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Collaborative resource management and rural livelihoods around protected areas: A case study of Mount Elgon National Park, Uganda

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ABSTRACT

Collaborative resource management agreements (CRMAs) have been introduced to improve people–park relations and enhance rural livelihoods. Based on household surveys, key informant interviews, focus group discussions and a review of literature we investigated differences in livelihood assets, park dependence and livelihood outcomes for households with and without CRMAs. We investigated the role of park environmental incomes (PEI) in poverty alleviation and factors influencing dependency on PEI. Results revealed significant differences in household assets but no significant differences in park dependence and livelihood outcomes. People report that PEI on average constitute 18% of total incomes. Poor households have a higher dependency on PEI and it reduces income inequality by 13%.

CRMAs have a significant positive effect on total PEI but no significant effect on total household income and relative environmental income. In areas with CRMAs, taungya farming and bee keeping practiced as part of the CRMAs increase annual household incomes by 26% and 28% respectively and constitute potential pathways out of poverty. However, the impact of the agreements is still low due to their limited scale and coverage and the targeting criteria which limits access for communities with a high dependency on park resources and high levels of conflict.

1. Introduction

Managing protected areas (PAs) in many developing countries has been based on a conservationist approach characterized by establishing enclosures followed by exclusion of traditional local resource users (Brockington and Igoe, 2006; Webster and Osmaston, 2003). These policies accrue substantial costs and reduced benefits for local people and have resulted in many conflicts between protected area managers and local communities (Chhetri et al., 2003; Norgrove and Hulme, 2006). Costs relate to loss of livestock, crops and land and labor costs related to guarding crops and livestock, and loss of previous accessible benefits such as land and natural resources (Norgrove and Hulme, 2006; Vedeld et al., 2012). As a means of reducing conflicts and net costs imposed on local communities by PAs, Uganda like many other developing countries, embraced community-based conservation (CBC) approaches during the late 1980s (Beck, 2000; Musali, 1998). These approaches sought to reduce conflicts between conservationists and local communities by involving the latter in PA management and compensating them for restricted access to land and natural resources. However, in practice, protected area managers have been reluctant to devolve power and authority to local communities, citing among others, short term interest of resource use and their alleged lack of capacity (both human and financial) to collectively manage natural resources (Nsita, 2010; Ribot et al., 2006).

The empirical evidence on the extent to which CBC initiatives have been able to achieve their intended environmental and livelihood goals reveals mixed results. For a recent overview of outcomes from CBC see Brooks et al. (2013) where they in particular stress project design and capacity building in local communities in generating success. In addition, properties of local communities such as well functioning tenure regimes and supportive local cultural beliefs and institutions are conducive for good outcomes. Some success stories of CBC enhancing forest recovery have been reported but this mainly relates to environmental goals (Ellis and Porter-Bolland, 2008; Sassen et al., 2013). In contrast, a limited number of CBC impact studies have focused on the livelihood outcomes (Jagger, 2012; Jumbe and Angelsen, 2004; Ribot et al. 2010, Vedeld et al, 2012). These studies also indicate mixed results and emphasize context dependency. In some cases CBC appears to have actually increased land-use conflicts (Baker et al., 2011). At Mount Elgon National Park (MENP), some empirical evidence indicates a relationship between conservation education and positive attitudes toward the park (Oonyu, 2000) but most of the literature indicates that despite efforts to secure community support, park management is still characterized by very high levels of conflicts between park managers

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and local communities (Scott, 1998; White, 2002; Norgrove, 2002; Chhetri et al., 2003; Jankulovska et al., 2003; Norgrove and Hulme, 2006; Himmelfarb, 2012). The challenge at Mount Elgon is how to protect important ecosystem values while meeting the livelihood requirements of a burgeoning human population.

Still, much is not known about how local people adapt living close to PAs, to what extent they (still) depend on environmental incomes and on what economic scale they have benefited from collaborative resource use agreements that "re-allow" PA resource access. An enormous amount of research have investigated and documented the values of environmental resources in rural livelihoods and poverty alleviation (Cavendish, 2000; Vedeld et al., 2007; Babulo et al., 2008; Kamanga et al., 2009; Mamo et al., 2007; Pouliot and Treue, 2013; Vedeld et al., 2012). These studies show that environmental incomes in many cases contribute substantially (8–45%) to the total annual household income and that poor households in particular have a high dependency on environmental income. However, differential dependency on environmental resources has seldom been understood in combination with contextual factors, such as location and resource access restrictions, which influence use and dependence on environmental resources (Jumbe and Angelsen, 2004). With the exception of a few studies (Das, 2010; Jagger, 2012; Jumbe and Angelsen, 2004; Tesfaye et al., 2010) most of the investigations do not consider differences in institutional context governing resource access and use. Empirical evidence does indicate substantial differences in livelihood outcomes under different institutional contexts governing resource access and use (Tacconi, 2007; Blomley et al., 2010; Ribot et al., 2010).

