

PATRONAGE OR PARTICIPATION? UNDERSTANDING THE FAILURE AND SUCCESS OF
COMMUNITY-BASED NATURAL RESOURCE MANAGEMENT REFORMS IN SUB-SAHARAN
AFRICA

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December 2006

Abstract

Community-based natural resource management (CBNRM) is a widespread approach to improving the conservation and use of wildlife in sub-Saharan Africa. CBNRM promotes the devolution of rights to use wildlife to local community landholders as a way of increasing access to economic benefits from the resource and thereby create incentives for conservation. Despite over twenty years of development in east and southern Africa, there are few instances where such devolutionary reforms have occurred and this poses fundamental constraints to CBNRM, leading to increasing contemporary doubts regarding the efficacy of these strategies. Tanzania has undergone a process of wildlife sector reform since the early 1990's aiming to decentralize management to the local level. Foreign donors and conservation groups have provided substantial support to these reforms, but they have not resulted in substantive changes to wildlife management in terms of local rights and benefits. Plausible reasons for the failure to devolve rights over wildlife to local communities over this period of time are the incentives of central wildlife authorities for maintaining control and its attendant opportunities for utilizing wildlife as a patronage resource, and the lack of local participation in policy reform developments. The experiences of five other wildlife-rich countries in east and southern Africa with respect to developing and implementing similar wildlife policy reforms are reviewed and reveal both parallel and contrasting outcomes. These case studies suggest that relatively successful devolution occurs as a result of central leadership, with local demands for increased rights through participation in policy reform processes not a significant factor in reform outcomes in any instances. The incentives of central actors, in turn, are critically influenced by the values accessible to them through commercial utilization of wildlife on community lands, principally through centrally controlled tourist hunting concessions, and the levels of institutional transparency and accountability in a given country. This suggests an important linkage between poor quality governance and wildlife conservation outcomes outside protected areas on community lands in the region. More effective strategies for CBNRM reforms will need to take greater account of these political economic factors and the incentives they create among key actors.

1.0: Introduction

During the past twenty years community-based natural resource management (CBNRM) has become a prevalent approach to rural development and conservation efforts in sub-Saharan Africa (Shyamsundar et al., 2005; Awimbo et al., 2004; Hulme and Murphree, 2001; Wily and Mbaya, 2001; Barrow et al., 2000; IIED, 1994). In contrast to the prevalent natural resource management policies in Africa during colonial and post-colonial times, which have worked to centralize the state's direct control over resources, CBNRM's underlying premise is that sustainable management is most likely where local resource users are enabled to manage and extract benefits from resources under circumstances of secure tenure (Jones and Murphree, 2004; see also Ostrom, 1990). CBNRM efforts assume that many cases of rural resource degradation occur because centralized management regimes in African states are often functionally open access regimes,¹ and that vesting local users with devolved property rights to resources will enable local collective jurisdictions to form.

There are a range of explanations for CBNRM's wide promotion as a strategy for both rural livelihood and conservation challenges during the past twenty years, ranging from the local and practical to the global and geopolitical. CBNRM's conceptual foundations lie in the field of common pool resource scholarship, which emerged in an influential way in the 1990's (Dietz et al., 2003; Ostrom, 1990). CBNRM's popularity in sub-Saharan Africa was also spurred by early experiments in the late 1960's and 1970's in South Africa and Zimbabwe that granted ownership of wildlife to private landowners, prompting both conservation and economic gains (Child, 2004a; Child, 1995). Much more broadly, CBNRM's narrative is closely tied to the broader tenets of neo-liberal development theory's orthodoxy of market-based incentives, private property rights, and administrative decentralization as reflected in the policies of aid agencies such as the World Bank and USAID (Batterbury and Fernando, 2006; Brosius et al., 2005; Levine, 2002).

Irrespective of its diverse social, political, and theoretical origins, the implementation of CBNRM as a conservation and development strategy fundamentally relies on institutional changes that devolve authority over land and natural resources to local communities. In the absence of such reforms, the incentives for local actors to invest in collective management are unlikely to emerge. In recent years the lack of devolution or decentralization² has emerged as the principal barrier to CBNRM (Murphree, 2004; Jones, 2004; Child and Dalal-Clayton, 2004; Shackleton et al., 2002; Barrow et al., 2000;

¹ As Murphree (2000) states it, where central authorities' "authoritative reach exceeds their implementational grasp."

² Murphree (2000) distinguishes between 'devolution' and 'decentralization', arguing that devolution represents the transfer of authority from the state to autonomous local or private entities, whereas decentralization is transfer of authority to a more peripheral or local administrative level of the state which nevertheless remains upwardly accountable. Other scholars (e.g. Agrawal and Ribot, 1999; Ribot, 2004) use 'decentralization' or 'democratic decentralization' in the same way as Murphree's 'devolution', terming the transfer of authority to upwardly accountable administrative institutions merely 'deconcentration.' In order to simplify this confusing terminology I use 'devolution' and 'decentralization' synonymously to mean the transfer of management authority to locally representative and downwardly accountable entities- with the key feature being the transfer of power from central to local institutions.

Gibson, 1999). Murphree (2002), summarizing efforts to create viable local jurisdictions for CBNRM in sub-Saharan Africa, observes:

...most initiatives lacked the critical ingredient for success: the devolution of authority and responsibility through societally sanctioned entitlements. Government and agency implementation retained ultimate power to shape objectives and control benefits; 'involvement' became compliance and 'participation' became co-option. Robust devolution requires significant allocative transfers in access and power, which politico-bureaucratic establishments are reluctant to surrender. Thus many of these initiatives have become case studies in aborted devolution.

Ribot (2004), surveying similar processes throughout the developing world, concludes that the prevalent failure to transfer sufficient decision-making powers to the local level "turn most decentralization reforms into charades." This political and institutional barrier is not restricted to natural resource management reforms, but a central feature of all decentralization processes aiming to improve the administration of public resources in the developing world (e.g. Olowu, 2003). A recent review concludes that in most cases, "the central state does not relinquish enough control to local people eager to receive it. This is the fundamental challenge to decentralization reforms" (Batterbury and Fernando, 2006).

The lack of devolution in CBNRM reform processes has resulted in a growing sense among scholars and practitioners in sub-Saharan Africa that these locally-based conservation and development approaches are failing. Jones and Murphree (2004) conclude that CBNRM "performance has rarely approximated promise, and in some cases has been abysmal." Blaikie (2006) states that "CBNRM programs in central and southern Africa have substantively failed to deliver...to both communities and the environment." The result of these empirical failures on the ground is the emergence of a critical backlash against CBNRM not only in practice but in principle (see Hutton et al., 2005; Murphree, 2004), which threatens to undermine support for decentralization reforms before they have been effectively implemented (Ribot, 2004).

This paper explores these political and institutional struggles over CBNRM in sub-Saharan Africa in an effort to try and understand why reform has proven so elusive, what factors account for the failure of decentralization efforts, and what might enable greater success in promoting these political reforms. The starting point for the analysis is a detailed case study of community-based wildlife management in Tanzania. There, in Africa's most wildlife-rich nation, donors, conservationists, and government policy-makers have spent nearly twenty years pursuing the reform of national wildlife management institutions. The central thrust of reform efforts, as described in the 1998 Wildlife Policy of Tanzania, is to depart from strictly centralized conservation practices based on state ownership and regulation and devolve management of wildlife outside National Parks and Game Reserves to the village level. But despite the formal endorsement of these community-based strategies in government policy, the long-term support of donors and international conservation organizations, and a wide array of promising local pilot initiatives, virtually no devolution of wildlife management has occurred. CBNRM in Tanzania's wildlife sector thus remains largely an elusive

conceptual goal rather than functional management system, and an emblematic case of ‘aborted devolution’.

In searching for an explanation of why these reform efforts have been so unsuccessful in Tanzania, two complementary but distinct theories are developed. One holds that reform processes are best understood by the actions and incentives of key actors within the state bureaucracy, and the discretionary power they hold for either devolving or maintaining managerial control. This suggests that devolution is least likely to occur when a resource has a high value in terms of supporting bureaucratic and elite patronage networks; such values provide a strong disincentive for state actors to devolve control to local interests. These values may, however, be substantially increased or decreased by the macro-level governance and political economic conditions that shape the behaviour and choices of state agencies, with high levels of institutionalized corruption creating greater incentives for central actors to maintain control over natural resources.

An alternative explanation focuses not so much on the incentives and interests of government authorities but rather on the capacity- or lack thereof- of local communities to influence change through democratic political processes. This suggests that the reason for devolution’s failure in Tanzania is the lack of popular participation in policy formulation and in mobilizing to demand greater control over wildlife resources.

Both of these factors- bureaucratic incentives to maintain control and weak popular demands for devolution- appear to be important factors in the failure of community-based wildlife management reforms in Tanzania. In order to better understand the barriers facing CBNRM in sub-Saharan Africa more generally, and the reasons why reform processes’ outcomes differ across countries, I review a set of comparative case studies from east, and southern Africa. These cases explore the relative roles of central patronage incentives, on the one hand, and the influence of popular demands for reform, on the other, in an effort to identify the key institutional barriers facing CBNRM. Based on these broader experiences a clearer picture emerges of the factors responsible for reforms’ failures and successes in the region.

2.0: CBNRM in Tanzania’s Wildlife Sector

The history of wildlife management in Tanzania is a story of gradual consolidation of increasingly strict central control over wildlife resources during the colonial, post-independence socialist, and post-structural adjustment periods³ (Neumann, 1998). Tanzania is the most wildlife-rich country in Africa, if not the world, in terms of large terrestrial mammals, and this resource has played an important role in the region’s political and economic evolution since the development of the slave and ivory trade routes from the Indian Ocean coast centuries ago. The increasing centralization of state control over wildlife in the twentieth century, together with the growing value of the resource through ecotourism and safari hunting enterprises, has led to wildlife becoming

³ These periods correspond to approximately 1891-1961 (colonial), 1967-1986 (socialist), and 1986-present (liberalizing or post-structural adjustment).

an important resource within the context of the patrimonial relationships that govern political structures in the country today.

Tanzania's first formal regulations for controlling wildlife hunting were established by the German colonial authority in 1891 and substantially expanded in 1896 (Koponen, 1994). During the next seventy years of German and then British colonial administration,⁴ wildlife management practices generally perpetuated and reinforced two fundamental strategies: legally proscribing or restricting wildlife uses and establishing parks and reserves to protect animal populations (Neumann, 1998; WSRTF, 1995a). The first two decades of the post-independence era followed the pattern of the colonial years with respect to wildlife management. The Wildlife Conservation Act of 1974, the main post-colonial wildlife legislation, consolidated central control over wildlife and the elimination of local use rights.⁵ The establishment of protected areas and eviction of rural communities from parks and reserves continued in the 1970's, and was linked to the socialist policies of rural transformation that characterized the Tanzanian economy during that decade (Swai, 1996). By the 1990's Tanzania had established one of the world's largest protected area networks, with over 25% of its land set aside in parks and reserves (MNRT, 1998).

