

conservation

research findings for development policymakers and practitioners

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Decentralised natural resource management is often seen as a way in which rural people can generate money and manage resources sustainably. In what local government contexts must such decentralisation operate?

Research from Manchester University, in the UK, asks how decentralised state structures perform with regard to natural resource management in Tanzania. It looks at how local taxes and development projects actually work and what part corruption plays in village and district governance.

An ethnographic study of governance in a Tanzanian village was carried out in 1999-2000. This was in an area where an influx of agro-pastoralists introduced more livestock and new cultivation techniques.

It has also generated new tensions between richer livestock keepers and poorer farmers, particularly over crop damage.

Many of the structures for a strong representative local democracy exist in Tanzania. Multi-party democracy was introduced in 1992, and Village Councils are now elected once every five years. Village councils have the power to write by-laws (approved by the District Council) governing natural resources. Groups of villages form wards, each electing a councillor to the District Council. Districts levied taxes on villagers. Revenues were used to fund district needs and some were returned to village and ward development councils.

Misappropriation and misallocation of funds, corruption and a failure of accountability were an everyday part of villagers' experience of local authorities. District governments were seen as extractive and exploitative. This view was based on the way money was spent, the lack of transparency and evidence of criminal activity.

- The local district government raised nearly 90 percent of its tax from villagers' activities, yet spent less than one percent on agriculture and livestock departments.
- The majority of the district budget was spent on its own running and financing.
- No-one in the village had any way of finding out how much tax had been raised or how

much was due to be paid back to the village.

- A local tax to build a secondary school was collected, but buildings were never completed and fell into disrepair.
- Farmers whose crops had been grazed by cattle could not win damages because large herders had the wealth to bribe the authorities.
- Speaking out in public against abuses by local officials was often dangerous; violence was an integral part of tax collection.

Misappropriation and misallocation of funds, corruption and a failure of accountability were an everyday part of villagers' experience of local authorities

What are the implications of these failures for community-based conservation and natural resource management? Having a democratic structure does not necessarily ensure democratic behaviour. What matters more are the cultures of democracy

which give the structures life. The expectations of the electorate, and the behaviour of their representatives, subverted the democratic ideals of the structures of local government. Plainly, the performance of these institutions would make any initiative to devolve power over natural resources harder. But despite the messy practices of local governments, local natural resource management will have to be vested in such institutions.

- Devolved control of natural resources may provide an opportunity to improve government.
- This may be more easily realised if evaluations of community-based conservation initiatives include realistic evaluations of government processes, such as taxation.

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'Corruption, Taxation and Natural Resource Management in Tanzania', *Journal of Development Studies* 44 (1), pages 103 to 126, by Dan Brockington, 2008

Human-wildlife conflicts over food and water in Tanzania

Conflicts between humans and wildlife are a growing problem. People kill wild animals, or reduce their habitats, to retaliate over the loss of human life, the destruction of crops, and competition for land, water and other resources. Previous studies have looked at human-wildlife conflicts from a conservation perspective; few have focused on the impacts on people's food security.

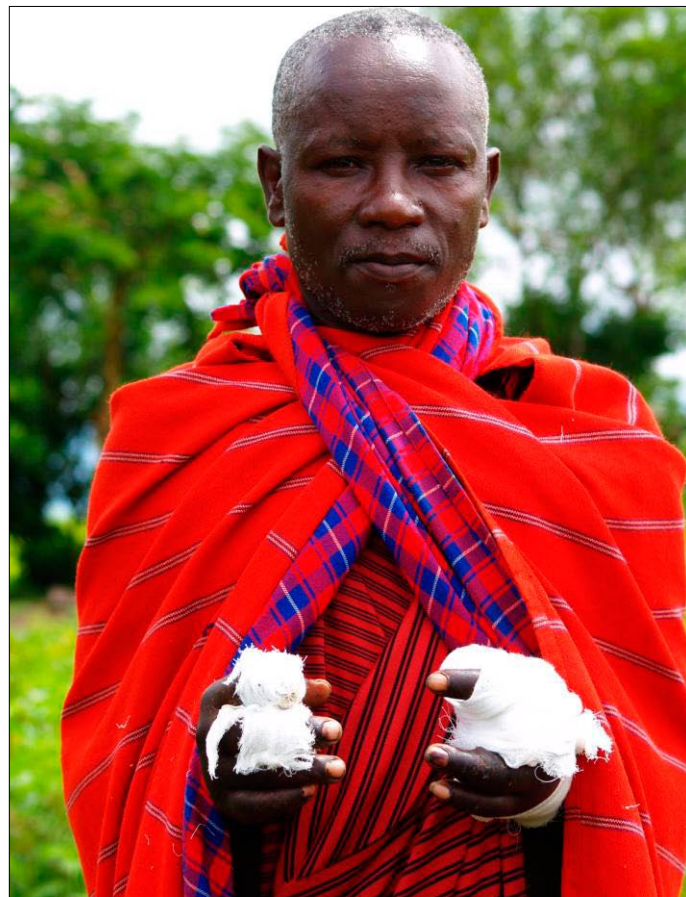
Research from the University of Greenwich in the UK, and the College of African Wildlife Management in Tanzania, evaluates the impact of human-wildlife conflicts (HWCs) on household income and food security.

