

# The challenges of governing the provision of ecosystem services through PES

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From a historical perspective, the concept of “ecosystem services” is very recent

A paradigm shift: aiming to expand the audience for the conservation message by means of showing the links between the natural systems and human well-being

The utilitarian emphasis of this framework and the attention it pays to the role of humans and local institutions in the provision/degradation of ecosystem services stands in contrast to the paradigm that previously dominated the field of environmental conservation, which stressed:

- The human/nature division
- The trade-off between economic development and the conservation of natural ecosystems
- and the corresponding emphasis on the creation of protected areas, set up to exclude human activities

The ecosystem services framework is expected to facilitate the creation of novel partnerships and to mobilize additional human and financial resources for the conservation of natural ecosystems.

The framework aims to:

- (1) Acknowledge and communicate (e.g. through quantified measurements) the dependency of economic processes on ecosystem functions
- (2) Make explicit the linkages between different stakeholders, in particular the users of the resource base (on which the provision of ecosystem services rely) and the beneficiaries of the ecosystem services derived from these resources.

In order to achieve these broad objectives, the ecosystem services approach typically “compartmentalizes” such services following a classification of values (provisioning, regulating, cultural) and the type of contribution to economic processes (carbon sequestration, water regulation, etc.).

From a policy perspective, the approach is meant to achieve two critical goals:

- (1) To help solving the tension between economic development and environmental conservation
- (2) To influence the decisions made by the users of the resource base, so that they align their practices with the interests of the beneficiaries of ecosystem services

These two goals constitute the core of the governance agenda that comes associated with the ecosystem services approach. This agenda corresponds to two distinctive areas of action:

- (a) Creating linkages between different layers and stakeholders in order to deal with complex economic, social and ecological inter-dependencies and
- (b) Inducing changes in the use or the property rights of the resource base that provides the concerned services, in order to align the interests of different social agents.

Though not necessarily inherent to the ecosystem services framework, this governance agenda has come along with two associated measures:

- (1) The economic valuation of these services, and
- (2) The promotion - and increasing use - of market-based policy tools, especially payments for ecosystem services

The goal being to convert hypothetical (and unrecognized) market values into actual cash flows

Though market-oriented policy approaches are not inextricably linked to the ecosystem services framework, the adoption of this type of policy instrument has been facilitated by two important components of the framework:

(a) The compartmentalization of services, which has allowed their commoditization

(b) The need to create linkages between various levels and stakeholders (with differing interests) and to induce changes in property/use rights among the users of the resource base

In principle, monetary transfers seem appropriate tools for both establishing links between social groups and negotiating changes in rights over resources, either through trade or incentives.

The promotion and use of market-based policy instruments in the governance of ecosystem services may open new opportunities, but it also entails some threats and challenges

We will review the main challenges:



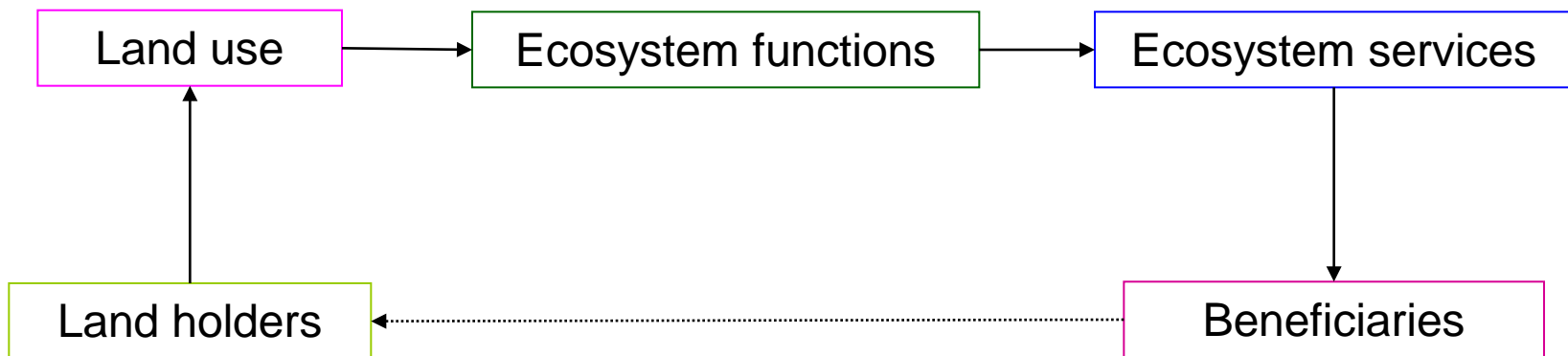
## The reduction of complexity

The compartmentalization and commoditization of ecosystem services involve a substantial reduction of complexity. However, ecosystem functions are typically complex, due to the multi-dimensional, non-linear and multi-scale nature of ecological dynamics.

