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Review

Tourism and biodiversity conservation: the case of community-based natural resource management in Southern Africa

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Abstract

This review analyses the potential of tourism to contribute to biodiversity conservation with particular reference to developing countries. In the last quarter of a century, there has been a global concern about the extent of biodiversity decline. Biodiversity decline is partly a result of the overutilization of resources by local communities who live in resource-rich areas. This review makes use of published and unpublished articles and reports on community-based approaches to biodiversity conservation. Focus was paid to the role that community-based or integrated approaches play in the promotion of biodiversity conservation. The review indicates that where community-based tourism projects are being undertaken, they have mixed results. That is, some projects have collapsed, while others are succeeding in generating the expected economic benefits such as income, employment and funds used for community projects. The Southern African countries of Botswana, Namibia and Zimbabwe have been implementing community-based tourism projects for almost two decades. Economic benefits from tourism contribute to poverty alleviation and improved livelihoods. In the process, local communities have developed positive attitudes towards biodiversity, and hence are more inclined to use such resources sustainably. The paper concludes that tourism could serve as a potential tool for stimulating biodiversity conservation and rural development not only in developing countries but also in other similar social–ecological contexts.

Keywords: Biodiversity, Conservation, Community-based natural resource management, Integrated approaches, Rural development

Review Methodology: We used published and unpublished academic articles and reports, which address the role that local communities in developing countries have adopted in community-based approaches to biodiversity conservation. Data obtained for the review focused on the role that tourism play through ecotourism and community-based approaches in achieving biodiversity conservation in nature-based tourism destinations. Where particular examples of community-based approaches to biodiversity are given (e.g. Botswana), government policy documents, consultancy reports, CBNRM project reports, other tourism development reports and academic articles were used as data sources. Attention was given to the successes and failures of community-based approaches in achieving biodiversity conservation. Data were also obtained from on-going research on CBNRM development in Botswana and Southern Africa.

Introduction

Tourism is described as one of the fastest growing sectors in the world, and a very important justification for

conservation [1]. In this paper, we review the role of tourism development in biodiversity conservation. Our focus is on the role played by community-based natural resource management (CBNRM) or community-based tourism on conservation. The loss of biodiversity, particularly in developing countries, is a global concern. It is observed that plants and animals upon which poor people depend are fast disappearing [2]. Triggered by poor policy

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implementation and local people's exclusion from their management, an estimated 4160–10 000 medicinal plants are already endangered by habitat loss or overexploitation [3] by local communities (perhaps as a result of certain pressing demands); and many more have become hard to find in places where rural families traditionally collected them. This decline prompted conservationists to demarcate and name some areas that are rich in biodiversity but facing threats of significant resource decline as 'hotspots' [4–6]. Nonetheless, biodiversity decline in these 'hotspots' in many developing countries is associated with the failure of conventional approaches to adequately address resource decline [7]. Conventional approaches to conservation, which connote modern and western ways of natural resource management, are generally top-down and centralized, and often exclude local communities in developing countries in the decision-making process of natural resource (NR) conservation. Where it is effectively implemented, a community-based approach to NR conservation – as against the conventional models – thus enhances the protection of biodiversity and promotes tourism development.

Although biodiversity decline is prevalent in developing countries, some of these countries (e.g. Botswana, Kenya, Tanzania, Belize, Peru and Nepal) have since become key nature-based international tourism destinations. As such, tourism is a significant source of foreign exchange revenues in these countries. For example, in Botswana, tourism is the second largest economic sector, contributing roughly 5% to the country's Gross Domestic Product [8]. Tourism is a primary source of foreign exchange earnings in 46 out of 50 of the world's least developed countries [9]. Although tourism plays such a significant role in the economies of many countries in the developing world, its role in achieving biodiversity conservation is not systematically documented. The objective of this review, therefore, is to analyse the role that tourism plays in achieving biodiversity conservation. Thus, the paper will provide some insights into community-based tourism as a possible tool for achieving biodiversity conservation.

Exploration of Pertinent Conservation Issues

Underlying assumptions and debate on community-based approaches

A community-based or integrated approach to development has been the leading theme of biodiversity conservation for the last 20 years. The integrated/community-based approach is promoted by a wide spectrum of global actors, including conservation non-governmental organizations, the World Bank and the United Nations. These approaches were initially perceived as the solution to biodiversity conservation problems [10–13]. As such, the community-based approach

to biodiversity conservation has made significant in-roads into conservation practice. The approach is presented as a 'win-win' scenario, which could conserve biodiversity, empower local communities and bring economic development. Twyman argues that in the present era, participatory and community-based approaches are heralded as the panacea to problems associated with natural resource management initiatives and biodiversity conservation world-wide [14].

