

SOME IDEAS ON BUNDLING

INTRODUCTION

Bundling of PES is a term frequently used in the literature to link several environmental services together in order to increase income streams or reduce transactions costs. Particularly for biodiversity conservation, many authors or projects promote linking it to carbon sequestration or watershed protection benefits as a way to attract investments (Wertz-Kanounnikoff 2006). It is also suggested that bundling can help reach environmental objectives more efficiently by reducing or optimizing transaction costs.

The Tropical America Katoomba Group decided to focus on bundled PES projects in order to learn from the experiences and promote experimentation. Therefore, this document is a preliminary attempt to review the literature on the subject, list the cases where some kind of “bundling” occurs and begin to highlight some of the limitations and opportunities that the subject presents. Based on this brief analysis, a work plan is proposed to generate a lively discussion.

DEFINITIONS AND CONCEPTS

Taken from the business literature, the term bundling is a marketing strategy for joining related products. It is important to clarify what is meant by the use of the term and come to some agreement on its use in the case of PES because it seems like the term is in vogue but it might not be correct. That term seems to refer to three types of projects, which are important to keep in mind for the analysis.

Nature bundles ecosystem services and the market logic applied by PES is trying to “unbundle” these individual benefits for buyers. PES schemes aim to physically quantify the benefits generated by nature individually and monetized them for particular buyers. Those are the type of PES cases that are in process of development. Carbon sequestration being the one service that is most advanced in its technical and procedural elements.

PES cases described in the literature as “bundled” seem to be of two types:

- a) those that conceptually bundle projects, meaning that the description and conceptualization of the project links more than one service, but they are not all quantified and monetized. This effectively is a rhetorical category.
- b) those that effectively do bundle services and are quantified in the price that the buyer pays. This is the case of the GEF WB Regional Integrated Silvopastoral Ecosystem Management Program project where the project, in this case the international community interested in conservation, is paying for biodiversity and carbon benefits. This category is exceptional at this time but could be an interesting market for public donors, national and regional governments. There are efforts being developed towards this end in Australia, UK and some states in the US (www.ecosystemservicesproject.com).

Finally, the third category that seems to emerge are the cases where bundling of support services occurs for the producer. The stellar case is FONAFIFO that though it sells services individually, it has developed the skills, know-how, methods and procedures that are applicable to many PES.

Considering these categories, it is important to review what the marketing information on bundling suggests. According to Wikipedia, a bundling marketing strategy is most successfully applied under the following conditions:

- “When there are economies of scale in production,
- When there are economies of scope in distribution,
- When consumers appreciate the resulting simplification of the purchase decision and benefit from the joint performance of the combined product,
- When the marginal costs of bundling are low.
- When production set-up costs are high,
- When customer acquisition costs are high.”

These two initial conditions could be informative for our current discussion. It is important to highlight that conceptually economies of scope are the same as economies of scale but while the first refers to the supply-side, the second refers to the demand-side of the market. Economies of scale mean expanding the scale of production, which in this context can be the geographical area where the ecosystem service(s) occurs. Economies of scope are efforts to find efficiencies in marketing and distribution of different types of products, in this case support services for producers of ecosystem services.

So, the use of the term bundling might be wrong in some circumstances and right on in others. It maybe convenient to explore if there is another term that is most adequate for the cases where bundling does not occur.

SELECTED CASES IDENTIFIED

For the purposes of this short review, emphasis has been given to the four most common services being currently addressed internationally: carbon sequestration, watershed services, biodiversity and landscape beauty.

The cases identified as “bundled” are a result of existing reviews of PES underway or proposed (Pagiola et al. 2002, Mayrand K. and M. Paquin. 2004; Wunder, 2006). The author had access to the International Institute for Environment and Development database used for the global review (Landell-Mills and Porras, 2002). Also, CIFOR provided a draft report of a study currently underway in Colombia and Venezuela that reviews experiences (Blanco, Wunder and Navarrete, 2006).

Due to time restrictions, the geographical focus is Latin America, which is the experience known by the author. However, Rewarding Upland Poor for Environmental Services network promoted by the World Agroforestry Center (ICRAF) and the Sustainable Financing and Payment for Environmental Services lead by WWF – Macroeconomic Finance Program still needs to be reviewed. Therefore, this is an initial list of cases that needs to be completed with reader suggestions and as a result of the ERT Symposium to be held in Cartagena the 18 and 19th of February in conjunction with the TAKG Steering Committee meeting. All suggestions are welcomed.

The working definition of Payment for Environmental Services was strict in order to capture really “bundled” experiences. The Katoomba Group activities focus on the broad range of formal and informal contracts that give financial and economic value to stewardship services- from one on one informal agreements, to large scale systems that shift economic investments in land stewardship.

