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The ambiguous relationships between biodiversity, its conservation and poverty alleviation are the subject of much discussion (Billé et al., 2012). While clear causal links have yet to be proven, evidence is starting to emerge from the field that supports the thesis of a possible synergy between biodiversity conservation policies and the fight against poverty and inequality.

The Namibian Community-Based Natural Resources Management (CBNRM) programme provides an interesting example of the ongoing promotion since the 1990s of participatory approaches to biodiversity management in southern and eastern Africa (CAMPFIRE in Zimbabwe, ADMADE in Zambia, NRM in Botswana, group ranches and conservancies in Kenya, etc.).

Namibia, with its population of about 2 million, has only been independent since 1990 and it continues to suffer today from the legacy of South African occupation. During South African rule almost all of the apartheid laws were imposed in Namibia (the black population was prohibited from property ownership, there was residential segregation and Bantustans were created, etc.). Despite a per capita income of 4,700 US dollars which places Namibia in the World Bank’s group of upper middle income countries, rural poverty remains high (27% in 2010, compared to urban poverty of 9% and an overall national level of 19.5%) and inequalities in the country are among the world’s highest, with a Gini coefficient of 0.6 in 2010 (the world average was 0.39 in 2007).

In this context, and based on a rich, diverse and endemic flora and fauna, the new democratic government has for 20 years tried to promote sustainable development that would simultaneously reduce poverty and inequality.

**Devolution of use rights over flora and fauna**

During the South African occupation, apartheid laws expropriated almost all of the black population’s rights of ownership and their use of land and natural resources. In 1990, around 4,000 white farmers privately owned 44% of the land in Namibia and were entitled to harvest wildlife on it, while communal lands (which represented 41% of the territory) were populated by the majority of the black population (more than 1.5 million people) and remained the property of the South African government.

On communal land, management and use rights over flora and fauna remained the prerogative of the South African administrator. Faced with a total lack of rights over land and associated resources, poor rural communities were often forced to hunt and harvest plants illegally to survive, which led to rapid degradation of biodiversity (a situation that had already been aggravated by the independence war and drought). For example, in 1970 there were 300 desert elephants in the West of the country, a figure that was reduced to 70 individuals by 1982 (Long and Jones, 2004). On the contrary, on the private land owned by white...
Reducing inequalities

farmers, wildlife abundance increased by 80% between 1972 and 1992 (Barnes and Jäger, 1996).

Two laws were enacted to solve this situation. The first, known as the Nature Conservation Ordinance Amendment Act, was implemented in 1996 and allowed rural communities living on communal lands to create conservation areas (known as conservancies) where the community manages natural resources. Once a conservancy has been created and officially registered by the State, the community obtains rights of management and conditional use of the fauna and flora present on its territory. Specifically, the community receives hunting quotas that it can use at its discretion. To be recognized as a conservancy, a community must define a geographical area (with GPS-defined borders), agree on a constitution (defining the institutional rules of operation) and a list of members, elect an executive committee and draft a natural resources management plan for the area, and vote on it, as well as a distribution plan for the generated income. The second law to be enacted was the Communal Land Reform Act of 2002, which further devolved land use rights to these conservancies that now control the allocation of land leases in their territory (rights of leasehold) for commercial purposes (mainly tourism).

Each conservancy can use these different rights that relate to the biodiversity on their territory to generate monetary and non-monetary benefits for its members. Possible activities include trophy hunting, hunting for the sale of game meat, subsistence hunting, the sale of live wild animals and also tourism. Each community is free to use these rights and to manage these activities on their own; or may delegate the management of commercial activities to a private operator, such as a professional hunter, butcher or tourism operator. In this case, the

**Figure 1** Community conservancies, an important tool for nature conservation in Namibia

Between public protected areas, concessions and registered community conservancies, biodiversity is protected in more than a third of Namibian territory. 15% of the total population and most rural households live in these conservancies and thus benefit from the sustainable use of biodiversity.
community signs a formal partnership agreement with the private company and/or the state (known as a joint venture or public-private partnership) and receives, on top of the private sector jobs created, lease fees and royalties from the private operator. All of the generated income stays in the locality (conservancy bank account) and is managed by the Executive Committee, which presents the annual accounts at the General Assembly’s AGM for approval; there is no local or state tax on this income.

**Increased biodiversity and the significant generation of local revenue**

Since 1996 and the enactment of these laws, the number of conservancies has continued to increase in rural areas. There were four conservancies in 1998, by late 2003 this number had risen to 29, and in December 2012 there were 77. This represents 19% of the national territory and involves 15% of the total Namibian population. To this total, if we add the national parks, the private land under wildlife management status, as well as community concessions and forests, 37% of the Namibian territory is thus included within an institutional framework for the sustainable management of natural resources and biodiversity.

