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Rural People's Reliance on Forests and the Non-Forest Environment in West Africa: Evidence from Ghana and Burkina Faso

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Summary. — Based on data from 1014 households in Ghana and Burkina Faso, we demonstrate that non-forest environmental products play a crucial role in rural livelihoods, especially for women and the poorest. Forest incomes are generally small but richer households and especially men from these derive comparatively higher value from forests than other groups do. Environmental income also represents a safety net for households facing crises due to illness or death of a productive household member, but apparently not when cropping fails. We attribute rural people's high reliance on non-forest *vs*. forest products to the two countries restrictive and inequitable forest policies.

Key words — West Africa, Burkina Faso, Ghana, rural poverty, environment, forests

1. INTRODUCTION

There is a general consensus among policy makers, researchers, and development practitioners that environmental resources and particularly forests contribute to rural livelihoods in developing countries by supporting current consumption and providing households with a form of "natural insurance" against hardships (e.g., Mamo, Sjaastad, & Vedeld, 2007; McSweeney, 2004, 2005). The literature abounds in evidence of forests and other environmental resources' contribution to household income in different regions around the world. Firstly, a review of 51 case studies from 17 developing countries found that total income derived from forests averaged 22% of total household income and that the dependence on forest resources increased with decreasing income (Vedeld, Angelsen, Sjaastad, & Berg, 2004). In Africa, a study involving seven countries across the continent has shown that the forestry sector plays a significant and valuable role in national economies, and that informal activities in the sector (i.e., non-timber forest products (NTFPs) collection) contribute to household income and employment generation (Whiteman & Lebedys, 2006). In a review of literature on the dry forests of South Africa, Shackleton, Shackleton, Buiten, and Bird (2007) find that forest income represents around 20% of household income and that forestry and forest products can offer a pathway out of poverty for some rural households. The comprehensive and seminal study, which has set the scene for a number of quantitative studies focusing on the role of environmental products in household economies in Africa and elsewhere, Cavendish (2000) showed that in Zimbabwe, 35% of average total household income (cash and subsistence) came from non-cultivated environmental goods. He did however not distinguish between forest and non-forest environmental income (see our definitions below). Overall, the current literature estimates forest products' contribution to household income in Africa to range between 27% and 40% (e.g., Babulo *et al.,* 2009; Fisher, 2004; Harris & Salisu, 2003; Mamo *et al.,* 2007).

Despite the accumulating evidence on the importance of forest and environmental incomes to rural households in Africa, very few quantitative studies have been conducted in sub-Saharan West Africa. There is plentiful evidence that rural households in Burkina Faso (Gausset, Yago-Ouattara, & Belem, 2005; Lamien, Sidibé, & Bayala, 1996; Mertz, Lykke, & Reenberg, 2001) and Ghana (Ahenkan & Boon, 2011; Appiah *et al.,* 2009) use a wide range of environmental resources, but rigorous and comprehensive studies on the value of resource utilization to rural livelihoods or the determinants of environmental or forest resource use are lacking. Most studies on Burkina Faso offer a description of forests in the country, or focus on one or a few forest products (e.g., Kessler, 1992; Teklehaimanot, 2004). Falconer (1994) and Townson (1995) quantified the contribution of NTFP for people's livelihoods in Ghana in the 1990s, but most research on the role of NTFP for people's livelihood in Ghana is qualitative in nature (e.g., Ahenkan & Boon, 2010; Boon & Ahenkan, 2008; Wagner & Cobbinah, 1993).

Theoretically, the intrinsic characteristics of collecting wild (non-cultivated) products from forests and the non-forest environment should make this an attractive activity for women. In their comprehensive review of the importance of NTFPs for rural livelihoods, Angelsen and Wunder (2003) summarize the basic characteristics of most NTFPs: (i) they have low or medium returns to labor; (ii) they necessitate low levels of capital and skills; and (iii) they are easily accessible to everyone due to their open or semi-open access nature.

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Accordingly, these characteristics mean that forest and environmental resources should be particularly important for women who are generally marginalized in terms of access to land for agriculture (Coulibaly-Lingani, Tigabu, Savadogo, Oden, & Ouadba, 2009; Gausset *et al.,* 2005; Gray & Kevane, 1999; Shackleton *et al.,* 2007), are less educated than men (World Bank, 2010) and thus have less income generation opportunities. Women generally also lack access to remunerative non-farm opportunities (Barrett, Reardon, & Webb, 2001). Accordingly, accessing government owned (in practice open/semi-open access) resources might be crucial for women as well as other "landless" people. These theoretical considerations have been empirically observed e.g., in Cameroon where Ndoye, Manuel, and Eyebe (1997) found that 94% of NTFP traders and most NTFP gatherers were women. In the high forest zone of southern Ghana, Townson (1995) has, however, estimated that as many men as women are involved in NTFP activities. In their comprehensive review, Neumann and Hirsch (2000) found that the gender division of labor and the gender control of NTFP income can vary tremendously by region, by species, by level of technology, and by the type of task required. Still, a number of general theoretical patterns stand out in the literature on environmental products and gender: (i) women tend to use rudimentary processing technology, and are seldom major players in the more high value trade; (ii) men often harvest from distant forest areas and women harvest from fallows, gardens, and forest margins near residences; and (iii) women generally do not have control over the income generated, even when they are primarily involved in harvesting, processing, and marketing.

