

Local Participation in Biodiversity Conservation in the Okavango Delta, Botswana

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Abstract: Local participation in biodiversity conservation has come to be heralded as the panacea to the problems of natural resource degradation in developing countries. However, the effectiveness of local participation in biodiversity conservation is not adequately measured in conservation studies. The objective of this paper therefore, is to analyse the contribution of local participation in promoting biodiversity conservation in the Okavango Delta, Botswana. This is a synthesis paper based on previous survey data collected by the author dating back to 1998. Results indicate that the Community Based Natural Resource Management (CBNRM) programme, operational in Botswana since the mid-1990s, is achieving certain biodiversity conservation objectives in some communities involved in the project in the Okavango Delta. The paper concludes that the success is a demonstration that local participation is important in the decision making process if conservation is to be achieved in rich biodiversity areas like the Okavango Delta.

Keywords: Biodiversity conservation, Community Based Natural Resource Management, Local participation, Okavango Delta

1 Introduction

Biodiversity loss is a concern of global proportions. Areas around the world that are rich in biodiversity and face threats of significant resource decline have been demarcated and named “hotspots” by some conservationists (Mittermeier et al 2000; Orme et al 2005). As a result, these areas are given special attention in terms of funding for scientific research and conservation projects. Conservation International in particular, has promoted the concept of biological “hotspots,” arguing that “focusing conservation effort on twenty-five biodiversity hotspots globally may be a valid approach for ensuring the survival of the greatest number of species” (Jepson and Canney 2001:225).

Although international organisations have attempted to collaborate with indigenous people in developing countries in biodiversity conservation, some conservation scholars and practitioners (e.g. Brandon 1997, Gibson & Marks 1995; Redford et al 1998; Terborgh 1999) still question the effectiveness and role of local people in achieving conservation. Instead, they advocate for conservation approaches based primarily on conventional methods of resource management. This perspective is problematic in that conventional approaches to resource management generally discounts, ignores, or undermines the role of local participation in biodiversity conservation (Agrawal 2004). By contrast, scholars (e.g. Berkes 1999, Sillitoe 1998) argue that local communities living in environments with high biodiversity possess knowledge and values that can play a significant role in biodiversity conservation.

Although the Okavango Delta, has not been classified as a “hotspot,” *per se*, evidently, it is one of the world’s largest and most biologically diverse wetlands. It was declared a world heritage site in 1997 to be conserved for the benefit of local communities, citizens of Botswana, and the international community (Kgathi et al 2004). However, in the last three decades, the Okavango Delta has experienced considerable resource decline, primarily due to impacts of expansion of human settlement, international tourism development and livestock production (Darkoh and Mbaiwa 2005). As the Okavango Delta faces challenges of resource degradation, local residents should be recognised as possessing a stock of wealth in terms of knowledge and skills that could be tapped for the long-term conservation of biodiversity in the area. The objective of this paper, therefore, is to analyse the contribution of local people to biodiversity conservation in the Okavango Delta.

2 Community-Based Natural Resource Management

Local participation into biodiversity conservation in the Okavango Delta is largely carried out through the Community-Based Natural Management (CBNRM) programme. The inception of the CBNRM programme in the Okavango Delta in the mid-1990s marked the beginning of local participation in biodiversity conservation. The first CBNRM project in the Okavango Delta was launched in 1995 at Sankoyo Village (Mbaiwa, 2004). Factors leading to this development included the over exploitation of natural resources, especially wildlife through illegal hunting activities by both indigenous people and safari hunting operators, the inability of the government (and its wildlife agencies) to protect declining wildlife resources; land use conflicts between wildlife managers and indigenous communities living in resource areas; and the need to link conservation and rural development (Steiner and Rihoy, 1995). With the establishment of the CBNRM project, it was assumed that local people would achieve both biodiversity conservation and improved rural livelihoods in the Okavango Delta.

The CBNRM program discourages open access resource management and promotes resource use rights for indigenous communities (Mbaiwa, 2005). It is based on the recognition that, in order to achieve sustainable development, local communities must have power to make decisions about the use of biodiversity in their local environment. The program is a reform of the previous failed “top-down protectionist” approaches to natural resource management, biodiversity conservation and development (Kgathi et al, 2004). In the Okavango Delta, the program potentially provides a tripartite “*win-win-win scenario*” because it seeks to benefit indigenous communities, government (represented by the Department of Wildlife and National Parks, DWNP), and the tourism industry. Local communities expect socio-economic benefits from wildlife through tourism, while the government expects wildlife conservation and tourism revenue, and the tourism industry expects profits from wildlife-based tourism. The mutual interest of all three groups is to derive revenue from tourism that depends on effective wildlife conservation. The assumption made by CBNRM advocates (e.g. Steiner and Rihoy, 1995) is that including local people in the decision making process may result in tourism benefits accruing to local people hence make them develop interest in conserving natural resources around them.

