payment for Environmental Services Programs

Akhmad Fauzi and Zuzy Anna

(Bogor Agricultural University, Indonesia)

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Payment for Environmental Services (PES) has been widely adopted worldwide as new market-based initiative for conservation and environmental management. In Indonesia several PES initiatives exist ranging from watershed and terrestrial to marine ecosystem. Nevertheless, developing and managing PES programs in Indonesia are exacerbated by the complexity of institutional arrangements. Fiscal constraints are still the main obstacle of sustainable financing of PES mechanism. Rules and regulations with regard to PES fiscal mechanism are rather lacking making it difficult for effective management of PES program. As a consequence, efficient mechanism between users (firms) and environmental services is rather weak. This paper explores such a problem using case study of two existing PES programs in Indonesia. The paper analyzes the complexity of fiscal mechanism as derivative of regulations, then it discusses challenges to overcome the constraints.

Why Does the Potential for PES Implementation Differ?

Guillaume de Buren

(idheap, Switzerland)

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Different European countries promote payments for environmental services (PES). However we identified limited operational PES scheme, except incentive policy instruments. In this paper, we explain why this seems normal in the continental Europe institutional context.

This paper presents results of an ongoing PhD research at the Swiss Graduate School of Public Administration (idheap). The concrete issue is to determine the possibilities and limits of using contracts for securing the forest ecoservices for water purification in French and Swiss cases. Empirical studies show various opportunities for PES implementation on each side of the border. This observation raised our research question: Considering that there are diverse potentials for PES implementation in different countries, how can this be explained? To answer it is necessary to take into account the role of the institutional environment in which a PES schemes take place (Davis & North, 1970). PES are not implemented in an institution free context, but rather should be considered as an additional layer in a complex institutional environment.

To understand the articulation between a PES scheme and its institutional environment we need appropriate analytical tools. New institutional economy (Williamson, 2000) gives pertinent inputs to study arrangements, but consider institutional environment as given (although prominent). Yet policy analysis (Knoepfel, 2007) and property-right theory (Bromley, 1991) consider institutional environment as a dependent variable. The institutional resource regime (IRR) analytical framework combines these two approaches considering them as complementary (Gerber & al., 2009). The IRR also operationalize their integration level and allows us to assess the importance of the preexistent constraints that influence the possibilities and limitations for implementing PES schemes. The broad definition of PES, considering state-financed PES as well as bilateral private agreements (Wunder & al., 2008), appears too fuzzy for precise policy studies in continental Europe. The distinction between private and public laws is less prevalent in countries based on common law, but is crucial to understand institutional environment rooted in Roman-Germanic legal tradition (Gerber et al., 2009).

Environmental policy measures rooted in public law (like agri-environmental payments) are topics of public policy analysis, while PES as direct agreements between providers and beneficiaries take place in the leeway of specific institutional settings. Therefore we think that through IRR analysis, potential for such direct PES can be determined. Thus we can state the general hypothesis that: the less integrated the institutional regime is, the greater the leeway is, in which actors can developed self-regulated institutions like PES. A contrario, the more the institutional regime sets clear-cut constraints, the narrower this margin of manoeuvre is for the actors. Our empirical results confirm it.

Paper presentations – Breakout session 1B:

Establishing Potential Payment for Intangible Ecosystem Services: The Case of UNESCO Biosphere Reserve Spreewald

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Many stakeholders are increasingly willing to know the potential value of intangible ecosystem services (ES) in monetary terms of a parcel of land. This is for establishing payment schemes for them (tax, earnings) base on different interests, which is very challenging due to the difficulties in finding the monetary value of natural systems. Also trying to figure out the trajectories of all the biophysical processes and functions that provide ES is challenging as well. Therefore quantifying their values with regards to processes and functions, their appropriate value may not be captured in monetary terms. Especially as some processes that provides those services maybe spontaneous, continuous or discrete (Fongwa et al., 2010a) requiring a longer observation time period. This makes it very complex.

However, economic evaluation techniques have been used to estimate the potential value for Payment for ES (PES), especially to set an elasticity tax system to preserve them that may be also practical ineffective on a landscape scale. Fongwa and Gnauck (2009) used socio-economic models to argue on value creation from them for business development as a mean of their payment. That is deriving potential demand and supply for ES within multi-actor activities at a particular parcel of land within a particular time period. Then one can derive potential PES based on market structure for them. This is as we understand that the demand and supply determine the price through a market system, which can be the basic for deriving the monetary value of ES at a landscape scale. There are potential markets for preserving ES (Fongwa et al., 2011), which can also support efforts for balancing ES at the landscape (Fongwa et al., 2010b).

This paper presents derived demand and supply for intangible ES at the UNESCO Biosphere Reserve Spreewald (BRS) for establishing their market in the region. The procedure is discussed in more details and presents a unified Petri net model for managing ES in the region as a means of preserving and giving them value. This can justify the argument for appropriate PES through market institutions that requires appropriate capacity building to foster their growth. The conclusion is that market institutions can provide appropriate payment for ES, especially in the UNESCO BRS as a means for supporting their preservation in the region.

Agglomeration Payment, Agglomeration Bonus or Homogeneous Payment?

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Ecologists hold that the connectivity of habitat is of importance for the survival of endangered species. Therefore, when designing compensation payments for biodiversity conservation measures one key issue is to set appropriate incentives in a way that land-owners provide contiguous habitat. In this respect an agglomeration bonus has been proposed where land-owners receive a bonus on top of a homogeneous payment if conserved land is spatially connected.

However, is the agglomeration bonus really a superior design option for payment schemes? Although better connected habitat patches are more valuable for conservation the restriction to select connected habitats may imply that more costly patches need to be included in the scheme than if patches can be selected from the entire landscape. Starting from this observation Drechsler et al. (2010) compare the budget efficiency of spatially homogeneous payments with agglomeration payments (payments

are only made when a certain spatial density of habitat patches is generated), and find that the budget efficiency of agglomeration payments is always better (or equal to) homogeneous payments. Lewis et al. (2011) compare several design options for conservation incentive schemes in the Willamette Basin, Oregon, and find that including incentives for providing contiguous habitats in the design of schemes can significantly enhance their cost-effectiveness. This and other research has improved our understanding of how best to design incentives for habitat connectivity. However, we still lack a systematic understanding under what ecological and economic conditions the above-mentioned results hold, and a comparison of the two different design options that have been analyzed to create contiguous habitat - the original agglomeration bonus idea and the agglomeration payment.

We compare the budget efficiency and cost-effectiveness of the agglomeration bonus with spatially homogeneous payments and agglomeration payments in a conceptual model for different economic and ecological parameters (budget size, dispersal ability of species, differences of costs in the landscape and correlation of costs).

A key result is that agglomeration payments or homogeneous payments are always better than the agglomeration bonus in terms of cost-effectiveness and budget efficiency. This finding is important for policy-making because many policy recommendations explicitly refer to the agglomeration bonus idea, and a so-called "network bonus scheme" in Switzerland actually mirrors the agglomeration bonus idea.

Value Detection of Species through Payment for Eco-System Services and Landscape Management: Integrating Willingness to Pay for ESS and Nature Provision in Approaches of Biodiversity Management

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This paper deals with the problem of using PES in the management of biodiversity (BD), if beneficiaries and providers have only a broad understanding of the underlying ecology. We refer to an ecosystem service (ESS) provision problem in which biodiversity is the core of establishing the service, though land users and ESS providers (farmers) have limited knowledge. The service can be nutrient recycling or something similar noticeable at a macro level. However, the typical problem is that, though, there exists a vehicle for payment (nutrients, water, combating erosion) the underlying complexity of the ES can not be well presented in payment schemes. In contrast the managers of the eco-system (ecologists) need much more detailed information on the priority setting as they usually find in PES. The reason is: users can only broadly specify their benefits. To solve that problem we suggest an approach in which the ES management is conducted by ecologists having the knowledge on the functional relationships between species prevalence and service provision. Landscape managers (ecologist) play an active role. Giving them payments and letting them design payment schemes (for example, on the basis of natural elements in landscapes, necessary to achieve favorable biological situations) one can improve the interaction of users and providers in PES. The idea is finding relative values (prices) for species in the case of an ES management in a cultural landscape. It tries to coordinate willingness to pay and willingness to accept in PES for an ecologically motivated redesign of a landscape. We look explicitly at a priority setting in a landscape based on expertise of landscape ecologists. So we do not assume a simple "market" for ESS; rather see landscape management as intermediary. For this concept we use shadow price analysis and derive flexible functional forms that allow us to conduct detailed valuations. User preferences for ESS, as usually found in PES, serve as finance. Valuation (of species) itself is presented as a market like process of balancing value revelations, shadow prices, of providers (farmers), who want compensation payments for changing practices, ecologist, who want to maximize a certain preferred species composition being characterized by a high biodiversity, and users (other benefiting farmers of ESS), who want to ripe benefits from ES, though pay. The conflict between managers, who argue ecologically for preferred species compositions, and land users is solved by balancing interests. This allows a quasi market simulation. The paper is organized such as that: shadow price are

derived in programming; objective functions for participant are outlined; demand supply functions are specified; the special role of ecologists is addressed; a balanced solution on values and species prevalence is outlined. The paper serves to develop programming tools which will help to solve the problem of joint ecological and economic evaluation.

The Cost-Effectiveness of Combining Reforestation Auctions with Performance Based Payments - A Field Trial in Rural Kenya

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The increased interest in, and application of payments for ecosystem services calls for mechanisms that are highly cost-effective. In participatory field trials with communities in Western Kenya, we combined procurement auctions for reforestation contracts with payments based on contractor performance, measured as number of survived seedlings. We compared the cost-effectiveness of this approach to a baseline approach that is currently applied by the Kenyan Forest Services. We found our approach to return a considerably higher cost-effectiveness. The increase in cost-effectiveness is partly due to lower contracting costs as a result of competitive bidding, but even more so to improved seedling survival as a result of the incentives of outcome oriented payments. The latter led to a monitoring intensity which significantly reduced seedling destruction through cattle grazing, one of the major causes of seedling loss. Seedling care, however, also appeared to have been motivated by factors other than performance based payments including i) monitoring costs, ii) community benefits from the reforested areas, and iii) the size of the investment. With respect to equity, participation of poor community members was disproportionately high. We acknowledge the limitation of this study in lacking statistical evidence but find our results to indicate clear trends.

Paper presentations – Breakout session 2A:

Institutional Analysis of Payment for Watershed Ecosystem Services: Lessons from Two Case Studies in Colombia and Germany

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The objective of Payment for Watershed Ecosystem Services (PWES) is to modify land uses in the upper watershed which are expected to provide the ecosystem services of water flow regulation, water quantity and quality. Farmers participating in PWES, receive a payment for changing or maintaining these land uses. Through diverse negotiation mechanisms (user-financed and government financed PWES), this instrument integrates different stakeholders in the governance of the watershed. PWES can be considered an institution established to resolve the environmental conflict derived from the interdependence between land and water users in the watershed. Considering PWES an institution and with the aim to learn from successful PWES, this paper presents an institutional analysis of two case studies: the Bolo River water users association (Asobolo) in the municipality of Pradera, Colombia; and the organic farming in the Mangfalltal catchment's area in Munich, Germany.