This wildlife represents a valuable economic resource. Tanzania had been a leading destination for European and American safari hunters since the late nineteenth century. A system of tourist hunting concessions, with animal quotas assigned to them, was established in the 1960's and these were overseen by the Department of Wildlife in the Ministry of Natural Resources, Tourism and Environment. Hunting activities were, like nearly all enterprises in socialist Tanzania, directly administered by the state, although this arrangement only emerged in 1978 following a five-year hunting ban during which the industry was re-organized under the auspices of the parastatal Tanzania Wildlife Corporation (TAWICO) (Barnett and Patterson, 2006). Hunting concessions were established inside Game Reserves,⁶ where people had generally been evicted and did not reside, but also in Game Controlled Areas or Open Areas, where local communities lived according to customary rights of occupancy (Baldus and Cauldwell, 2004). These people did not, however, have any formal role in administering the hunting concessions on their lands.⁷

The hunting industry was reformed in 1988, as a result of broader macroeconomic reforms occurring in Tanzania in the late 1980's and general corruption and mismanagement by TAWICO. The Wildlife Division took over administration of hunting concessions and opened them up to private companies in addition to a

⁴ The British government assumed responsibility for Tanganyika as a League of Nations protectorate in 1922, following the German defeat in World War I and forced relinquishment of their African colonies.

⁵ After passage of the 1974 Wildlife Conservation Act all legal use of wildlife required licenses to be purchased from government authorities; this *de facto* excluded locals from utilizing wildlife since most people did not own firearms and could not afford or easily obtain the licenses.

⁶ For example, the Selous Game Reserve, Africa's largest wildlife protected area and a UNESCO World Heritage Site, is primarily used for tourist hunting concessions.

⁷ Customary land rights, which were defined by the colonial-era Land Ordinance of 1923, were generally not well-respected during the socialist period, particularly during the rural relocation efforts of Operation Vijiji in the mid-1970's, when about 5 million Tanzanians were displaced in efforts to create more centrally situated village settlements (see Shivji, 1998).

restructured TAWICO. From that point Tanzania’s sport hunting industry has grown rapidly, both in earnings- total revenues were an estimated \$27 million in 2001- and in the number of private operators involved, which now stands at about 140 (Baldus and Cauldwell, 2004) (see Figure 1). About half of all hunting concessions are in Game Reserves and half of them outside protected areas on community lands⁸ (Barnett and Patterson, 2006).

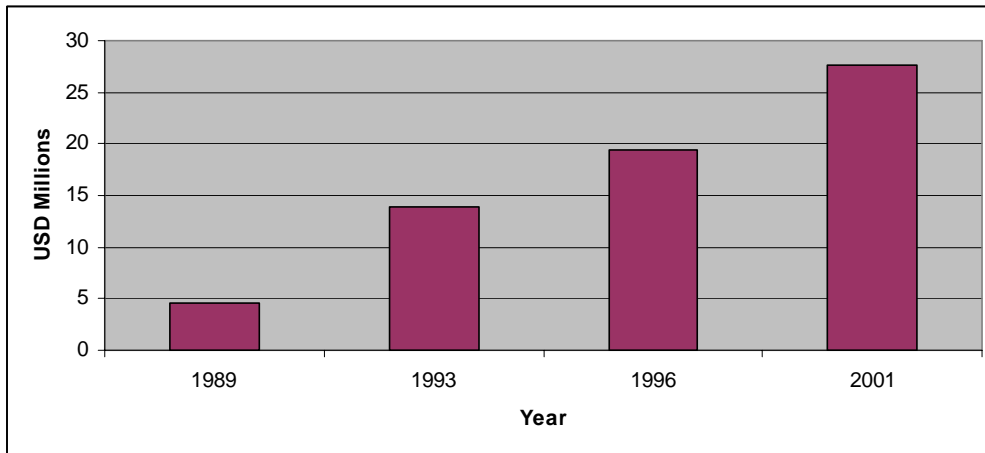


Figure 1: Growth in total revenue from Tanzania’s tourist hunting industry, 1989-2001. Source: Baldus and Cauldwell, 2004.

The Wildlife Division earned an estimated \$10.5 million in direct payments from hunting in 2001, up from about \$1.5 million in 1989 (Barnett and Patterson, 2006; Baldus and Cauldwell, 2004). Importantly, Tanzania’s national parks are not managed by the Wildlife Division but by a semi-autonomous parastatal, Tanzania National Parks; these parks are the focus of Tanzania’s growing tourism industry.⁹ Commercial hunting is thus the Wildlife Division’s main form of revenue and its primary management mandate. Hunting concessions are allocated administratively with little or no public participation or accountability, although an advisory committee was formed in 1996 to make recommendations on concessions. Opportunities for rent-seeking in the wildlife industry are therefore substantial as a result of this bureaucratic discretion, and have grown in scale with the growth of the industry over the past fifteen years (Barnett and Patterson, 2006; DPGE, 2006; Baldus and Cauldwell, 2004; Majamba, 2001; Nshala, 1999). One review in the early 1990’s found “little correlation between good performance and retention of hunting concessions...corruption was the principal factor determining block retention” (Overton, 1998). In the absence of market mechanisms for competition among hunting operators, concession prices have been kept artificially low, which further enhances rent-seeking opportunities and patronage uses (Baldus and Cauldwell, 2004).

⁸ For purposes of hunting administration community lands are termed either Game Controlled Areas or Open Areas. While Game Controlled Areas are sometimes included in Tanzania’s protected area estate, they are settled areas where land uses are determined by local residents and state wildlife authorities maintain no physical presence.

⁹ Tanzania National Parks (TANAPA) is under the same Ministry as the Wildlife Division but the two do not have overlapping mandates or jurisdictions. Resources inside national parks are managed by TANAPA, while all wildlife outside parks, which includes wildlife in Game Reserves as well as on unprotected community or private lands, is under the Wildlife Division’s jurisdiction.

Such unaccountable governing systems can have a direct impact on wildlife populations; DPGE (2006) gives an example where a Tanzanian Minister gave out a license to crop 750 hippos in an area where the total hippo population was below that number.

Recognizing the economic losses and institutional problems that result from a noncompetitive concession system for utilizing wildlife, policy recommendations adopted by government in the mid-1990's called for introduction of a more transparent tender system, as well as greater local involvement in hunting concession allocation on community lands (Leader-Williams et al., 1996a; MNRT, 1995). These changes were, however, never implemented (Baldus and Cauldwell, 2004).

Even as Tanzania's wildlife industry expanded rapidly through the 1990's, policy reform processes emerged to address broad underlying challenges facing the country's wildlife sector. During the 1970's and 1980's many wildlife populations outside of protected areas were in decline due to over-exploitation¹⁰ and habitat loss on private and communal lands. Commercial poaching of elephants and black rhinos in this period embodied some of the problems facing the state's capacity to enforce punitive wildlife laws; the country lost half its elephants and nearly all its black rhinos during this period to illegal hunting (WSRTF, 1995a). This exploitation was also, however, rooted in institutional failures in that much of the commercial poaching carried out at this time was done by or in collusion with state wildlife officers (WSRTF, 1995a; see also Bonner, 1993).

While the centralized management system that had developed in the colonial period and continued after independence was successful in terms of creating a large protected area estate and providing nominal protection under the law for some species, this approach had significant practical deficiencies. Under uniform state ownership, local people had few incentives to value wildlife or support its conservation. Instead, they remained saddled with the costs of living with wildlife while the benefits of the resource were captured primarily by the state. A Ministerial task force convened in the early 1990's concluded, "there is no effective means now in place of conserving biological resources outside protected area networks" (WSRTF, 1995b).

Thus by the mid-1990's two rather contradictory trends were featured in Tanzania's wildlife sector. On the one hand, state agents presided over a rapidly growing tourist hunting industry. This embedded wildlife in a neopatrimonial bureaucratic system in which it provided considerable value to individual and institutional actors in positions of power, and created considerable incentives for those elites to maintain and consolidate control over that system of management (cf. Gibson, 1999). This happened against a backdrop of economic and political liberalization, which created vastly expanded financial flows in Tanzania and thus increased rent-seeking opportunities and a broadly perceived decline in the transparency of public institutions (RAWG, 2004; see also van de Walle, 2001).

¹⁰ Over-exploitation was fundamentally a product of the failure of centralized management of wildlife in terms of the state's inability to exercise its legal responsibility for and nominal ownership of wildlife throughout the country.

Simultaneously, a combination of practical management problems, new community-based conservation narratives, and the enhanced influence of foreign donors and NGO's in the post-structural adjustment period all served to undermine the historical hegemony of strictly centralized state control over wildlife. Foreign donors, particularly German, Norwegian, British, and American aid agencies, began promoting decentralization of wildlife resources as a conservation and rural development strategy.

In 1998 these multifaceted forces led to the release of the Wildlife Policy of Tanzania (MNRT, 1998). This policy calls for maintaining the core protected areas- National Parks and Game Reserves- as the foundation of wildlife conservation in Tanzania, but advocates a devolved approach on village and private lands: "*It is the aim of this policy to allow rural communities and private land holders to manage wildlife on their land for their own benefit*" (MNRT, 1998). The mechanism for carrying out this reform is described in the policy as a new entity called the Wildlife Management Area (WMA). WMA's are described as a new form of protected area, but one managed by rural communities on their lands, "*where local people will have full mandate of managing and benefiting from their conservation efforts*" (MNRT, 1998). The concept is that communities will zone a part of their village lands for natural resource conservation, prohibiting incompatible activities such as farming in these areas, and the Wildlife Division will in exchange transfer usufruct rights to wildlife to the communities so that they may either consume a limited (by quota) number of animals themselves or lease their rights to a commercial hunting operator. The assumption was that by giving communities such rights to capture the economic benefits of wildlife they would have new incentives to support conservation and prevent unsustainable exploitation of wildlife populations on their lands (Baldus and Siege, 2001; Songorwa, 1999; Leader-Williams et al., 1996b; Baldus et al., 1994).

By the time of the policy's release, an array of community-based wildlife projects, most funded by foreign conservation organizations and bilateral donor agencies, were under development around the country (IRG, 2000). Most of these initiatives took place in communities living around the borders of parks and game reserves, and focused on enabling villages to capture economic gains from wildlife in return for setting aside land and preventing illegal wildlife uses.