Generally, the loss of biodiversity is blamed for the failure of conventional approaches in developing countries to address the problem of resource decline [7]. Given the inadequacy of conventional approaches in achieving effective conservation of biodiversity, biologists, policy-makers and natural resource managers are seeking new approaches to address the problem. In the last two decades, international organizations have since attempted to collaborate with local people to manage biodiversity in areas of high biodiversity. Such collaborations have been driven by the paradigms of sustainable development and integrated conservation and development projects [15]. They include market-based approaches to biodiversity conservation [16] such as ecotourism [17], non-timber forest product extraction and community-based natural resource management [18]. These new approaches are implemented as programmes that decentralize resource use to communities living in resource areas. Local communities are expected to participate in tourism development and conservation in their local areas. The assumption is that when local communities derive economic benefits from community-based tourism projects, they would be obliged to conserve biodiversity resources. Most of the community-based tourism projects are nature-based and carried out in and around protected areas [19]. Nature-based tourism managed by local communities is thus assumed will result in the conservation of natural resources and increased development [20]. Nature-based tourism is thus perceived to have the potential to enhance global biodiversity conservation by providing alternative livelihood strategies for local people and this may alleviate poverty in and around protected areas [13, 21–27].

The effectiveness of community-based approaches or integrative approaches has been questioned by some scholars and practitioners [28, 29]. For example, Coria and Calfucura argue that in practice, community-based tourism approaches have failed to deliver the expected benefits to local communities because of a combination of factors which include: shortages in the endowments of human, financial and social capital within the community, lack of mechanisms for a fair distribution of the economic benefits of ecotourism, and land insecurity [20]. In this regard, critics of community-based approach have instead advocated for a return to 'a park model' of conservation under government control [30]. These scholars advocate a preservationist approaches to biodiversity conservation. They argue that community-friendly initiatives had failed

to stem the loss of biodiversity [29, 31]. They also argue that community-based approaches do not empower local people, but instead extend the powers of states and markets into rural communities [32–34]. Although this is the case, the preservationist and park model approach to biodiversity has in most developing countries alienated local communities from conservation and generally discounts, ignores, or undermines the relevance of their participation in managing biodiversity effectively. Local communities are characterized as primary perpetrators of environmental degradation [35]. In contrast, advocates and scholars of community-based approaches argue that local people with traditional ecological knowledge and practices can and must play a significant role for biodiversity conservation to be effective [36–38]. To these scholars, the exclusion of local communities from biodiversity conservation in the contemporary world is problematic because ignoring the interests, knowledge and practices of local people and restricting their participation will almost certainly ensure failure of biodiversity conservation efforts [39]. Their exclusion from decision-making and management of natural resources within their immediate locality has led to some forms of resistance and degradation of biodiversity [40].

Case Studies

Botswana's CBNRM programme

In Botswana, community-based tourism has been carried out through CBNRM since the mid-1990s. Community-based tourism is carried out in concession areas or land units known as controlled hunting areas (CHAs). CHAs are zoned for consumptive and non-consumptive tourism uses by communities. Most communities either sub-lease their concession areas to safari tourism companies or directly run the tourism business on these lands. Mbaiwa and Stronza argue that after almost two decades of implementation, employment is the main benefit that has improved rural livelihoods in nature-based tourism destination [41]. On average, a total of about 80 people are often employed in community-based tourism projects from villages with a total of less than 3000 people. Those employed in community-based tourism enterprises financially support their families, thereby raising the standard of living in the household. They use their wages and salaries from tourism to buy food, build houses, buy toiletries and clothes, support parents and help in meeting expenses associated with children's education [41].