Both cases are user-financed schemes and were created in 1993 and 1992 respectively. While the first case is an "in kind" payment scheme, includes among its objectives poverty alleviation and targets the provision of water flow regulation and water quantity ecosystem services, the second case, from an industrialized country, focuses on the provision of water quality in the water supply of the city on Munich. Based on analytical framework of the critical enabling conditions for the sustainability of common pool resource institutions compiled by Agrawal (2001) from the extensive empirical works of Wade (1987), Ostrom (1990) and Baland and Platteau (1996), the aim of the analysis was to identify the critical conditions for the durability of the PWES schemes and to learn for future implementations. The analytical framework applied allows shedding light on the understanding of the critical conditions for the durability of PWES. It was observed that both cases include in their contracts or arrangements established with the land users the conditions of robust institutions: easy rules and simple to understand ease in enforcement of the rules, monitoring and graduated sanctions. It was also identified that some conditions differ in the way they can influence the durability of the PWES such as high dependence on the resource, low discount rate, and low poverty. The differences are mainly related to the different interests and roles of land and water users in PWES. Some conditions were identified to apply in the same way for water and land users groups: appropriate leadership, previous organizational experiences and trust. There are context dependent conditions, but also conditions like those related to the institutional arrangement, which have the equivalent relevance in both cases for the durability of PWES.

Governance Structures and Procedures of Payments for Ecosystem Services in Industrialized Countries: The Case of Environmental Impact Regulation in Germany

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Payments for ecosystem services (PES) increasingly gain interest as a market-based instrument supporting the conservation of natural resources in countries of the global North and South. Reviewing the institutional context and implementation of existing tools and comparing their advantages and disadvantages may contribute to advancing the understanding of effective mechanisms. This paper examines a PES-like instrument that has been extensively applied in Germany for more than three decades

but so far received little consideration in the international research community: Environmental Impact Regulation (EIR, Eingriffsregelung). EIR, mandated under the German Federal Nature Conservation Act and the Federal Building Code, aims at avoiding impairments of ecosystems or, in case environmental damage is unavoidable, at compensating for any ecosystem function impaired by a development. Four questions are addressed: What is the institutional environment and governance context of EIR? Which stakeholders are involved in the implementation of the instrument? Which procedures are used to quantify and monetize potential impacts? To what extent is the instrument effective in supporting a more sustainable use of ecosystems? The paper reviews the historic development of EIR since its introduction in 1976. It introduces the relevant actors of EIR processes, primarily public administrations and private developers interested in realizing development, relevant nature conservation authorities responsible for EIR implementation, and - in some cases - environmental planning consultants. Then, the procedures of EIR are explained in detail, consisting of a decision cascade that first strives to restore an impaired ecosystem function in the same manner, of the same value, and at the same site. If such direct restoration is impossible, material substitution is allowed. This means that the sum of the impaired functions may be restored at a different site, in a different manner, but of identical value. Here, the area of the impaired functions is multiplied by value to calculate the area needed for substitution by different measures. An alternative is to use the restoration cost as reference unit and to calculate the compensation measures accordingly. The ultima ratio of the cascade is monetary substitution. A discussion of the effectiveness of the EIR instrument in practice closes the paper. It argues that monetizing ecosystem functions in EIR has the advantages that (i) money can be spent on a small site establishing high value function or vice versa; and (ii) developers as well as municipalities get an incentive to prioritize the least vulnerable areas for development. The monetary substitution approach has advantages but also serious disadvantages in comparison to material compensation. One disadvantage of the current implementation of the monetary substitution in EIR is that prices are mostly politically defined and not calculated by the restoration cost approach.

Habitat Banking in France: Experimenting with a Nascent PES Framework for Biodiversity Conservation

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Across the world, developers are increasingly required to avoid impacting biodiversity and ecosystem services but also to offset the any unavoidable impacts. Offset requirements have, however, not always been appropriately enforced, due to poor governance, including patchy monitoring and poorly defined liabilities. Yet, we also lack formal methods for designing and sizing offsets, so as to implement them in a timely and effective manner. To try to overcome these difficulties and streamline offset implementation, several countries have or are implementing "banking" schemes. In essence, landowners carrying out actions in favor of ecosystem services and biodiversity conservation - through ecological restoration or other environmentally friendly land-use options - can sell publicly authorized "credits" to developers. Such schemes are now widespread, for example in Germany under the Eingriffsregelung policy, or in the USA for wetlands and endangered species. Under these schemes, developers can generally choose from which bank to purchase the required credits. There is considerable debate whether such banking schemes can be considered Payment for Ecosystem Services (PES) schemes, and whether they produce positive additional conservation effects, rather than primarily whitewashing developers' negative environmental impacts. We will critically discuss under what circumstances habitat banking schemes will resemble PES, using as our case study a habitat banking scheme recently set up in Southern France. In 2008, the French government launched an experiment with habitat banking, in partnership with a specialized subsidiary of a state-owned sovereign fund called CDC Biodiversité. The company has restored over 300 hectares of natural grasslands in the Crau area (near Arles, Southern France) and now manages it as breeding and wintering habitat for endangered steppe-land birds. The

initiative has faced considerable criticism over its expected outcomes (is there a true biodiversity gain?) and the way transactions are made (how are prices set?). In spite of this, the bank has already sold publicly authorized credits to developers. In June 2011, the French government chose to expand this experiment to several other regions. This occurs as offsetting requirements are being strengthened, following the Grenelle 2 consultative process launched by the government in 2007. We will discuss the intertwined technical, financial, legal and governance issues raised by the habitat banking experiment in Crau, and we will analyse it through the lens of a PES scheme to pin-point commonalities and differences between the challenges faced by habitat banking and by the broader family of PES schemes.

Assessment of the Potential for Payments for Ecosystem Services and Mechanisms for Implementation in the Case of Shrimp Aquaculture Development in Thailand

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Global aquaculture production is currently compensating for the decline in wild capture fisheries and has been positively associated with increased food security and income opportunities for rural households. However, the growth of aquaculture has also brought about serious negative impacts on the marine environment which threaten the future of the sector and put its sustainability in question. Mangroves and coastal wetlands have been destroyed or modified as these habitats were converted to milkfish and shrimp ponds. Half of mangroves deforestation is related to aquaculture in Southeast Asia, out of which more than one third to shrimp farming. Consequently, ecosystem services provided by mangrove forests such as nursery areas for wild fish and crustaceans, wildlife habitat, flood regulation, sediment control, and water purification have diminished or been lost. To address this environmental issue as well as non-native species invasion and water pollution, the Thai Government has promoted the adoption of voluntary standards focusing on food safety (Good Aquaculture Practices - GAP) and environmental standards (Code of Conduct for Responsible Shrimp Aquaculture - CoC). Although the adoption of the former is now reasonably widespread, very few farms have adopted the CoC. This suggests that a different form of incentive may be needed to progress towards the wider adoption of sustainable shrimp farming practices in Thailand. In this context, payments for ecosystem services (PES) emerge as a potential tool to make shrimp farming a sustainable activity supporting the provision of mangroves' ecosystem services (MES) in Thailand. Most of existing PES schemes has been applied to the forest and agriculture sectors worldwide. This paper aims to assess the effectiveness of a potential PES scheme tailored to the shrimp farming industry that simultaneously enhances the provision of MES and minimizes the negative impacts of the activity on the provision of such services. The paper reviews the basic conditions for a PES implementation in the Thai situation and identifies the institutions arrangements involved, potential public and private buyers as well as different sellers that the scheme might incorporate. An institutional framework is developed for the identification of institutions and stakeholders whereas a multi-dimensional impact assessment is used to simulate stakeholders' participation and poverty reduction by exploring the different opportunity costs for shrimp farmers. Finally, the paper examines the main features that could construe a PES scheme in shrimp aquaculture and challenges in terms of design, institutional arrangements, and payment allocations. The paper concludes with recommendations on the potential for broadening the use of PES in other aquatic production systems, environments and institutional contexts.

Paper presentations – Breakout session 2B:

Income Distribution and Willingness to Pay for Ecosystem Services

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We study how global income distribution, and income inequality in particular, affects the average willingness to pay (WTP) for ecosystem services. We use a model (extending Ebert 2003) where individual households have identical preferences over consumption goods and ecosystem services, which are represented by a constant-elasticity-of-substitution utility function, and income is log-normally distributed over individuals with given mean and standard deviation. We show that (i) average WTP for ecosystem services increases with mean income if ecosystem services and consumption goods are substitutes or weak complements, and (ii) average WTP for ecosystem services decreases (increases) with income inequality if ecosystem services and consumption goods are substitutes (complements). We illustrate our results with empirical data on the global income distribution (from World Bank 2011) and on the income elasticity of WTP for ecosystem services (from the meta-study of Jacobsen and Hanley (2009)).

A Human Well-Being Approach for Assessing the Value of Ecosystem Services

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Resources and services generated by ecosystems such as food, nutrient cycling and climate regulation are essential for the well-being of mankind in multiple ways. Population growth and increasing economic activity, however, compromise natural systems and thus threaten the provisioning of these goods and services. Climate change is an additional reason for concern. Ensuring a sustainable use of ecosystem services is hence of high importance to society. Payments of Ecosystem Services (PES) provide a market-based policy instrument that creates financial incentives to land users for making sustainable decisions. Although PES schemes have been applied in different contexts in several countries, many difficulties remain. Beside the difficulty of settling institutional arrangements and the validation and monitoring of ecosystem services delivery, the commodification of ecosystem services is one major challenge that has to be faced. To obtain information on the economic value of non-market ecosystem services, environmental valuation methods such as contingent valuation or contingent choice modeling can be applied. Existing studies, however, only analyze services for single types of land cover and have a clear sub-national focus. These approaches thus only allow for providing narrow regional information on the value of ecosystem services and do not support the establishment of consistent PES schemes on a national or even beyond national level. One method that suggests itself for obtaining large scale information on the value of ecosystem services is benefit transfer. Despite an increasing use of this approach, methodological questions remain and no generally accepted global assessment of non-market values of ecosystem services has been provided so far. The objective of this paper is to present an alternative approach for obtaining a social value of non-market ecosystem services providing land areas, which is based on a human well-being analysis. To our knowledge, this paper is a first attempt. As a starting point, the focus of this paper is on Europe. However, this approach can be extended to obtain estimates on a larger scale. The empirical analysis conducted in this paper is based on data of 292 NUTS 2 regions of 31 European countries including 35,634 observations. A regression of life-satisfaction on social, ecological and economic factors including income, climate and the shares of dif-

ferent categories of land area such as agricultural area, pasture, natural forests, natural grass- and scrubland, area with little or no vegetation and wetlands is conducted.

From the estimated relationship marginal willingness to pay (MWTP) estimates for the different categories of non-market ecosystem services providing areas are derived. The estimation results from this empirical analysis are compared with estimated values from the literature. The final section discusses how the results could help to establish and improve the application of PES schemes.