In order to implement the Wildlife Policy, however, and create WMA's that transferred statutory rights to wildlife to local communities, the government propagated detailed regulations in order to delineate the procedures for WMA formation. These regulations were not released until December, 2002 (MNRT, 2002), at which point the formal process for creating WMA's in a set of sixteen pilot areas around the country began (Baldus et al., 2004).

However, in terms of implementing the agenda of relatively full devolution of wildlife management authority to rural communities, the regulations represent a highly curtailed framework. The WMA regulations do not devolve authority to village governments, which are locally elected and representative institutions, but require the creation of non-governmental 'community-based organizations' which will be granted user rights to wildlife. This type of devolution to a newly formed body is likely to weaken the downward accountability of local managers and make it easier for central actors to

maintain influence in these new local jurisdictions (see Ribot, 2004; 2002). The rights over wildlife granted to the communities are also relatively weak as they are only for three-year terms. The WMA regulations limit the rights granted to communities over wildlife in a number of other key ways:

- The proportion of revenues communities receive from that generated in their WMA's is not legislatively determined but is instead dependent on Ministerial circulars- i.e. central authorities' administrative discretion.
- Authority for allocating tourist hunting concessions remains entirely with the Director of Wildlife, as does the determination of prices and quotas for hunting concessions; the community role is limited to receiving an unspecified portion of the hunting block revenues and providing non-binding advice on concession allocation.
- All investment agreements in the WMA's require central approval.

An additional challenge facing communities seeking to gain control of wildlife on their village lands is that the WMA regulations contain numerous pre-requisite conditions for communities to be given authority over wildlife, including over a dozen planning steps such as preparation of land use plans, resource management plans, and surveying both village land and WMA boundaries. As a result of the delay in producing the WMA regulations, the complex requirements of the WMA process as spelled out in those regulations, and the limited degree of authority over wildlife conferred to communities in this framework, there has been very limited progress in the legal establishment of WMA's (DPGE, 2006; Baldus and Cauldwell, 2004; Baldus et al., 2004). By March, 2006, four WMA's had been formally gazetted following applications to the Ministry of Natural Resources and Tourism, but at least a dozen other locales had yet to fulfil all the regulations' requirements (Nelson et al., 2006). Even in those four areas, however, the communities had not received user rights to wildlife and were unable to earn income from hunting block concessions on the villages' lands. In terms of creating new sources of income for communities, even in the gazetted WMA's, no tangible or quantifiable change has occurred. In late 2006 the Tanzanian government began a formal review of the WMA process and regulations; at the time of writing this review has not been completed and the future of the entire WMA enterprise and policy reform process it represents is uncertain.

Tanzania's wildlife sector is thus, after nearly two decades of evolving reform efforts, emblematic of the 'aborted devolution' and failed decentralization that characterizes many CBNRM initiatives in Africa and the tropics in general. While government policies support community-based natural resource reforms broadly¹¹ and the Wildlife Policy in particular calls for devolving management to local communities, this has not occurred. The practical consequence of this outcome is that rural communities remain excluded from wildlife's economic benefits and use decisions, and there are few local incentives for conservation outside of the core state protected areas.

¹¹ For example, Tanzania's National Strategy for Growth and Reduction of Poverty, the successor to the first Poverty Reduction Strategy, has a number of provisions calling for greater local opportunities to earn income from forests and wildlife and to secure tenure for community lands and resources (see URT, 2005).

The most basic explanation for the failure of reform in Tanzania's wildlife sector is that the state authorities responsible for wildlife have not been willing to devolve powers to local communities (Baldus, 2006; Baldus et al., 2004; Songorwa, 1999). The tension created by wildlife authorities' contending incentives- on the one hand, to consolidate its control over valuable wildlife resources, and on the other, to implement community-based reforms- has thus far been resolved in favor of central consolidation. The strong institutional incentives for the bureaucracy to maintain control over the valuable patronage and rent-seeking opportunities that wildlife, mainly the centrally managed tourist hunting industry, provides, have prevailed over the imperative for reform. Low levels of transparency and accountability within Tanzania's public sector institutions accentuates this problem (see REPOA, 2006; Kaufman et al., 2006; ECA, 2005; RAWG, 2004).

By contrast, the benefits of devolution to central actors are less substantial. The main expected outcomes of CBNRM reforms- more sustainable wildlife management in rural areas and greater local incomes from wildlife- are public social goods without direct rewards for wildlife authorities. A more direct possible benefit from devolution would be greater financial income as a result of donor projects which are contingent upon the implementation of community-based reforms. However, this incentive does not appear to be sufficient to counterbalance the value of maintaining direct control over wildlife- the long-running German government's (GTZ) support to the Wildlife Division was recently discontinued following a lengthy and increasingly acrimonious struggle over WMA implementation and tourist hunting reforms (see Baldus, 2006).

Indeed, it should be noted that wildlife authorities have reaped large benefits from donor support during the past fifteen years without ever surrendering any control over wildlife. Donors and foreign conservation organizations have invested millions of dollars in the wildlife sector, largely motivated and rationalized through the economic and environmental logic of CBNRM (see Leader-Williams et al., 1996b). These investments have not had the desired outcome, and donors have occasionally been frustrated by their inability to spur reform. They have only recently begun to explicitly acknowledge the political barriers facing these processes.¹² It is important to note that one constraint that CBNRM in Tanzania's wildlife sector has *not* faced is lack of financial resources; it is rather that the resources invested have not addressed the underlying institutional problems facing wildlife management (cf. Gibson et al., 2005).

The situation in Tanzania is thus characterized by disincentives on the part of state actors to devolving authority for wildlife management, and the inability of other actors- ranging from foreign donors and conservationists to local environmental activists and rural communities- to force their implementation. This scenario reflects many of the broad challenges of natural resource decentralization in African countries. Valuable resources create incentives for central actors to maintain control over them and thus maximize their

¹² The German Development Agency, GTZ, recently withdrew from Tanzania's wildlife sector, and its long-serving former community wildlife management advisor to the Wildlife Division recently concluded, upon reflecting on the experiences of GTZ in the sector, that "the government does not intend to share" wildlife benefits with communities (Baldus, 2006). USAID (n.d.), which remains invested in the wildlife sector and WMA projects, contrastingly continues to call the WMA process "a high-yield CBNRM strategy."

own political economic well-being, and wildlife is a valuable resource for patron-client networks in sub-Saharan Africa (Gibson, 1999). The efforts by foreign development agencies to prompt reforms of these institutional arrangements tend to cast political problems in technical terms (cf. Ferguson, 1994), and thereby avoid addressing the underlying political and institutional barriers to change (Gibson et al., 2005). Thus the common outcome for CBNRM reform efforts in contexts of high resource value and low institutional accountability is that such reforms simply do not occur and power remains monopolized by central interests with neopatrimonial motivations (Ribot et al., 2006; Ribot, 2004; Jones, 2004).

Consequently, the outcomes of wildlife management reform efforts in Tanzania can largely be explained by the value of wildlife to centralized patronage networks and the disincentives that state actors have to devolve authority, regardless of the high levels of foreign donor support for such power transfers. However, this interpretation needs to take account of the political economic reality that state actors do not simply formulate policy according to their own preferences, but local actors and interests can greatly modify the strategies employed by central authorities even in contexts where local power seems minimal (Boone, 2003; Scott, 1985).

Some of the strongest cases of effectively decentralized natural resource management have been prompted by local resistance to state management practices. For example, the Indian forests of Kumaon, which have been sustainably managed by community institutions for over seventy years, were originally placed under local authority following widespread protests against British forest policies (Agrawal and Ostrom, 2001). In Latin America, grassroots pressure played a key role in local government reforms in a number of countries in the early 1990's and in the recognition of indigenous rights in a growing number of tropical forest landscapes (Larson, 2004; Pacheco, 2004; Zimmerman et al., 2001). Within east and southern Africa, South African communities have obtained ownership of valuable resources through post-Apartheid land claims, notably the recovery of the Makuleke lands from Kruger National Park (Steenkamp and Uhr, 2000).

Given the central disincentives to reform, these types of grassroots demands for devolution may be essential for overcoming the political barriers to CBNRM. For example, Murphree (2000) argues that in order for CBNRM in Africa to move from rhetorical promise to implemented reality, "local jurisdictions must become a significant political constituency of the state, a constituency strong enough to counterbalance expropriative interests at the centre and one to which the state is accountable." Agrawal and Ostrom (2001) provide empirical evidence in support of this argument from their review of four regional cases in India and Nepal, finding that "local mobilization is critical" to sustaining the implementation of successful natural resource decentralization reforms.

Thus the issue of grassroots participation in policy processes may also explain the failure of wildlife management reforms in Tanzania. One notable aspect of Tanzania's long wildlife sector reform process has been the relatively marginal role that local domestic constituencies have played. Local communities and civil society organizations did not participate, beyond the level of the occasional formal consultation of a few hand-picked local leaders, in formulating the Wildlife Policy or the WMA regulatory framework.

Although local communities are vocal and active in their resistance to many aspects of wildlife conservation in Tanzania (see Igoe, 2004; Neumann, 1995), most of the continuing dialogue over wildlife sector reforms occurs mainly amongst government personnel and their aid agency and conservation NGO supporters. This stands in contrast, for example, to Tanzania's process of land tenure reforms which was carried out during a similar period in the mid-1990's, where civic organizations and grassroots networks of activists were very active in campaigning for reform and played a much greater role in the outcome (Shivji, 1998; Sundet, 1997).

This analysis of the failure of community-based reforms in Tanzania's wildlife sector thus points to two hypotheses about the conditions that are likely to support or impede CBNRM reforms taking place. First, the incentives and disincentives of state bureaucrats suggests that where the value of wildlife on community lands is high and is captured by central actors, devolutionary reforms are least likely to occur. These bureaucratic incentives may be strongly influenced by other broader political economic and governance factors. Rent-seeking behaviour is more likely in public institutions where accountability and transparency are low, and where bureaucrats are poorly compensated as a result of inadequate government funding for public services and civil servants.

Second, the reform dynamics may be influenced by the presence or absence of popular participation in the reform process and bottom-up pressures for institutional change. This suggests that reform is most likely where this participation and activism is a prominent part of policy processes, and least likely where it is absent.

In order to develop a more fine-grained understanding of what the key barriers are to devolving control over wildlife to the local level, and what conditions are likely to be supportive of such reforms occurring, the next section tests these two hypotheses by reviewing a broader set of African countries' experiences with CBNRM reforms.

