

1. Introduction to international payments for ecosystem services

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SUMMARY

- Existing environmental finance and regulations are increasingly recognized as inadequate to address biodiversity loss and ecosystem degradation.
- This has led to growing interest in the use of innovative financial mechanisms and positive incentives for the conservation and sustainable use of biodiversity, and for more equitable sharing of its benefits.
- ‘Payment for ecosystem services’ (PES) schemes have gained prominence as a means to mobilize resources and encourage conservation on private lands.
- By bringing together ‘buyers’ and ‘sellers’ of biodiversity and ecosystem services, PES creates a financial incentive to ensure their continued provision.
- Interest in scaling up PES at the international level (IPES) is a more recent trend, largely inspired by the emerging international trade in greenhouse gas emission allowances and offsets, or ‘carbon market’.
- The search for international financial mechanisms capable of addressing other environmental problems besides climate change reflects growing recognition of the significant international benefits associated with biodiversity and ecosystem services, as well as the need for a significant increase in, and more efficient use of, both public and private finance for conservation.
- This book explores the arguments for and precursors of IPES, while also identifying practical barriers and possible ways to overcome them.

1. THE CONSERVATION FINANCE GAP

The Ishpingo–Tambococha–Tiputini (ITT) region in Yasuní National Park in tropical Ecuador is one of the most biologically diverse places on earth.¹ The extraordinary natural wonders of this region are, arguably, priceless. The same area contains proven reserves of around 850 million barrels of crude oil, worth more than US\$7 billion at current world prices.² As things stand, the financial return from conserving the forest, despite its enormous biological and cultural wealth, does not even come close to the value of extracting the oil.

Environmentalists argue that extracting the oil that lies underneath the ITT would result in massive biodiversity loss, deforestation, ecosystem degradation and pollution, including the release of some 800 million tonnes of carbon dioxide (CO₂) from deforestation alone.³ In 2007, the president of Ecuador, Rafael Correa, proposed that his government would be willing to give up the potential royalties, taxes and other economic benefits of oil production in exchange for financial compensation from the international community equivalent to half this amount. The president's proposal, which included legal measures to prohibit oil drilling within the park, was backed by a majority of Ecuador's population.⁴

In August 2013, however, President Correa announced that his government was abandoning the initiative, due to lack of foreign support.⁵ Five years after its inception, about US\$300 million had been pledged by international donors, of which US\$13 million had been deposited into a special trust fund. The voluntary nature of these contributions, as well as the wide range of donors – ranging from celebrities and philanthropists to civil society groups, private companies, and regional and national governments – underscores the global appeal of such an ecosystem. However, the modest scale of the contributions and commitments received also highlights the inadequacy of existing environmental finance mechanisms at an international level.

The initial proposal by the government of Ecuador illustrates the need, the opportunity and the potential magnitude of international payments for ecosystem services (IPES). In effect, President Correa identified international stakeholders as co-beneficiaries of conservation, asking them to pay not only to sustain those benefits but also to help cover the opportunity costs of forgoing oil production and thus avoiding environmental harm. The ultimate failure of the initiative demonstrates, unfortunately, that voluntarism, charity and aid funding are not always sufficient to conserve nature in the face of economic pressures. While the Yasuní proposal was ahead of its time, it reveals the potential contribution to conservation and sustainable development from bringing together 'buyers' and 'sellers' of biodiversity and ecosystem services on an international scale.

Although still a nascent concept, IPES offers the hope of a practical response to the gap in economic incentives and finance that underlies continuing biodiversity loss and ecosystem degradation. The past few decades, in particular, have seen natural resources consumed, extracted and exploited at unprecedented rates, due mainly to population increase and economic growth around the world. One widely cited recent global assessment⁶ found that almost two-thirds of the ecosystem services upon which humanity depends were severely degraded or being used unsustainably.⁷ These ecosystem services include essential benefits to people, such as fish, fibre, clean water, pollination and nutrients for crop production, flood control and climate regulation.⁸

Forest ecosystems, and particularly biologically rich tropical forest ecosystems such as Yasuni National Park, provide multiple ecosystem services at various levels, including timber and non-timber products for local users, watershed protection at a regional scale, and carbon storage that benefits the entire world.⁹ Historically, the market has recognized only a handful of these services – mainly the value of timber and other non-timber forest products, or the value of the land itself (when cleared) for agricultural production or the extraction of minerals.