Tradable Visitation Permits as a Management Tool for Remote Areas: An Application to Antarctic Tourism

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Tourism to the Antarctic has increased and diversified rapidly in the last two decades. A system of self-regulation for tourism is in place, aimed at minimizing risks and impacts on the environment and scientific programs. Because of its sheer volume, however, there are concerns that tourism may already or soon have negative effects on the environment, the effectiveness of scientific programs, and the quality of the tourist experience. The validity of these claims is difficult to assess, because the impacts from tourism are not monitored systematically as a result of lacking funds. At the same time, the ecosystem services that Antarctica provides to tourists and the tourism industry are not paid for. These services include aesthetic enjoyment and spiritual experience of the area's unique features, including scenic beauty, remoteness, wildlife, and dramatic landscapes. This paper proposes a system of tradable visitation permits to capture part of the economic rent and increase the sustainability of tourism in Antarctica. Capping the number of visitors is relatively easy, technically speaking, since there are very few access points to Antarctica. The cap on visitation guarantees that the carrying capacity of the area is not surpassed. The revenues of the permit auctions can be used to improve enforcement of tourism regulations and monitoring of tourism impacts. The tradability of the permits makes the system flexible and efficient. Various implementations of tradable permit systems are discussed. Systems of tradable visitations permits may be applicable to other tourist destinations as well, provided that access can be controlled and tourist attractions are unique.

Costs of Landscape Management - Exemplarily Calculation for Saxony (Germany)

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Sustainable used landscapes maintain hardly measurable goods for the benefit and for the future viability of man. Their unimpaired ecosystems are able to provide a multitude of services for human welfare. Frequently, the majority of these goods are public or common, thus not restrictable for private use. However, open access undermines the foundation of marked mechanisms basing on supply and demand. But those goods and services are by no means worthless just as they are unlimited available. On the contrary, the more people can use them, the greater their cumulative value is for society. The preservation of natural free services should matter public and private interest, but the opposite is still true. Civil society acts like within a prisoners' dilemma optimizing private profits at the expense of social benefits according the common market mechanisms. In order to overcome these challenge, we calculate reference values for the hardly marketable goods and services as well as for the efforts to protect natural ecosystems called management of the countryside. It is shown that the loss of intact ecosystems is much more costly than their maintenance.

The topic should be elaborated regarding landscape management at the example of Saxony (Germany). We discuss and illustrate the method of calculation and the comparison of resulting costs. The term landscape management is understood as the total of measures due to the protection, care and develop-

ing of near-natural habitats for plant and animal species as well as the maintenance and restructure in case of damages concerning the natural balance or regarding the scenery. A principal task is the preservation of landscape and bio-diversity. The calculation of management costs comprises firstly the determination of care-dependent objects (biotopes, structure elements, and species), secondly an allocation of necessary measures, and thirdly an estimation of the depending costs per year and object. The total financial requirement is composed of costs for maintaining, developing, and investing measures per biotope resp. habitat type as well as special expenditure for species conservation. The presentation explains the methodical framework step by step. The balance of landscape management reveals from the comparison between needs and real expenditures. The differences between need for action and true funding set starting points for future strategy as well as for the formulation of new measures and management objectives.

Day 2: Friday, November 11, 2011

Invited keynote speaker presentations - Plenary session 2:

Payments for Environmental Services: Institutional Preconditions in Developing Countries

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Payments for environmental services (PES) are a direct, conditional conservation instrument, exhibiting promising prospects for halting degrading or preserving environmentally friendly land uses. Over the recent years, emerging PES schemes have mushroomed around the world, in both developing and developed countries. However, PES are also a demanding tool, which can only be applied if certain preconditions are met (or can be created), some of which relate to institutional aspects. In particular, questions of tenure rights and of the legality of alternative resource uses are key features. In the light of these caveats, the classical definition of PES from Wunder (2005) is reexamined, relating to some of the recent points of critique in the literature: what are quintessential requirements that characterize PES? Examples are given, focusing in particular on PES experiences in the Southern Hemisphere.

Landholder Engagement in Conservation Tenders as a Function of Institutional Design: A Case Study of Biodiversity Tenders in the Wimmera CMA Region, Australia

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Conservation tenders are emerging as a critical mechanism supporting payments for ecosystem services in Australia and have been applied at the national, state and regional level. Conservation tenders are designer markets or designed institutions in which the proactive participation of landholders is required for success. Wimmera Catchment Management Authority has been at the forefront of their implementation with more than twelve tenders over the past five years using a format that is typical of the Australian experience. The interplay between institutional design and participation will be illustrated via an evaluation of the participation choices and experiences of over 300 landholders across recent conservation tenders in the Wimmera. We find that landholder participation decisions are largely contingent on alignment with their priorities and opportunity for payment. Effective engagement via information workshops and effective site visits aid participation. Bidding and contracting experiences are neutral. Post contract support may require further attention. While the overall participation experience is positive many landholders choose not to participate for a variety of reasons, thus placing an upper limit on effectiveness - at least in the short term. Improving institutional design may enhance participation however the availability of payments is likely to be a more limiting factor.

Paper presentations – Breakout session 3A:

The Relevance and Role of Civil Society in PES Schemes – A Case Study Analysis of PES Schemes in Germany and the US

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Based on a transaction cost model we analyzed to what extent and with which tasks civil society organizations and initiatives are involved in the development and implementation of PES schemes. Since PES schemes are embedded in a wide institutional framework we also looked at the different governmental and business engagements within the analyzed PES schemes. We focused on developed countries and chose the US and Germany as case study areas. For our analysis we used data from an online survey of environmental foundations in Germany and the US backed up by telephone interviews with the most relevant German environmental NGOs. Additionally, we identified relevant PES schemes in both countries with the help of over 30 expert interviews in Germany and the US as well as an internet analysis using the snowball method. Our results show that in most cases the PES schemes are backed by a type of hybrid governance model. Governmental engagement often plays a key role with respect to the financing of the payments or as the legal driver for scarcity. CSO are often an important player in the broad range of brokers between the suppliers and demanders and also in building successful governance structure based on local knowledge of the social-ecological system and trust between the different partners.

Lessons Learned from the Carbon Markets in Brazil

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Carbon markets are a viable and effective form of payment for ecosystem services, especially in an industrialized setting. Although market compensation provides organizations with the incentive they need to adopt ecosystem services, the full potential of these markets is often not realized. Investment uncertainties and the complexity of market mechanisms are frequent deterrents for the involvement of both buyers and potential project developers. NGOs however can play important roles in helping organizations harness the full potential of market benefits by increasing the accessibility of carbon markets. The following paper will explore the potential of carbon markets as a form of payment for ecosystem services, explaining their workings, their benefits and their flaws, and through a case study in the Brazilian ceramic industry, highlight the ways in which NGOs can bridge the gap between local organizations and international buyers to ensure just payment for ecosystem services.

Financial Involvement of Private Actors in the Revitalisation of Urban River Spaces

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Due to the historical development of industrialization, urban courses of rivers and streams are often degraded, channeled or even culverted. At the same time private actors set a high value to rivers and streams as attractive urban landscape elements and soft location factors. Increasingly, municipalities recognize the benefits of revitalizing rivers and streams. Encouraged by the European Water Framework Directive which requires the achievement of a "good ecological status" for all surface water bodies or at least a "good ecological potential" for heavily modified water bodies until 2015, they try to

integrate their rivers and streams into urban structures under consideration of their ecological and aesthetic values for society. One of the major obstacles to revitalizing urban river spaces is lack of money. With regard to the financial restrictions characterizing their budgets, municipalities depend in general on additional sources of funding. Involvement of private beneficiaries can be a solution to this problem. An analysis of the status quo in Germany, the Czech Republic and Poland which has been recently conducted in the framework of the Central Europe project REURIS has shown that private funding can play a crucial role for the implementation of urban river revitalization projects. However, it is only seldom used in Germany and usually not applied in Poland and the Czech Republic. The discussion on payments for ecosystem services (PES) often ignores that there are traditional markets, e.g. real estate markets, where ecosystem services generate values and induce payments. In comparison to PES, the challenge of these markets does not consist of how to make sure that suppliers and demanders keep on participating in the market. The problem is rather that the payments are usually not used for the provision of the ecosystem services. Instead, they occur as investors' rates of return while the costs for the provision of the ecosystem services are usually borne by the general public. Using the example of urban river revitalization, the paper describes some selected case studies from industrialized countries where private investors have been financially involved in the provision of ecosystem services. It highlights the key factors of success as well as the obstacles, and it outlines institutional conditions which have been proven facilitating for private involvement in financing urban river revitalization projects focusing also on property rights and on the role the key stakeholders play for the project success. Finally, the paper comes forward with some recommendations for the Central European context deduced from the described case studies.

The Role of the Main Environmental NGOs in the Spread of "Ecosystem Services" Notion and PES-Instruments: A Madagascar, Costa Rica and France Comparison

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The paper deals with the role of environmental big NGOs (BINGOs) in the spread of the concept of "ecosystem services" (ES) and PES-instruments (Wunder 2005) in Madagascar, France and Costa Rica. Current literature on global environmental politics largely considers NGO influence implicit and unproblematic. Responding to several weaknesses in this literature, we use the literature on policy transfer studies (PTS). It shows that policy entrepreneurs are "public entrepreneurs who, from outside the formal government, introduce, translate and help implement new ideas into public practice" (Roberts and King 1991), and these can intervene between different countries and also between the international and national levels (Dolowitz and Marsh 1996). We put forward the hypothesis that big environmental NGOs, including Conservation International (CI), World wide fund for nature (WWF) and the International Union for conservation of nature (IUCN), are some policy entrepreneurs who have played a key role in the spreading of the concept of ecosystem services and PES-instruments. Adapting the framework proposed by Kern et al. (Kern et al. 2001), we firstly analyze the weight of each NGOs in each national context and their relative influence. Then we study the national capacities for action and the demand for model solutions in the three countries in connection with the role of the different NGOs. Finally we show how NGOs used the reference of ecosystem services and eventually his implementation with PES-instruments. In this regard, the paper will give a special attention to the distinction suggested by D. Stone among the "soft transfer", i.e. the transfer of public policies and standards of knowledge, and "hard transfer" concerning instruments and practices of public policy (Stone 2004). We identified 3 contrasted situations regarding the development of PES instrument, the role of BINGOs and the transfer modalities. On one hand, in Costa Rica, the development of PES occurs early (1997) and is the result of a proactive policy of the State and was carried by national actors to achieve local and sectoral (forestry) objectives (Rapidel et al. 2011). NGOs have just played a peripheral role in this process; and mobilized the Costa Rican experience to promote PES-instrument in other

regions. On the other hand, in Madagascar, an island classified as biodiversity hotspots, NGOs became key actors in the production and implementation of instruments for biodiversity in a context of disintegration of the Malagasy State, and thus NGOs are implementing PES, which allowed to sustain development of oldest tools for which funding were unstable (Méral et al. 2009). Finally, in France, the development of the "ecosystem services" notion arose much later, from the Millenium Ecosystem Assessment's report, in 2005 (Hrabanski 2011). Even if there is no clearly identified PES-instrument developed yet, BINGOs located in France seem to have been key players in the spread of the ES concept.

Paper presentations – Breakout session 3B:

Designing the Optimal PES: Theory, Reality and the Challenge of Measuring Biophysical and Welfare Returns on Conservation Investments

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Over the last two decades, payments for environmental services (PES) programs have seen a surge in popularity with several hundred documented applications on the ground worldwide. Substantial research effort has been devoted to identifying both the conditions necessary for PES feasibility and best practices aimed at maximizing PES performance. While these advances are clearly helpful in guiding PES program design, the optimal design choices for any given PES program are a function of the local context in which the program operates. For this reason, attention to PES design remains crucial, with the optimal institutional structure, form of reward for participating landowners or operators, and even degree of conditionality and additionality varying among different locations.