The various communities involved in CBNRM generate income for their communities from tourism [42, 41]. On average, communities generate about BWP2.5 million or US\$357 000 annually [41]. In total, studies indicate that in 2008, while safari or trophy hunting generated BWP7 382 097, photographic tourism generated only BWP2 374 097 in community tourism projects in

Botswana [43]. Aggregated data provided [43] further indicate that between 2006 and 2009, safari or trophy hunting by CBOs generated BWP33 041 127, and photographic tourism generated only BWP4 399 900. Tourism revenue that accrues to communities is derived from subleasing of the hunting area, sales of wildlife quota (fees for game animals hunted), meat sales, tourism enterprises (e.g. lodge and campsite) and camping fees and vehicle hires. These scholars argue that financial benefits accrue to the particular community, but finally end at household level as wages to individual employees and through social services or benefits. Income from tourism development accrues to individuals, households and the community at large when it is finally distributed. Incomes that accrue to communities are sources of funding for a number of social projects. These include assistance in funerals, support for local sport activities, scholarships, transport services, building of water standpipes, construction of houses for the elderly and needy, assistance to orphans and disabled, and provision of communication tools such as television and radios.

The economic benefits that accrue to communities from tourism are directly linked to the development of positive attitudes towards biodiversity conservation and related benefits of conservation by local communities. For example, Mbaiwa argues that illegal hunting rates in areas where communities practice wildlife tourism has been found to be lower than those areas where there are no community-based tourism projects [8]. The low levels of illegal hunting in community areas involved in tourism are critical for effective wildlife conservation. The reduction in illegal wildlife take-off in community areas suggests a positive relationship between tourism and conservation. As a result, when local communities derive economic benefits from tourism in their areas, they begin to put a higher economic value on natural resources around them and become obliged to conserve them. Some authors argue that successful wildlife conservation is an issue of 'who owns wildlife' and 'who should manage it' [44]. If local people view wildlife resources as 'theirs' because they realize the benefits of 'owning' wildlife resources, and understand that wildlife management needs to be a partnership between them and the government, then there is a higher potential for them to conserve wildlife species in their areas. Studies (e.g. [41, 42, 45]) have shown that since communities derive economic benefits from tourism in their respective concession areas, they now see the need to conserve biodiversity resources because community tourism projects rely on them. In other words, communities are now able to link biodiversity resources to tourism and improved livelihoods.

The decrease in illegal hunting is associated with an increase in populations of some wildlife species in community concession areas. Arntzen *et al.* note that some groups of giraffes and impalas were daily sighted at Sankoyo community, and also at Khwai where giraffes were spotted on a daily basis [41]. Previously, these

species were not easily cited in community concession areas. Although the extent to which CBNRM generally contributes to ecological sustainability (through conservation and ultimate improvement of the natural resource base) is still unclear, indications are that the factors that were once seen as creating negative impacts on wildlife seem to have taken a positive outlook [46]. In some focus group discussions conducted by Arntzen *et al.* with members of the Sankoyo Board of Trustees, participants pointed to a decrease in poaching, increased appreciation for the value of wildlife, improved relations between one-time foes (Department of Wildlife and National Parks anti-poaching units and other officials on the one hand and communities on the other hand) and reduced wildlife–human conflicts in both arable and small stock farming. Participants also noted that Sankoyo community members drove a group of elephants out of arable fields, by shooting in the air, rather than killing the whole herd as it would have in the past. Arntzen *et al.* thus conclude that a general agreement does exist among stakeholders that poaching has gone down since 1999 in the Sankoyo area and that people’s attitude towards wildlife is now more positive, because they see the benefits of wildlife utilization and conservation, especially among the younger members of the community [44].

Zimbabwe’s CAMPFIRE programme

Before Zimbabwe went into political and economic instability, the community-based approach known as the communal area management programme for indigenous resources (CAMPFIRE) launched in 1986 proved to have positive results on biodiversity conservation. Child and his colleagues argue that the idea of CAMPFIRE came about as a result of resource degradation in rich biodiversity areas of Zimbabwe. This decline was blamed on rural communities for their failure to use biodiversity resources found in their local environment sustainably. As a result, in the 1980s, international conservation agencies such as the International Union for Conservation of Nature (IUCN) argued that one of the factors that cause resource decline in Zimbabwe was the exclusion of rural communities from biodiversity management. The exclusion of rural communities made local communities antagonistic to conventional wildlife management approaches and this led to the unsustainable use of biodiversity resources such as poaching of game animals. This further buttresses James Scott’s viewpoints on the negative role of political exclusion of community people in natural resources conservation management [39]. In order to minimize the decline in natural resources, therefore, CAMPFIRE was adopted to provide an opportunity for rural participation in biodiversity resource utilization and management particularly wildlife. The programme was to be achieved through consumptive wildlife tourism, with local communities being at the forefront of all the tourism projects.

