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Editoral

Forests, Livelihoods, and Conservation: Broadening the Empirical Base

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Summary. — More than 10,000 years after the Agricultural Revolution started, millions of rural smallholders across the developing world may still derive as much income from foraging forests and wildlands as from cultivating crops. These steady environmental income flows come often from public forests, and are extracted by men and women alike. However, inflexible supplies from nature, the physical hardship of harvesting, and commonly low returns limit their role as safety nets and pathways out of poverty. While their harvesting does not preclude the ongoing conversion of wildlands to agriculture, privileged access to high-quality environmental resources can become a strong local conservation motive.

Key words — environmental income, smallholders, wildlands, poverty

1. INTRODUCTION

In 2005, *World Development* published a Special Issue on "Livelihoods, Forests and Conservation." Its editorial introduction concluded with a "Looking into the Future" section that called for more research on "the role of forests in socioeconomic development" and "the degree of dependence on forests by the poor." The guest editors stated a particular need for more quantified results on forest–livelihood linkages (Sunderlin *et al.*, 2005: 1397), and opined that the articles in that Special Issue and the current state of research "leave us acutely aware of the need for worldwide studies, or synthesis of case studies, in future research" (Sunderlin, 2005: 1381).

Almost a decade later, in this Special Issue we as guest editors aim to revisit the relationship between forests, livelihoods, and conservation. Together with our article contributors, we hope to fill some of the quantitative and global-level gaps that Sunderlin and colleagues identified. The contributions build on a selection of papers from the workshop "Exploring the Forest–Poverty Links: New Research Findings," held at the University of East Anglia, Norwich (United Kingdom) on June 13–14, 2011. This workshop principally discussed the first results from the Poverty and Environment Network (PEN), a collaborative effort led by the Center for International Forestry Research (CIFOR), focused on socioeconomic data collection at the household and village levels, across rural areas of developing countries (see http://www.cifor.org/pen/ and Angelsen *et al.*, 2014, this volume). In addition to the PEN global-comparative and case-study papers, the Norwich workshop also featured reports on case-study research and synthesis work from other organizations and networks, with a similar focus on the quantitative aspects of forests, environmental incomes, and livelihoods. A synthesis of the scientific findings from the workshop and their implications was presented immediately after at the policy conference "Counting on the Environment: the Contribution of Forests to Rural Livelihoods" (The Royal Society, London, United Kingdom). [1]

In this introductory article, we will start with the central issue of environmental incomes: their nature, perceptions, and quantification (Section 2). Subsequently, we synthesize the findings from the 12 main articles of this Special Issue, which comprises five global-comparative PEN papers, one PEN case study, [2] and six non-PEN studies ranging from micro-level cases to national-level analyses (Section 3). We conclude by outlining some key insights and messages,

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compare to the pre-existing literature, and discuss implications for future work (Section 4).

2. ENVIRONMENTAL INCOMES: THE PARADIGM SHIFT THAT NEVER HAPPENED

(a) *Potential welfare functions of forests and wildlands*

Traditionally, rural smallholders in developing countries have been viewed primarily as farmers, essentially cultivating crops and raising livestock for their livelihoods (e.g., Zuckerman, 1977). It thus amounted to almost a revolutionary discovery when researchers and development policy circles started to realize that off-farm incomes were becoming much more important and even outweighing farm income in many smallholder settings, such that rural households increasingly benefited from wage-employment in agriculture, mining, or service sectors and small business enterprises (Holden, Shiferaw, & Pender, 2004; Janvry & Sadoulet, 2001; Reardon, Taylor, Stamoulis, Lanjouw, & Balisacan, 2000). Correspondingly, remittances from temporarily or permanently migrated family members can further reduce the economic reliance of smallholders on farming (Barrett, Reardon, & Webb, 2001). Smallholders were thus not just plain farmers, but economic agents pursuing diversified livelihood strategies (Ellis, 2000).