Today, efforts to conserve natural forests and other environmental assets depend largely on governments responding to the demands of their citizens and, to a lesser extent, on non-profit organizations financed by charitable donations. In many cases, however, the power of market forces overwhelms arguments for conservation, resulting in logging and conversion of forests like those in Yasuni to alternative uses, such as agriculture, intensive plantations, transport and energy infrastructure, mining operations and petroleum projects. While these alternative uses can generate highly valued economic and social benefits, they often come at significant environmental cost. The Yasuni case is exceptional mainly due to the magnitude of the conservation opportunity and its price tag, and because of the attempt by the government and others to draw attention to the local and global environmental values at stake. The end result, however, is all too typical of the fate of natural forests everywhere.

Despite their importance for human well-being and our very survival, many ecosystem services remain invisible in market transactions and in national economic accounting systems.¹⁰ This is especially true of intangible ecosystem services, such as the protection afforded by upland vegetation to downstream water users. In addition, it is difficult to charge consumers for using certain ecosystem services, such as clean air or beautiful views, which cannot easily be withheld. The usual result is pervasive undersupply of many ecosystem services, overconsumption of natural resources, and excessive environmental impacts, such as water pollution,

toxic waste and greenhouse gas (GHG) emissions. While the effects of environmental decline are felt worldwide, the rural poor often face the worst impacts, as they depend most directly on healthy ecosystems and renewable natural resources for their livelihoods.

2. FILLING THE GAP: THE FOUNDATIONS OF IPES

One response to the dilemma illustrated by the Yasuní case is to try to 'level the playing field' – in other words, to make the conservation and sustainable use of biological resources more competitive, in financial terms, with alternative uses of these resources. In fact, the use of financial incentives to motivate the private sector to protect the environment is not new. From tax credits for environmental expenditure to pollution taxes and environmental trading schemes, there are many examples where market forces have been harnessed successfully to deliver environmental gains.¹¹

One common approach to financing conservation is to establish a system of payments for ecosystem services (PES). As the name implies, this involves paying private resource managers to adopt land uses or practices that generate environmental benefits. More precisely, PES has been defined as 'a voluntary transaction whereby a well-defined ecosystem service, or a land use likely to provide that service, is being bought by at least one buyer from at least one provider – if, and only if, the provider secures the provision of the service'.¹²

The development of PES is based on a realization that there are both costs and benefits associated with conserving biodiversity and delivering ecosystem services, and that these costs and benefits often accrue to different groups of people. The benefits of conservation, in particular, may be enjoyed very widely while the costs of conservation are often borne locally. In the absence of PES, distant beneficiaries can always 'free-ride' on local environmental protection efforts, but they may not be entirely satisfied with the resulting conservation outcomes.

PES attempts to address the gap between the amount of ecosystem services that resource managers will deliver to satisfy their own interests, and the amount they would be willing to produce if the interests of other beneficiaries were factored into the equation. In order to bridge this gap, PES relies on positive economic incentives rather than moral arguments or legal compulsion as the main means of influencing behaviour.¹³ The basic idea is that those who benefit from ecosystem services pay those who provide them, and when service providers receive some compensation, conservation becomes more attractive.¹⁴

2.1 Experience with PES

Over the past decade or so, PES has gained prominence as a means to encourage nature conservation on private lands.¹⁵ Many organizations have begun to explore and/or apply PES, including conservation groups, community associations, research institutes, private firms and international organizations. The accompanying literature has also mushroomed, with a range of theoretical and applied work on various aspects of PES (e.g. Ferraro and Kiss, 2002;¹⁶ Gutman, 2003;¹⁷ Pascual and Corbera, 2011;¹⁸ Zilberman et al., 2008¹⁹).

PES schemes come in many guises, depending on the local context and the objectives of key stakeholders.²⁰ For example, payments can target particular areas that deliver certain benefits, such as watershed protection or the conservation of breeding grounds for endangered species. Alternatively, producers may be rewarded for meeting certain specified environmental standards, such as eliminating the use of synthetic pesticides in organic agriculture or reducing harvest levels or bycatch in sustainable fishing. Payments may focus on preserving the status quo (i.e. restricting the use of and/or access to natural resources) or on increasing the quantity or quality of ecosystem services through ecological restoration and enhancement. The details of PES are also influenced by who makes the payments: beneficiaries themselves or intermediaries such as government agencies and non-governmental organizations (NGOs).