The researchers looked at households in three villages next to Lake Manyara National Park and Mkomazi Game Reserve, two protected areas in north-eastern Tanzania. Most villagers are subsistence maize farmers living in extreme poverty. The researchers collected data using household interviews, field visits and information from village government offices.

The main cause of human-wildlife conflict was crop destruction by wild animals – usually elephants, baboons and buffalo, but also vervet monkeys, wild pigs, bush pigs and hippopotami

Findings show that the main cause of HWC was crop destruction by wild animals. This was usually elephants, baboons and buffalo, but also vervet monkeys, wild or bush pigs and hippopotami. Crop destruction had a significant negative impact on food security and cash income.

- The average crop damage across the three villages was a loss of 0.8 tonnes of maize per household each year, enough to feed a family for two months.
- Overall, in the three villages combined, crop damage by wild animals led to a 1.3 percent loss of household income.
- Families experienced food shortages for three months following crop raids by animals, although this figure also considers other factors causing food shortages.
- These impacts discouraged local people from conserving wildlife. The study stresses the need to balance conservation with development. To reduce the dependency of local people on natural resources, the researchers suggest a combination of short- and



Mr. Jonas is a resident of Lositete village within the Tarangire Manyara ecosystem in Tanzania. His fingers were mutilated by hyena attack in 2006.
Photo by Lazaro Mangewa

long-term measures. Short-term measures include providing economic incentives as compensation, such as loans to start up business enterprises (such as ecotourism) other than farms. Long-term measures include conservation education and fencing of reserves or parks. Many people interviewed believed that these measures could help to reduce HWCs.

However, the researchers note that all of these strategies are open to debate, with contrasting evidence for each approach.

- Previous studies of conservation education programmes show that they are often poorly funded, with weak links to conservation strategies, and that local people are often not involved in selecting projects.
- Conservation education may be more effective alongside compensation schemes, which encourage local people to get involved.
- Supporters of compensation schemes argue that in areas where most of the population lives below the poverty line, compensation is essential. Opponents point out that paying compensation for crop or livestock damage may not be cost-effective.
- A study from Kenya shows that fences were effective against crop raids and reduced the number of people killed by elephants. However, they had high maintenance costs and increased the numbers of baboons and bush pigs, as well as restricting the movement of some animals.

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How sustainable are different approaches to ecotourism?

Ecotourism is promoted as an approach to both conservation and development, creating opportunities for communities to manage natural resources in a sustainable way. But there are many approaches to ecotourism, in both the public and private sectors. What impacts do different ecotourism initiatives have?

Ecotourism aims to provide economic benefits to local people that complement, rather than take over, their traditional practices and occupations. This does not always happen, however. In some places, local people are excluded from areas for conservation purposes and their livelihoods are destroyed.

Research from the University of Sussex, UK, and the University of Georgetown, Guyana, compares three ecotourism enterprises in North Rupununi, Guyana. This is a large area of rainforest and home to several Amerindian groups, amongst the poorest people in the country.

The Iwokrama Centre for Rainforest Conservation and Development is a large scale enterprise that has government and international support. It offers ecotourism attractions alongside sustainable forest management activities. Local people are indirectly represented in the management of the centre through the local Amerindian representative body, which has a say in management decisions.

The small-scale, community-run Surama project offers some of the same ecotourism activities as the Iwokrama centre, but attracts fewer visitors. The aim is for self-sufficiency that complements the existing livelihoods of community members. Local people rotate between ecotourism activities, so that the benefits are shared evenly.

The Rock View Lodge is a thriving private enterprise in a small reserve area owned by a company, offering visits to wilderness and wildlife areas. Here, there is a hierarchical decision-making framework and local people are hired as cooks, labourers, maids and cleaners.

The research shows:

- Of the households interviewed, 43 percent rate ecotourism as their most important source of income; 15 percent rate it as the least important.
- Iwokrama benefits local people by training them in new skills, and communities benefit from the social

infrastructure of the centre.

- In Surama, the development of community organisations represents a significant benefit.
- Rock View Lodge offers nearly twice as much employment to local people as either Iwokrama or Surama, but most of these jobs are casual, so it provides fewer benefits than the other enterprises.

While all the enterprises offer some income benefits, it is the framework of the Surama project that offers the most sustainable future for local people. The researchers conclude:

- For continued success, the Surama project needs external agencies to link into its activities in different ways.
- Rather than focus on community-based resource management, ecotourism policies in the region should consider partnership structures. This will allow different agencies to support communities when they lack financial resources or particular skills.

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Reconciling economic development with conservation in Indonesia

The rainforests of Malinau, in Indonesia, have global conservation value. The government and conservation organisations have supported sustainable development, to varying extents, to preserve the area's rich biodiversity. Success will depend on finding a balance between protected areas, forests managed at industrial and community scales, and land conversion.