3 The Okavango Delta

Ngamiland, located in northwestern Botswana is 109,5000 square kilometres in area (Tlou, 1985). The most striking geographical feature of Ngamiland, indeed of the whole of Botswana is the Okavango Delta. The Okavango River and Delta are natural formations that have influenced the location of different ethnic groups in Ngamiland District, Botswana. The Okavango River owes its origin from the Cubango River in the Central Angolan Highlands. Several tributaries join the Cubango of which the major one is the Cuito River. The confluence of these two rivers at the boundary between Namibia and Angola marks the beginning of the Okavango River (Gieske, 1996). The Okavango River flows through Namibia’s Caprivi’s Strip and enters Botswana at Mohembo Village in the northwest. At about eighteen degrees south latitude, the river spreads out like a fan into several channels, lagoons, and swampy islands (Tlou, 1985) which are commonly referred to as the Okavango Delta. The Okavango Delta is one of Africa’s great wetlands (Ellery and Ellery, 1997) and in 1997 it became a globally renowned Ramsar site.

Like the Nile in Egypt, the Okavango River sustains life in an otherwise inhospitable environment (Tlou, 1985). It sustains human life, plant life, wildlife, birds, insects and various living organisms. That is, the Okavango River and its delta’s mosaic of open water, wetlands and grasslands are home to innumerable species which include 5 000 insects, 3 000 plants, 540 birds, 164 mammals, 157 reptiles, 80 fish and a countless micro-organisms (Rothert, 1997). It is also home to over 100,000 people who live within and along the Okavango of which over 95% of these people directly or indirectly depend on natural resources found in the wetland to sustain their livelihoods (Mbaiwa, 2002a).

4 Data Collection Methods

Data for this paper were derived from both primary and secondary sources. Secondary data sources consisted of articles and reports on local participation and wildlife conservation in the Okavango Delta. This included

government policy documents, consultancy reports, CBNRM project reports and other wildlife management reports. Information derived from these sources includes historical wildlife management, and the successes and failures of CBNRM projects. Primary data were derived from past and ongoing research field based surveys in the Okavango Delta dating back to 1998, some of which has already been reported in documents on tourism development and related environmental conservation issues. Additional data used in this paper was collected in 2007 from a household survey in three villages, namely Khwai, Sankoyo and Mababe.

5 Results and Discussion

This section begins by providing a historical background to resource conservation in pre-colonial Botswana. The section discusses how colonialism and post independence governments affected traditional approaches to resource conservation. The section concludes by stating that while much resource degradation has taken place due to conventional approaches, the CBNRM programme is partly an approach that aims at returning custodianship of resources to local people. This approach is beginning to achieve conservation objectives such as community wildlife policing and monitoring and low levels of illegal hunting in some of the villages where CBNRM is implemented.

5.1 Local People and Biodiversity Conservation

In pre-colonial Botswana (i.e. before 1885), biodiversity resources in the Okavango Delta were communally owned, and resource sharing was a critical cultural characteristic observed by all members of the community (Thakadu 1997; Mbaiwa 2002). Because wildlife belonged to the community, individual gains from wildlife resources at the expense of community were unacceptable. Local communities had traditional institutions headed by a village chief who was given authority by his people. People entrusted the chief with the responsibility of ensuring the sustainability of communally owned resources, including wildlife, by administering the regulations governing their use (Tlou 1995; Campbell 1995; Schapera, 1970?). Communal gains in resource use were given priority over individual gains; hence to prevent the “tragedy of the commons” problem described by Hardin (1968) was uncommon among indigenous communities of the unacceptability of short-term individual gain from the exploitation of resources. Customary rules, community norms, moral principles and institutional arrangements regulated all important rights and duties to use of biodiversity resources (Platteau, 1991). These constituted powerful means that ensured participation and co-operation. Because social rights (based on group membership) guaranteed access to biodiversity resources to cushion families against contingencies, traditional communal ownership therefore historically promoted sustainable use of natural resources.