As illustrated in the Table, there are few examples of joint PES schemes. Rather, a service is well documented, such as carbon, but the additional benefits from a second service (say biodiversity or water) are assumed. The exception is the GEF funded Regional Integrated Silvopastoral Ecosystem Management Program, which has developed a methodology and tested the payment scheme for biodiversity conservation and carbon sequestration in Colombia, Costa Rica and Nicaragua. Based on indicators that are monitored, they have developed coefficients that affect the actual payment made to landowners. As seen in the USDA case buyers for these bundled services will probably be governments, rather than private, who may have a specific interest in a particular service. However, the case of Hancock Corporation in New South Wales, needs to be studied further.

For bundling for sellers, the list included the case of institutional arrangements that aggregate buyers and/or sellers, such as FONAFIFO. Established in 1991 under the Ministry for Environment and Energy (MINAE) in Costa Rica, FONAFIFO, the National Forestry Finance Fund, which as the name highlights focused on forestry sector measures, broadened its scope to encompass payments for environmental services as a source for financing the sector. Though payments recognize services offered by natural forests and forest plantations, such as carbon, hydrological benefits and landscape beauty, they are paid individually, not bundled. However, responsible for financial administration and payments to landowners, FONAFIFO highlights the potential of a government initiative for PES market development.

Another interesting case included is Fundación para Conservación de Bosques, an entity recently created in Ecuador by PROFAFOR for conservation of highly threatened forests. After having the longest standing experience in payment for carbon sequestration service in plantations (23,000 has) paid by Dutch power producers, PROFAFOR received funds to pay economic incentives for conservation. It would seem that the motivation of the project is learning-by-doing on avoided deforestation measures. It is clear that the know-how made with carbon contracts provided an *economy of scale* for developing biodiversity conservation contracts.

FONAG, Quito’s water fund, has the potential to act like a FONAFIFO. Initially created to provide resources from water users for the protection of the watersources located in important biodiversity spots, 3 national parks, the institutional and financial mechanism can eventually integrate other services, such as carbon from reforestation. This case is not a strict PES scheme and is only in the process of developing its baselines for water and biodiversity protection. Many countries now have financial entities to support their national park system, which could become interesting vehicles for channeling PES. Yet, their structures and functionality is varied and not all aim to insert this into their agenda.

CASE	COUNTRY/ PROPONENTS	ECOSYSTEM SERVICE 1	ECOSYSTEM SERVICE 2 OR 3, 4	COMMENTS
BUNDLED PES				
USDA's Conservation Reserve Program	USA – US Dept. of Agriculture	Biodiversity protection	Water quality, erosion control, air quality, etc.	Payments of up to \$50,000 per year allowed. Additional up to 50% cost of establishing cover and separate incentive payments for restoring wetlands. (IIED Database)
Hancock New Forests	Australia - New South Wales – companies and institutional investors	carbon	biodiversity, and salinity credits	Need up to date info. (IIED Database)
Regional Integrated Silvopastoral Ecosystem Management Program , a GEF/WB funded project (Inweb18.worldbank.org/ESSD)	Costa Rica, Nicaragua y Colombia – Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Instituto Nitlapán y Centro para la Investigación en Sistemas Sostenibles de Producción Agropecuaria (Fundación CIPAV)	Carbon	Biodiversity (species diversity, increased wildlife population)	Farmers receive an up-front payment that can be (<\$500 per point) plus annual payments for two-to-four year periods (\$75 to \$110 per point). Total payment can not exceed \$6,500 per landowner. Extensive monitoring system in place to document changes in land use, improvement in biodiversity conservation and prevent perverse incentives. (Blanco, Wunder & Navarrete 2006)
CONCEPTUALLY BUNDLED				
Climate Action Project: Noel Kempff Mercado National Park	Bolivia – partnership with the Government of Bolivia, Fundación Amigos de la Naturaleza (FAN), three U.S. energy companies, and The Nature Conservancy.	Reduces, avoids and mitigates up to 17.8 million tons of carbon dioxide in the atmosphere over 30 years by avoiding logging and agricultural conversion of the land.	Helps to protect 1.5 million acres of one of the most biologically diverse national parks in the world.	www.tnc.org