Furthermore, the assessment of actual PES performance (vs. theoretical performance) hinges on the availability of reasonably accurate information about the changes in the flows of target ecosystem services that result from PES program interventions. In many cases, such data are lacking, and expected outcomes based on assumed production functions take the place of measurements, precluding any reliable assessment of PES (cost-)effectiveness. Modeling of outcomes can help overcome this problem at reasonable cost, but model specification and validation require knowledge of key variables in the production function of the target service and well-designed field monitoring, in many cases over fairly long time periods. Such efforts are getting underway and are sorely needed in order to be able to move from claims of PES (cost-)effectiveness to proof.

Using Auctions to Allocate Payments for Ecosystem Services – Experiences from the US Conservation Reserve Program

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Regulators typically lack proper information to allocate payments for ecosystem services (PES) cost-effectively. To reveal private information on the costs of conservation measures, auctions have been proposed. These reward PES to those potential adopters of conservation measures who submit the lowest bids. Designing auctions properly is institutionally challenging. This paper analyzes the conditions under which auctions can help to implement PES cost-effectively. For this purpose, experiences made with the US Conservation Reserve Program (CRP) are reviewed. The CRP is one of the largest conservation programs in agriculture worldwide. The CRP pays farmers for retiring cropland and adopting approved conservation practices. It was the first large-scale program to auction payments. Since its introduction in 1985, the CRP has been subject to a continuous process of policy learning, which revealed several important lessons for designing PES auctions.

Set binding enrolment restrictions: In the CRP's initial years, ambitious enrolment targets and generous budgets coincided with low participation rates. Thus, virtually all bids were accepted. As farmers quickly learned about this practice, the cost-effectiveness of the auction was undermined. As a response, measures to stimulate participation (information, increasing intervals between sign-ups) had to be complemented by a flexible adjustment of enrolment targets and budgets.

Implement a multi-criteria ranking process: Selecting bids based on costs only neglects the heterogeneity in ecosystem service provision. Consequently, CRP authorities additionally introduced a complex environmental benefits index to rank bids under the CRP. It proved to be particularly beneficial for cost-effectiveness to expand the CRP gradually to reward not only erosion control but a multiplicity of ecosystem services. The index mainly refers to physical benefit measures but also considers the amount of local population which potentially receives these benefits.

Provide information on the ranking process: In order to prevent strategic behavior, farmers were not informed on how bids were ranked in early years of the CRP. This produced high uncertainties for farmers and contributed to low participation rates and a suboptimal selection of farmers. This was particularly problematic since a static auction was used which did not allow farmers to revise their bids. To ease and improve farmers' decisions, authorities later decided to provide additional information, e.g. on the composition of the index.

Restrict auctioning by additional eligibility and payment constraints: To guarantee a minimum level of environmental benefits, additional eligibility criteria are applied to target CRP measures, e.g., to highly erodible land and conservation priority areas. In addition, maximum allowable payments per acre are fixed. These restrictions have served as a back-up, especially in the initial phase when the auction did not yet work properly.

Implementing Performance-Based Payments for the Enhancement of *Chlidonias Niger* (Black Tern) in Eiderstedt/Germany

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Usually payments which are bound to a specified performance or outcome, hereafter named performance-based payments, and payments linked to some defined management or input, hereafter named input-based payments are distinguished. In comparison of the two payment schemes literature emphasize the conditionality concept of performance payments and the direct incentives advantages for providing ecosystem services which allow the agent to find the best way of combining inputs to generate a desired level of environmental services. Also innovations and investments are most likely to occur when rewards or payments are tied to marginal improvements and when flexibility is allowed to reach the given goal (Matzdorf 2004). However a common argument against the implementation of performance-based instruments is that control costs are assumed to be higher as compared to the control costs of input-based payment schemes. As a result performance-based payments are usually applied for the conservation of an already given state or existing biodiversity (Osterburg 2006). Therefore, the advantages of performance-based payment schemes would get lost in case of biodiversity enlargement or enhancement. Thus, the object of my research is to utilize the advantages of performance-based payment schemes in the case of enhancement or enlargement of a desired environmental good. The research area is located in Eiderstedt in the north-west of Schleswig-Holstein/Germany. The area became famous after the radical protest of concerned farmers since the area was indicated as bird conservation area in terms of the EU bird-directive. The goal of this Special Protection Area (SPA) is the protection of the rare bird species *Chlidonias niger* (Black Tern). Voluntary input-based payments for the protection of the species have been implemented, but the acceptance is low and since the indication of the area as SPA the stock of the species is declining. To face this problem I designed a contract for biodiversity enhancement with a combination of performance-based and input-based payments resting upon a principal-agent model. Apart from considerations concerning the method of agent-based modeling the focal point was to address the self-interest of the farmers affected in Eiderstedt. The implementation of the results within a management plan will be realized in cooperation with other researchers e.g. biologists, legal experts and farmers of the region.

Benefit Distribution from Common-Pool Resource Management: Lessons from a Case Study in the Ecuadorian Amazon

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As the value of preserving tropical rain-forests becomes ever-clearer, lessons learned from long-standing community based tourism projects in the Amazon may provide lessons for other PES mechanisms that offer incentives to conserve forests, like REDD+. One common issue faced is how to establish the local governance institutions necessary to effectively and equitably translate income from conservation into tangible benefit for local community members. As with a potential REDD+ mechanism, rural communities in the Amazon entering into tourism projects may be required to adjust current hunting and natural resource extraction behavior to harmonize their activities with conservation goals. This is influenced by the community's ability to distribute communal income from conservation equitably, since failure to do so will reduce the economic incentive for individuals to participate in collective conservation. Without equitable income distribution, the viability of community based conservation is threatened. Through action-research, this paper aims to identify the collective administrative norms and practices that maximize the benefits of common pool resource management for impacted community members. The hypothesis guiding this research is that transferring decision-making power over income from community leaders to community members increases the benefit received from community-based tourism through improved organizational performance. Within this context, we present a case study analysis of and the results from a participatory income distribution program applying Community Based Natural Resource Management (CBNRM) principles within a conflictive ecotourism partnership in the Ecuadorian Amazon. To address poor income management during the first ten years of the project, several voluntary adjustments to income distribution processes were implemented in 2008 applying CBNRM principles. Results show a marked improvement in village allocation of revenues supported by a positive attitude by village members to the new revenue distribution measures and principles. Results reflect that an element contributing to inter-institutional conflict were ineffective income distribution mechanisms, firstly between the tourism company and the neighbouring receptor community, and secondly within the receptor community itself. The paper concludes that a participatory budgeting methodology incorporating CBNRM principles increases the benefits from ecotourism for village members, through improved organizational performance. Additionally, traditional democratic decision-making norms make excellent platforms for furthering the principles of active democracy and transparency in communal income management. Nevertheless, important challenges remain in achieving long-term institutional change, most notably due to the complexity inherent in effectively managing inter-institutional development partnerships in the Ecuadorian Amazon.

Paper presentations – Breakout session 4A:

Addressing Institutional Challenges to Implementing a Contract Based Payment for Environmental Services Program: A Collaborative Approach to Program Design

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The Northern Everglades Payment for Environmental Services (NE-PES) Program was launched in 2011 by the state of Florida. The NE-PES program was developed through the Florida Ranchlands Environmental Services Project (FRESP), a six year collaborative effort (2005-2011) that engaged ranchers, government agencies and environmental NGOs. Through FRESP eight water management projects were implemented on cattle ranches. The projects demonstrated how ranchland owners could enter into contracts with a state agency to provide the services of water retention (acre-feet) and/or nutrient load retention (lbs of phosphorus or nitrogen). FRESP developed cost-effective methods to document service provision as a condition of receiving annual payment. As a contract based program, existing regulatory rules had to be adapted to the design of the contract and to expedite the contracting process between rancher sellers and the agency buyer. Innovative contract elements were developed by FRESP collaboration partners that made the NE-PES program possible.

Delivering Nature's Services: Moving Towards a Payment for Ecosystem Services Scheme in the English Uplands

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The English Uplands are a living, working landscape with many natural assets that are particularly important for providing us with a wide range of ecosystems services for the benefit of society. Food, timber, water regulation, carbon storage, biodiversity and recreational opportunities are of particular significance. However, the environment, and the vital benefits and services it provides, is under pressure - from climate change, from changing social and economic circumstances, and from the impacts of unsustainable use. Farmers and land managers are not directly rewarded for public goods they provide and farming in the uplands is becoming increasingly difficult, often with low or non-existent profit margins. Along side this, many upland areas in England continue to be in environmentally unfavourable condition and many peat lands are degraded. Government has been keen to explore how a PES approach might contribute to sustainable future for the English uplands. In response to these pressures, Natural England set up three upland ecosystem services pilots to work with partners, land managers and beneficiaries in upland areas to trial a bottom up approach to delivering multiple benefits to society and to consider how the links could be made between upland management and payments for public goods. We demonstrated that investment in the natural environment provides multiple benefits to society in a cost effective way. We have fostered links between land managers as suppliers of services with those who benefit and developed some novel funding mechanisms as well as combining public and private funds. This paper reports back on the findings of these trials, discussing the valuation of the land management changes, successes of novel funding mechanisms, explains how we engaged with civil society, identifies some of the constraints and suggests next steps for developing a truly multiple objective PES scheme in the uplands.

Obstacles and Options for the Design and Implementation of Payment Schemes for Ecosystem Services Provided Through Farm Trees in Saxony, Germany

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Agricultural crops and pasturelands cover 24-38% of the global land area, and thus the ecological services that agricultural systems provide are of utmost societal importance. An important determinant of ecosystem services provision from European farmland is the amount and spatial arrangement of trees, shrubs and woodlands that are integrated into the respective land-use systems. This paper uses an institutional economics framework for the analysis of payment schemes for ecosystem services (PES schemes) that enhance the establishment, conservation and management of farm trees and woodlands, elaborating on the reasons for the often very reluctant participation of farmers in these schemes. The framework's focus is on production and transaction costs related to policy instruments as well as on the impact of the characteristics or targeted resources. PES schemes in Saxony (Germany) were selected as a typical example since here 1) farm trees are characteristic elements in a cultural landscape that has increasingly been used for intensive forms of agriculture, resulting in substantial loss and degradation of many farm tree types, and 2) a variety of PES schemes have been introduced in Saxony over the last two decades to counter this trend. Obstacles to participation in PES schemes for farm trees that were identified included high production costs and opportunity costs for land use which are often not fully compensated by the premiums paid, contractual uncertainties and inflexible contracts as well as land-tenure implications and heterogeneous societal preferences for ecosystem services of farm trees. Further, since scheme adoption has been relatively low compared with the total area covered by the respective farm tree types in Saxony, the PES schemes alone could not explain the substantial increase in number and size of some farm-tree types, in particular hedgerows. Regionalized premiums, result-oriented remuneration and cooperative approaches are options to improve participation in PES schemes for farm trees. Further, the only recently developed and implemented alternatives in Saxony, such as 'habitat banking' and the 'Regional Scattered Fruit Cycles' project that was initiated by the German Association for Landcare, are complementing the already established PES schemes and, thus, may foster the planting and maintenance of farm trees in the future. The example of PES schemes for farm trees highlights one of the major challenges for the protection and preservation of cultural landscapes: they are manmade, unlike primeval forests, and thus need to be preserved, managed and maintained continuously.