The arrival of Europeans in the Okavango Delta led to a shift from communal resource management to maximization of personal gains from wildlife primarily through safari hunting. The European traders, safari hunters, further undermined traditional institutions of wildlife conservation and wildlife polices of the colonial government (Mbaiwa 2002). This led to drastic declines in wildlife populations in the Okavango Delta and Botswana as a whole (Tlou 1985). These factors cumulatively alienated local communities from the natural resources upon which they had previously depended for their livelihood under a system of collective rights (Darkoh 1996).

The CBNRM program heralds a partial return to the principle of community ownership from the individualistic resource norm that prevailed after the British colonised Botswana in 1885. Co-management of biodiversity resources through the CBNRM program is recognition that when local communities are involved in biodiversity management, the likelihood that they will use resources sustainably is greater than if they are not involved. This shows that there are minor differences in operational principles between the CBNRM program and the traditional system in wildlife management. For example, local people traditionally discussed conservation issues at the *kgotla* (village square where every adult could voice their opinion without hindrance) and entrust the implementation of decisions to their chief (Schapera, 1970). In [contemporary Botswana], villagers still discuss conservation issues at the *kgotla* with the chief presiding, but CBNRM CBOs have been entrusted with the implementation of decisions taken.

In the Okavango Delta, hunting of large game, such as elephant, eland, giraffe and gemsbok, was traditionally carried out in winter, while small game, such as springbok, hare and birds, were hunted throughout the year. Breeding and young animals were not hunted (Schapera, 1970). The availability of natural plant products in summer reduced the need for and intensity of hunting during this period (Thakadu 1997; Mbaiwa 2002). Seasonal hunting pattern allowed wildlife to recover when hunting was lower. (Thakadu 1997; Mbaiwa 2002). These principles have been adopted in Botswana in the form of hunting seasons that run between April and September in the Okavango Delta. In addition, modern hunting is also selective, targeting mature males rather than breeding females, and hunting occurs after annual wildlife surveys have been conducted. These surveys are used to determine the annual sustainable off-take rates in each CHA. Selective hunting and the wildlife quota systems are at the core of the CBNRM program to ensure sustainability of wildlife resources. In this regard, indigenous knowledge has been fused together with western science to promote more effective wildlife conservation.

Illegal hunting was uncommon among local communities of the Okavango Delta prior to British colonisation (Thakadu 1997). Sustainability in wildlife harvesting was partly achieved because each individual was expected to observe traditional institutions and religious practices that governed the use of wildlife resources in their local environment (Tlou 1995, Thakadu 1997). Each member of the community was also expected to act as a “game ranger”, reporting any illegal hunting activities to the chief, and heavy fines were imposed on anyone caught hunting illegally (Tlou 1985; Schapera, 1970). Illegal hunting became a problem when western approaches to wildlife conservation were introduced and traditional institutions and practices were undermined.

Local communities had a custom of classifying rare species as “royal game,” which protected them from hunting (Tlou, 1985). Related to the concept of royal game was the cultural use of totems; every community adopted a specific animal or bird as its totem, and it was a taboo to hunt or eat one’s totem (Thakadu 1997; Mbaiwa 2002). The idea of royal game and totems, therefore, led to the protection of wildlife, especially endangered species. These concepts have also been adopted in the Okavango Delta where endangered species like the rhino and kori bastard are protected from hunting. Through the CBNRM program, local communities cooperate with the DWNP by not hunting endangered species. This further illustrates concepts of effective resource management based on local institutions.

5.2 Co-management of Biodiversity Resources

The co-management of biodiversity resources between the central government and local people began with the decentralisation of land and natural resources found in it. The decentralisation process took form of the demarcation of land around Moremi Game Reserve in 1989 into Wildlife Management Areas (WMAs). WMAs were further sub-divided into Controlled Hunting Areas (CHAs). The concept of WMAs and CHAs arose from a need for conservation and controlled utilisation of wildlife resources outside national parks and game reserves. A WMA is defined as an area where wildlife utilisation is the primary form of land use, but where other types of land use, such as rural settlements, are permitted, provided they do not deplete wildlife populations. CHAs are broadly delineated and allocated according to the location of local communities for various types of wildlife utilisation, safari-hunting and photographic tourism. The DWNP uses CHAs as administrative blocks to allocate wildlife off-take quotas to communities for safari hunting purposes. For example, Sankoyo residents have been allocated NG/34 and NG/33 for safari hunting and photographic tourism purposes. Khwai has been allocated NG/18 and 19 while Mababe has been allocated NG/41.

