



BOOK OF ABSTRACT

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I. SESSION DESCRIPTION

ID: T16

Payments for ecosystem services in research and practice – current situation and challenges

	Title	Name	Organisation	E-mail
Host:	Prof. Dr.	Bettina Matzdorf	Leibniz-Centre for Agricultural Landscape research (ZALF), Germany	matzdorf@zalf.de
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Abstract:

Payment for Ecosystem Services is one of the prominent instruments in context of the establishment of the Ecosystem Services (ES) concept in research agenda and practice. One of the central arguments for the introduction of PES was the hope that the compensation (economic, specie or service) could be generate more public interest and fund for nature conservation, and resolve the poverty situation. In addition, the question of whether PES can also be linked to economic development goals including resolve the poverty situation, was raised more in developing countries. With regard to these expectations, we would like on the one hand bringing together the state of art about PES schemes in academic and institutional scale and review these experiences in two regional contexts: Africa and Latin America. On the other hand, we would like to come back to a central PES idea, and focus on privately financed systems to discuss what are the challenges in practice of this kind of approach. Do these approaches have the potential at all to generate additional money for nature conservation and



income for the providers? Between different modalities of PES programmes, our special interest in the first part of session is related to privately (and combined) financed PES. Actually, there are diverse forms of PES schemes, depending on the different institutional rules and possibilities, and the stakeholders involved. Privately financed PES (not only state funds), such as direct user-funded payments, which are often described as ideal in economic theories, are rare in practice. ES have to a large extent characteristics of public goods and therefore special conditions and actors are required for privately financed PES to be developed at all. In this sense, there are some aspects that we would like to discuss, for example, supporting framework conditions for their development and implementation, relevant actors including the funder and their interests and motives. We want to share the knowledge on the institutional setting of privately financed PES and bring together experiences of innovative solutions for such kind of schemes around the world.

In other sub-session parts, we will present –and invited the international participants to discuss– the implications and challenges of PES programmes in Africa and Latin America. These regions are important to consider, because they have very high levels of biological and sociocultural diversity, and in the same time, the fast growing of population (more urban), and characterized by presence of indigenous groups and prevalence of marginality. For this territory we pretend to present a big panorama of different forms of existing PES, and also, of scientific publications about these, with examples of some study cases from different countries. The criteria for discussion could be include: the modalities of PES (hydrological, carbon capture, biodiversity, packages), the type of target ecosystems (forest, grasslands, coastal, etc.), and ES (including provisioning, regulating, cultural and supporting), the funding organizations (government schemes, mixed with private and public funds, and local mechanisms), the type of PES schemes evaluations, the effects detected from PES application (social, economic and ecological), the territorial and temporal scales of studies, the principal actors involved to PES schemes, the form of analysis (multi-, inter-, transdisciplinary; scientific methods; quantitative or qualitative focus), the purpose of these studies (political, social life or other impacts), theoretical and methodological lessons, and overall challenges of the PES. The question that guide us in this session is if the PES schemes have fulfilled their social and ecological objectives and what might be their future.

Goals and objectives of the session:

The aim of this session is to build a network of ecosystem analysts and practitioners working on PES in Africa and Latin America. This network could help to critically question the implementation of PES programmes in both regions and to discuss how they can be used for a sustainable future in these regions.

Beside this regional network, we would want to bring together the expertise for privately funded PES around the world. We want to i) present innovative solutions for privately funded



PES; ii) explore the preconditions, the potential and the pitfalls of voluntary, privately funded PES schemes; iii) understand the motives, requirements and preferences of financiers as well as ecosystem service stewards in the context of voluntary, privately funded PES, iv) identify the research gaps when it comes to private PES.

Planned output / Deliverables:

Inter- and transdisciplinary network activities shall be fostered and potential collaborations initiated. Depending on session results, a viewpoint paper or report on the preconditions, the potential and the pitfalls of privately funded PES schemes is planned; also about policies and guidelines for the establishment of innovative PES schemes and challenges in Africa and Latin America.

