

Payments for Water Ecosystem Services in Latin America

A quantitative review

Julia Martin-Ortega¹, Elena Ojea², Camille Roux³

¹The James Hutton Institute, Craigiebuckler, Aberdeen, AB15 8QH

²Basque Centre for Climate Change, Bilbao, Spain

³AgroParis Tech, Paris, France

Email: julia.martinortega@hutton.ac.uk



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Introduction

Payments for Ecosystem Services (PES) schemes are attracting increasing interest as policy mechanisms to improve conservation and achieve sustainable development outcomes. PES initiatives aim to reach mutually beneficial agreements between providers and users of ecosystem services, entailing a reward mechanism for ecosystem managers for maintaining or improving the provision of the services valued by beneficiaries.

Latin America has now more than two decades of experience in the implementation of PES schemes. Existing reviews dedicated to the study of this policy instrument remain mostly theoretical and/or qualitative. This paper presents the most comprehensive and up-to-date compilation of PES cases in Latin America, and is the first study that quantitatively analyses this PES experience on the basis of a systematic review of existing programmes.

The objective is twofold: i) understanding the key features of existing PES mechanisms based on quantitative evidence; and ii) identifying information needs for policy design and implementation. We focus on water-related services since this type of service is involved in the majority of existing schemes. The outcomes of this analysis are presented in the form of key messages that serve for the formulation of an evidence-based conceptual model of PES schemes in practice.

Methods

A database of 280 observations was constructed using information from 38 original studies, dating from 1984 and published up to 2011. Studies include both peer-reviewed (44.7%) and ‘grey’ literature (55.3%), where the discussion of PES mechanisms has very largely taken place (Engel et al., 2008). The database covers ten Latin American countries: Costa Rica, Ecuador, Bolivia, Brazil, Colombia, Mexico, El Salvador, Nicaragua, Guatemala and Honduras.

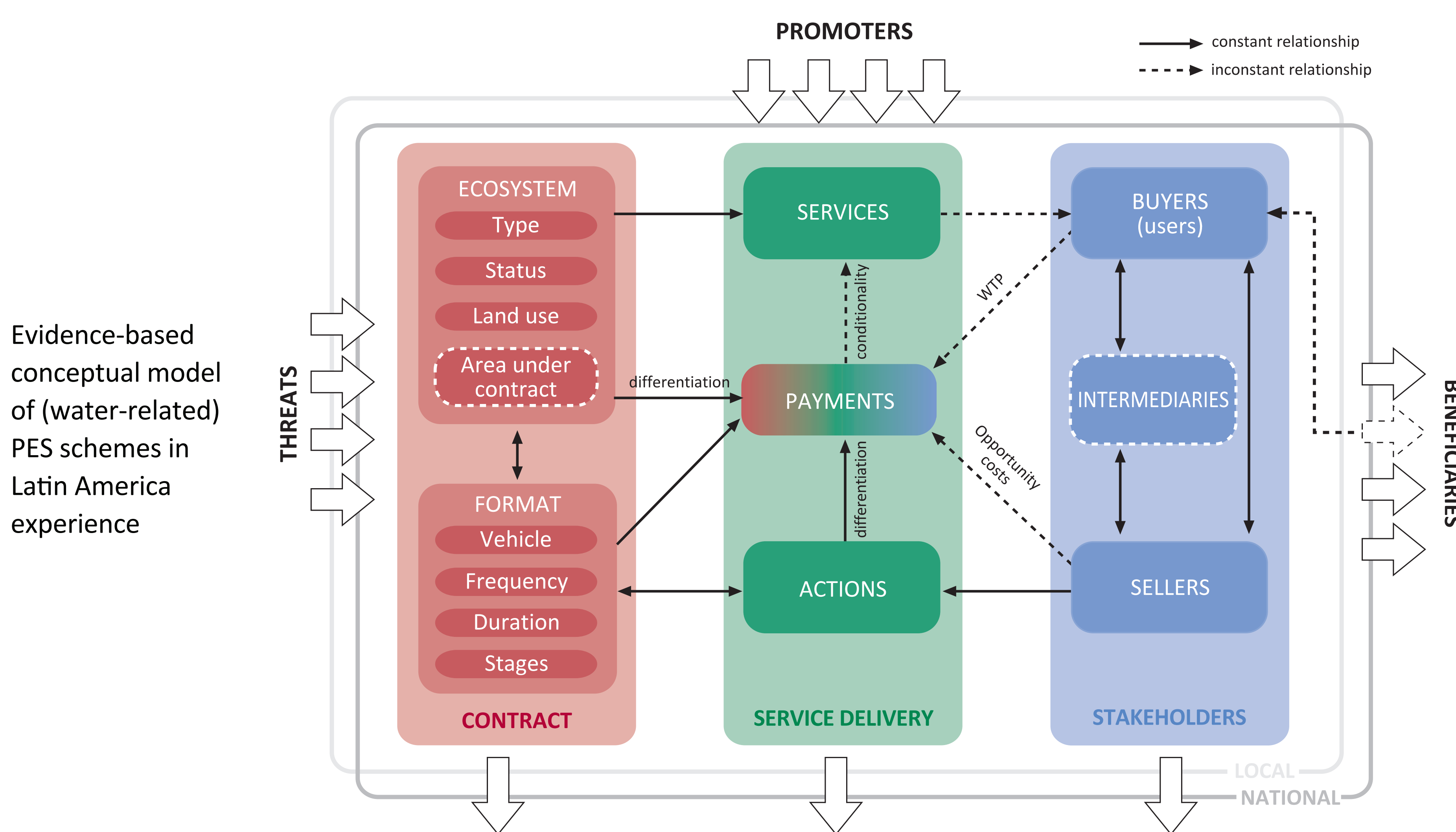
Relevant literature was identified via computerized searches, using the terms (in English and in Spanish and Portuguese) 'water', 'ecosystem service(s)', 'environmental service(s)', 'watershed service(s)', 'water service(s)', coupled with the terms 'payment(s)', 'contract(s)', 'compensation' and 'fund(s)'. Abstracts of articles and reports identified using the keywords were reviewed, and apparently appropriate articles were examined in their entirety. Reference lists were scanned for other relevant articles.