Payments for Environmental Services and Environmental and Territorial Governance: Lessons from Empirical Studies

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Over the past decade, the rapid development of payments for environmental services (PES) is largely explained by the need to identify an alternative to systems based on regulations and/or public resource transfers that are deemed ineffective. However, although these instruments generally refer to a logic of market regulation, the introduction of PES-like systems is usually found to be a process of specific normative construction involving different types of regulations implemented from a multi-level governance perspective. Based on this observation, this paper sets out to determine how tools specific to or related to PES, such as Agro-Environmental Measures (AEM) - based on the European context - contribute to renewing the organization and practice of environmental and territorial governance, understood as the articulation of different steady modes of regulation (competition, restraint, solidarity, negotiation, hierarchy), for the production of environmental services. This issue is discussed in light of an empirical study of various PES/AEM schemes located in specific national contexts: PES

related to the management of water resources in Madagascar, PES for forest conservation of Costa Rica, agriculture AEM in Guadeloupe, territorialized AEM in the Auvergne region of metropolitan France and in Guadeloupe. Different findings arise from an examination of these different systems. Firstly, it is not possible to consider the systems as fixed and final in any of the experiments observed. The instruments in place are definitely transitional arrangements to be put to the test of a social, economic, environmental and political assessment. Even in France, the AEM system, despite its historical depth, needs to be evaluated and adapted taking into account future standards associated with the reform of the Common Agricultural Policy (CAP). Secondly, the great importance of intermediate players (public and semi-public institutions, national NGOs, local associations, etc.) can be seen in the definition of PES/AEM according to a logic quite strongly formatted by path dependencies, which are themselves structured by the existing rules and institutions. The third finding, as an extension of the previous two, concerns the low current capacity of the systems considered to fundamentally alter the dominant modes of regulation, particularly because of the rigidity of social and political relationships between the players. We conclude from these observations that PES/AEM may not arise from a logic of breaking away from the modes of environmental governance, but rather a logic of incremental change, or even a simple requalification process.

Paper presentations – Breakout session 4B:

The Usual Suspects – Lock-In Effects and the Role of Social Capital in Multiple-Sign Up Conservation Auctions. An Experimental Approach

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Procurement auctions are widely considered as a cost-effective allocation mechanism of contracts for the provision of ecosystem services. We argue that when repeated over several sign-up periods, conservation auctions lose their edge because of learning effects, specific assets and social capital eroding bidder competition. A laboratory experiment, which we are in the process of designing, will test whether repeated auctions degenerate into a symbolic act involving only the “usual suspects”. We will show how a lock-in effect may be beneficial in ecological terms though hazardous in economic ones. Conservation programs operating on a long-term basis show a need for regular sign-up rounds. This creates situations where new and experienced bidders compete for a limited number of contracts. It is yet unstudied how these groups differ in their probabilities of winning, and how potential bidder asymmetry affects the economic and ecological performance of conservation auctions. Assuming rational behavior and symmetry of bidders, game-theoretic auction models are suitable for one-shot auctions, but do not yield tractable results in a repeated auction. Firstly, experimental studies indicate that bidders learn from previous bidding rounds. This enables bidders to reassess their bids and increase their competitiveness with positive effects on auction efficiency. But repetition also promotes strategic behavior and bid inflation, degrading auction performance. Secondly, repeated transactions bear the risk of lock-in of transaction partners if the fulfillment of the contract requires specific assets which will create ex-post advantages for the first successful bidders compared to subsequent competitors. Transaction cost theory then suggests a positive impact on the auction's cost-effectiveness but the implied risk of hold-up may deter other landholders from bidding. However, thirdly, repetition also gives rise to reputation effects as transaction partners build social capital with increasing length of their transaction relationship. Social trust, norms of reciprocity and embeddedness in networks has an evidentially positive influence on the willingness to engage in conservation activities. When the auction is repeated and the agency is aware of the identities of the landholders and their conservation track record, it becomes possible to build a trusting relationship. Our hypothesis is that this relationship constitutes a specific relational asset that can transform the auction from a competitive process to a bilateral monopoly. We thus argue that competition cannot hold in repeated conservation auctions, and that social capital is the crucial factor for both, agency and landholders. Our experiment will combine elements of trust and auction games and capture the positive impact of social capital on cooperation in conservation auctions. Our results will shed light on the long-term applicability of competitive bidding schemes for PES.

Permanence in REDD+ Projects: The Case of Ecocharcoal Policies

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Permanence is a key issue in the global negotiations on REDD+. Our research project analyses the options for policies to increase permanence in a case study of the conservation in the world's first REDD project to issue carbon credits under an internationally accepted standard, the Kasigau Corridor REDD project in Kenya by Wild Life Works. In the Kasigau project, the main driver of forest degradation is illegal charcoaling. Despite being illegal, large parts of the local population rely on charcoaling as their

main source of income. As the charcoal gets exported and trades even internationally, reducing local demand alone won't be enough to reduce forest degradation. As a mitigation policy the project proponents aim to introduce eco-charcoal factories. At such a factory, charcoal is made from fast growing twigs and shrubs. This eco charcoal can be a full and equivalent substitute for conventional charcoal, but requires some capital investments for the production sites. This led to the idea of building village based factories for eco-charcoal, where the community can sell twigs and shrubs, thus replacing the income lost due to the enforcement of the charcoal ban. We are using a stated time allocation experiment to predict the effects of several different policies for implementing such a community supported eco-charcoal project under varying charcoal price conditions in 1000 households. Some of the scenarios include a conditionality of the price paid for eco charcoal raw material on the number of people caught charcoaling illegally, thus introducing a collective action situation. Our main goal is to determine the effect of the price for eco-charcoal raw materials paid to the community on the level of illegal bush charcoaling. We are also investigating into intra household shifts in labor allocation, including gender effects and child labor.

From Global to Local - the Status and Design of Benefit Sharing Mechanisms Under REDD+, Cases from Ecuador and Cameroon

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The mechanism for reducing emissions from deforestation and forest degradation (REDD+) is widely seen as an international payments for ecosystem services scheme (IPES). At the UNFCCC Conference of Parties (COP) in December 2010 it was finally agreed to financially reward developing countries for their REDD+ emissions reductions. After years of negotiations at the international level, attention is now shifting from global options assessments to the complex political, technical and financial issues that need to be addressed in the design and implementation of national and sub-national REDD+ benefit sharing mechanisms. PES are being regarded as an option for national and sub-national benefit sharing mechanisms. A number of pilot projects are currently being implemented in many countries to explore mechanisms that will effectively capture and distribute expected financial flows from Annex I to non-Annex I countries, and within non-Annex I countries. This requires the establishment or strengthening of international and national institutional structures. The paper at hand presents the status and options of the REDD+ benefit sharing mechanism at the international level, as it is currently envisioned. It draws on examples from Ecuador's PES-like Forest Partner Program [Programa Socio Bosque] and case studies in Cameroon to analyze and compare the existing national and sub-national PES as benefit sharing mechanisms under REDD+ pilot programs in both countries. In doing so, challenges such as unclear property rights, weak law enforcement and the lack of transparency, inclusiveness, participation and accountability are investigated. Experiences from local participants highlight specific challenges of equitable benefit sharing on the ground and contribute to a comprehensive insight of the complex policy arena across the global, national and local scale and the challenge of implementation. Although specificities of PES benefit sharing and its implementation depend on the country specific context, it shows that an effective, efficient and equitable distribution of the financial flows to and from national and sub-national REDD+ projects requires strong governance and capable institutions at the receiving end, if misuse of funds is to be prevented.

Community Co-Management and the Perceived Legitimacy of Conservation

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The abstract is available upon request. Please contact the corresponding author.

Poster abstracts:

PES for Forest Rehabilitation in Tajikistan

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Tajikistan is a landlocked country located in southeastern part of Central Asia. In 1991 it became an independent country after being one of the Socialist republics of the Soviet Union for almost 70 years. With gaining the independence Tajikistan experienced a brutal civil war causing tremendous human losses and crisis in all sectors. An energy crisis which continues until today is characterized by a huge gap between supply and demand of energy sources - especially in winter, when in some parts of the high mountainous rural areas temperatures can fall under -45°C . As there is almost no other source of energy, the local population and state institutions have to use fuel wood for heating and cooking. Thus uncontrolled cutting of forests have been leading to a massive deforestation. Additionally a lack of fodder forces local people to use forests as pasture which leads to a destruction of juvenile growth. All forests in Tajikistan belong to the State. However the weak forest management system, characterized by a lack of finance, specialists and transparency in its regulations to sustainably manage the forests. This research has been carried out in the Gorno Badakhshan Autonomous Oblast (GBAO) of Tajikistan. Forests in GBAO are formed in the floodplains and along the small rivers coming from the gorges. For the protection of these forests the State Forest Agency (SFA) with the collaboration of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in 2005 started to implement Joint Forest Management (JFM) approach in order to develop forests by involving local people. The SFA on the basis of contracts hands long term property rights over to local people who depend on forests and in return help SFA to achieve its protection and rehabilitation goals. JFM is a turned out to be an appropriate tool to manage a sustainable use of forests, where local people can receive some benefits from their participation. However in severely degraded areas first an initial investment is necessary. In such areas SFA and GIZ have recently started to test the Saving Book Approach (SBA), which was successfully applied in Vietnam. Local people, participating in the rehabilitation of a plot will be compensated until benefits in form of forest products can be gained. A payment is conducted for six years. The SFA and the tenants elaborate an achievable annual plan. After achieving the annual goals a respective amount of money will be compensated from the saving book for the tenant. In this presented situation the purpose of the research is to determine the influential factors on local peoples' Willingness to Enroll in SBA in 3 villages. The empirical results show that out of many other factors such as benefits expectations, social pressure, age, education, occupation and income, availability of labor force in the family was the main factor for participation in SBA in all villages. The research results will be applied for the further dissemination of SBA.

Challenges of Designing a PES-Scheme in South-Western Madagascar

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Due to past and ongoing destruction of its natural ecosystems Madagascar can be considered a front running model for conflicts and trade-offs between ecosystem functions and ecosystem services and different forms of land use (subsistence versus global market), aggravated by socio-economic and cultural peculiarities and climate change (Burney et al. 2004; Millennium Ecosystem Assessment 2005;

Tengo et al. 2007; CI and WWF Madagascar 2008; Hannah et al. 2008). The spiral of increased land degradation and increasing poverty will be addressed in the project through an integrated scientific and participatory social approach to identify "best practices" for agro-pastoral production systems and set appropriate incentives e.g. by rewarding local land users for providing global and regional benefits (payments for ecosystem services, PES).

Objectives and key questions: A participatory research is crucial for a long-term sustainable development. Therefore, in the study region in south-western Madagascar a decision support tool for a cost-effective and locally accepted PES scheme will be developed in cooperation with local stakeholders. Also, the existing institutions and organizations in the study region are analyzed.