Rio Bravo Conservation project	Belize - TNC, Winrock International and US energy companies (Wisconsin Electrical Power Company, Detroit Edison Corporation, Cinergy, Pacificorps, Suncor and Utilitree Carbon Company)	Sequester 2.4 mtC over 40 years	Protect biodiversity through the conservation of 59,720 ha of mixed lowlands, moist subtropical broadleaf forests in NW Belize	
Bilsa Reserve Project	Ecuador – Fundación Jatun Sacha and ?	avoided carbon emissions	through the conservation of 2,000 ha of tropical forest in the Montañas de Mache Chindul	Incomplete. IIED Database
Ecotourism & conservation in Sikkim	India - Travel Agents Association of Sikkim (TAAS) and Sikkim Himalayan Integrated Environment Protection Society	Biodiversity conservation	Landscape beauty	200 community members in four settlements prepare and implement ecotourism plans that set out a range of conservation activities, including trail clean-ups, tree planting, fuelwood substitution. IIED Database
<i>BUNDLED SUPPORT SERVICES FOR SELLERS/BUYERS</i>				
FONAFIFO	Costa Rica			Investment of US\$ 14 million to protect biological diversity, mitigate greenhouse-effect gases, and favoring water services, which resulted in reforestation of 6,500 ha, sustainable management of 10,000 ha of natural forests and preservation of 79,000 ha of private natural forests (Nasi et al. 2002).
Fundación Bosques para la Conservación	ECUADOR – FACE, PROFAFOR and Forests Forever	Biodiversity(\$5/ha)	<i>Carbon (avoided deforestation)</i>	This experience is managed by PROFAFOR who has reforested 23,000 has as part of AIJ.
FONAG	ECUADOR	Watershed services (%1-2 drinking water sales)	Biodiversity (park guard fund to protect watersouces in 3 national parks)	Not measured.
Water Fund for the Mt. Guiting-Guiting Natural Park	PHILIPPINES – Municipality of San Fernando and WWF	Watershed services	Biodiversity (patrol and reforestation activities for landowners)	Incomplete info. (PES InfoExchange, June 2006)

EMERGING ISSUES

Ecosystem Synergies and Trade-offs

To validate the use of the term, it is important to explore if there is an “economy of scope” in distribution for PES, which seems to be the reason why bundling has been of great interest. Particularly for biodiversity proponents, water flow and quality and carbon are considered potential “hooks” for customers. The assumption is that in a given area, land cover will provide the services mentioned. Unfortunately, there is recent evidence that this may not be the case. A study in California (Chan et al 200, found low correlations between biodiversity and six other ecosystem services (carbon, water provision, forage production, pollination services, recreation and flood control). Measuring the potential provision of each of the six services, the study found that they reach their full potential production at the different geographical locations. Therefore, their coincidence to a primary ecosystem service, as in this case biodiversity, is very low and at times inexistent.

However, when the study analyzed each service and their bilateral correlations, the results were more positive. There are better correlations geographically among two particular services; for example, the highest correlation was found between carbon and water provision. Further data is necessary to come to conclusions, but it introduces a note of caution for bundling services. At the same time, highlights the importance of understanding the synergies and tradeoffs among individual services.

It is also important to consider the measures being implemented to insure a particular service. For example, there is growing concern about carbon sequestration strategies that promote plantations but do not evaluate all their potential environmental impacts. In an article in Science, Jackson et al (2005) found that afforestation reduces stream flow and increases soil salinization and acidification in the US. An expert meeting held at Duke University to review the results of this study (Olander 2006), highlighted the fact that the study focused on plantations and “did not assess the affects of mixed species and natural reforestation of deforested areas.” This observation is very relevant as well for the review of the literature on the watershed services provided by forests and it is something to keep in mind to explore synergies and tradeoffs. The US Forest Service just published a white paper on forests and ecosystem services that can provide more information (Notman, E. et al. 2006).

Results in tropical areas may be different and more synergies maybe found. Efforts underway at CATIE, University of Bonn and ETH-Zürich, using data from Costa Rica may shed more light on this discussion. Also, studies conducted in more pristine settings may demonstrate more complimentary results. Wunder (2006) has argued that PES are more likely to succeed in areas where there are risks of threats and those landowners maybe more open to receive payments, rather than those that are already conserving.

Buyer and Seller Aggregation benefits

A potential justification for bundling responds to issues pertaining to “economies of scale” for support services and management of buyers and sellers. In the cases where synergies are found, the marginal cost of designing, developing and monitoring an additional ecosystem service B maybe lower for a particular institutional or financial mechanism that is in place for the sale of ecosystem service A. In other words, if the hydrological service only needs good standing forests and already the biodiversity service is insured, then the first service is free. But even if the provision of the service is free, the hydrological monitoring and other related tasks, which are needed to verify the existence of the service, do cost (pers. Comm. Carlos Muñoz). The question becomes what is the most effective multiple-PES entity (a clearing house or fund) that can provide the needed support services at a lower cost than individual transactions. This is relevant for all the issues pertaining to transaction costs, which is another loaded term.

Despite the risk of becoming too bureaucratic for forestry projects, the carbon model demonstrates the importance of developing concepts and procedures to regulate the market of this service (Kägi and Schöne 2005). Considerations such as additionality, permanence, leakage and sustainable development goals are relevant for other ecosystem services. With opening of the opportunity to include avoided deforestation again in the carbon regime, it is important to avoid “Kyotization” of PES, but at the same time apply the rigor that the concepts and procedures can provide. A specialized entity to confront these technical challenges can improve the likelihood of success of these environmental instruments. FONAFIFO has demonstrated the benefits of having a centralized entity for PES that has shown to be able to evolve over time and experiment.

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