Faced with looming conservation budget deficits and the prospect of receiving additional funding through the REDD + mechanism, conservation agencies (UWA and NFA) now have incentives to further restrict access to the park to secure permanence of the sequestered carbon. Deforestation, forest degradation and illegal activities in the form of agricultural encroachment and unlicensed timber harvesting have continued unabated (NFA, 2009) especially in areas without CRMA (Gombya-Ssembajwe et al., 2007; Mugagga et al., 2012: Petursson, 2011). Some scholars advocate for increasing resource access restrictions (Mugagga et al., 2012) and concerns have been raised about a potential 'recentralization' of decision-making, with losses of community rights and control over protected areas (Phelps et al., 2010; Sandbrook et al., 2010). At Mount Elgon, in areas with CRMA, UWA retains the discretion to withdraw from the agreements when deemed necessary (Sletten et al., 2008).

This paper thus evaluates the livelihood outcomes and the effect of CRMA at MENP and differences in dependence on environmental income by location. The livelihood analysis is based on differences between participant and non-participant households by examining the relevant measures of wealth based on the sustainable livelihood approach (SLA) (Scoones, 1998).

1. Are there significant differences in access to assets, park dependence and livelihood outcomes between communities with and without CRMA?
2. What are the factors influencing dependence on park environmental income?
3. What is the role of park environmental income in rural livelihoods and poverty alleviation in communities with and without CRMA?

2. Study context

2.1. Study area

Mount Elgon forest was initially gazetted as a forest reserve in 1938 and later upgraded to a national park in 1993 (Scott, 1998). The Mount Elgon National Park (MENP) covers an area of about 110,971 ha, located in Eastern Uganda in eight (8) districts — stretching between 0° 52′ and 1° 25′ N and 34° 14′ and 34° 44′ E. A large portion of the park is located in Bukwo (26%), followed by Kween (17%) and Bulambuli (13%). Considering the proportion of the total district area covered by the park, over 50% of Bukwo and more than a third of the Bududa (41%) and Kapchorwa (36%) districts are under protection (Table 1). The park has a long history of human settlement and use (Scott, 1998) and is surrounded by farmland which is cultivated up to and within the park boundary (see Fig. 1).

The inhabitants around the MENP belong to two major ethnic groups — the Bagisu and the Sebei. The Bagisu's livelihoods are heavily dependent on agriculture and access to forest resources for subsistence and commercial purposes. The park provides a broad range of goods (fuel wood, medicine, construction materials, pastures and forest foods such as bamboo shoots) and services (water catchment, burial and circumcision sites) for both the Bagisu and the predominantly pastoral Sebei communities (Scott, 1998; Gosalamang et al., 2008; Katto, 2004; Namugwanya, 2004; Norgrove, 2002). The main crops grown include coffee, bananas, beans, maize, wheat and potatoes. The fertile volcanic soils and abundant rainfall (annual mean rainfall range of 1500–2000 mm) support a high population of about 1.6 million people.

The rapid population growth (3.4% per year), high population densities — ranging from 116 to 827 persons/km^2 in the Kween and Mbale districts respectively (Table 1) and the increasingly small agricultural plots demonstrate the increasing pressure on land and park resources. This is manifested in both increasing legal and clandestine access to PA resources (Gombya-Ssembajwe et al., 2007) and also the increasing encroachment for farmland and settlements (Mugagga et al., 2012; Petursson, 2011; UWA, 2000). This has been a response

Table 1
Park, people and collaborative management agreements by districts, Mount Elgon National Park (MENP), as of 2013.

District	Mount Elgon National Park				Population		Type and number of active agreements				
Name	Park area		Boundary length		Total	Density					
	Hectares	% of district area	km	%	Count of persons'000	Persons per km^2	CRMAs	BMAs	BKAs	BSCAs	Total
Bukwo	28,926	55.1	108	16.3	70,5	134	0	0	0	0	0
Bududa	10,386	41.4	105	15.9	173,7	693	0	0	1	0	1
Kapchorwa	12,912	36.4	67	10.2	109,3	308	8	8	6	2	24
Kween	18,587	21.8	103	15.7	98,9	116	0	0	2	2	4
Sironko	10,222	22.9	81	12.3	233,5	524	2	2	2	5	11
Manafwa	12,983	21.6	55	8.4	355,4	590	0	0	0	0	0
Bulambuli	13,905	21.3	89	13.5	122,3	188	6	6	3	1	16
Mbale#	3050	5.9	51	7.7	428,8	827	0	0	2	0	2
Total	110,971		659	100	1,592,400	379	16	16	16	10	57

Data sources: Park area computed from the IUCN, 2011 and NFA, 2010 databases; population density calculated by dividing the 2010 district land area (NFA, 2010) by the 2011 population estimates from UCC (2010); CRMA data was compiled from Cavanagh (2009, 2011), Moll (2011) and Hoefsloot et al. (2011); #Mbale had no active CRMA at the time when data for this study was collected.
Key: BMA — Boundary Management Agreements, CRMAs — collaborative resource management agreements, BSCAs — Bamboo Shoot Collection Agreements; BKAs — Bee Keeping Agreements.