Today, PES projects and programmes can be found around the world. These include local schemes, which typically focus on improving watershed management,²¹ as well as national PES initiatives. The latter often promote forest conservation – as in Mexico and Costa Rica²² – or the conservation and sustainable management of agricultural landscapes – as in Switzerland and the USA.²³ Many of these schemes are government sponsored, although there are examples of privately funded PES in both developed and developing countries (e.g. Coca-Cola, 2011;²⁴ Danone-Evian, 2006;²⁵ FAO and Forest Trends, 2007;²⁶ Perrot-Maître, 2006;²⁷ Wunder and Wertz-Kanounnikoff, 2009²⁸). At a regional scale, the European Union (EU) Biodiversity Strategy to 2020 lists six targets and associated actions²⁹ to halt biodiversity loss and the degradation of ecosystem services. PES schemes are highlighted as an effective way to ‘diversify and scale up various sources of funding’ so as to mobilize sufficient resources for the scale of operations required.³⁰

A major challenge for all PES schemes is how to motivate consumers and firms to buy ecosystem services, especially when they have previously enjoyed these services for free. An increasingly common solution is to establish legal liability for environmental damages (i.e. a loss of ecosystem

services) while at the same time allowing liable entities to expunge their debt by purchasing equivalent ecosystem services from a third party. This is the approach used in carbon markets, where polluters can either reduce or 'offset' their emissions by purchasing carbon credits from approved suppliers (see below). The same basic concept is sometimes used to address other types of environmental damage, such as water pollution or habitat loss, where a liable entity may be allowed to purchase offsets from a third party, who undertakes to improve water quality or to restore or conserve threatened habitat.

Established systems of ecosystem offsets and credit trading exist in the USA, in the form of wetland mitigation banking and species conservation banking. Wetland mitigation banking is founded on the 1972 Federal Clean Water Act, which requires developers to mitigate adverse impacts on wetlands.³¹ Over several years, a system was developed under which firms seeking to drain or fill wetlands may be allowed to do so only if they compensate for those impacts by financing the creation, restoration or enhancement of similar wetland habitat elsewhere (i.e. a 'mitigation bank'). In 2010 wetland mitigation and related conservation banks in the USA generated between US\$1.5 and US\$2.5 billion in payments for conservation.³²

2.2 From PES to IPES

The most prominent example of a PES scheme in which payments cross international boundaries is the market for carbon offsets. This relatively new market meets the definition of PES in so far as it involves a conditional payment, from a buyer to a supplier, to finance efforts to maintain the ecosystem service of climate stability, namely by reducing GHG emissions into the atmosphere or extracting CO₂ from the atmosphere. The development of the carbon market offers many lessons for other forms of IPES.

Carbon markets were created in response to concerns about climate change and intended to provide a cost-effective means to finance reductions in emissions of GHGs. The Clean Development Mechanism (CDM), for example, was established under the Kyoto Protocol as a legal framework for trading carbon credits between developed and developing countries. In this and other carbon trading schemes, demand for credits is mainly based on a regulatory cap or compulsory limit on GHG emissions by major polluters. To meet their obligations, liable entities may reduce their own emissions at source or, alternatively, they may be allowed to purchase certified offsets from suppliers of carbon credits. These credits come from approved mitigation projects and are subsequently bought and sold around the world.³³

It is well known that some types of carbon offset projects can deliver a range of other ecosystem services, as well as climate mitigation. This is obvious in the case of forest carbon projects, but it also applies to other climate mitigation initiatives, including carbon sequestration in agricultural landscapes and in marine and coastal environments.³⁴ In general, the positive ‘non-carbon’ impacts of offset projects are considered ‘co-benefits’ and are normally not priced or traded in their own right (although they may generate a price ‘premium’ for offset providers).

Increasingly, there is interest in broadening the scope of IPES beyond carbon. This interest is partly inspired by the rapid development of carbon markets and the significant sums raised for climate mitigation. More fundamentally, the search for other forms of IPES reflects a recognition of the significant international benefits associated with biodiversity and ecosystem conservation, as well as the opportunity costs and limited capacity of many developing countries to conserve biological resources (see UNEP and IUCN, 2006;³⁵ CBD Decision IX/11;³⁶ Pirard et al., 2010³⁷).

Future developments in the field of IPES will build on lessons learned from existing PES and conservation banking schemes, at the local and national level, as well as experience with global carbon markets. The case of wetland and conservation banking in the USA shows that biodiversity can form the basis of a market in its own right.³⁸ Advocates hope that new IPES schemes will lead to a significant increase in, and possibly more efficient use of, both public and private finance for biodiversity conservation, from all sectors and at all levels (see CBD Decision X/31;³⁹ OECD, 2010;⁴⁰ Arriagada and Perrings, 2011⁴¹). The key challenge is to find effective ways to link potential international buyers and sellers of ecosystem services, so that future Yasuni-like proposals are able to attract more funds in less time.

3. GROWING SUPPORT FOR IPES

PES is an emerging concept, despite years of experience in several countries. The idea of scaling up PES to the international level is an even more recent adaptation, largely inspired by the early success of the global carbon market. Nevertheless, there is already widespread support for the use of ‘innovative’ financial mechanisms and positive incentive measures for the conservation and sustainable use of biodiversity, and for equitable sharing of its benefits.⁴² Although IPES has only recently entered mainstream environmental policy discussions, the concept has generated considerable interest among governments, business and environmental groups.