Malinau is the largest and most forested district in Kalimantan, Indonesia, covering an area of 42,000 square kilometres. Research from the Center for International Forestry Research, in Indonesia, reviews the extent to which economic and social developments in Malinau are linked with, or are consistent with, natural resource conservation. The authors also explore ways in which these links might be made more effective.

Historically, a sparse population of different ethnic groups – collectively referred to as Dayaks – has practiced low-impact slash-and-burn agriculture and collected non-timber forest products in Malinau. Development pressures began in the early 1970s, and logging and coal

mining businesses are now large. With migration, the population of the Malinau area has grown rapidly to 37,500 people, half of whom live in the frontier capital.

Relations between logging companies and Dayaks have been difficult and many people in the international community feel that the Dayaks are missing out on potential benefits. Despite the problems, local people have generally welcomed development as they have benefited from improved access to other areas and employment. Malinau has largely escaped the environmental destruction and social tensions seen in many other parts of Indonesia.

Three distinct approaches to conservation have been attempted:

- spatial planning to attribute land to different uses, particularly to identify and designate protected areas such as the Kayan Mentarang National Park
- a balance between conservation and development by controlling logging, promoting biodiversity preservation in logged forests, ecotourism, and allowing limited hunting and gathering
- decentralised, community-based management that has delivered more income to the local government from natural resource extraction and control over logging concessions.

Potential initiatives to enhance conservation include indigenous reserves for resource extraction; payments for environmental services such as forest carbon storage; and protection of forest sites for cultural reasons. But time will tell whether Malinau can withstand the pressures of development.

Several key issues remain:

- Conservation might have been better through a different approach to protected areas, with a larger number of smaller reserves rather than a single large national park.
- Large-scale ecotourism in Kayan Mentarang is unlikely, because of its remoteness and the lack of easily observable wildlife.
- Local community rights to manage logging have led some people to sell concessions to unscrupulous outsiders for short-term benefits.
- Decentralisation has led to better infrastructure, but there is little evidence of local people being able to regulate logging in newly-opened remote areas.
- Information on the biodiversity and value of different forest areas is limited; valuable areas may be lost before they are surveyed.

A debate on the future of the area is necessary, bringing together supporters of conservation and development.

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Environmental recovery in post-conflict Sudan

In 2005, a landmark peace agreement between Northern and Southern Sudan was signed. However, the country has suffered from civil war and regional conflict for most of the past 50 years, and a major conflict now rages in Darfur. Sudan also suffers from many severe environmental problems, both within and outside current and historical conflict-affected areas.

An environmental assessment by the United Nations Environment Programme (UNEP) found two main links between conflict and the environment in Sudan. First, the country's long history of conflict has had both direct and indirect impacts on the environment. Second, environmental issues – such as land degradation and competition over scarce resources – have contributed to conflict in Sudan and continue to play a role in the ongoing Darfur conflict.

Local clashes over rangeland and rain-fed agricultural land have occurred throughout Sudan's recorded history. However, tensions between farmers and pastoralists have intensified considerably in recent years as environmental conditions in drier areas have deteriorated.

The influx of weapons in the region over the last thirty years has also made local conflicts more violent and harder to resolve. In addition, disputes over access to oil and gas reserves, water in the river Nile, and hardwood timber have been important factors in triggering and sustaining conflicts in Sudan. In all cases, environmental factors are intertwined with a range of other social, political and economic issues.

As these conflicts have escalated, so too has the environmental damage they cause:

- Direct environmental impacts of conflict include minefields and damage from bombs and shells. Some conflicts have also involved the deliberate and targeted destruction of natural resources, such as trees and rural water pumps.
- The environmental degradation caused by Sudan's 5 million displaced people is the most significant indirect impact of conflict in the country. Environmental problems linked to displacement include severe deforestation and unsustainable groundwater use in and around refugee and Internally Displaced Persons camps, and the rapid growth of urban slums.
- Looting and the illegal trade of timber, ivory and bush meat during conflicts have seriously damaged forests and wildlife. In much of the country, however, actions to correct environmental damage can now start. UNEP's assessment recommends that substantial investment be made in environmental management. This will help to achieve peace in Darfur and prevent local conflict over natural resources elsewhere in Sudan. Specifically:
 - Sustainable solutions must be found for potential 'flashpoints' – environmental issues that may trigger renewed conflict. These include the environmental impacts of the developing oil industry in central Sudan, tree-felling for the charcoal industry in the north-south boundary zone, and new and planned dams and other water projects.
 - All levels of government should integrate the principles and best practices of sustainable development.
 - Legislation should be improved to help ensure that post-conflict reconstruction and economic development in Sudan do



A small boy on a bicycle near the Kalma refugee camp for internally displaced persons (IDPs) in South Darfur, Sudan. The trees along the road are missing many branches due to high demand for firewood in the IDP camp. The immediate environment around Darfur's refugee camps is changing rapidly due to this constant demand for firewood. Additional pressure is placed on the surrounding resources since people collecting wood do not want to venture far from the camps for fear of being attacked by roaming militants.

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not intensify environmental pressures, or threaten the lives of present and future generations.

- All United Nations relief and development projects in Sudan should consider environmental issues. This will improve their effectiveness and ensure that international assistance 'does no harm' to Sudan's environment.

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