3.0: Comparative CBNRM Reform Case Studies

Efforts to devolve rights to manage and benefit from wildlife through legal and policy reforms have been widespread during the past two decades in Tanzania's neighbors in east and southern Africa's wildlife-rich nations (Hulme and Murphree, 2001). This section introduces a set of additional country case studies as a way of further examining what factors are responsible for the success or failure of CBNRM reform efforts in different contexts.

The case studies comprise the main wildlife-rich nations in the eastern and southern African regions, corresponding to membership in the East African Community and Southern African Development Community. Countries with very little wildlife on community lands, such as Malawi, Uganda, and South Africa, are excluded, as is Zimbabwe because of the impacts of recent domestic political turmoil on resource governance, wildlife populations, and policy reform processes.

As in Tanzania, the outcomes of reform in these various cases are evaluated according to the degree of authority over wildlife that has been transferred to local institutions. The

key actors and interests involved in reform processes and outcomes are examined (cf. Agrawal and Ribot, 1999). Particular attention is paid to the way management institutions and political economic factors influence, or influenced prior to reform, wildlife's value as a centrally controlled patronage resource. Another important issue is whether or not local activism and participation in policy formulation played a key role in motivating change. While these case histories are invariably complex and involve numerous actors and interests, and often a considerable amount of legal ambiguity as to the way rights are held and exercised, these summaries attempt to succinctly capture the nature and outcomes of wildlife management reform processes in the respective contexts.

3.1: Namibia

Namibia is a country that has seen considerable institutional change in its wildlife sector during the course of the past fifteen years and is now widely viewed as a leader in CBNRM in sub-Saharan Africa (e.g. WRI, 2005). Namibia's wildlife management approach first diverted from the strictly centralized colonial model in 1967 and 1975, when legal reforms granted private landowners conditional ownership rights¹³ to wildlife their lands (Jones and Murphree, 2001). This measure applied only to freehold lands¹⁴ owned by whites in a country which was then administered by Apartheid South Africa. Following these reforms, wildlife on private lands increased substantially as ranchers invested in production of species such as kudu, oryx, and springbok for meat and hunting (Barnes and de Jagr, 1995).

In 1990, Namibia gained political independence from South Africa, and this set the stage for further wildlife sector reforms. The main motivation was to extend the decentralized, landholder-based management framework to the communal lands which contained most of the country's rural people and covered about 44% of the total land area. The rationale for extending the reforms to communal areas was not only to replicate the conservation successes that had occurred on freehold lands, but to enfranchise the African population and enable them to capture the economic benefits from wildlife which whites already enjoyed (Jones and Murphree, 2001).¹⁵ Namibia's post-independence government, which has supported a relatively open democracy, administrative decentralization, and has been faced with a legacy of racial inequality, has been a strong supporter of CBNRM on communal lands for the past fifteen years (NACSO, 2004).

However, officials in the Ministry of Environment and Tourism (MET) were constrained by the reality that communities in rural areas have no local governance institutions below the level of the district, and had no locally delineated land rights (Jones, 1999). This created an obstacle to devolving wildlife management in communal lands, and required a slightly different approach than that used on private lands. In 1996, Namibia passed amendments to its wildlife laws which provided for the creation of 'community conservancies.' Rural communities can, after defining their membership and physical

¹³ The main conditionality was that the landowner erect a game-proof fence around their property.

¹⁴ Such freehold lands comprise 41% of Namibia's total land area.

¹⁵ This narrative is very similar to the story of Zimbabwe's CAMPFIRE program, which followed Zimbabwean independence in 1980 and was preceded by white landowners being granted ownership of wildlife on private lands in 1975 (Child, 1995).

boundaries and developing a plan for distributing benefits, apply to become a conservancy. This status grants them broad usufruct rights over common species of game and more conditional rights over rarer species. Since 1997, about 40 conservancies have been established, with about 10% of Namibia's total land area now falling under the jurisdiction of these locally managed conservation areas (NACSO, 2004).

Namibia's community conservancies represent one of the strongest cases of locally based wildlife management in sub-Saharan Africa. Although the rights granted to communities are not unconditional and fall short of complete ownership of wildlife- for example, the determination of hunting quotas is still the responsibility of central government officials- the level of local devolution in this case is relatively robust (Jones, 2004). Community conservancies are administered by locally elected representatives and are able to self-define their membership and management priorities. Community conservancies retain 100% of the revenue earned from wildlife in these areas, including from tourism and tourist hunting, and these rights are not conditional (Jones, 1999). The conservancies are free to determine their own private investor partners in their areas although weaknesses in Namibia's communal land tenure framework means that the land leasing framework for tourism investments remains relatively weak. Choices about what enterprises to carry out and how to use local wildlife populations are made entirely at the local level, subject to central approval for use permits for certain rare species.

The institutional changes that led to the creation of community conservancies in Namibia in the late 1990 were motivated by a combination of unique contextual factors. These include the positive conservation gains witnessed on private ranches in the 1970's and 1980's following the transfer of authority over wildlife to private landowners, as well as some promising community-based anti-poaching programs initiated in the early 1980's in northwest Namibia by a local conservation organization (Jones and Murphree, 2001). Even more important in spurring the conservancy reforms was Namibian independence and the shift to majority rule, and the opportunity and imperative it created among policy-makers to extend the same privileges to communal lands that had already been established on freehold lands.¹⁶ There was little or no rural activist demand for these changes, but they were instead formulated and implemented by central actors and both local and international conservation organizations. Foreign donors such as USAID have played a major role in providing financial support for conservancy development since the early 1990's,¹⁷ but were not the initial champions of institutional reform as they have been in Tanzania.

Differences in the structure of Namibia's wildlife utilization enterprises and management practices may also have helped lend support to reforms by reducing the incentives of

¹⁶ This opportunity can be looked at in two ways. On the one hand, independence from South Africa created the opportunity for enlightened policy entrepreneurs within the bureaucracy to grant rural communities rights over resources which were not politically acceptable under Apartheid rule. But independence also created the practical political pressure that if such reforms were not implemented it would render untenable the privileged rights over wildlife held for years by white landowners on freehold lands.

¹⁷ Barnett and Patterson (2006) provide an estimate of nearly \$28 million provided through USAID through the Living in a Finite Environment (LIFE) program, which has been the main source of donor support to the community conservancies during their history.

central actors to maintain control. Unlike Tanzania’s vast system of centrally controlled wildlife utilization on community lands as established through its private hunting concessions, Namibia’s hunting industry is structured very differently. Most of Namibia’s \$11.5 million sport hunting industry is centered on private lands, where most game animals are found; the value of hunting on private lands is about 17 times that of the value of hunting carried out on state lands (Figure 2).

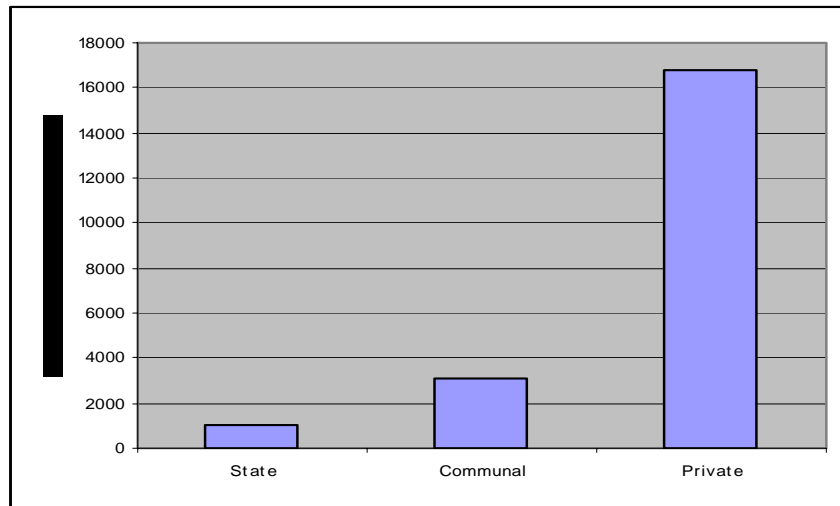


Figure 2: Value of tourist hunting in Namibia from different land tenure categories. Source: Barnett and Patterson, 2006.

Although tourist hunting and tourism carried out on communal lands which are not gazetted as conservancies realizes money directly to the state, this is much less important a source of revenue in Namibia than in other countries. Importantly, when the communal conservancies were initially created, wildlife populations on communal lands were much reduced from years of over-exploitation and drought. In northwestern Namibia, the region where the most conservancies have been formed, there were only about 1,000 each of springbok, oryx, and mountain zebra in the 1980’s, meaning that the value of wildlife in communal areas was marginal prior to conservancy formation (Weaver and Skyer, 2005). Indeed, Namibia’s hunting industry has grown considerably in recent years, following the creation of communal conservancies and attendant wildlife recoveries, from total revenues of NAD 19.6 million in 1992 to NAD 80 million in 2000 (Barnett and Patterson, 2006).

Hunting in Namibia is notably transparent, with the concessions that state authorities do control being dispensed through public auction (Barnett and Patterson, 2006). The transparent management of hunting reflects Namibia’s broader macro-governing context, which is that of one of sub-Saharan Africa’s most wealthy and least corrupt countries. Namibia’s small population and rich resource base- including substantial diamond production- results in a per capita income of \$7520, as of 2004 and based on purchasing power parity (PPP) (World Bank, 2006). Namibia ranks 55th, in continental sub-Saharan Africa below only South Africa and Botswana, on Transparency International’s (2006) corruption perceptions index.

The combination of limited state control over tourist hunting areas, limited wildlife populations on communal lands prior to conservancy formation, transparent hunting administration procedures, and generally transparent quality of governance nationally all serve to reduce the incentives that state wildlife authorities possess to resist devolution of wildlife management to the local conservancies.

As a result of Namibia’s wildlife sector reforms, important outcomes have occurred in terms of both wildlife populations and rural livelihoods. The opportunities for being granted legal authority over wildlife has enabled communities to capture new forms of revenue, with total benefits increasing rapidly to about \$1,100,000 for all the conservancies as of 2002 (Weaver and Skyer, 2005). Because communities capture the full proportion of revenues from consumptive uses of wildlife and alternative land uses in arid and semi-arid areas are limited, existing analyses suggest that the conservancies are financially viable and economically efficient from the local perspective (Barnes et al., 2002). Wildlife populations in the conservancies have increased against the baseline of earlier years, with particularly dramatic recoveries seen in northwest Namibia’s Kunene Region (Figure 3). This provides evidence for a substantial positive impact on rural economies as well as natural resource conservation as a direct result of the success of Namibia’s wildlife sector reforms.