Such exponential growth has been made possible through the major support of local and international conservation associations (IRDNC, NNF, WWF, NACSO, etc.), as well as from international donors (USAID, GEF, FFEM, EU, etc.). This support for Namibian conservancies places the emphasis on the development of initiatives with a business economic logic: promotion within the conservancy of partnerships with the private sector as well as individual entrepreneurs, encouraging the emergence of small private economic businesses and the diversification of alternative economic activities.

In this context, financial and non-monetary benefits are significant, especially when compared to the income earned from agriculture or livestock breeding. In 1998, the annual benefit derived from conservancies, both economic and non-monetary combined, was estimated to be around 150,000 euros, while in 2010 this had escalated to 4 million euros. It is income earned from partnerships between conservancies and the tourism sector (1.9 million euros in 2010, including lease fees, royalties and wages) that accounts for the largest part of these benefits, while hunting for sport is the second most important activity, bringing in 1.1 million euros in 2010 (i.e. 75% of the 2010 total can be attributed to these two activities).

A significant proportion of these incomes and non-economic benefits generated by the utilization of biodiversity covers the maintenance costs of a conservancy (employee wages, including community game guards and administrative staff, the purchase of all-terrain vehicles, etc.), and at local level, the relocation of local populations to the cultivated areas of the conservancy (Lapeyre 2011).}

**Box 1: Work undertaken by the French Global Environment Facility (FGEF) in Namibia**

Through a project supported by the FGEF, the Namibian CBNRM programme has, among other goals, enabled the restoration of water points and the direct reintroduction of a total of 4,700 animals from rare species in 33 conservancies, one national park and one area of private land. At the local level, the Khoadi Hōas conservancy, which is located in the northWest of the country, has greatly benefited from this new community management of biodiversity: firstly, black rhino and black-faced impala were reintroduced here and are now managed locally; secondly, an EU-funded community lodge was built here, in partnership with a private operator (the Grootberg Lodge). By providing tourists with the opportunity to observe this rare wildlife, the lodge is able to employ and train 30 locals and pay royalties to the conservancy, which reinvests them in conservation and public infrastructure. Lapeyre (2011) showed that in 2007, between the 23 employees and their family dependents, the Grootberg Lodge provides livelihoods for about 115 people in the conservancy. Social mobility is also made possible: for example, a former farmer was initially appointed as a conservancy’s game guard before being employed by the Lodge as a maintenance worker and then a black rhino tracker, before finally becoming a tour guide (after passing his driving licence, which was funded by the employer). This is a very good example of the possible synergy between empowerment, biodiversity conservation and income generation for local people.
vehicles and equipment for the monitoring of activities; while the rest is distributed as wages (for the employees of tourism lodges in conservancies, the trackers and other staff involved in trophy hunting operations, etc.); free housing for the lodge employees; free game meat distribution among local households; student scholarships; and dividends, which are paid to each family member but also fund community infrastructure (the purchase of ambulances, school or clinic construction, etc.)\(^2\).

At the ecological level, the development of conservancy areas has enabled a very significant improvement in the state of wildlife species. Indeed, populations of rare endemic species have increased since the mid-1990s, including mountain zebras, wild dogs, desert lions, desert elephants and black rhinos.

Do conservancies reduce poverty and inequality at the local level?

As mentioned above, the Namibian CBNRM programme generates income for the rural households in conservancies, but does this enable the reduction of socio-economic inequalities? Only a few studies have attempted to answer this question, to go beyond the simple analysis of the flow of financial income and the non-monetary benefits at the local level. Bandyopadhyay et al. (2004) conducted one such analysis, which was based on a survey of nearly

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2. In 2009, 37% of income and benefits from the use of biodiversity in conservancies were used to cover the costs of conservation, while more than 40% of the profits were distributed in the form of wages by the private operators to employees of the tourism lodges. About 15% paid for the free distribution of game meat to families in the conservancies.
1,200 households in seven conservancies (in the regions of Caprivi and Kunene) and showed ambiguous results in terms of poverty and inequality reduction. It seems that, on the whole, conservancies have a positive effect on the financial wealth of households situated therein, but have a much more mixed impact on poor households specifically. On the one hand, because conservancies provide low-skilled jobs (such as game guards), less educated households (in terms of the level of education of the household’s head) see their standard of living increase faster (measured through expenditure) than more educated households, although this is only marginally significant; similarly, in conservancies in the Caprivi region, the poorest households in terms of physical assets (durable goods) tend to see their living standards rise faster than richer households. On the other hand, in the Kunene region, households that are poor in physical assets have not benefited from a relative improvement in income from the establishment of conservancies, as compared with richer households; and neither have households that are poor in terms of livestock (goats and sheep) seen their standard of living rise faster than households that were richer in livestock. In general, as confirmed by Bandyopadhyay et al. (2010) through a 2006 survey of 965 households in eight conservancies, even if the Namibian programme does not favour elite capture of revenue (often cited as a potential limitation of community biodiversity management projects), neither is it demonstrably pro-poor.