The following key questions will be addressed:

- What are the drivers and motivation for households/farms of their current behavior (like cultural norms, monetary incentives) including the role of land property rights (ownership regimes, land concessions, etc.)?
- How do stakeholders perceive the criterion of cost-effectiveness for a PES-scheme? What kind of compromise between possible different criteria (e.g. equity issues) is desirable for the stakeholders and generates a locally accepted PES-scheme?
- Which relevant formal and informal institutions might hinder and which might support the implementation of PES? What institutional change is necessary and possible for the successful implementation of approaches to sustain ecosystem functions and ecosystem services?

Methodological approach and planned activities: A household and farm analysis is done by gathering qualitative information and quantitative data by questionnaires/ semi-structured interviews. The interview guidelines will be developed based on a literature review and discussions with Malagasy project partners and will be modified after pre-tests. In cooperation with stakeholders it will be evaluated which proposed PES schemes are feasible in terms of administrative requirements including adequate monitoring and enforcement on a long-term basis against the background of existing organizations and institutions in the case study area and their potential for change.

Supply of Ecosystem Services by Natura-2000-Payments- Analysis of the Instrument and its Implementation

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In comparison with the agri-environment payments (AEP) the Natura-2000-payment, both part of Rural Development Plans, lives a shadow existence. This is true for the theoretical analysis of funding-design as well as the (empirical) assessment of environmental effects resulting from the payment. Beside this the Natura-2000-payment is one of the major European instruments to manage the protection of Natura-2000-areas aiming at providing ecosystem services.

The results of mid-term-evaluation of rural development plans of seven German Federal States will be presented. The poster focuses on a comparative analysis of the design and implementation of the Natura-2000-Payment of the seven evaluated States (relationship between voluntariness and administrative law and Cross Compliance standards). It judges the target conformity, gives an overview over participating farms and quantifies the administration costs.

DESIGN ANALYSIS of Natura-2000-Payment: In contrast to the AEP the Natura-2000-Payment is only partly based on the paradigm of true voluntariness (Art. 38, VO (EU) 1698/2005. In Germany, the Natura-2000-area includes protected areas with mandatory land use rules. Some Federal States restrict their Natura-2000-Payments to latter areas. The amount of the payment varies depending whether a full or partial compensation of the costs incurred and income foregone resulting from the mandatory rules is given. Compared with reference situations without Natura-2000-Payments, this practice neither causes a different behavior of the farmer nor additional environmental effects. Thus, this form of payments will lead to dead-weight effects.

Some other Federal States pay the Natura-2000 support only for additional voluntary measures, which go beyond the mandatory standards of protected areas. This form of payment will more likely result in additional ecological effects and guarantees that in general no dead-weight effects occur.

Payments for Ecosystem Services (PES) for Traditional Land-Use Systems in South Tyrol, Italy: The Case of Chestnut Orchards and their Recreational Benefits

Valérie Bossi Fedrigotti, Christian Fischer, Francesco Marangon and Stefania Troiano

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Chestnut orchards (*Castanea sativa*, M.) in South Tyrol, an alpine province in northern Italy, have dramatically decreased in the last decade despite the incentives of the Rural Development Program. One of the explanations for this reduction is the expansion of recent diseases (i.e. ink disease and Chinese gall wasp). Another, potentially economic, reason is the conversion of traditional chestnut orchards into more profitable land uses such as intensive fruit plantations or succession into unmanaged forests. This poster aims to give a first overview on the feasibility, the application of the structure, the governance and the institutional framework of a PES for traditional chestnut orchards at a local level. De facto, chestnut growing is nowadays only a niche rural activity which hardly survives among other typical crops (i.e. apples and grapes). Still, those orchards represent an agro-forestry ecosystem whose services have an impact on local society. The production of fruit, honey and woody biomass, carbon sequestration and their contribution to biodiversity are all services provided by chestnut trees, but not all specific of this ecosystem. Yet, in a few cases chestnut orchards play a key role by providing recreational and didactic benefits: two theme trails among the existing privately-managed chestnut trees attract yearly numerous visitors, locals and scholars to an educative and highly aesthetical trip. The impact of such a service has a positive consequence on tourism and on the seasonal business of chestnut festivals and fairs ("Törggelen"). A PES seems to be an appropriate instrument to reward this service but its intrinsic nature requires an attentive detection of recreational service sellers and buyers to assure the voluntariness of the transaction and the lasting provision of the good. In detail, we aim to identify the willingness-to-pay to preserve or enhance those services (PES demand) and the willingness-to-accept (PES supply). Stressing relationships between chestnut growing and recreational services as much as evaluating their benefits will lead us towards the pricing of the mentioned services. Visitor awareness of chestnut orchards benefits is a priority for a successful PES scheme. The determination of recreational values shows us how important chestnut cultural services are to citizens. With regard to the institutional settlements framing that kind of PES, reputation and social relations (i.e. cooperation and sharing responsibilities) among the stakeholders deserve great attention, as well as transaction costs. The sharing of benefits of service provision between buyers and providers through transparent information on costs is at the core of PES designs. Moreover, a government intervention is the keystone to promote PES, although its implementation must start from the private sector through direct payments between suppliers and users assuring cost effectiveness and a rigorous measurement of the value of the provided services.

Exploring Socioeconomic Impacts and Governance of Payments for Environmental Services. Lessons from the Democratic Republic of Congo.

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The "Payments for Environmental Services" (PES) are increasingly regarded as promising tools to support biodiversity conservation and rural development in developed and developing countries, and to involve private actors in conservation finance (Pascual and Corbera, 2011). They are market-based instruments for the protection/production of environmental services (ES) and for "integrated conserva-

tion" widely supported by international institutions like the World Bank. It's interesting to understand how the political agenda, both national and international, is taking increasingly poverty reduction into consideration in PSE schemes. What are the impacts of PSE schemes on local/rural populations? Moreover, are there trade-offs between the principles of efficiency (i.e. how cheap or expensive are the PES schemes), effectiveness (i.e. how well they achieved their pre-defined environmental outcomes), equity (i.e. how fair they result for participating actors) and legitimacy (i.e. how effective they are in involving actors at both design and implementation levels) in PES implementation? An emerging research contributes to visualize the importance that institutions in the broader sense (i.e. the rules of the game and their multiple interactions) play in the design and performance of PES. An institutional approach to PES shed light, for example, onto PES positive and negative impacts on resources managers, including their effects on income, and distributional aspects such as who participates and remains excluded from PES (Corbera et al. 2009). Our paper tests this analytical approach looking at the project PSE/REDD (Reducing Emission from Deforestation and forest Degradation) of Democratic Republic of Congo. Democratic Republic of Congo is one of the first African country to implement a mechanism PES/REDD. 1 million tons of CO₂ have already been sold (World Bank, investment fund). Because the program is a pilot project, the mechanism is implemented by a local private company (Novacel) that is widely supported by the government. The "Ibi-village" was built in order to develop the Batéké region establishing a CDM (Clean Development Mechanism), but in highlighting social and human development in a region where most the population lives below the poverty line. What can we learn from the design and implementation of this PES scheme? Our general objectives are to highlight the institutional and political processes supporting the adoption of this PES scheme; to examine its governance framework including an analysis of its legal framework (i.e. issues of subsidiary, proportionality and property rights allocation), procedural rules, and participating actors ; to analyze the impacts of this PES scheme in terms of equity (i.e. impacts on poor/rural populations) and to highlight trade-offs with other principles such as efficiency and effectiveness.

Payments for Ecosystem Services and Adaptation to Climate Change - Insights from a Watershed in Kenya

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The concept of payments for ecosystem services (PES) has recently emerged as a promising tool for enhancing or safeguarding the provision of ecosystem services (ES). While the concept has been extensively scrutinized in terms of its potential positive and negative impacts on the poor in developing countries, less attention has been paid in examining the role of PES in the context of adaptation to climate change. As an external stressor climate change will have an impact on the socio-ecological system in which PES is taking place as well as the various actors that take part in a PES system. In addition, PES has some potential to contribute to adaptation to climate change, but there are also potential trade-offs. Maximizing synergies and minimizing trade-offs between PES and adaptation requires strong-placed based research that takes into account the vulnerability to climate change of the various system components. Drawing upon the results of a vulnerability assessment in a watershed in Kenya, this paper identifies synergies and trade-offs between PES and adaptation to climate change and suggests ways of making PES pro-poor and pro-adaptation. In doing so, the paper will sketch out the implications for PES design and reflect upon the strengths and weaknesses of PES as an instrument for adaptation as compared to other approaches.

The Evolution of the Costa Rican Program of Payment for Environmental Services: A Learning Process and Stakeholders' Balance of Power Perspective

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The Payment for Environmental Services program (PESP) of Costa Rica was a pioneer program to be developed using the notion of PES. The PESP has been analyzed as a very promising innovating instrument for conservation purpose and has been considered a reference model for PES development. As such, many scholars analyzed the Costa Rican PESP and have discussed its environmental or poverty efficiency. Nevertheless, the evolution of the Program has been poorly documented from an institutional dimension including stakeholders' perspectives. In this communication, we propose to analyze the evolution of PESP since its beginning in 1997 highlighting the role of the different actors involved in this evolution. This communication is built on a revision of abundant literature on PESP and direct interviews of stakeholders that has been participating in elaboration, and implementation of the PESP since 1997. We firstly describe the basic features of the governance of the PESP in Costa Rica: its funding system, its payment system, and its management system, and then analyze their evolution from 1997 to date. In a second part, we identify the stakeholders involved in PESP, their interest, perception, position upon PESP. We then interpret the evolutions of PESP in the light of changes of stakeholders' balance of power. We first evidenced several trends in PESP evolution since its start such as the consolidation and diversification of financial resourcing, a trend of evolution of the payment system toward a better targeting and differentiation of payment, and a strengthening of monitoring and control practices. We identify different groups of stakeholders with diverse vision and interests. We show that PESP evolution results from complex interaction between many national and also local stakeholders that tends to orient the objectives and the functioning of the PESP towards their interests and vision. We identified 3 periods of development of PESP: a first period of PESP consolidation that was mainly oriented by the productive forestry sector, a second period where orientation toward conservation and social issue were strengthened under conservation and donors influences and a last period where the multiple purposes of PESP reflect a balance between multiple interests of the stakeholders. We highlight that the consolidation of PESP Payment system has been an important drivers of PESP evolution of payment system. We finally argue that PESP is not a mere market based instrument driven by a market coordination but a policy instrument driven by complex multi-stakeholder governance. The multiple orientations and its functioning respond to a complex equilibrium between the different aspirations between stakeholders.

What are PES? - Discussion of Terms and Some Definitions

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The acronym PES has been used widely to refer to a "nascent market creation incentive mechanism for biodiversity conservation" (Pascual & Perrings 2007: 256). But since PES is a common abbreviation, the meaning behind the letters differs between authors. Thereby the "ES" is translated either as environmental or as ecosystem services. Concerning this terminological difference, it is interesting to note that ecosystem services is the more explicitly defined term whereas environmental services on the contrary is mere ambiguous. This leads to the question how the terms payments for environmental services and payments for ecosystem services might be interpreted. Most authors seem to choose randomly between the terms ecosystem and environmental services, or use the terms as synonyms. In other cases, differentiations are made, but the authors could barely agree on a consistent definition. With a literature overview on conservation contracts and market-based incentive schemes it becomes apparent, that no consistent definition of the terms environmental and ecosystem services exists.