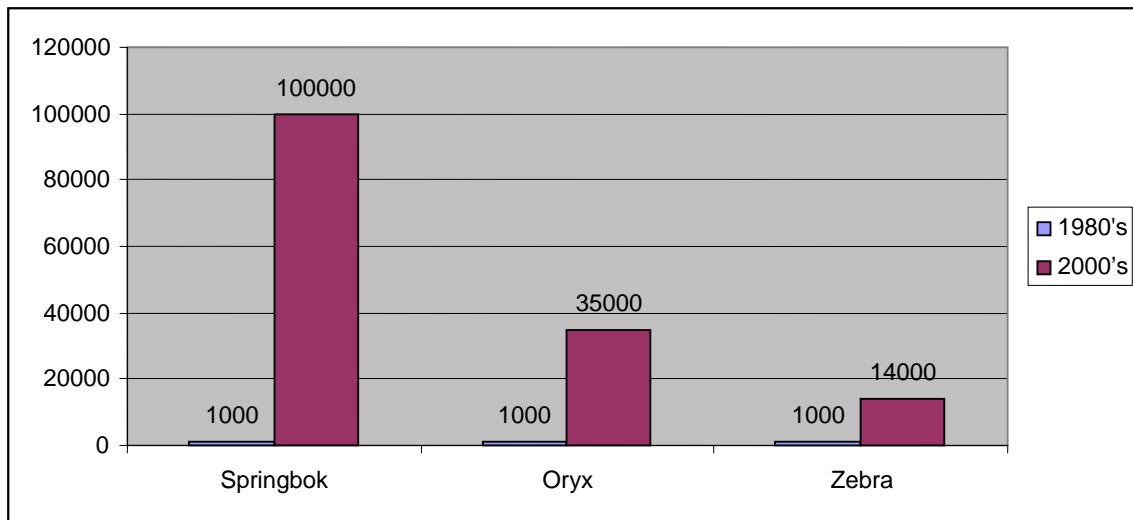


Figure 3: Changes in wildlife populations in northwest Namibia’s communal lands, 1980’s to 2000’s. Source: Weaver and Skyer, 2005; NACSO, 2004.

3.2: Botswana

Like Namibia, Botswana is an overwhelmingly arid southern African nation with a relatively low human population density. And like its neighbour to the west, Botswana has developed one of the region’s leading CBNRM programs by implementing devolutionary reforms which grant local communities important rights and opportunities for managing and benefiting from wildlife in rural areas.

Wildlife in Botswana falls under the jurisdiction of the Department of Wildlife and National Parks (DWNP) in the Ministry of Commerce and Industry. The overall CBNRM environment in Botswana is somewhat fragmented, with land in communal areas falling under district-level Land Boards, and vegetation under the Ministry of Agriculture (Cassidy, 2000). Unlike most other countries in the region, Botswana's wildlife policy since independence has tried to strike a relatively equitable balance between providing access to wildlife to local citizens for their own consumption, and developing a commercial industry based on foreign hunters (Barnett and Patterson, 2006). In the early 1980's, for example, the majority of the national hunting quota determined by DWNP was allocated to citizen hunting rather than more lucrative foreign sport hunting uses (Barnett and Patterson, 2006).

CBNRM in Botswana emerged in the mid-1980's as a government strategy for encouraging local conservation practices by providing people with benefits from wildlife and other resources (Cassidy, 2000). In 1986, the DWNP released a Wildlife Conservation Policy which established about 20% of the country as Wildlife Management Areas where local people could obtain a wildlife quota and either consume it or sell it for profit (Twyman, 2001; Cassidy, 2000). Since the early-1990's, increasing numbers of rural communities have used this provision to apply for wildlife use rights, which are then either used by the community or leased to a tourist hunting operation. As in Namibia, communities must first define themselves in terms of membership and register as a trust with an elected management committee and governing constitution (Cassidy, 2000). Communities also must lease land from district Land Boards, with leases granted on 15-year terms and which enable communities to enter into third-party leases with tourism or hunting operators.

Communities granted a wildlife quota keep 100% of resultant revenues, and with relatively low rural population densities some areas have been able to realize very high per capita incomes from these arrangements. By 2001 there were 46 registered community trusts, which included 130 villages and 40,000 people, and by 2002 these areas included a dozen commercial wildlife ventures earning a total of BWP 8.1 million (Arntzen et al., 2003). However, DWNP retains ownership of wildlife and most management rights, such as quota setting, and can revoke the wildlife quota if the community does not abide by conditions placed on management of the area and distribution of revenues. A key difference between Botswana and Namibia is that while the latter's communal conservancies are based on legislative provisions, Botswana's community wildlife management system is dependent on administrative discretion and policy (Jones, 2004). The potential fragility of such arrangements was highlighted in 2001, when a Ministerial directive instructed that the revenues community trusts had been receiving from wildlife should henceforth be paid to district councils (Barnett and Patterson, 2006).

The progressive increase in local access to benefits from wildlife and the expansion of Botswana's commercial hunting industry have been parallel processes over the past twenty years. Since 1986, the value of the country's tourist hunting industry has increased from BWP 6.35 million to BWP 59.6 million in 2001 (Barnett and Patterson, 2006). Government income from Botswana's national parks has also increased considerably as the country's tourism industry has grown rapidly, based largely on the

wildlife in the Okavango Delta. Although DWNP is responsible for overseeing all hunting and wildlife utilization, and granting hunting concessions in areas not managed by communities or private landholders, it receives only an estimated 3.4% of total revenues (Barnett and Patterson, 2006).¹⁸ Hunting concessions are granted through tender processes (Barnett and Patterson, 2006).

Botswana's governing environment is characterized by the highest per capita PPP income, \$9580, and lowest levels of corruption in sub-Saharan Africa (World Bank, 2006; Transparency International, 2006).¹⁹ Civil servants in Botswana are generally high quality, well-compensated, and accountable (Good, 1992).

Botswana's wildlife reforms have thus occurred in a context of strong governance, relative economic prosperity, and relatively low bureaucratic dependence on wildlife on community lands for revenue. Reforms have been driven principally by central government actors, drawing on experiences with CBNRM elsewhere in southern Africa and substantially supported by foreign donors, particularly USAID's Natural Resource Management Programme which ran from 1989 to 1999. Local communities have played little role in motivating community-based reforms in Botswana, and many of the rural communities which have benefited the most are among the more politically and economically marginalized in the country.

As in Namibia, Botswana's community-based policies are associated with generally stable wildlife populations in the regions where local benefit capture has been most substantial. Existing monitoring data from northern and northwestern Botswana suggests that wildlife in these areas has been stable since around 1987, and levels of illegal use are reportedly low (Arntzen et al., 2003).

3.3: Zambia

Zambia's wildlife management framework during most of the twentieth century has reflected the traditional regime of former British colonies and socialist states based on central management and ownership of resources (Marks, 1984; Gibson, 1999). The initial efforts to reform wildlife policy in Zambia and enable greater community participation emerged in the early 1980's (Gibson, 1999). During that decade, two programs were developed by government officials, conservationists, and foreign donors that sought to create means for local people to benefit from wildlife: the Luangwa Integrated Resources and Development Program (LIRD) and the Administrative Management and Design for Game Management Areas (ADMAGE). The LIRD operated locally in the Luangwa Valley and received major support from the Norwegian government, while ADMAGE was a national program managed by the Zambian National Park and Wildlife Service and funded largely by USAID, which sought to channel revenues from tourist hunting with local communities (Gibson, 1999).

¹⁸ Until recently, the hunting revenues realized from concessions on state lands went directly to land boards under the Ministry of Lands, rather than to DWNP (Barnett and Patterson, 2006).

¹⁹ Botswana ranks 37th on the 2006 Transparency International CPI- ahead of, among others, developed countries such as South Korea and Italy.

These programs have successfully channeled significant sums of revenue from wildlife utilization to rural communities in Zambia. ADMADE granted local communities about 35-40% of tourist hunting revenues, while LIRDP was able to direct 100% of hunting concession revenues in the Luangwa Valley to locals; both have been widely cited as successful models of southern African CBNRM (see Child and Dalal-Clayton, 2004; Lewis and Alpert, 1997; Lewis et al., 1990). Although giving local communities access to revenues from wildlife,²⁰ neither LIRDP nor ADMADE actually grants communities any proprietary rights to wildlife or decision-making authority for wildlife uses. Zambia has instead focused primarily on redistributing financial benefits to wildlife, rather than redistributing managerial authority (Gibson and Marks, 1995). Critics however have noted that the failure of CBNRM initiatives in Zambia to devolve decision-making authority over wildlife to communities is a major constraint, and as a result argue that these programs have had little positive impact on community investments in sustaining local wildlife populations (Marks, 2001; Gibson, 1999; Gibson and Marks, 1995). Bwalya (2003) reviews one ADMADE site and finds that the actual amount of revenue reaching communities to be around 6%, with “no evidence of significant impact of community wildlife management on local behavior, community welfare and wildlife conservation.” He further concludes that the “general reluctance by government to devolve power and ownership rights to local communities have been the major impediment.”

The government agency responsible for wildlife is the Zambia Wildlife Authority (ZAWA), which was constituted as a parastatal in 1998 to replace the former wildlife and national parks department. ZAWA manages and receives direct revenues from both national parks and wildlife on community lands. All of Zambia’s tourist hunting industry occurs on Game Management Areas, which are occupied by local communities. Zambia’s hunting industry is currently estimated at about \$4 million in total annual turnover, although it was worth perhaps \$9 million before being banned for two years in 2001 (DSI, 2004). ZAWA gets about half of its revenues from tourist hunting concessions on community lands- such as those administered under ADMADE- and about half from national park revenues (DSI, 2004). The reliance of ZAWA on hunting revenues from communal lands, which it uses to fund the management of unprofitable and under-funded national parks,²¹ presents a strong institutional disincentive to devolve broader control over wildlife to local communities (DSI, 2004). Jones (2004) describes these financial incentives as follows: “The new wildlife parastatal, ZAWA, has to fund itself, and one of its main sources of revenue is the income from hunting and tourism concessions. ZAWA is not going to implement approaches that cut off its own funding.”

Governance factors enhance these central disincentives to reform (cf. Gibson, 1999). Tourist hunting concessions are not allocated transparently, and Child and Dalal-Clayton

²⁰ There have been several changes to the revenue-sharing formulas used under these various programs. The most recent information (Jones, 2004) indicates that in the Luangwa Valley (LIRDP), communities are to receive 80% of wildlife revenues from hunting, while in other areas locally elected community resource boards receive 45% of revenues, while the local chiefs receive 5%. 40% and 10% go to ZAWA and central government, respectively.

²¹ Zambia earns only US\$.75 per acre from its parks, compared to US\$17.50 per acre in South Africa; no parks have yet been able to cover their costs financially (DSI, 2004).