Studies based on the sustainable livelihoods approach, such as Long (2004a, b) and Lapeyre (2010, 2011), draw similar conclusions: the benefits derived from activities in conservancies, especially through wages paid to local residents employed in partnership lodges and the income earned from tourism community projects (e.g. associations of guides), allow rural households, including poor ones, to increase their human capital (payment of school fees), their physical capital (purchase of livestock) and their social capital (contact with NGOs and donors) and thus serves as a safety net to reduce their vulnerability to economic and climatic downturns. However, it seems that these incomes, especially from tourism and from positions likely to be filled by less educated people, are still low and therefore serve more as a potential springboard towards stable employment, rather than a real way to reduce rural poverty. In this context it is also notable that better educated individuals usually monopolize the most qualified and best paid jobs in conservancies, in particular in the lodges, potentially accentuating inequalities at the local level.

**Risks and limitations of the programme: its capacity to reduce inequality in rural areas**

The model promoted by the CBnRM programme focuses primarily on charismatic wildlife and its habitat (elephants, rhinos, lions, etc.), and its commercial use via the upmarket private sectors of tourism and hunting, which are geographically and temporally volatile by nature. This approach seems most appropriate in conservancies that have the potential to be successfully managed in this way, which are those in the areas of Kunene and Caprivi. In these regions, the data show that a large majority of the programme’s total benefits (high royalties and large numbers of employees) is derived from the small number of conservancies that have managed to enter into partnership agreements with a limited number of very reputable private tourism and hunting operators. Conversely, many conservancies have little tourism and wildlife potential and thus generate little revenue at the local level. Empirically, Lapeyre (2009) demonstrated that the four conservancies located in the Kunene region, which are very well endowed (wildlife, spectacular landscapes and UNESCO World Heritage listed monuments) and have a low population density, generate very significant income (for example, the Uibasen/Twyfelfontein conservancy in the northWest, with 230 inhabitants and a land area of 286 km², generated an income of 120 euros per capita and 98 euros per km² in 2007). In contrast, conservancies in the north of the country, which are much more populated and less well endowed (more agricultural landscapes with less charismatic fauna) have benefited little from the programme; for

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3. Bandyopadhyay et al. (2010) even show that the probability of being a member of a conservancy, and thus to reap the associated benefits (see above) increases with the level of education of the household head.
example the Uukwaluudhi, King Nehale and Uukolonkadhi/Ruacana conservancies generated between 0 and 2 euros per capita in 2007. This disparity is explained by the fact that tourism activities in conservancies (partnerships with private operators or community enterprises) are highly geographically concentrated: in 2007, four partnership lodges out of 25 generated half of the profits derived from this type of tourism, and nine lodges generated nearly three-quarters of this income. While seven tourism community projects out of 38 concentrated 80% of the distributed profits.

In summary, the programme requires a rethink on some of its policies if the objective is to ensure a balanced development on the entire national territory and to avoid reinforcing inequalities between conservancies or between members of the same conservancy. In this context, it seems appropriate that these activities involving biodiversity usage should be better linked and coordinated with “conventional” activities, such as agriculture and rural development, through a less sectorized ecosystem approach.

REFERENCES


ACRONYMS

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ADMADE: Administrative Management Design project

CAMPFIRE: Communal Areas Management Programme for Indigenous Resources

CBNRM: Community-Based Natural Resource Management

IRDNC: Integrated Rural Development and Nature Conservation

NNF: Namibian Nature Foundation

WWF: World Wildlife Fund

NACSO: Namibian Association of CBNRM (Community-Based Natural Resource Management) Support Organisations

NRM: Natural Resource Management project

USAID: United States Agency for International Development

GEF: Global Environment Facility

FFEM: Fonds Français pour l’Environnement Mondial

FGEF: French Global Environment Facility

EU: European Union

UNESCO: United Nations Educational, Scientific and Cultural Organization
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