Thus, can the term ecosystem services be understood as a subsystem of environmental services, or reversely? Do environmental services as opposed to ecosystem services have a more holistic interpretation as Wunder (2005) states and do we like to think about environmental services as services on a larger scale like Myers (1996) points out? This paper sets out to (i) review definitions of ecosystem services and environmental services (ii), discuss alternative conceptualizations of environmental and ecosystem services within their application in the PES context, and (iii) finally proposes a consistent definition of environmental and ecosystem services in the PES context.

Voluntary Environmental Standards as Payments for Ecosystem Services

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For the last years, payments for ecosystem services have gained prominence in developing countries promoted by institutions like World Bank and FAO. Most PES schemes have been designed at the local level for integrated watershed management, mostly for the provision of drinking water and the protection of dams for hydropower. Payment for ecosystem services means that users of a specific ecosystem service pay providers of this ecosystem services in order to obtain a higher amount of this ecosystem service like drinking water or protection from siltation of dams. Providers of the ecosystem services shall invest in ecosystem services like planting trees or avoiding landslides by changing their behavior. The underlying assumption is that the providers have the (formal or informal) right to use the ecosystem and that their behavior can not be changed by regulation. The same concept can be applied to voluntary environmental standards like FSC, organic agriculture or Rainforest Alliance standards. These standards have been extremely successful for the last years applying a market-based approach. They aim at improving ecosystems like forests or agricultural ecosystems by implementing existing regulation and voluntarily exceeding regulation. Voluntary environmental standards are mostly set by stakeholders. Producers deploy a set of environmentally-friendly practices which are defined by the standard and audited. Consumers pay a price premium to the retailers for purchasing such a product. Products are labeled so that consumers can distinguish between the different products on the shelf. Currently the voluntary standards movement faces new challenges such as showing the impact of the standards on improving ecosystems or scaling-up the number of participants. The paper argues that voluntary standards work according to the same principles like PES schemes so they can be considered as payments for ecosystem services despite that they never explicitly have been defined as PES schemes. More specific, the paper explores two issues: 1) Which institutional settings are the basis for the success of voluntary environmental standards? And 2) What can voluntary environmental standards learn from PES schemes? The focus is on the concept of ecosystem services which has to be applied by standards.

Modeling Land Use Related Non-Market Ecosystem Services in Computable General Equilibrium Models

Ruth Delzeit and Angela Kopmann

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Services generated by ecosystems such as food provisioning, nutrient cycling, water and air purification and climate regulation provide important benefits to human beings. Global pressures including population growth and increasing economic activity lead to an expansion of area used for producing market goods and services such as food, livestock and timber at the expense of natural areas. To protect natural areas that provide important non-market ecosystem services, it is of high importance that a sustainable management of land can be achieved. To capture the complex interactions between these global economic drivers, Computable General Equilibrium (CGE) Models can be applied to analyze result-

ing land use changes and to provide recommendations for policy makers. However, the task of explicitly modeling land use and ecosystem services in CGE models gives rise to a number of methodological and practical challenges. First, different approaches with several advantages and disadvantages can be used to include land as a heterogeneous factor into a CGE model. Secondly, different methods are available to take non-market ecosystem services into consideration that can cause problems in the calibration of the model. Finally, information on prices and the substitutability of non-market ecosystem services are not available as they are not traded on markets. Values provided in the literature are mostly limited to a particular region or country and focus on a specific ecosystem service. We address these problems by discussing the methodological challenges related to land use and non-market ecosystem service modeling in a first part of the paper. Furthermore, we provide a value including the use and non-use value for non-market ecosystem services from a review of the literature. Based on these findings the DART (Dynamic Applied Regional Trade) Model is applied in a second part of the paper. Two different value concepts for valuing natural areas that provide non-market ecosystem services will be used. In a first analysis, non-market ecosystem services are valued by its opportunity costs, which provide a lower bound estimate of the non-market ecosystem service. These can be determined by allowing for an expansion of land area in the DART Model to determine the profit of the next best alternative. In the second analysis, the value of ecosystem services is taken from the literature review, which provides an upper bound of the value of ecosystem services. In order to compare welfare effects of the two approaches, the model is shocked with a policy scenario. Our results highlight the importance of taking the non-market value of ecosystem services in the modeling of land use and ecosystem services into account for providing sustainable policy recommendations.

Institutional Challenges for Ensuring Conditionality and Fairness of Payments for Ecosystem Services in Tanzania

Heini Vihemäki

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Payments for Environmental Services (PES) is considered as a promising mechanism of improving environmental management and providing long-term environmental services (ES) to global and local beneficiaries in a cost-efficient, effective and fair way. Many of these services are connected with management of forest ecosystems and trees on other land uses, e.g. carbon sequestration and watershed services. Tanzania, among the economically least developed countries, has shown interest in piloting and developing PES schemes during the past decade, as a way to combat and mitigate environmental problems and to alleviate poverty. This work highlights some of the institutional challenges and limitations for introducing and scaling up PES mechanisms for water and non-forest carbon sequestration services in Tanzania. It builds on a policy, legal and literature review of selected natural resource sectors and a case study on small-scale farmers' expectations on institutional arrangements in PES schemes. The analysis shows that PES based on strict conditionality requirement can be difficult to implement due to unclear, and sometimes unsecure ownership of land (and trees), especially in areas outside of protected forests, and the fact that many of the institutional reforms are not yet translated into practice. In some areas, strict regulations on land use may impede introducing PES. The case study indicates that small-scale farmers are willing to participate in a PES scheme by protecting trees on their land, especially if individual payments are proposed. Signs of mistrust towards existing community-level organizations in handling the payments indicate that there is yet need to build more legitimate local level institutions. The weaknesses in natural resource governance system that slow down the implementation of the policy and legal reforms at national scale also need to be addressed.

Keynote speakers:

Stefanie Engel

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Stefanie is Professor of Environmental Policy and Economics at the Institute for Environmental Decisions, ETH Zurich. She holds a Master of Science degree in Agricultural and Resource Economics from the University of Arizona (USA) and a PhD degree in the same field from the University of Maryland (USA), as well as a Habilitation (Post-doctoral degree) in Resource Economics and Development Economics from the Faculty of Agriculture, University of Bonn, Germany. Previous to her appointment at ETH in 2006, she has held positions at the University of Bonn, Germany, and at Universidad de Los Andes in Colombia. Stefanie Engel has published widely in international refereed journals, including Science and major journals in environmental and development economics. Her main research area is the institutional and policy design for sustainable natural resource management, including the design of payments for environmental services.

Erik Gómez-Baggethun

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Erik is a PhD in Ecology and Environment Sciences. He works as research fellow at the Institute of Environmental Science and Technology, Autonomous University of Barcelona (ICTA-UAB), and is associated researcher at the Social-Ecological Systems Laboratory, Ecology Department of the Autonomous University of Madrid (UAM). His work is concerned with the fields of ecological economics, political ecology, and institutional theory, topics on which he has published about twenty scientific articles and book chapters. More specifically, his recent research has addressed integrated assessment of ecosystem services and institutions for environmental governance, with a focus on Payments for Ecosystem Services. He is involved in several international initiatives related with the science, practice and governance of ecosystem services and has worked as consultant for the European Environmental Agency and other international agencies. He was one of the lead authors in the report The Economics of Ecosystems and Biodiversity (TEEB).

Sven Wunders.wunder@cgiar.org

Sven was born in Gera, Germany, in 1963. In 1978 he became a Danish citizen. He holds a Ma. in Economics, a PhD in Macroeconomics, and a DSc (habil.) in Forest Economics from the University of Copenhagen, Denmark. He worked for Danida, IUCN in Ecuador and the Center for Development Research in Denmark. In 2000 Sven joined the Center for International Forestry Research (CIFOR), first in Indonesia (HQ), and since 2004 in Brazil. Currently, he is acting as Principal Economist, and head of CIFOR's Brazil office. Since 2011, he also is a Honorary Professor at the University of Copenhagen, Faculty of Life Sciences. His main work areas are payments for environmental services (PES), deforestation, and forest-poverty linkages. Sven has published 10 books and about 50 academic articles and book chapters, including diverse topics related to PES. He has advised both small-scale PES initiatives and government programs, especially in Latin America, on development and design of PES instruments.

Stuart Whittenstuart.whitten@csiro.au

Stuart received his PhD as Doctor of Philosophy in Environmental Economics from The University of New South Wales, Sydney, Australia. He also holds degrees as a Masters of Philosophy in Economics from Cambridge University, England and a Bachelor of Agricultural Economics from the University of New England, Armidale, New South Wales, Australia. At the Commonwealth Scientific and Industrial Research Organization (CSIRO), Stuart leads a team researching markets, incentives and institutions designed to protect and enhance ecosystem services and sustainable resource use and management. He also manages a portfolio of research in CSIRO directed towards biodiversity policy and planning. His goal is to deliver science to support the practical application of natural resources policy. Recent achievements include an evaluation and redesign of the metric of the Australian Government's Environmental Stewardship Program, pilot implementation of a conservation tender paying for outputs and two reports helping shape a national wildlife corridor plan. His current research focus is on understanding institutions and policy needs to support landscape scale biodiversity objectives (how to work better across properties, communities and regions) and on incentives, policy and Great Barrier Reef water quality. He has lead a range of high profile projects delivering to government, CMAs, and not for profits at a variety of levels across Australia; coordinated two major symposia: 'New Horizons in Market Based Instruments' and 'Market-based Tools for Environmental Management'; and has published widely in a variety of forums. Dr Whitten also has extensive experience in environmental market design, water quality policy, non-market valuation, the not-for-profit conservation sector, and in cost-benefit analyses and related techniques.

Expert panelists:

Sarah Lynch

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Sarah is a Director in World Wildlife Fund's Agriculture and Market Transformation unit. Her work focuses on building and sustaining stakeholder collaborations to identify and promote the adoption of economically and ecologically sustainable agricultural practices through innovative market based approaches. A key aspect of her work is to develop and field-test practical and cost-effective approaches for measuring the provision of environmental services. She currently manages the Florida Ranchlands Environmental Services Project (FRESP), a collaboration between WWF, South Florida ranchers, state and Federal agencies, scientists and environmental groups, to design and implement Payment for Environmental Services (PES) program that will pay ranchers for providing environmental services of water or nutrient retention in the greater Everglades ecosystem. Prior to joining WWF in 1997, Sarah worked as an economist at the USDA Economic Research Service and the Henry A. Wallace Institute for Alternative Agriculture focusing on sustainable agriculture in the U.S. She also has 5 years of experience working in West Africa on agriculture and economic development issues. Sarah has a Ph.D. from Cornell University and a Masters Degree from Michigan State University in Agricultural Economics.

Angela Meyer

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Angela is co-founder and Board Director of the Organization for International Dialogue and Conflict Management (IDC), a Vienna-based interdisciplinary research association. She conducts academic research in the field of international relations and regional cooperation, with a special focus on developing countries and related security issues. Her project activities focus on sustainable development, sustainable resource management and civil society involvement as well as the prevention of social conflicts related to new and converging technologies. From 2008 to 2010, she coordinated the European Project SustainergyNet (FP7) on integrating civil society, scientific and policy knowledge towards sustainable energy policy in Africa. Since October 2011, she is involved as partner and investigator in the European Project CiVi.net (FP7), coordinated by ZALF, where she focuses on the analysis of the role of civil society organizations in Ecosystem Service management in Brazil and Costa Rica.