(2004) note that “senior politicians are heavily involved in hunting concessions.” The political patronage value of hunting concessions to individual politicians was allegedly a factor behind the temporary suspension of all hunting concessions in 2001. Unlike Botswana and Namibia, Zambia’s public institutions are generally perceived as highly corrupt, with a ranking of 111 on the 2006 Transparency International CPI (Transparency International, 2006; see also ECA, 2005).

Thus despite a long history of CBNRM initiatives and community participation going back more than twenty years, there has been little actual decentralization of decision-making authority over wildlife in Zambia. Notably, there is also little evidence of sustainable wildlife population trends in communal areas; Marks (2001) finds that wildlife has continued to become scarcer in the Luangwa Valley in one major ADMADE site. DSI (2004) roughly estimates that the Game Management Areas throughout the country have wildlife populations which are only at about 5-10% of their carrying capacity based on biophysical characteristics.

3.4: Mozambique

With its history as a Portuguese colony, long independence struggle and post-independence civil war ending only in the early 1990’s, Mozambique has had a different trajectory in the formulation of its natural resource management policies, which Anstey (2001) terms “necessarily vague.” Nevertheless, CBNRM has emerged in Mozambique during the past decade in ways which are both distinctive and reflect parallel regional trends. Since the end of the civil war, foreign donors have played a prominent role in supporting economic recovery and policy development. In the natural resource sectors, donors have been the main force behind adoption of CBNRM policies and field projects, with key leadership also coming from some innovative officials within the central government (Virtanen, 2005; Anstey, 2001).

Community participation in wildlife management is explicitly endorsed in new wildlife and forestry policy (1997), law (1999), and subsequent regulations (2001), with local communities targeted as principal actors in implementing the policy (Nhantumbo et al., 2003; Salomao, 2002; Anstey, 2001). Communities can apply to have user rights and management authority for wildlife, forests, and land delegated, although the way that these rights are devolved and exercised has been left somewhat ambiguous (Salomao, 2002). Effectively, communities are enabled to compete alongside private companies for concessions to wildlife and forests on communal lands. If these concessions are granted by central authorities, communities retain the income that they realize from sub-leasing those wildlife rights to private entities (Jones, 2004).

By 2001 there was one of these local jurisdictions established, in southern Mozambique (Virtanen, 2005). Other leading CBNRM pilot initiatives, such as the widely publicized Tchuma Tchato project where communities receive significant revenues from tourist hunting, are only established through administrative discretion to share revenues and not through locally held resource rights (Shafer and Bell, 2002).

Overall, although Mozambique's CBNRM framework as established in law and policy provides significant opportunities for communities, there has been little implementation and actual decentralization to date (Salomao, 2002). Virtanen (2005) suggests that communities are in danger of becoming "powerless facades to legitimize decisions made elsewhere." Anstey et al. (2002) attribute the difficulties in devolving authority over wildlife and other natural resources to broad "constraints in democracy, governance or in other mechanisms that would enable devolution." Mozambique has high levels of institutional corruption, ranking 99th on the TI CPI, with rent-seeking widely exploited in government administration and resources increasingly concentrated in the hands of elites following the liberalization reforms of the 1990's and resultant increase in commerce and investment (Anstey et al., 2002; Shafer and Bell, 2002; Anstey, 2001). These weak public institutions affect wildlife directly; Anstey et al. (2002) report that over 80% of all illegal wildlife incidents in northern Mozambique's Niassa Reserve involved government officials.

However, in contrast to the other countries examined here, Mozambique's commercial wildlife sector is relatively limited in its scale. Wildlife populations were widely depleted during the long civil war, unmanaged and over-exploited. A tourist hunting industry has been developed since 1992, but this is mostly concentrated in the northern part of the country, in particular around the Niassa Reserve, which is the country's most wildlife-rich protected area. Natural resource management- including many CBNRM initiatives- in Mozambique is more focused on the country's forests and timber resources, which are more widespread and more commercially valuable than wildlife (Virtanen, 2005; Jones, 2004).

The main drive for CBNRM policies and projects in Mozambique has come from government officials, foreign donors and international conservation organizations. The process has been technocratic rather than participatory, and rural communities have been "offstage" (Anstey, 2001). For Mozambican policy-makers, there is clearly an incentive to pursue community-based reforms in order to leverage donor support for wildlife and other natural resource sectors. There is however little evidence that this is leading to decentralization in the country's wildlife sector and the transfer of meaningful new powers to rural communities.

3.5: Kenya

Kenya's wildlife sector has taken a singular course during the past thirty years. In the late colonial era, private landholders possessed utilization and management rights over wildlife similar to what exists today in Namibia and South Africa. Kenyan wildlife policy remains supportive of private and community rights to manage and benefit from wildlife and is generally enabling, at least in principle, of CBNRM (Barrow et al., 2000). But administrative actions have worked to progressively centralize and limit private and communal landholders' rights and opportunities, at least over consumptive uses of wildlife, since the mid-1970's.

Several major legal and administrative changes delineate the course of the Kenyan wildlife's sector's contemporary history. A critical action was a Presidential ban in 1977

on all forms of hunting, which remains in place to this day. As a result, Kenya is the only country in east and southern Africa with a significant large mammal population that does not allow any commercial hunting. In 1989, Kenya's Wildlife and Game Management Division, which was corrupt and responsible for rampant commercial ivory and rhino horn poaching- government guards were responsible for an estimated one third of all rhino poaching incidents- and threatening national security, was replaced by the newly formed parastatal Kenya Wildlife Service (KWS) (Gibson, 1999).

In the mid-1990's KWS, facing the same ecological, social, and financial pressures as natural resource managers throughout the region, began broadly promoting community-based management strategies with a renewed emphasis on landholder incentives and benefits from wildlife (Barrow et al., 2000; Makilya et al., 1996; Baskin, 1994). The leadership of KWS at that time was supportive of community rights and benefits, as well as the re-introduction of commercial hunting as a way of increasing wildlife's value to rural landholders (Baskin, 1994). With donor backing, KWS supported the formation of local wildlife associations in communal areas and private lands which were intended to provide a link between local landholders and central authorities, and help coordinate the development of rural wildlife-based enterprises.²²

A range of new community-based ecotourism initiatives did emerge from these efforts in the mid and late 1990's, such as the Iln'gvesi and Shompole community lodges, but the efforts to reform legislation by devolving ownership over wildlife to landholders and re-introducing hunting did not succeed. These efforts to reform Kenya's wildlife sector were spearheaded by state wildlife authorities, in the form of KWS, as well as some conservationists and landowners, while being opposed by some conservation organizations, tourism operators, and some communities and politicians. Of particular importance in opposing reforms, mainly the reintroduction of commercial tourist hunting, have been foreign animal welfare organizations, which have put significant resources into Kenya during the past two decades (Parker, 2005; Georgiadis and Heath, 1997). Efforts to empower local communities and increase wildlife's value to landholders by re-introducing commercial hunting as an economic option have continued intermittently for the past decade. In 2004-05, a group of conservation organizations and local landholder fora succeeded in working with members of parliament to pass legislation that would have significantly decentralized wildlife management in Kenya, but this bill was vetoed by the President (Parker, 2005).

This latter episode demonstrated that Kenya has, unlike most countries in east and southern Africa, a relatively influential civic lobby for natural resource policy reforms, one which succeeded in pushing major wildlife legislation through parliament before being turned back by the chief executive.²³ Kenya also does not have any system of centrally managed commercial utilization of wildlife on private lands; the state earns very little from wildlife outside of protected areas save for the taxes paid by tour operators

²² These enterprises were primarily restricted to non-consumptive ecotourism ventures, however, as a result of the maintained ban on tourist hunting.

²³ The Kenya Forests Working Group, a collaborative forest conservation body which includes conservation and development groups, donors, and government agencies, has also played a significant role influencing environmental policy in recent years, including through legal action, media campaigns, and scientific research.

who operate on private property. In fact, most of wildlife's real economic value is not captured by *any* actor; because of the hunting ban, the economic value of Kenya's wildlife in most of the country is simply not captured at all.

Thus Kenya is also a case of failed decentralization reform efforts, but apparently not for the reasons connected to bureaucratic patronage and control over commercial concessionary systems seen in other countries. In Kenya, state or bureaucratic interests have no real stake in wildlife on private lands, and grassroots and civil society advocacy organizations are relatively strong and active. The main cause of failed reform is the strength of countervailing perspectives on how wildlife should be managed in Kenya, in particular the strength of preservationist sentiments as embodied by influential animal welfare groups. The economic interests of the tourism industry, which benefits considerably from the hunting ban through reduced competition for access to wildlife-rich lands, are also an important lobby for continuing the status quo (Johnstone, 1997). Thus Kenya's failed CBNRM reforms appear unique to its own circumstances.

The perpetuation of strictly centralized and 'preservationist' policies in Kenya have not been successful at maintaining the country's rich wildlife resource. From 1977 to 1994, monitoring data indicates that Kenya lost 44% of large mammals in savannah rangelands and grasslands, which covers most of the country's main wildlife districts (DRSRS, 1996). Although many observers point to human population growth as the main cause of these declines, others argue that the situation is an outcome of policies which render wildlife a liability on all private and communal lands except the few areas where ecotourism is able to earn large sums of revenue for landholders (e.g. Norton-Griffiths, 1996).

4.0: Discussion:

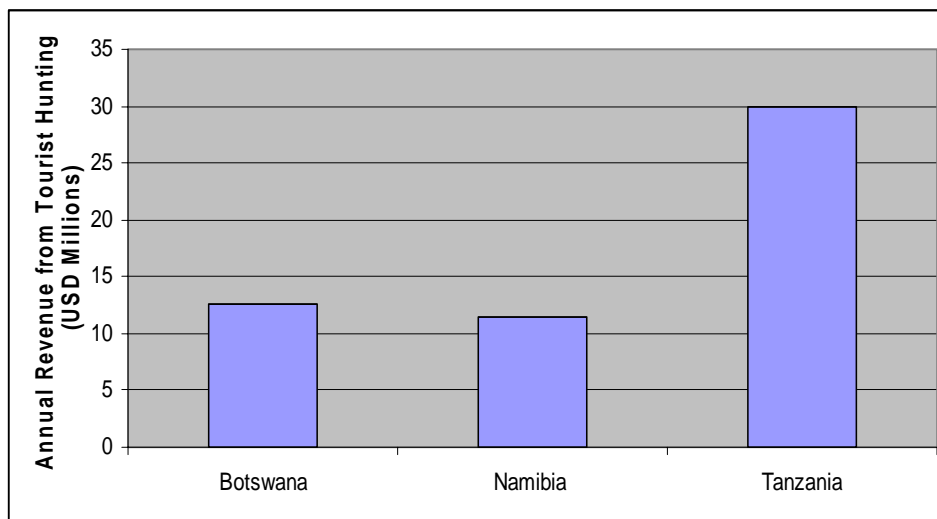
4.1: Explaining the Failure and Success of Wildlife Devolution in East and Southern Africa

The results of the different country case studies reviewed here suggest several basic patterns about the factors leading to the relative failure or success of efforts to devolve authority for wildlife management to local communities in sub-Saharan Africa. In the comparisons among wildlife sector reform processes between the six countries, there has been significant devolution to downwardly accountable local institutions in Namibia and Botswana. Zambia, Mozambique, Tanzania, and Kenya have basically not carried out significant transfers of decision-making authority to local entities, although they advocate such reforms in official policies and have received extensive donor support based on these approaches. These outcomes are reflected in the composite devolution scores in the far right column of Table 1.