Related to ESP Working Group/National Network:

[Thematic working group: TWG 16 – ES Financing mechanisms \(incl. PES\)](#)

II. SESSION PROGRAM

Date of session: Thursday, 24 October 2019

Time of session: 10:30 – 15:00

Timetable speakers

Time	First name	Surname	Organization	Title of presentation
10:30–10:45		Session hosts		Introduction into the session and the two foci on private PES and PES in Latin America
10:45–11:00	Moha	Haddouch	UNDP	Biosphere reserve ecobranding to promote payment for ecosystem services and biodiversity conservation
11:00–11:15	Bettina	Matzdorf	Leibniz Center for Agricultural landscape research	AgoraNatura – Private marketplace for biodiversity and ecosystem services in Germany
11:15–11:30	Carolin	Biedermann	Leibniz Center for Agricultural landscape research	The perceptions of private investors towards an online–marketplace for biodiversity and ecosystem services in Germany
11:30–11:45	Annelies	Boerema	UAntwerp	Payments for Ecosystem–Based Adaptation: a SWOT analysis



11:45–12:00				Discussion on challenges of private PES schemes
13:30–13:45	Maria	Perevochtchikova	El Colegio de México A.C.	Effects of payment for ecosystem services in Latin America: a systematic review of scientific publications
13:45–14:00	Albaluz	Ramos Franco	Universidad Pedagógica y Tecnológica de Colombia	Public and joint payments for ecosystem services in Colombia: from law to practice
14:00–14:15	Carolina Tavares da Silva	Bernardo	University of Brasilia	Payment for ecosystem services in Brazil: a policy instrument or a government subsidy?
14:15–14:30	Lucia	Almeida – Leñero	Universidad Nacional Autónoma de México	Evaluation of Payment for Ecosystem Services policies on Mexico City´s Conservation Land
14:30–14:45	Maria Fernanda	Lopez-Sandoval	FLACSO, Ecuador	Is it possible to evaluate links between PES and land use changes in the tropical Andes?
14:45–15:00				Discussion on challenges of PES schemes in Latin America



III. ABSTRACTS

The abstracts appear in alphabetic order based on the last name of the first author. The first author is the presenting author unless indicated otherwise.

1. *Type of submission: **Abstract***

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Evaluation of Payment for Ecosystem Services policies on Mexico City's Conservation Land

First author: Lucia Almeida

Other author(s): Julieta Jujnovsky, Alya Ramos, Lucero Cetina, Moserrat Moysén, Carla Hudler, Rocío Ortíz, Fernanda Pacheco

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Mexico City depends on its surrounding ecosystems. Despite the environmental crisis of the last decades, there are still forest and farming zones (87,204 ha) under common property, that make up Mexico City's Conservation Land. These ecosystems provide ecosystem services for the survival and maintenance of the entire city, and the livelihoods for the peri-urban human population. Hence the importance of integrating public policies that promote a balance between development, maintenance and regeneration of the peri-urban ecosystems and the services they provide. The most important approximation to doing so has been the payments for ecosystem services. One example of this is the local government programs addressing conservation through social participation.

We have conducted several external evaluations of these programs, developing methodologies for its evaluation and systematization of their information (budget, activities, beneficiaries); participative methodologies for ecosystem services monitoring; and cost-benefit analysis, presenting recommendations for the programs' improvement. The main results have shown that these programs have been helpful in maintaining the forest cover and as economic support for the people participating on them. Nonetheless, it's still necessary to refine their design and implementation to a better achievement of their objectives. For this reason, it's essential to generate accurate and reliable information on ecosystem services that helps improve the payments schemes and to promote mechanisms that allow the programs to be



constantly evaluated and improved; aiming to impact the conservation status of the ecosystems and the living conditions of the peri-urban and urban population of Mexico City.

Keywords: Conservation, social participation, monitoring, public policy, Mexico City

2. *Type of submission:* **Abstract**

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Payment for ecosystem services in Brazil: a policy instrument or a government subsidy?