Cecilia Michelliscecilia@socialcarbon.org

Cecilia holds a Bachelor's degree in Environmental Management from the University of São Paulo where she also post graduated in Integrated Management Systems. Currently, she is acting as the coordinator of the project on the SOCIALCARBON Standard - an international standard to certify sustainability of carbon emission reduction projects at the Ecologica Institute (www.ecologica.org.br). She has participated in the elaboration of sustainability indicators for hydro-electric, energy-efficiency, fuel-switching, composting and forestry projects, and formed partnerships with local and international organizations to replicate these indicators in Brazil, China, Indonesia, Ukraine and Turkey. Cecilia was also a member of the Commission of Special Studies of the Voluntary Carbon Market in Brazil and participated in the elaboration of two books related to Payments for Environmental Services and social inclusion and voluntary carbon markets. Her past employments included the development of carbon offset projects and GHG inventories at consulting companies.

Timm Kroegertkroeger@tnc.org

Timm is the senior environmental economist in the The Nature Conservancy's Central Science department. His work focuses on the measurement and economic valuation of environmental and natural resources benefits, the incorporation of these values into cost-effectiveness, cost-benefit, and social return-on-investment analyses of conservation and environmental quality projects, and the application of incentive-based mechanisms to the conservation of ecosystem services and biodiversity.

Before joining The Nature Conservancy in 2009, Timm was an environmental economist with Defenders of Wildlife's Conservation Economics Program since 2003, and worked as a consultant on bio-energy issues and black carbon emissions and control options in Asia; human health benefits from reductions in outdoor air pollution in Lima, Peru; the economic aspects of air pollution control measures in major cities throughout Peru and in Guayaquil, Ecuador; and the assessment of potential environmental impacts from a proposed mining operation in northern Peru.

Timm holds an MA in Economics from the University of Würzburg in his native Germany, and a PhD in Environmental Studies from the State University of New York's College of Environmental Science and Forestry in Syracuse.

Thomas Koellnerthomas.koellner@uni-bayreuth.de

Since 2009, Thomas has the Professorship of Ecological Services at the University Bayreuth. To address the global problem of ecosystem degradation and biodiversity loss the three research lines of the Professorship of Ecological Services (PES) are i) Regional models of ecosystem services in human-environment systems; ii) Global climate change, biodiversity and ecological services; iii) Global markets and ecosystem services. Since 2010 he has the Venia legendi in Human-Environment Systems at the Department of Environmental Sciences, ETH Zurich. Between 2001 and 2009 he was leader of the research group Ecosystem Services at NSSI and lecturer at the Department for Environmental Sciences, ETH Zurich. He received his PhD in Economics in 2001 from the Institute for Economy and the Environment, University St. Gall, Switzerland. In his studies at the University Göttingen he focused on ecology and management. He was visiting scholar at Yale University at the School on Forestry and Environmental studies and meanwhile has published more than 20 scientific papers in the fields of industrial ecology, ecological economics and environmental finance.

CIVILand team:

Bettina Matzdorf

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Bettina studied landscape planning at the Technical University of Berlin. She gained her doctoral degree in the framework of the interdisciplinary graduate program "Integrative environmental assessment" at the Ecology Centre, Christian-Albrechts University of Kiel with a dissertation on "Outcome-oriented measures and remuneration environmental services of agriculture - An interdisciplinary analysis of an agro-environmental economic instrument". Bettina has been working at the Institute of Socio-Economics at the Leibniz-Centre for Agricultural Landscape Research (ZALF) since 2002, leading the research group "Instruments and institutions". Her previous research focuses were on the evaluation and further development of economic and planning instruments for the control of sustainable landscape development.

Claudia Sattler

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Claudia holds a Diploma degree from the University of Hanover in Horticultural Science. She earned her PhD in Agricultural Science from the Humboldt University of Berlin, at the Institute of Economic and Social Sciences of Agriculture in 2008. For the topic of her PhD thesis she focused on the model-based assessment of the ecological impacts of agricultural farming practices and did an analysis of farmers' acceptance for the implementation of more environmentally-friendly production alternatives in practice. Her research interests include the use of decision support systems for environmentally friendly management of agricultural ecosystems, modeling of ecological effects of agricultural land use practices, processing of uncertain knowledge in modeling based on fuzzy logic, as well as sustainability and 'multi-functionality' of agriculture. Since 2009, Claudia is part of the research group CIVILand, addressing the question to what extent modeling approaches can be used in the design of PES schemes to improve their environmental effectiveness and efficiency. Currently, she is a visiting scholar at the Gund Institute for Ecological Economics at the University of Vermont.

Claas Meyermeyer@zalf.de

Claas studied law at the University of Osnabrück, University of Milan, and Humboldt University of Berlin and holds a Masters degree (M.Sc.) in Integrated Natural Resource Management. He completed his legal training at the Berlin District Court of Appeals. The focus of his legal training was in administrative law. He gained hands-on experience in a law firm specializing in administrative law and as a consultant for the Central Advisory Service on Intellectual Property, CGIAR (Consultative Group on International Agricultural Research). Claas has been with the Leibniz-Centre for Agricultural Landscape Research (ZALF) since August 2009. He is a PhD candidate in the CIVILand project. His research focus is on inter- und trans-disciplinary environmental research, governance models and institutional economics. Within the CIVILand project he is analyzing state-initiated Payments for Ecosystem Services in Germany and the United States.

Sarah Schomersschomers@zalf.de

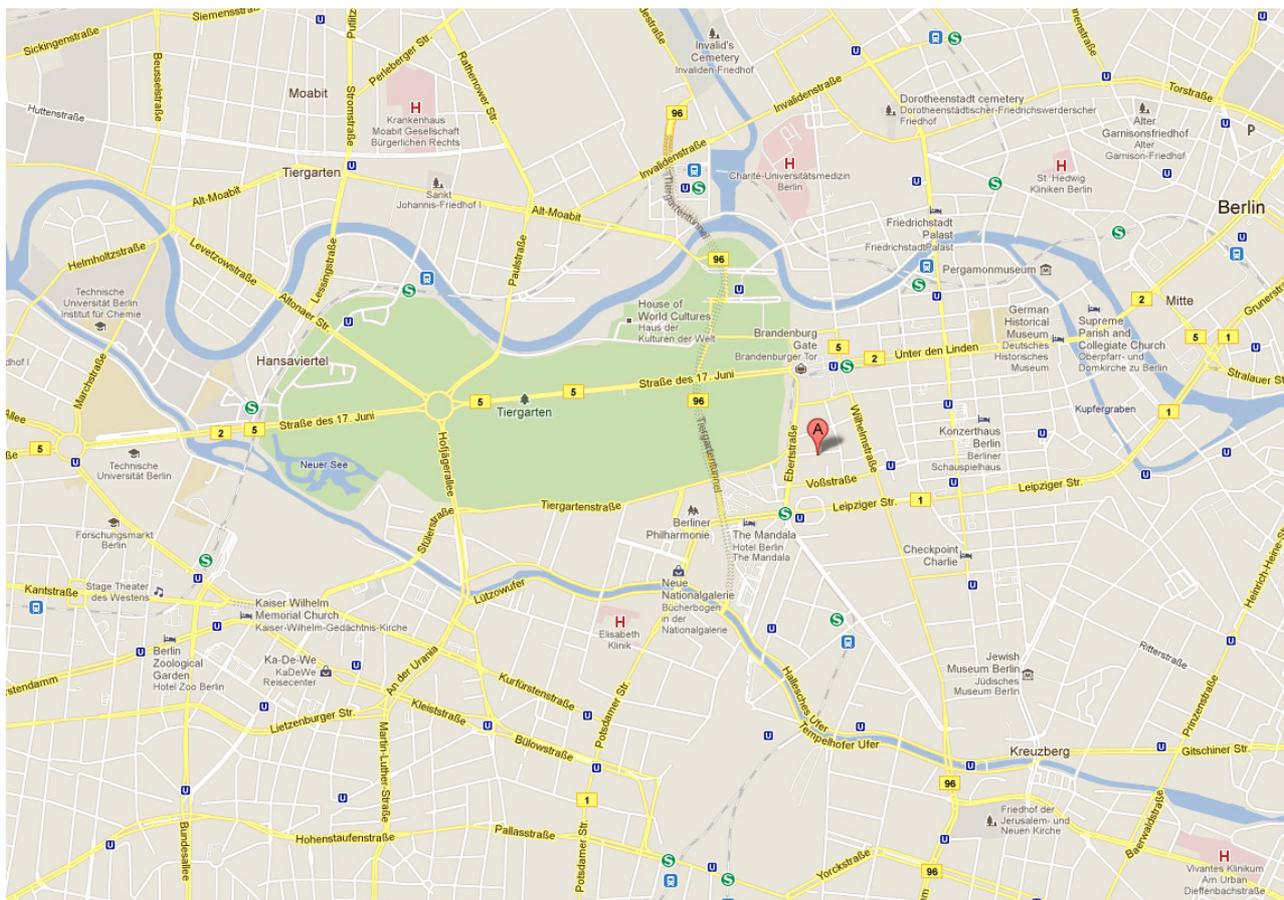
Sarah Schomers studied "International Economics and Business' at the universities of Groningen, Netherlands; Berlin, Germany; Valencia, Spain and Lima, Peru and graduated with a Master of Science degree in 2007. During her studies she focused on rural development in Latin America. She did an internship at the German Development Service (DED) in a joint venture project with the GTZ in Loja, Ecuador. Furthermore she worked together with coffee producers in Nicaragua, testing empirically why small scale coffee producers do or do not join coffee cooperatives selling under Fair Trade and organic certification schemes. Before joining CIVILand in 2009 she worked as an import and quality manager for an organic wholesaler. Her work included direct producer support to suppliers in foreign countries and assisting foreign suppliers in business development projects towards certified organic production. Within CIVILand, Sarah Schomers is a doctoral candidate. She focuses on PES schemes in Germany and the UK from an institutional economics perspective, highlighting the role of Landcare Groups from a transaction costs perspective.

Lina Yapyap@zalf.de

Lina studied veterinary medicine in Guelph, Canada. She practiced as a veterinarian in various small animal hospitals for several years. She worked as a proofreader for scientific papers after her move to Germany and starting a family. She started working with the CIVILand team as a project assistant in 2009 and has since been supporting the team in organizational and editorial aspects.

Venue:

The conference will be held at the "Vertretung des Landes Brandenburg beim Bund" located right in the middle of the German capital. The venue is only a stone's throw away from the Brandenburg Gate, Potsdamer Platz, the German National Parliament (Bundestag) or the Federal Council. Cultural and tourist attractions as well as big city conveniences such as shops, hotels, and restaurants are all within easy reach.



Address of the conference venue:

Vertretung des Landes Brandenburg beim Bund

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Questions?

In case you have any questions during the conference, please do not hesitate to ask one of the CIVILand team members! We are happy to help you out!

Junior research group

CIVILand

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