The first point to make based on these outcomes is that the presence or absence of grassroots advocacy and demands for policy reform do not appear to be a relevant factor in the failure or success of CBNRM reforms in the region. In fact, these forces were not relevant factors in the policy processes examined here in any instance except for Kenya's wildlife sector, which is a case of failed reform. In Namibia and Botswana, where

reforms have been adopted, they have been primarily initiated by central authorities with support from donor agencies and both local and international conservation organizations. The only national case where there is an active civic and landholder-based reform lobby, Kenya, is not a successful case of reform. Kenya's efforts to develop CBNRM in the wildlife sector have been largely undermined by its unique ban on all forms of consumptive utilization, which is explained by domestic political factors not seen in any other countries in the region (i.e. the presence of a strong preservationist and animal welfare lobby). Overall, reform in the region appears to be a function of discretionary action by central authorities and, at least in its initial stages, not significantly influenced by locally driven pressures.²⁴

The incentive structures of central wildlife authorities, in turn, are driven largely by the value that wildlife provides to them within the context of patronage and rent-seeking interests. High financial values from commercial wildlife uses on community lands which are directly controlled by these state agents amplify incentives to maintain control; both the size of Tanzania's hunting industry and its extensive reliance on concessions on community lands are central to understanding why devolutionary reforms have been so unsuccessful there. Botswana and Namibia, by contrast, have smaller hunting industries (Figure 4), but more importantly, for a range of contextual and historical reasons the commercial utilization of wildlife on communal lands through centrally administered enterprises was never as extensive as it is today in Tanzania and Zambia. An additional factor in shaping central incentives includes the relative reliance of wildlife agencies on revenues from wildlife utilization, as opposed to other activities such as tourism revenue from national parks (which are not, in most instances, the object of CBNRM reform efforts). Again, the fact that Tanzania's Wildlife Division is almost entirely dependent on hunting revenues for its income and the Zambian Wildlife Authority 50% dependent on hunting revenues is central to the incentives that govern the behaviour of those agencies.



²⁴ This reflects other analyses of the influences of social movements or civic actors on governance in developing countries, which have generally found a low level of popular influence (e.g. Hyden et al., 2004).

Figure 4: Relative values of wildlife utilization through commercial hunting in Botswana, Namibia, and Tanzania. Source: Barnett and Patterson, 2006.

The transparency and accountability of governing institutions is also critical in shaping the incentives of state actors. Unaccountable and non-transparent institutions enhance the ability of public officials to privatize the values of public natural resources such as wildlife, which enhances the incentives to maintain or consolidate control over those resources. In terms of the transparency of wildlife utilization’s administration, a useful indicator is whether or not countries use transparent tender or, ideally, public auction procedures in determining their allocations of wildlife use. Such procedures can, if backed by transparent monitoring and enforcement mechanisms, greatly reduce rent-seeking opportunities and improve the efficiency of public resource allocation. Broader governance factors including the rule of law are additionally important in terms of the level of accountability demanded of public institutions. Figure 5 provides a number of measures of the quality of governance in the countries reviewed here, from both World Bank governance indicators (Figure 5a) and the 2006 Transparency International Corruption Perceptions Index (Figure 5b). Namibia and Botswana receive markedly better scores in both ranking systems, and other governance databases provide similar relative scores among these six countries (e.g. ECA, 2005).

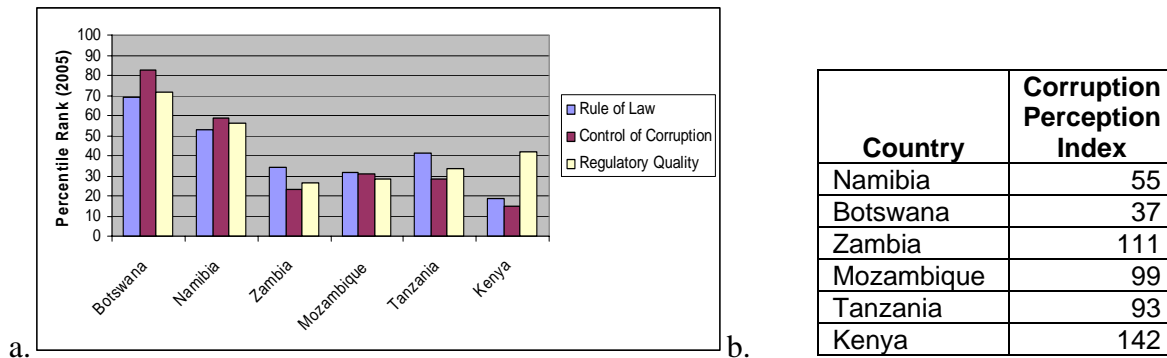


Figure 5: Quality of governance and levels of corruption in wildlife-rich African nations. Figure 5a is draws data from Kaufmann et al., 2006, and high percentile scores reflect high quality in a given category; Figure 5b is from the 2006 Transparency International Corruption Perceptions Index rankings, where 1 is the lowest possible level of corruption and higher scores are progressively more corrupt.

Lower levels of corruption are also associated with higher per capita incomes in sub-Saharan Africa (ECA, 2005), and Namibia and Botswana both have considerably higher incomes than the other countries reviewed here (Figure 6). Greater wealth enables, among other things, civil servants to be better paid and perhaps less susceptible to bribery. The relative poverty of civil servants operating in weak institutional environments is widely understood as a source of wildlife mismanagement in the region. Barnett and Patterson (2006) note that, “the very low salaries paid to wildlife personnel and the lack of transparent and accountable oversight processes” expose tourist hunting’s management to the danger of corruption.

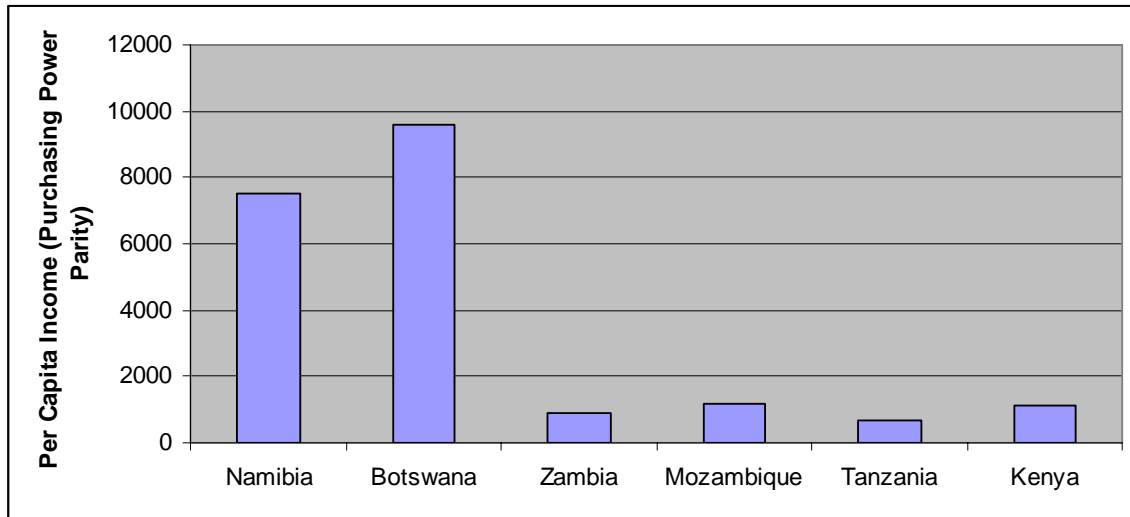


Figure 6: Per capita incomes of case study countries. Figures are as of 2004. Source: World Bank, 2006.

The central finding from the country reviews presented here is that high financial wildlife values captured by state agents, coupled with high levels of institutional corruption, create relatively stronger disincentives for central managers to devolve authority over wildlife to local communities. Where more successful CBNRM reforms have occurred, in Namibia and Botswana, the institutional context is distinguished by notably lower levels of corruption and stronger public institutions, as well as relatively lower wildlife values to the state agencies that led the implementation of key wildlife management reforms. These factors are combined into Table 1 below.

Table 1: Key variables influencing central actors’ incentives and disincentives to devolve authority for wildlife to local communities, and actual devolution achieved.

COUNTRY	Value of Centralized Commercial Utilization of Wildlife on Communal Lands	Transparency of Procedures for Allocation of Wildlife Use (Hunting) Concessions	Overall Governance Transparency	Disincentives for Central Authorities to Devolve Authority for Wildlife	Level of Devolution Carried Out
Namibia	Low	High	Medium	Low	High
Botswana	Low	High	High	Low	Medium
Zambia	High	Low	Low	High	Low
Mozambique	Medium	Medium	Low	Medium	Low
Tanzania	High	Low	Low	High	Low
Kenya	n/a	n/a	Low	Low	Low

While these cross-country comparisons of wildlife sector reforms support the hypothesis that the political economic incentives of central actors are the key determinant of the outcome of CBNRM and ongoing struggles over wildlife management in east and southern Africa, this analysis is not intended to portray outcomes in a totally deterministic light. For example, although Namibia has achieved the most substantial devolution of wildlife, Botswana has much better governance rankings and lower levels of corruption. In this case, the reason that Namibia has devolved more control over wildlife to rural communities is linked to the country's history and its legacy of wildlife ownership on private ranches since the late 1960's (Jones and Murphree, 2001).