The establishment of CHAs has made land and wildlife resources accessible to indigenous communities because they now co-manage land and wildlife together with government agencies, such as the Tawana Land Board and DWNP. Through this partnership, scientific methods, such as plant and wildlife population monitoring, and traditional knowledge, such as selective hunting of older male animals and community wildlife policing are combined in managing land and wildlife resources in the CHAs. The effect of wildlife co-management is exemplified by hunting, which is now effectively regulated locally,

whereas in the past, local communities resented top-down wildlife management mandates and engaged in illegal hunting.

5.3 Community Trusts and Biodiversity Conservation

Local communities allocated CHAs have formed local institutions, known as Community-Based Organisations (CBOs) which are registered as Trusts subject to Botswana laws. The operations of a Trust are guided by a constitution, and one of the main duties is resource governance (Kgathi et al 2004). Each Trust is governed by a Board of Trustees, composed of 10 members (Mbaiwa 2004), which manages land, wildlife resources and tourism activities on behalf of the CHA members. CBOs employ community escort guides to provide the patrol and arrest anyone found illegally harvesting resources in a community area.

The establishment of Trusts represents an organized institutional arrangement aimed at involving local people in resource management and tourism in the Okavango Delta. Such local institutions often play a significant role in achieving sustainable development, including alleviating poverty, enhancing livelihoods, empowering rural populations, and improving natural resource management (Scoones 1998). In the Okavango Delta, local institutions have been identified as being important custodians of local knowledge especially for the establishment of tourism enterprises, and they can also act effectively as intermediaries between government agencies, non-governmental organizations, safari companies and the local communities Kgathi et al (2004). As custodians of local knowledge, Trusts or CBOs ensure that local participation is not ignored in wildlife management in their CHAs. The formation of Trusts and the involvement of local communities in CBNRM has generated economic benefits, including community ownership of tourism facilities and employment and income generation. The socio-economic benefits that accrue to local communities are mainly income from the sale of wildlife quota, land rentals, ownership and running of tourism facilities like eco-lodges and employment in both safari hunting and photographic tourism facilities that local communities own or operate. It is these benefits that contribute to the development of positive attitudes of local groups towards conservation.

5.4 The Wildlife Quota System

The wildlife quota system is one of the pillars behind the success of CBNRM activities in the Okavango Delta. The Department of Wildlife and National Parks (DWNP) allocates an annual wildlife quota to these communities for tourism purposes. Wildlife quotas are decided after aerial surveys of wildlife populations are done every year. As a result, the number allocated for hunting purposes is determined by the number of species counted in that particular CHA. In 2007, communities involved in safari hunting through the CBNRM programme were each allocated 15 elephants to hunt in 2007. However, declining species such as the giraffe and sable antelope are not hunted because their numbers are considered to be small. At Khwai, Mababe and Sankoyo, household interviews indicate that the suspension in hunting giraffes and sable antelope has been accepted. This is yet another indicator on the willingness of communities involved in CBNRM to contribute to conservation.

The contribution to conservation by residents in the Okavango can further be illustrated by the acceptance by these communities to suspend the Special Game Licence (SGL) in favour of the wildlife quota system under the CBNRM programme. Until the late 1980s, the SGL was issued to citizens of Botswana like those at Khwai, Mababe and Sankoyo who depended principally on hunting and gathering of veld products to sustain their livelihoods. This licence was free and meant for subsistence hunting only. The SGL had a species list which holders were supposed to tick as hunt in order to provide feedback to the DWNP on the animals hunted. However, CSO (2004) notes that some of the licence holders did not tick the list after killing the animal in order to use the licence again next time before reaching the number specified for hunting in it. As such some holders hunted more than their licenses allowed. These problems amounted to resource decline hence the licence was suspended to usher in the wildlife quota under the CBNRM programme. Therefore, for communities to recognize that the SGL was detrimental to wildlife resources in their areas

and their acceptance of the wildlife quota system that promotes regulated, hunting in a particular season and selective hunting is an important community contribution to biodiversity conservation. Controlled hunting through the quota system is thus not a destructive method as some of the anti-hunting organizations seem to propose. It promotes both conservation and livelihoods in remote parts of the Okavango Delta.