Simultaneously, evidence also mounted that rural households generate high "environmental incomes," i.e., cash- or subsistence-based contributions from non-cultivated lands such as natural forests, bush, mangroves, rivers, or other wildlands. Most forest income is environmentally sourced (i.e., a "subsidy from nature" with low management intensities), but plantation forestry is by definition excluded. [3] A methodologically thorough case study in Zimbabwe (Cavendish, 2000) using quarterly surveys for household income accounting revealed high household dependence on environmental sources, and thus inspired other studies, including the PEN project which replicates this type of household income accounting across the developing world (Cavendish, 2003). Extensive references to the growing forest and environmental income literature are provided by Angelsen *et al.* (2014, this volume). In other words, the evidence so far, plagued though it is by methodological problems and inconsistencies in the underlying case studies (Vedeld, Angelsen, Sjaastad, & Berg, 2004: 62-4), has pointed to a significant "subsidy from nature" (Anderson, May, & Balick, 1991) into rural economies.

A major part of this literature pointed to the possibility that forests and wildlands are particularly important as resources to rural dwellers for avoiding falling into (deeper) poverty, not only as safety nets in response to (unforeseen) shocks such as bad harvests, family illness, etc. (e.g., McSweeney, 2004; Pattanayak & Sills, 2001), but also as seasonal gap-fillers during (foreseeable) income slack periods, such as between agricultural harvests (e.g., de Beer & McDermott, 1996; Angelsen & Wunder, 2003).

A third possible role identified for environmental resources was to provide a stepping stone out of poverty (Angelsen & Wunder, 2003). While there are examples of forest products providing the basis for asset accumulation, the consensus seems to be that this is rarely the case (e.g., Belcher, Ruiz-Pérez, & Achdiawan, 2005; Neumann & Hirsch, 2000). Many of the characteristics that make environmental resources attractive to the poor also limit their potential to accumulate assets and lift people out of poverty.

Finally, extraction of environmental resource can degrade the resource base, biodiversity, and environmental services. First, this can produce tradeoffs between current and future extractive incomes, and rural households' asset-building strategies can help understand poverty dynamics (Nielsen, Pouliot, & Kim Bakkegaard, 2012). Second, degradation can create negative externalities for society at large; even low extractive incomes could go hand in hand with disproportionate damage to threatened habitats and species (Arnold & Ruiz-Pérez, 2001). Conversely, degradation threats may justify external conditional compensations to smallholders for conserving rather than degrading environmental services, perhaps creating a new engine for forest-based livelihood contributions (e.g., Dewees *et al.*, 2010).

Consequently, if natural forest and other environmental resources from wildlands are so important to households in their everyday livelihoods, and even more essential in periods of income shortfalls, has the gradual uncovering of this "hidden harvest" (Scoones, Melnyk, & Pretty, 1992) also attracted the attention of development practitioners? Has it changed their perceptions and strategies, comparable to the paradigm shift we have seen in the wake of the off-farm income discovery?

So far, this "discovery of the wild" has not really occurred. Environmental income remains widely overlooked by policymakers in their poverty reduction strategies (Oksanen & Mersmann, 2003). National accounting systems in many countries lump forestry under agriculture in their national income calculations (FAO, 2008), while other—perhaps most—environmental income may not be counted at all. In most population-representative household surveys, such as Living Standards Measurement Surveys (LSMS), information on forestry and environmental income is often very limited, at best including only questions on fuel, fodder, or building materials. Giving limited attention to, or ignoring environmental income in such surveys may lead to the underestimation of total household incomes, by understating the value of the environment to rural households (PROFOR, 2008; Vedeld *et al.*, 2004), thus also skewing our understanding of the generation and distribution of wealth within the rural economy (Fisher, 2004).

(b) *Why the paradigm shift never happened*

If environmental income is that important, why has it so far not led to a paradigm shift in the minds of development practitioners? Below we list six tangible reasons and common perceptions that can explain why the mainstreaming of environmental incomes has been so slow a process:

(i) *Environmental extraction as a production mode is a backward relict*

The Agricultural Revolution, a process believed to have started somewhere between 10,000 and 8,000 years BC in the Neolithic Age, has continuously led to a replacement of land-extensive foraging with the intensive domestication of plants and animals, markedly increasing the food security and carrying capacity of mankind (Barker, 2006; Braidwood, 1960). In some places, historically and even today, large-scale commercial forest extractive operations (e.g., of rubber, Brazil nuts, or timber) have been developed under patronage systems of debt peonage, which generally are to be seen as socially undesirable modes of production (Browder, 1992). Hence, many policy and decision makers may equate transformations from natural extraction to specialized cropping and husbandry systems with a change from frontier resource grabbing and backwardness to progress and lasting modernity.

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