In 2006, for example, a working group on IPES was established by the International Union for Conservation of Nature (IUCN) and the United

Nations Environment Programme (UNEP), in collaboration with the Secretariat of the Convention on Biological Diversity (CBD). Experts from international organizations, NGOs, academia and business gathered to identify gaps and opportunities for IPES and to develop a plan of action centring on research, consultation and application.⁴³

In 2008, at the 9th meeting of the Conference of the Parties (COP-9) to the CBD, several references were made to the international dimensions and potential of PES. This is reflected in Decisions by the Parties to ‘put more emphasis on . . . [s]tudies on approaches to develop markets and payment schemes for ecosystem services at local, national and international levels’⁴⁴ and ‘[t]o promote, where applicable, schemes for payment for ecosystem services, consistent and in harmony with the Convention and other relevant international obligations’⁴⁵ while calling upon other international organizations to do the same.⁴⁶

In 2010, the CBD COP-10 adopted a new Strategic Plan for Biodiversity, covering the period 2011–20,⁴⁷ which included reference to the need and rationale for mechanisms like IPES, notably that: ‘[previous targets] have not been on a scale sufficient to address the pressures on biodiversity . . . While there is now some understanding of the linkages between biodiversity, ecosystem services and human well-being, the value of biodiversity is still not reflected in broader policies and incentive structures.’⁴⁸ Similar language on the need for and potential of innovative international conservation finance mechanisms can be found in recent strategies and decisions by several other multilateral environmental agreements, such as the Ramsar Convention,⁴⁹ the World Heritage Convention⁵⁰ and the Convention on International Trade in Endangered Species of Wild Flora and Fauna.⁵¹ The recently established Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)⁵² is expected to provide further support as well as scientific underpinning for the development of IPES.

4. OBJECTIVES AND STRUCTURE OF THIS BOOK

This book explores the arguments and precursors for IPES while also identifying practical barriers and possible ways to overcome them. Our aim is to inform those who may be considering how an IPES system could help ensure more adequate and reliable financing for the conservation and sustainable use of biodiversity and ecosystem services, and for the equitable sharing of associated costs and benefits. Potential readers include government ‘focal points’ for the CBD and related environmental conventions, as well as conservation groups and the business community. We hope this

book will stimulate increased research and action on IPES by both public and private parties.

As IPES is so new, this volume should not be considered a 'cook book'. While much of the thinking is exploratory and most of the examples are illustrative, we nevertheless hope to provide a useful introduction to the conceptual and practical issues surrounding IPES. Moreover, because the field is evolving rapidly, most of the chapters in this book have been updated since they were originally drafted. Some elements may be dated but we believe the basic findings remain sound.

In Chapter 2, we provide an overview of the concept of ecosystem services, their economic values and their relation to biodiversity. This chapter also examines the theory and practice of PES in more detail, including some implications for the development of IPES.

Chapter 3 provides a market-based rationale for IPES, expressed in terms of the international demand for and (potential) supply of ecosystem services. This chapter seeks to identify possible motivations for either global beneficiaries or local or national suppliers to participate in transactions that support conservation or 'green production'.

Chapter 4 provides a case study of the potential international demand for forest ecosystem services, based on a public survey in Switzerland. Chapter 5 focuses on the critical issue of targeting in IPES, and how to ensure value for money.

Chapter 6 provides a case study of the supply of ecosystem services to the international market, in the form of carbon credits from reducing emissions from deforestation and forest degradation (REDD) in Brazil. Chapter 7 examines the opportunities for linking international demand for and supply of ecosystems services, illustrated with a range of practical examples. Chapter 8 provides a case study of one such linking mechanism, namely the GreenPalm initiative.⁵³

Chapter 9 concludes the book with a review of key lessons and suggested ways forward. Our basic message is that IPES offers enormous potential to generate significant new funding for conservation efforts, while also fostering more efficient use of scarce resources. We hope this book can help to realize this potential.

NOTES

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3. Ibid.
4. Ibid.
5. <http://www.bbc.co.uk/news/world-latin-america-23722204> (accessed 18 August 2013).
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 47. CBD Decision X/2. See: <http://www.cbd.int/decision/cop/default.shtml?id=12268>.

48. CBD Decision X/2, Annex, 5. See: <http://www.cbd.int/decision/cop/default.shtml?id=12268>.
49. See, in particular, Resolution X/3 Annex (The Changwon Declaration on human well-being and wetlands), X/12 Annex (Principles for partnerships between the Ramsar Convention and the business sector), X/24 39 (Climate change and wetlands) and XI/6 35 (Partnerships and synergies with Multilateral Environmental Agreements and other institutions).
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