After almost two decades of implementation, CAMPFIRE generated social benefits, which in turn made rural communities to have a desire to promote biodiversity conservation. These benefits included the countrywide acceptance of the approach as reflected in a total of 23 districts that established tourism projects at the time [47]. It was also noted that the membership of the CAMPFIRE Association had also increased to 52 of Zimbabwe’s 57 Rural District Councils in the last 10 years. Economic benefits from CAMPFIRE include an annual increase in revenues in safari hunting to the tune of US\$2 million [47]. Between 1989 and 2001, CAMPFIRE generated a direct income of over US\$20 million, with an economic impact of US\$100 million. The revenue generated from CAMPFIRE was re-invested in community projects such as building schools in rural areas and installing boreholes to provide water for both human beings and livestock. Revenue generated from CAMPFIRE was devolved to participating communities at household levels. Some scholars also indicate that by the late 1990s, an estimated 90 000 households (630 000 people) benefitted from CAMPFIRE revenue. Revenue obtained through CAMPFIRE was also reinvested in the construction of lodges [48]. Child *et al.* note that at least 12 high-end tourism lodges were developed in communal areas with the funds generated through safari tourism hunting. These lodges provide employment to people in rural areas of Zimbabwe [47].

In their review of CAMPFIRE activities, Child *et al.* noted that the programme resulted in socio-economic and environmental benefits in rural areas where it is implemented. The environmental benefits derived from CAMPFIRE include the protection of an area of wild land roughly equivalent in extent to the Parks and Wildlife Estates of Zimbabwe (i.e. some 50 000 km²). There is also an increase in wildlife population in areas reserved for safari hunting. In the 10 years since its inception, wildlife populations have increased by about 50%, with elephant numbers doubling from 4000 to 8000 in CAMPFIRE areas [47]. The increase in the elephant population in CAMPFIRE areas challenges the assumption and the popular belief by anti-hunting groups that consumptive tourism leads to a decline of wildlife species. Instead, consumptive tourism as carried out based on sustainability principles has become one of the land-use options that can promote the sustainability of wildlife species in Zimbabwe. CAMPFIRE was also recognized for having reduced or contained veld fires in various districts particularly Chiredzi, Chipinge and Gokwe North. In addition to its achievement, CAMPFIRE also led to the reduction of land use conflicts between agricultural production and wildlife management. Poaching was also minimized, thus resulting in reduced levels of illegal wildlife off-take [47]. These environmental benefits suggested that CAMPFIRE was an effective strategy that promoted the sustainable harvesting of wildlife species through tourism development. Overall, the CAMPFIRE story indicates that

tourism development has the potential to promote biodiversity conservation.

The achievements of the CAMPFIRE thus suggest that despite the various challenges faced by community-based approaches, they (the approaches) do have a role to play in environmental conservation. Elsewhere, it is argued that CAMPFIRE is a long-term programmatic approach to rural development that uses wildlife and other natural resources as a mechanism for promoting devolved rural institutions and improved governance and livelihoods [45]. The cornerstone of CAMPFIRE is the devolution of rights to benefit from, dispose of and manage natural resources. In addition, Zimbabwe's CAMPFIRE also shows that it is possible to adopt and implement some sustainable tourism programmes in nature-based tourism destinations. CAMPFIRE as a community-based approach shows that tourism development has a role to play in promoting the well-being of local people, environmental conservation and the participation of local people in the decision-making process that concerns their lives and environment [45].

Namibian's Conservancy System

In Namibia, tourism has been developing rapidly since the country's independence in 1990 [49]. Tourism development in Namibia is also taking place in the rural areas where the majority of poor people of Namibia live. As a result, CBNRM through the conservancy system is used as an approach to achieve community involvement in tourism in the country. The conservancy approach is based on the assumption that if a resource is valuable and landholders have the exclusive rights to use, benefit from and manage the resource, and if the values derived from this resource are competitive with and/or exceed that of other land uses, communities and land users are likely to use resources sustainably [50]. This assumption falls within the general CBNRM framework as practiced in Eastern and Southern Africa. The conservancy approach aims to provide communal area residents with rights over wildlife and tourism and incentives to manage wildlife and wild habitats sustainably [49, 50]. To facilitate the conservancy system, the Namibian Government devolved management authority over wildlife to communities. As a result, the conservancy system provided the institutional mechanism for government to devolve rights to a defined group of communal area residents.