4.2: Scope of the Findings: Implications for CBNRM and Linkages between Biodiversity Conservation and Governance

A number of important implications for the continuing development of CBNRM in sub-Saharan Africa emerge from this review. CBNRM is likely to be most effective, in terms of creating economic benefits for local people and thus incentives for collective investments in managing resources, where the value of resources are high and rights to those resources are secure (e.g. Ostrom, 1990). Child (2004b, 2003) describes an "an emerging price-proprietorship-subsidiarity hypothesis," for the management of wildlife and protected areas in southern Africa, arguing that sustainable use is most likely where resources are valuable, rights to those resources are clearly defined, and rights are devolved to the lowest possible level (see also Jones and Murphree, 2004). However, the cases reviewed here suggest that the two key variables of 'price' and 'proprietorship' are negatively correlated in institutional practice with respect to decentralization. Resources which are valuable, and thus hold the highest potential for positive CBNRM impacts, are often precisely those which create the strongest incentives for local proprietorship to be withheld by central actors. The areas with the highest potential for CBNRM in terms of resource values may consequently be the least likely places for CBNRM to emerge on institutional and political grounds, all else being equal. By contrast, CBNRM is most likely to be possible in circumstances where resource values are low, or at least unknown and untapped.

Tanzania's forestry sector provides a useful illustration of how these same political economic factors can differ within a single country, varying based on institutional and economic differences. In stark contrast to the country's wildlife sector, Tanzanian forestry has seen substantial growth in community-based forest management as a result of policy and legal changes since the late 1990's. This growth has, however, mainly occurred in relatively low value and unmanaged *Miombo* woodlands,²⁵ which the central government has broadly supported local ownership of, whereas more valuable highland forests have not been given over to local villages (Blomley and Ramadhani, 2006). This uneven pattern of devolution reinforces the conclusion that community management is more likely to be successful and receive the support of central authorities where the

²⁵ These forests have less valuable hardwoods, but still have substantial value for timber, although these values have not been considered or calculated until recently, and there is virtually no formal timber production in these forests at present. Nevertheless, this presents a valuable potential future opportunity for thousands of rural Tanzanians who now have obtained secure ownership of their local forests- fortunately, before anyone seems to have realized their commercial values.

resource in question is relatively low value. This pattern has been well documented for community-based forestry decentralization efforts throughout the tropics (e.g. Ribot et al., 2006; Ribot, 2004),²⁶ but has not been used to explain the outcomes of wildlife policy reforms in sub-Saharan Africa in a systematic manner.

Another important theme that emerges from this study is that CBNRM reforms are closely tied to broader governance factors which greatly affect the behavioural incentives of key central actors. There has recently been a greater focus on the links between governance and biodiversity conservation in the tropics (e.g. Smith and Walpole, 2005; WRI, 2004; USAID, 2002), including the development of broad statistically-based arguments that better governance is positively associated with better conservation outcomes (Smith et al., 2003a). Much of this discourse focuses on forestry and the tropical timber trade in Southeast Asia, central Africa, and Latin America. As a large-scale form of resource utilization in biologically rich regions, forestry provides an intuitive conceptual link between conservation and governance factors (Laurance, 2004; Smith et al., 2003b; Essama-Nssah and Gockowski, 2000). Barrett et al. (2006), however, question the use of generalized statistical models linking corruption and conservation outcomes, and call for greater development of the understanding of causal theories connecting the two.

This study delineates such a causal relationship between governance and wildlife conservation outcomes in east and southern Africa in the context of community lands outside state protected areas. Public agents charged with managing wildlife on behalf of the state have private incentives to exploit wildlife for their own use. This has been a central feature of wildlife management in Africa for at least the past thirty years; wildlife, like other natural resources such as timber and minerals, can be a valuable patronage resource (Gibson, 1999). It is well-documented, for example, that the epidemic of commercial elephant and rhino poaching in the 1970's and 1980's was in many instances linked directly to state wildlife authorities (Gibson, 1999; Bonner, 1993). While such exploitation represents an overtly illegal form of wildlife use by state agents, the management of commercial hunting represents a more subtle form of corruption. Where hunting concessions are lucrative and transparency and accountability are low, state agents are able to charge high rents for access- just as with infrastructure projects or any other valuable state-private concessionary system- and wildlife utilization becomes institutionalized as a form of shared public and private gain. The beneficiaries of this system have strong incentives to maintain monopolistic controls and not share authority over resources with other actors such as local communities. Consequently, locals remain excluded from wildlife's financial and economic benefits and their incentives will continue to be unfavourable to conservation. Importantly, there is a wide and growing divergence in conservation outcomes between the increases of wildlife populations in rural parts of Namibia over the past ten years (and the general stability of wildlife in Botswana since the late 1980's), and the depletion of wildlife outside protected areas in

²⁶ Ribot et al. (2006) note that in Nepal's community forest management program most local management units have been created in the relatively low value forests of Nepal's hill country, whereas in the higher value forests of the Terai region there has been very little devolution of forest control to local communities. Ribot (2004) generalizes this principle across decentralization case studies: "The rule of thumb appears to be for government to decentralize anything but the most valuable resources, which it invariably keeps for itself."

countries which have not devolved significant control to local landholders such as Tanzania and Zambia. Local incentives and wildlife conservation outcomes are particularly interconnected in east and southern Africa because, in the region's extensive semi-arid savannah grasslands and woodlands, the majority of wildlife is still found outside state protected areas.²⁷

A number of basic implications emerge from an understanding of these political economic dynamics with respect to support of CBNRM in sub-Saharan Africa. CBNRM is most likely to succeed where the broad governance climate is strong or resource values are relatively low and thus more likely to be devolved to local communities. This suggests that CBNRM proponents should perhaps search for 'low-hanging fruit' in the form of wildlife resources which are not particularly valuable to central management agencies, but which could be developed to provide significant value to local communities. A recent example of how progress of this type of progress could occur comes from Ghana, where ownership of wildlife (mainly rodents and small antelopes) with low commercial values to central agencies but significant use values to local consumers has been substantially devolved to community institutions (M. Murphree, personal communication).²⁸ Taking advantage of such opportunities in settings where central interests are more amenable to increased local rights enables locals to secure control over resources which may become more valuable over time as management improves.

Where wildlife is more valuable commercially in African countries, a great proportion of this value comes from the international tourist hunting industry. While a great deal of attention is paid to the tropical timber industry in the context of forest governance, and practical measures such as monitoring and certification schemes have been developed accordingly, wildlife utilization enterprises have not been accorded as much of a focus. This is beginning to change with the development of new proposals for tourist hunting certification with a particular emphasis on the African sport hunting industry (e.g. Lindsey et al., forthcoming; Baldus and Cauldwell, 2004). Efforts to improve the governance of commercial hunting have critical potential in terms of promoting more transparent wildlife use practices, but several key points should be born in mind. First, it is the incentives of state agents more than private sector operators that drive the fundamental patterns of wildlife exploitation in east and southern Africa, although there clearly are often collusive relationships. Second, certification schemes which attempt to improve transparency and accountability will encounter the same disincentives to reform that have undermined many CBNRM reform efforts. An understanding of the incentives governing existing wildlife utilization systems will be essential for such schemes' effective design.

Over the long term, there is a need for practitioners to take greater account of the link between natural resource management and macro-political processes, the reliance of CBNRM on general governance trends and dynamics, and the general futility of

²⁷ Illustrative figures are an estimated 86% of Namibia's wildlife on private and community lands (Barnett and Patterson, 2006) and about 60-75% of wildlife in Kenya outside protected areas (Barrow et al., 2000; DRSRS, 1996).

²⁸ Notably, Ghana receives high scores relative to other sub-Saharan African countries based on most measures of political accountability and corruption (Transparency International, 2006; ECA, 2005).

attempting to address CBNRM reforms in isolation from this broader political atmosphere (Murphree, 2004; 2000). This highlights the imperative of a long-term, adaptive, and flexible approach. Donor support to CBNRM in sub-Saharan Africa, which has motivated many of the key policy developments in countries such as Tanzania and Mozambique, is frequently based on technocratic approaches to policy development highlighting transferable ‘best practices’ as a way of trying to build support for reforms. It is unlikely that these technocratic analyses are an effective means of altering the political and economic motivations of many of the key policy-makers involved in reform processes. It is essential to approach political problems with long-term political strategies, which generally means formulating strategies that can take advantage of opportunities that arise as governance factors or political leadership changes over time (cf. Jones and Murphree, 2004). As many others have argued, short-term project-based approaches are unlikely to yield the desired results in this context, and substantial changes in the ways that external donor agencies or conservation organizations support CBNRM are necessary if community-based strategies are to have greater impact relative to the money spent supporting them (see Sayer and Campbell, 2004). Such changes in donor agency behaviour, however, are also constrained by institutional incentives- such as donor preferences for capital-intensive projects and low levels of adaptive learning in these agencies (Gibson et al., 2005). One relatively simple way of improving the design of CBNRM initiatives would be to pay greater attention in project development and analysis on the financial flows from natural resources in given countries and sectors; despite the central role these revenues play in natural resource management outcomes, there is very little widely available information on them, and an understanding of the key institutional incentives of different actors and interests is fundamentally limited as a result.

5.0: Conclusion

CBNRM depends on authority for natural resources being devolved from central government agencies to local institutions. Despite the popularity of CBNRM during the past twenty years as a conservation and rural development strategy, in most instances key reforms have not occurred and control over resources remains centralized. The result is that CBNRM is increasingly seen as underperforming and confidence in the ability of these approaches to realize conservation and development gains is declining.

This study has examined the political and institutional dimensions of CBNRM in order to try and understand why key devolutionary or decentralizing reforms fail or succeed in different contexts. The key factor in failed reform efforts is the incentives on the part of government actors who seek to maintain control over valuable resources for patronage and rent-seeking purposes. These incentives are more pronounced in countries where centrally controlled wildlife values are higher and governance is relatively unaccountable and non-transparent, as reflected in the variable outcomes of community-based wildlife management reforms in east and southern African countries. Because local rights to manage and capture benefits from wildlife are important for sustainable wildlife management outside protected areas in this region, these disincentives to devolve control represent a causal linkage between poor governance and negative conservation outcomes. It also represents a paradox for CBNRM, as higher value wildlife resources are most

likely to support sustained community investments in conservation when matched with local ownership, but also the resources central authorities are least likely to devolve control over.

Resolving such paradoxes will be a key to the future development of CBNRM in the region. As Jones (2004) notes, much of the dialogue over CBNRM in southern and eastern Africa has focused on technical issues relating to how policies should be designed, rather than the political means of achieving them. Donor assumptions about the reforms critical to CBNRM are often based on a false understanding of the incentives, motivations, and objectives of key actors in policy processes, leading to unproductive outcomes. New strategies for supporting CBNRM that explicitly incorporate a political economic understanding of the forces inhibiting or enabling key reforms are critical. These strategies will likely look very different from the project-based partnership models which donors and large conservation NGO's conventionally use, and indeed may not be easily adapted to the short-term log-frame conventions of aid agencies. CBNRM practitioners will thus need not only more and better analyses of the political and institutional variables which determine reform outcomes, but also new models for applying that knowledge to more effective programmatic support of CBNRM.

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