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Although nature provides ecosystem services, with or without the human's presence, the decisions made by natural resources users affected the type, quality, and quantity of services. For that reason, rural owners are the economic agents, which provide ecosystem services. The rural owner, who preserves part of his/her property, generates many environmental services to society, but he/she is rarely compensated for it. Thus, the difference between the marginal social benefit (high, generated by the conservation of nature) and the private (low, because the owner is not compensated by the act of conserving) generates positive externality. This should be the smallest value for Payment for Ecosystem Services (PES). Hence, this article had the purpose to perform a qualitative evaluation of 16 PES programs in Brazil, accordingly to Wunder, Engel, and Pagiola (2008) criteria. From 16 evaluated programs, the users financed five and the private sector in partnership with the Brazilian Government financed eleven. The majority of purpose was to improve water quality and supply. Only two programs, financed by the users, presented high conditionality: one to improve the water quality and supply, and others to improve carbon storage. Because of this and the value paid out for the landowners, these two programs were that most resembles an authentic or "genuine" PES program. Also, it was verified that the Brazilian Government-financed programs were far from considering an economic policy instrument. They had resemblance with assistance (subsidies), which does not contribute to the biodiversity conservation.



Keywords: Brazilian PES, policy instrument, ecosystem services, payments for ecosystem services, environmental services.

3. *Type of submission:* **Abstract**

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Payments for Ecosystem–Based Adaptation: a SWOT analysis

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Ecosystem based Adaptation (EbA) measures are needed to increase the resilience to droughts. Beside the objectives that are considered from a climate adaptation perspective, there can be many more ecosystem services delivered by implementing EbA measures. It might be smart and cost-effective to offer land-owners a profit model for implementing EbA-measures.

Our aim was to develop a common strategy and action plan to implement a rewarding scheme for EbA: Payments for Ecosystem–Based Adaptation (PEbA). In Belgium, Netherlands and South England, we organized a series of workshops to analyse the regional implementation of the rewarding system through a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis from a wide range of participants. In these workshops we discussed the need and desirability of PES-schemes from different perspectives. During the different workshops, many aspects of developing a PEbA were discussed: 1) Identifying EbA prospects, potential buyers and sellers; 2) Resolving institutional, legal and technical issues; 3) Negotiating contractual agreements; 4) Implementing and reviewing EbA agreements. We will present the regional lessons learnt to target the key challenges from an organisational point of view including political, financial, practical and organisational challenges.

The outcomes of the SWOT analysis are used in the Interreg 2 Seas PROWATER project (2018–2022) for setting up a subsidy system for the implementation of infiltration and retention measures and embedding that as part of a climate adaptation fund.



Keywords: Operational challenges, Funding system, Private landowners, Water retention measures

4. *Type of submission:* **Abstract**

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Biosphere reserve ecobranding to promote payment for ecosystem services and biodiversity conservation

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The Argan ecosystem existed for millennia. Nature and humans managed to maintain a balance between exploitation and regeneration of natural resources. Today, sustainability is not an option anymore, and the Argan ecosystem is facing unprecedented challenges.

The pace at which natural resources are being extracted and used up is alarming and put its sustainability at stake. 70% of the natural ecosystems that underpin food systems are degraded and endure an irreversible desertification process. This is mainly due to overgrazing, excessive firewood extraction and dismantlement of traditional institutions that used to protect and safeguard these ecosystems.

To reverse this trend, the Circular Economy Souss Massa project (CEP) aims to set up a new eco-label for the Argan Biosphere Reserve certifying that value chains for local agro-biodiversity products are biodiversity-friendly and sustainable in terms of underlying ecosystem services. More precisely, this certification system should help build sustainability of businesses using natural resources to meet responsible citizen demands in an effective cooperation system linking rural and urban areas, based on green commodities systems in line with the SDG 12 related to SCP.

This private label will be managed by professionals' representatives of five value chains including argan oil, honey, aromatic and medicinal plants and tourism. A management body



of certification and overall standards for qualifications were established based on payment for ecosystem services.