Studies (e.g. [50–54]) indicate that prior to the adoption and implementation of the conservancy system in Namibia, there was a constant decline in natural resources, especially wildlife species. In the Kunene communal region located in north-west Namibia there was a major reduction in wildlife numbers prior to the introduction of the conservancy system [50]. For example, by 1982, the elephant population had been reduced to about 250 from an estimated 1200 in 1970s. Black rhino numbers had

been reduced from an estimated 300 in 1970 to about 65 animals. All other large mammal populations declined by 60–90% [51]. The reduction in wildlife numbers was a result of a combination of factors such as drought, heavy poaching by local people, government officials and the South African security forces [50]. In the Caprivi communal area, Red lechwe declined from around 12 000 in 1983 to around 1100 in 1994, partly because of poaching, and giraffe and wildebeest disappeared from East Caprivi in the 1980s [52]. Local perceptions and attitudes towards conservation and conservation officials were described as negative and hostile by the 1990. For example, some authors note that there was a strong resistance to conservation officials in Caprivi, such that in one incident a postal official was shot at on being mistaken for a conservation officer [53, 54]. Attitudes of local communities can thus be described to have been negative towards wildlife conservation and wildlife managers. As a result of the negative attitudes, wildlife disappeared from the former Ovamboland area north of the Etosha National Park, and there were also sharp declines in other regions [55]. This shows that wildlife numbers were in serious decline in communal areas prior to the introduction of the conservancy.

Decline in wildlife numbers is also reported in freehold farmers prior to the introduction of the conservancy system. For example, in the early 1960s, wildlife numbers, including species such as the endemic mountain zebra, were declining [50]. Farmers viewed wildlife as competitive to livestock and therefore a cost rather than a benefit. During this period, wildlife resources were state owned and farmers had no control over it. Prior to Namibia adopting the conservancy legislation, wildlife were considered to be pests and competition to subsistence agricultural livelihoods [53, 54, 56]. However, in 1974, legislation was passed giving freehold farmers 'ownership' over certain species of game and the right to obtain permits to carry out various forms of hunting on their land. In addition, farmers could sell, capture and relocate wildlife in terms of the new provisions [50]. Studies (e.g. [57–59]) have shown that over time, many freehold farmers began to view wildlife in a new light and began to maintain wildlife on their land because of its commercial value. The new legislation now offers farmers the opportunity to develop wildlife as a sustainable income generating resource. As a result, the wildlife on freehold farmland increased by more than 80% between 1972 and 1992, the number of animals rising from 699 227 to 1 194 042 [60]. There was also an increase in the distribution of different species and the reintroduction of certain species to districts where they formerly occurred, leading to an overall increase in the diversity of species on freehold land. Gradually, a wildlife industry developed on freehold farmland based on consumptive uses such as sport hunting, culling for meat, trophy hunting, and live sale, and on non-consumptive uses such as photographic tourism [57, 61]. By 1992, the wildlife industry had

become a significant part of the Namibian economy contributing more than US\$5.6 million [60].

Results indicate that almost a decade after the conservancy system was adopted in Namibia, wildlife population trends indicate that wildlife numbers have recovered in conservancies in the north-western and north-eastern parts of Namibia in the last 20 years [50, 56, 58]. In the north-west, springbok, oryx and mountain zebra populations have recovered from severe drought and illegal hunting in the early 1980s [50]. These increases have been confirmed by aerial censuses of the wetlands and floodplains of the Caprivi in August 2004 and September 2007. Another measure of conservation success is the extent to which game animals can be translocated into communal area conservancies with sufficient confidence that the local communities will protect the wildlife [50]. Namibia is the only country in the world where black rhino are being moved by government into communal areas. The status of large predators an indicator of the health of wildlife populations in Namibia's conservancies, as a result, there was a remarkable recovery of the 'desert' lions in the north-west between 1995 and 2007 in both numbers and range [50]. The increase in the number of predators indicates a good level of health of the ungulate prey base. Jones also notes that populations of cheetah were also reported to have stabilized in recent years, while leopard have increased, with numbers of all predators being well above pre-conservancy levels. In east Caprivi conservancies, the hyena population appears to be stable while leopard and wild dog are increasing. Weaver and Petersen [56] argue that community recognition of the value of wildlife in Namibia's conservancies has led to a marked reduction in poaching, while the introduction of grassroots wildlife management practices (i.e. development and maintenance of wildlife water points, dedicated wildlife production zones, reintroduction of game to facilitate faster recovery rates, etc.) have precipitated massive recoveries of wildlife populations in large communal regions of Namibia. Such recoveries have been documented in Caprivi, Nyae Nyae, and the entire northwestern Namibia, where annual game counts since 2000 have shown increasing population trends.