The "safety net" functions of forest and environmental resources have also been reviewed by Angelsen and Wunder (2003), Paumgarten (2005) and Shackleton, Delang, and Angelsen (2011a) who argue that NTFPs can help prevent poor households from sinking deeper into poverty during difficult times. Particularly, NTFPs have been empirically shown to serve as a "natural insurance" (McSweeney, 2005) against unexpected income shortfalls such as disease and death of productive household members, and loss of crops and other assets, thus providing subsistence and commercial goods to households in times of hardship. In South Africa, Paumgarten and Shackleton (2011) have estimated that as much as 70% of households facing shocks resorted to increased use of sale of NTFPs as a coping strategy. As climate change is expected to bring an increase in temperature, a decrease in rainfall and more frequent droughts including increased incidences of forest fires in sub-Saharan West Africa (EPA, 2000; SP/CONEDD, 2007), the frequency of crop failure, and famines are expected to increase in this poor and densely populated part of the world. In light of these expectations, forest and environmental resources' safety net function is likely to become increasingly important in rural peoples' livelihoods (Dudley & Stolton, 2003).

However, despite the increasingly recognized and assumed role that forests play in rural African livelihoods, forest policies on this continent have tended to impose strong controls on forest uses and to discriminate against the poor (Anderson, Benjamin, Campbell, & Tiveau, 2006; Scherr, White, & Kaimowitz, 2004). For example, rights to the most valuable forest products, in most cases timber, is given to the wealthier and well-connected individuals and companies (e.g., Hansen, Lund, & Treue, 2009; Hansen & Treue, 2008; Treue, 2001), often at the expense of poor villagers (Hansen, 2010; Marfo & Schanz, 2009). Conservation policies in Western Africa have also tended to deprive poor people of access to forest resources (e.g., Kaimowitz & Sheil, 2007; Ribot, 1999), although local people's rights are now increasingly becoming part of the conservation agenda (Anderson *et al.,* 2006; Scherr *et al.,* 2004).

Today, the received wisdom is that forests are crucial for rural livelihoods, which means that forest conservation is beneficial to rural people, especially the poorest (c.f. the above quoted literature). However, lack of empirically based knowledge on the significance of income from forests and the uncultivated non-forest environment to rural communities in West Africa impedes the design of effective forest and environmental policies including incorporation of the environment in poverty reduction strategies. As Cavendish (2000, p. 1979) stated "more focused environmental research can produce surprises". One important way to focus environmental research is to be specific about definitions. In this respect the much-used term, non-timber forest product (NTFP) is problematic as it has no universally agreed meaning but through its very name tends to imply that such products originate from forests (that also lack a universally agreed definition). A comprehensive overview of the history of the term NTFP including the conservation and development agendas it has been used to serve is offered by Belcher (2003, p.168) who concludes that: "...it is important to be clear about the definition used (or implied) in any particular discussion. Authors should offer a definition and readers should be careful to assess whether or not lessons from one NTFP or group of NTFPs can be applied more generally. It is also important to appreciate any underlying assumptions and how those assumptions influence the discussion". While this may seem obvious, it is not easy to practice – especially not by authors who attempt to extract general lessons through the review of primary data based case studies. Two examples are Shackleton *et al.* (2007) and Vedeld *et al.* (2004), which both claim to be interested in incomes from forests only. Yet, both publications use the results of Cavendish although he explicitly used the following definition: "To qualify as an environmental utilization, a resource must be freely provided by natural processes i.e., it is "Nature's bounty". In Shindi, the vast bulk of these resources were derived from areas—such as rangelands, woodlands, dams, and rivers that were held under communal ownership with near-open access. Some wild species that grew spontaneously on private lands: these were included in our definition" Cavendish (1999, p. 4 and 2000, p. 1984). Vedeld *et al.* (2004, p. xiii) does, however, caution the reader that methodological problems and weaknesses in the studies they reviewed significantly reduced the accuracy and robustness of their findings.

Accordingly, this paper aims at: (i) providing empirical and income-class specific evidence of the economic importance of forest and non-forest environmental income to rural households in four areas of Burkina Faso and Ghana; (ii) advancing the discussion of which environmental product attributes (if any) make them particularly attractive and/or accessible to women; (iii) empirically verifying the "safety net" function of environmental resources in West Africa by quantifying the use of forest and environmental products for households facing specific types of income shocks; and (iv) providing policy recommendations, which can help to enhance the role of forests and other environmental resources in preventing and reducing poverty.

2. METHODS

(a) *Key concepts and terminology*

Being part of the global Poverty Environment Network (PEN) coordinated by the Center for International Forestry