5.5 Community Attitudes towards Wildlife Conservation

The co-management and economic benefits that local communities derive from wildlife through tourism development has led to the development of positive attitudes of local communities towards conservation of wildlife resources in CBNRM areas. To illustrate this point, in 1998 a survey showed that attitudes of Khwai residents towards wildlife conservation and tourism development were negative before the implementation of CBNRM program (Mbaiwa, 1999). At that time, household interviews showed that about 93.7% of the respondents reported that they did not play any role in policy making regarding wildlife utilization and management hence did not feel obliged to conserve the resources. About 71.6% of the households said they derived no benefits from tourism (e.g. income, employment, or improved infrastructure). According to them, only safari operators and government agencies benefited from tourism development. As such they did not see the reason why they should participate in wildlife conservation or how they should benefit from tourism development (Mbaiwa, 1999). However, two years after the CBNRM program was implemented and tourism benefits from wildlife resource use began accruing to the community, local attitudes towards wildlife conservation and tourism development began to change. In the 2001 survey, about 60.9 % of the households were found to support the existence of wildlife resources in their local environment. They noted that they now have a role to play in the decision-making process regarding wildlife use in their CHA through CBNRM. Similarly, 84.2% supported tourism development in their area as they now derive economic benefits from it, such as meat, income, employment and decision making (Mbaiwa, 2002).

The 2004 survey of all hunting CBNRM programs in the Okavango found that 93.3% of the 223 households interviewed in nine villages said it is very important to conserve the wildlife resources around their villages. Reasons and comments that they gave include: “*wildlife is a tourist attraction that creates employment opportunities for us; wildlife is a source of income; and, wildlife make the environment beautiful and has improved tourism in the Okavango which in turn has become a source of our livelihoods*”. The change of people’s attitudes and the decline of illegal hunting in CBNRM areas indicate that when incorporated in decision-making indigenous participation can contribute towards wildlife conservation by inhibiting uncontrolled hunting.

5.6 The Low Levels of Illegal Hunting in CBNRM Areas

Illegal hunting and over-harvesting of wildlife resources is one of the main problems that the CBNRM program is aimed at addressing (Mbaiwa, 2004). After almost 17 years of the existence of the CBNRM program in the Okavango Delta, illegal hunting rates in CBNRM areas is lower than in non-CBNRM areas (Table 1). Informal interviews with DWNP officials in September 2007 confirmed that illegal hunting in CBNRM has decreased when compared to pre-CBNRM time. The low levels of illegal hunting in CBNRM areas are critical for effective wildlife conservation.

Table 1: Reported Cases of illegal hunting in the Okavango Delta

Area	1998	1999	2001	2002	2003	2004	2005	2006
CBNRM areas	4	0	0	0	1	2	2	1
Non-CBNRM areas	23	9	12	13	12	12	10	5
Total	27	9	12	13	13	15	12	6

Source: Arntzen et al (2003), DWNP Annual Illegal Hunting Records (1998-2006)

5.7 Harvesting of other Resources

Thatching grass is one of the main natural resources harvested by communities in the Okavango Delta. The grass is harvested to thatch huts and for sale to tourism lodges in the Okavango Delta. At Khwai, Mababe and Sankoyo, communities through their CBNRM project have adopted harvesting practices that promote the conservation of this grass in their respective areas or CHAs. Some of these practices which household gave during interviews include: harvesting the grass when it dry; harvesting the grass during the right season after the chief has declared it at the kgotla, allowing non-communities members to harvest grass with a permit and having to leave some of the respective village; harvesting that which is enough for use by the individual household. In relation to those who illegally harvest thatching grass in their area without permission of the Board of Trustees, several actions are taken against them. These include confiscating the grass from the individual by the Community Escort Guides who in turn handover the culprit to the chief for prosecution. Depending on the seriousness of the case, the chief has powers to sentence the individual to a jail term or make them pay a certain amount of money. This shows that communities have since developed conservation ethics and are able to implement such regulations in their CHAs. In this regard, they positively contribute to conservation of resources in the Okavango Delta.

6 Conclusion

Local communities in the Okavango Delta have a history of sustainable use of wildlife resources. As such, the inclusion of local people in resource management practices has the potential to promote biodiversity conservation. The inclusion of local people in biodiversity conservation should cover all aspects of the decision making process. This includes participation in policy formulation, project implementation and resource monitoring. Local communities were historically successful in managing natural resources in their areas. These practices were affected by the introduction of conventional approaches to resource management. However, the CBNRM programme as applied in the Okavango Delta provides an example on which resource degradation can be reversed. It involves the participation of local people in biodiversity conservation while at the same deriving economic benefits from such resources. The fact that local communities derive economic benefits from resources around them and improve their livelihoods has made communities feel obliged to conserve these resources.

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