The number of people participating in conservation projects in Namibia has increased in the last 12 years. This indicates a willingness of local people to participate in tourism development through the CBNRM programme so as to improve their livelihoods and achieve biodiversity conservation. In late 1990s, there were only four conservancies, this number increased to 50 conservancies in 2010 [62]. The 50 conservancies cover nearly 12 000 000 ha of land and encompass more than 2 30 000 community residents. These figures represent 14% of Namibia's landmass and 13% of its population, respectively [56]. Of the 30 of the 50 registered conservancies are either adjacent to national parks or in key corridors between them. Cumulatively, these 30 conservancies

provide more than 60 000 km² of wildlife compatible buffer areas around the existing national park system [56]. The availability of such corridors and dispersal areas is particularly important for large mammals such as elephants whose seasonal movement patterns require extensive tracts of land in Namibia's arid to semi-arid habitats [63]. Protected areas, not only in Namibia but also in most of the developing world, face a challenge of potential conflicts along park borders with communal people. Land uses of park neighbours often conflict with park objectives of conservation. As a result, CBNRM or the conservancy system in Namibia has successfully created incentives for neighbours to practice compatible land uses. Conservancies, which in many areas now manage concessions in adjacent parks to maximize community benefits in creating such incentives [62, 56, 50]. In several areas, adjacent to conservancies, community forests and national parks are now working together in joint management forums such as the Mudumu North Complex that allow landscape level management and planning. The advantages of such collaboration include more effective management of mobile wildlife populations, improved monitoring and land-use planning, and more effective anti-poaching activities and fire management [62, 50].

Some of the initial building blocks towards biodiversity conservation in rural areas include the positive changes of attitudes by local people towards natural resource utilization and management [64]. Since the implementation of the conservancy system, there has been a change of attitudes of local communities towards conservation especially towards wildlife in conservancy areas [56]. The income generated by trophy hunting, combined with other forms of wildlife use (harvesting for own-use meat, sale of live game and non-consumptive tourism), and has thus altered this situation by demonstrating that wildlife can be a valuable community resource. This therefore is an achievement for biodiversity conservation in Namibia.

Positive results leading to improved biodiversity conservation in conservancies is largely a result of tourism benefits that freehold farmers and local communities derive from tourism development in their respective areas. For example, after a decade of implementing the conservancy approach in communal areas, overall results indicated that income generated by the CBNRM in 2009 was N\$42 481 015 (US\$5 664 135), consisting of N\$25 919 349 (US\$3 455 913) in direct income to conservancies, N\$9 102 510 (US\$1 213 668) in non-cash income to conservancies and N\$7 559 156 (US\$1 007 887) in income from other CBNRM activities (e.g. harvesting and sale of indigenous plant products) [50]. This is also confirmed by NASCO, which notes that the total income from conservancies increased from about N\$600 000 in 1998 to N\$45.8 million in 2010 [58]. The contribution of Joint Venture Partnerships (JVP) tourism to conservancies was close to N\$20 million (US\$2.6 million) and trophy hunting contributed N\$5.7 million (US\$760 000). Of the non-cash income to conservancies, the value of game

meat produced through activities such as trophy hunting and own-use hunting was close to N\$5 million (US\$666 666). Community forests generated more than N\$500 000 in 2009 [50]. The most significant cash benefit to individual people living in a conservancy comes in the form of direct employment in positions that have been created through CBNRM, most of which did not exist in these poor communities prior to the start of the CBNRM programme [50]. Other authors affirm that income from wildlife-based tourism from the trophy-hunting revenues are being returned as cash directly to conservancy committees, who in turn, use the income to pay salaries of community game guards and other conservancy staff members who carry out conservancy wildlife management policies and plans [56, 58]. This income is allowing conservation activities to be conducted at the grassroots level, and facilitating involvement and ownership of conservation activities by the broader community. The exercise of responsibility, regaining of some control over wildlife and wanting wildlife for its existence value, appear to have provided sufficient incentive for many residents of communal areas to conserve wildlife resources in their local environment. Local leaders in communal areas have also been keen to see the re-introduction of wildlife that had disappeared. Often it is the older people who place the most intrinsic value on wildlife, while younger people are more interested in the jobs and income that can be derived from wildlife. In this regard, people living in communal lands in Namibia are not driven by financial incentives alone but by other factors such as control or ownership of wildlife resources in their local areas.