Information from selected documents was tabulated and coded into a total of 120 variables, e.g. year of publication, scale, type of service, type of action, etc., and used for the construction of a database. Efforts were made in the recoding and classification of the information collected in the studies in order to homogenize the data.

Results

Key messages
extracted from
descriptive
analysis of
reported studies of
existing
water-related PES
schemes in Latin
America

Context	Stakeholders	Services and actions	Contract duration and format	Preparation and implementation process	Payments
<ul style="list-style-type: none"> • Various threats often act simultaneously. • Deforestation is by far the biggest threat to water resources. • The large majority of PES programmes have a local-scale component. Some programmes follow a mix of national and local rules. 	<ul style="list-style-type: none"> • Landowners and farmers are the key service sellers, but there is scarce information regarding the distinction between them. • Hydropower companies and domestic water users are the key service buyers. • Most schemes involve at least one intermediary (mainly NGOs). 	<ul style="list-style-type: none"> • The large majority of transactions include a bundle of services (including non-water). • Services are often poorly defined. • Improving extractive water supply is the targeted service in more than 90% of PES transactions. • Payments are in all cases based on input (actions) rather than outputs (service delivery). • Transactions usually include several actions. Forest conservation, forest management and reforestation are the main actions. 	<ul style="list-style-type: none"> • Significant lack of information regarding the duration of contracts and frequency of payment. Average duration is 24 years. • Lack of information regarding the area under contract. Median area is 1,000 hectares. • PES schemes change every 1.5 years on average. 	<ul style="list-style-type: none"> • Top-down decisions determine level of payment in the vast majority of programmes. • Various promoters are present in most schemes (mainly national/local NGOs). • Dramatic lack of WTP and opportunity costs estimates. 	<ul style="list-style-type: none"> • Half of the transactions include different level of payments (differentiation). • The very large majority of transactions involve cash payments from buyers, followed by increased water fees. • A significant amount of studies fail to report monetary information on buyers' payments. • There is a great variance of per hectare/year payments across PES schemes. • Average sellers' receipt is more than 60% greater than the average payments made by buyers.



Conclusions

- The main contribution of this work is the identification of a set of key messages about PES practice in Latin America, together with a conceptual model representing current functioning of these schemes that distinguishes theoretically expected relationships from consistent relationships in practice. These outputs are expected to serve as operational sources of information for evaluation of existing schemes and the design of new ones.
- Three elements seem crucial for PES efficacy : i) action-service conditionality, ii) a good definition of the ecosystem service, and iii) a level of payment which accords with the opportunity costs of the service providers and buyers' willingness to pay. Our analysis shows that PES programmes in practice are not solidly rooted in respect to these three elements.
- Our analysis also shows that there are currently important information gaps in the reporting of PES practice, limiting the evaluation and future design of PES schemes.

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