These complexities (that markets are usually unable to grasp) have been the subject of ecological research for decades. However, our understanding on ecosystem functions, including their drivers and trade-offs, is still very limited.

The lack of data about the effects of interventions on the provision of ecosystem services is pervasive.

Such a gap has led Tallis et al. (2008) to conclude that “most of the current enthusiasm for ecosystem service projects in the conservation world is an act of faith”.



## Trade-offs between ecosystem services

Trade-offs between the provision of different ecosystem services are very common, as, for instance, between carbon sequestration and water provision, or between carbon sequestration and biodiversity

An over-emphasis on the commoditization and trade of a particular ecosystem service (such a carbon sequestration) may induce changes in the resource base that may in turn jeopardize the supply of other services, and even the service whose provision is being promoted.

The fact that markets tend to be concentrated on few services may affect negatively the resilience of ecosystems.

For instance, large-scale carbon accumulation in forests might favor disruptive fires. These fires may then eventually undermine the capacity of forests to provide a variety of ecosystem services.

Furthermore, the current “carbon obsession” puts non-forested ecosystems at risk.

It may also put at risk the complex and not yet well-understood structure of tropical and other types of forests, since, in forests managed for carbon, most species are viewed as superfluous

From the point of view of adaptive ecosystem management, the compartmentalization of services is probably the main caveat of the ecosystem services approach.

A narrow division of ecosystem services is exacerbated by the use of market-based instruments, since markets are usually myopic to ecological dynamics, that is, unable to grasp their inherent complexity.

## The cost of information

In addition, the commoditization of ecosystem services also requires a high level of understanding and predictability of the relationship between the practices of resource use, ecosystem functioning and the provision of ecosystem services. This information is, in many cases, costly to obtain.

As a result, there is often a trade-off between the intention to establish markets for well-defined ecosystem services (which involve verifying that they are actually delivered) and the transaction costs of setting them up

## The challenge of managing common pool services

The need for coordination between different social actors for the governance of ecosystem services comes from the fact that though ownership of the resource base might be of any kind (private, public, or communal), most ecosystem services fall within the type of goods that are considered “common-pool goods”.

The fact that the beneficiaries of locally supplied ecosystem services might be in distant locations and often belong to different social groups creates the need for governance systems that transcend the local realm and encompass different geographical and governance scales

The common pool nature of most ecosystem services implies that market mechanisms are not always suitable as governance tools, since markets tend to be more effective in dealing with private goods.

Because of transaction costs and the complexity of the concerned transactions, markets are generally not the most effective coordination mechanism when a high level of cooperation is necessary

## Other transaction costs

In addition to the need for cooperation, the provision of ecosystem services often involves a high level of uncertainty, imperfect and asymmetric information between transacting parties, and cognitive barriers for assessing the service itself (for instance, the extent to which it has been supplied).

Due to the high transaction costs involved in the coordination between parties under such circumstances, markets are expected to be less effective governance structures for this kind of situations.

The governance of ecosystem services demands to be approached in terms of nested layers, in a context of uncertain and complex interactions.



Due to the arguments presented above, it is more appropriate to conceptualize payments for ecosystem services as incentives for collective action, instead of quasi-perfect market transactions to solve market failures.

Such a different point of departure has important implications, not only from a conceptual point of view, but also in terms of policy and practice.

Payments for ecosystem services are above all political instruments, and not only technical tools for getting the price of ecosystem services right, or to correct economic externalities, as some authors have argued.

PES projects are political projects embedded in complex institutional and ecological contexts.

The literature on the management of common pool resources has stressed the role of sanctions. New insights may nevertheless be derived from incorporating considerations about the role of monetary and non-monetary incentives

Lessons learned from the literature on the commons:

Governance arrangements tend to be more effective in solving social dilemmas when they are built on local knowledge and trust, and when they hold high levels of involvement of stakeholders in the design and enforcement of rules, including monitoring and sanctioning.

More than the general type of governance of property rights (government, private or community-based) what really matters is:

- (1) How a particular arrangement fits the local ecological conditions;
- (2) How rules are developed and adapted across time; and
- (3) How social actors perceive these arrangements in terms of legitimacy and equity

To sum up, rules and rule-making autonomy and participation (that is, how rules are designed and enforced, and how they evolve over time) matter more than the property regime or the generic type of coordination between transacting parties

In short, be careful with the contemporary over-emphasis on market-based instruments!

Market-based tools may, under specific circumstances, contribute to improving the governance of natural ecosystems. Nevertheless we need to pay the necessary attention to assess their particular fit within specific socio-economic contexts, and their capacity to modify rule-making structures.

PES cannot be considered as “neutral” technical tools for policy making

At the end of the day, there is no way to skip to the old concern for the suitability of rules, including by whom and for whom they are made. In other words, there is no way to skip the need to deal with **political choices**