Conclusion

The effectiveness of tourism through community-based approaches like CBNRM in achieving biodiversity conservation has mixed results. For example, some of the CBNRM projects in the Okavango Delta have collapsed while others have succeeded and have significantly benefited participating villages economically and in the conservation of natural resources [62]. Some scholars have also argued that community-based approaches and programmes are not wholly failures [62, 63]. Those that fell short did so for reasons that are now understood [63, 21, 64–67]; some projects remained essentially protectionist: seeking to sever rather than maintain local access to natural resources. In addition, some projects were designed and imposed by outsiders to meet pre-defined goals, with little local control. The development components compensated local peoples' losses to some degree, but the benefits and degrees of engagement were generally insufficient to counter local resentment and opposition, and often accrued inequitably adding to perceived injustice.

Studies in Botswana, Namibia and Zimbabwe indicate that community-based tourism programmes contribute



significantly to biodiversity conservation. For example, in Botswana, the low levels of illegal hunting in community areas involved in tourism are critical for effective wildlife conservation. The reduction in illegal wildlife take-off in community areas suggests a positive relationship between tourism and conservation [65, 41, 44]. Child *et al.* argue that environmental benefits derived from CAMPFIRE in Zimbabwe include the protection of wild land roughly equivalent in extent to the Parks and Wildlife Estates of Zimbabwe [45]. Wildlife populations (particularly those of elephants) in CAMPFIRE areas have also increased in 10 years of its inception. CAMPFIRE is recognized for having reduced or contained veld fires in various districts. CAMPFIRE is acknowledged for its role in the reduction of land use conflicts between agricultural production and wildlife management. It is also acknowledged for minimizing poaching or the illegal wildlife off-take in CAMPFIRE areas. In Namibia, research has shown that over the years, many freehold farmers now view wildlife in a new light and are beginning to maintain wildlife on their land because of its commercial value [56]. The wildlife on freehold farmland increased by more than 80% between 1972 and 1992 [60]. There was also an increase in the distribution of different species and the reintroduction of certain species to districts where they formerly occurred, leading to an overall increase in the diversity of species on freehold land. Wildlife population trends now indicate that wildlife numbers have recovered in conservancies in the north-western and north-eastern parts of Namibia in the last 20 years [58]. These increases have been confirmed by aerial censuses of the wetlands and floodplains of the Caprivi in August 2004 and September 2007 [50]. Since the implementation of the conservancy system, there has been a change of attitudes of local communities towards conservation, especially towards wildlife in conservancy areas.

In the case of Botswana, Zimbabwe and Namibia, tourism, as embarked upon through community-based projects has proved to have the potential to positively contribute to biodiversity conservation. This is partly because of the direct and indirect economic benefits that local communities derive from tourism through the CBNRM programme. Such benefits have improved local livelihoods in these villages [41]. Economic benefits from community-based tourism projects indirectly make local people to become interested in promoting biodiversity conservation. That local communities participate in biodiversity conservation demonstrates local people's recognition of the link between conservation, tourism and improved livelihoods (e.g. [42, 45]). As such, local communities often feel obliged to observe the sustainable use of biodiversity resources in their respective areas when they derive economic benefits from them. As such, this implies that tourism benefits are a pre-requisite to biodiversity conservation by local people in tourism destination areas.





Finally, that some of the community-based tourism projects have resulted in positive economic benefits to

local communities who in turn promote biodiversity conservation downplays criticisms by scholars (e.g. [68, 31, 29]) who argue that community conservation programmes are failing to achieve the goals of conservation and rural development. In addition, the positive revelations in the case studies of Botswana's CBNRM, Namibia's Conservancy and Zimbabwe's CAMPFIRE suggest that it is erroneous to make a sweeping generalization on the performance of the community development projects around the world and thus describe them as having failed. Although some writers have strongly argued that community development and conservation projects need to be judged individually based on the political, social and economic factors in particular areas [66, 69], it is also necessary for conservation policy instruments to recognize the importance of socio-cultural dynamics of the people in the drive towards biodiversity conservation and rural development in general [70].

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