Keywords: ecobranding, biosphere reserve, sustainable development, ecosystem services

5. *Type of submission:* **Abstract**

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

The perceptions of private investors towards an online–marketplace for biodiversity and ecosystem services in Germany

First author: Marlen Krause

Other author(s): Carolin Biedermann, Bettina Matzdorf

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Payments for Ecosystem Services (PES) schemes have been seen as an opportunity to increase funds available for nature conservation. However, little is known about the perceptions of potential private financiers towards voluntary PES schemes as well as the determinants of people's financial support. Thus, our research analyses the preconditions, motives and preferences of companies and private individuals to voluntarily invest in biodiversity and ecosystem services. Moreover, we provide evidence about the characteristics of potential private investors in a PES scheme. We examine these aspects in the context of a Germany-wide online–marketplace for biodiversity and ecosystem services, called AgoraNatura. AgoraNatura is a non–governmental, voluntary PES scheme that is currently being developed and anticipated to launch in autumn 2019. Regarding businesses our results are based on interviews with company representatives in Germany. We did a structured content analysis of the interview data by conducting an inductive–deductive coding process, based on the Theory of Planned Behaviour. Regarding private individuals we explored the data sets of several representative nature perception surveys of German citizens based on some well–established theories and models from environmental psychology. First findings from the survey analyses suggest that certain frames, especially those that focus on the benefits of nature to humans, appeal only to specific groups of people. Similarly, the company interviews provide evidence



that various business characteristics influence whether or not a company is willing to voluntarily pay for biodiversity and ecosystem services, which suggests that a specific target group exists. Our results may provide important insights into how conservation engagement can be successfully framed for specific target groups as well as the potential of a privately-funded PES scheme from a private investor perspective.

Keywords: Payments for ecosystem services, voluntary private investment, framing theory, nature conservation communication, business

6. *Type of submission: Abstract*

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Is it possible to evaluate links between PES and land use changes in the tropical Andes?

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This contribution aims at discussing the possible links between land use/land cover change (LULC) and PES program implementation in Ecuador's paramo ecosystem. These high mountain grasslands extend above treeline in the humid tropical Andes and range in elevations between 3200 to 4700 m above sea level. They host high levels of biodiversity and endemism and are key regulators of hydrologic budgets and important for soil carbon accumulation. Since 2008 the Socio Bosque national program was implemented by the Ecuadorian government as a conservation-agreement scheme between the state and program's beneficiaries, either individuals or communities. It consists of a payment per hectare of native forest or other ecosystems for voluntary conservation. The program also aims at contributing to poverty alleviation through direct monetary compensation. Socio Páramo (SP) is part Socio Bosque; it was developed to protect paramo grasslands, their hydrological functionality, while keeping its water provisioning service. Our study aimed at understanding the impacts of PES in a) institutional change (eg. development of rules) of Andean communities involved in the program, to manage communal grasslands and b) land uses, including changes



in grazing practices. For this presentation we will focus on LULC trajectories of a multitemporal analysis (2000–2017) of remote sense material (eg. air/photos and satellite images) in frame of PES program implementation, in 12 case studies, of the central Ecuadorian Andes. Given the context of a high mountain ecosystem, where the vertical/altitudinal dimension is fundamental to understand environmental change, we focus on altitudinal changes of land uses (eg. pastures, agriculture and paramo) and the altitudinal variation of the agricultural frontier. The presentation uses the socio/ecological system framework, to discuss: a) the possible links between land use change and PES; b) feedbacks between land use change and ecosystem conservation, through PES implementation. These are partial results of the project: What happens when payments stop?, a joint effort between Seattle University (USA) and FLACSO, Ecuador, with the financial aid of the National Science Foundation (NSF).

Keywords: Andes, PES, land use change, agricultural frontier

7. *Type of submission:* **Abstract**

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

AgoraNatura – Private marketplace for biodiversity and ecosystem services in Germany

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Payments for Ecosystem Services (PES) schemes have increasingly been seen as an opportunity for new financial conservation sources. However, privately-funded PES schemes without governmental involvement rarely exist in practice. In order to put the idea of a non-governmental, voluntary PES scheme into practice, a team of scientists, environmentalists, and conservationists are currently developing a German online-marketplace for biodiversity and ecosystem services, called AgoraNatura (www.agora-natura.de). AgoraNatura is being implemented with the goal to increase private funds for nature conservation in Germany, especially in agricultural landscapes. The online-marketplace can be understood as an open-access 'online-shop' for nature conservation credits that are generated from nature



conservation projects. AgoraNatura will exclusively list site-specific conservation investment opportunities that will have quantified effects on biodiversity and ecosystem services. The launch of this marketplace will be in October 2019.

In the first part, I will explain the institutional design of the marketplace as a whole including involved actors, their roles and relations.

In the second part, I will focus on our specific standard we developed as bases to generate nature conservation credits. Based on experiences of the climate market and CO² standards we developed the NaturPlus-Standard. The scientifically sound standard defines project development requirements as well as methods and rules for monitoring, reporting and verification of project effects. The Natur-Plus-Standard is being developed concurrently and in close exchange with the AgoraNatura online-marketplace, however it is a publically available standard. Thanks to the quantification of biodiversity and ecosystem services AgoraNatura will offer nature conservation credits and will make conservation projects better verifiable, transparent and to some extent comparable.

In the final part, I will give some insights in the developing process and discuss some of the challenges we were confronted with.

Keywords: Payments for ecosystem services, institutional design, actors, biodiversity standards, nature conservation credits



8. *Type of submission: Abstract*

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Effects of payment for ecosystem services in Latin America: a systematic review of scientific publications

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We focus on the analysis of the scientific publications about economic, social and environmental results of Payment for Ecosystem Services (PES) schemes in Latin America. This region shows a high diversity of biological and sociocultural structures being threatened by the fast growing of cities population, confrontation against traditional values and prevalence of social marginality. Due to the mechanism has been adopted in the region since the 1990s, with authentic boom since 2003, it caused the interest from society, public policy and academics. In this sense, we present a systematic review of the PES evaluation scientific publications in Latin America, based on PRISMA protocol and use of SCOPUS and SCIELO databases. The following criteria have being pre-defined in the analysis: the modalities of PES schemes (hydrological, carbon capture, biodiversity, packages), the territorial and temporal scales of studies, the type of target ecosystems (forest, grasslands, coastal, etc.) and of ecosystem services including (provision, regulation, cultural and supporting), the principal actors involved to PES schemes and the funding organizations (as government schemes, mixed with private and public funds, and local mechanisms). Social network analysis will be used to detect the principal thematic trends and co-authorship networks in selected PES literature. In the other hand, we propose the next criteria in the analysis of the PES effects, such as: the type of PES schemes evaluations (institutional and academic), the purpose of these studies (political, social life, economic or other), the form of analysis (multi-, inter-, transdisciplinary; scientific methods; quantitative or qualitative focus), including the implementation of monitoring schemes (ecological, social, etc.). This information will allow us to discuss about PES implications, problems and challenges.



Keywords: Payment for ecosystem services, Latin America, literature review, co-authorship networks, semantic network analysis, effects generated

9. *Type of submission: Abstract*

T. Thematic Working Group sessions: T16 Payments for ecosystem services in research and practice – current situation and challenges

Public and joint payments for ecosystem services in Colombia: from law to practice

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Colombian environmental law is one of the most developed in the world, specifically when it comes to some resources, like water and biodiversity. However, the academic and legislative work related to ecosystem services are still in their early stages and a link between these two areas has yet to take place.

In our book (*Pago por Servicios Ambientales en Colombia*) we make a thorough review of the legislation, from major laws to municipal agreements regarding PES, including policies and government programs; highlighting elements of the traditional scheme and revealing new proposals. This research also reviews how the Autonomous Regional Corporations (CAR, by its acronym in Spanish), 33 environmental authorities across the country, have applied schemes with and without private investment, in some cases, in alliance with municipalities.

In the same way, the Special Administrative Unit of the National Natural Parks was consulted, which has shown important early initiatives implementing PES in their jurisdictions (with indigenous and Afro communities). A recurrent private intermediary agent was detected in many PES: BanCO2. This enterprise plays an important role in the Coffee Belt region; we will also analyze its participation.

As a brief conclusion, Colombia is making diverse and large-scale efforts to implement PES, mostly with private economic resources administrated by CARs, focusing on water and carbon



services. The biggest weakness has been the follow-up on the results, due to the absence of methodological tools approved by law.

Keywords: Colombian Normative, Autonomous Regionals Corporations, National Natural Parks, Municipalities, BanCO2