

research evidence for policy



The "tragedy of open access" demonstrated here in the manner this dwindling river water is used without restrictions: notice boys swimming in the background; girls drawing water in middle ground; and women washing clothes in the foreground. Photo: B.P. Kiteme

Managing the commons upstream and downstream: the need to adapt institutions



Case studies featured here were conducted in Tanzania

Policy message

- The current institutions for managing commonly held resources (forests, water, and grazing lands) upstream and downstream in Tanzania and other developing countries cannot promote the wise use of resources to guarantee better livelihoods and to reduce conflicts.
- Demarcating small areas for administrative convenience impedes the coordinated governance of resources. It makes a basin-wide approach to resource management difficult, and denies affected communities upstream and downstream the possibility of coordinating the management of shared resources.
- To achieve sustainable natural resource management and livelihood security, the institutions for managing resources must reflect resource flows and boundaries as well as empower the local level, taking into account different power structures locally, regionally, and nationally.

- Common-pool resources (forest, water, pasture), managed in a complex upstream–downstream constellation, are key livelihood assets for rural communities in the mountains and adjoining lowlands in Tanzania and other developing countries. Such communities traditionally have institutions that govern access and set flexible boundaries around resources, which allow users upstream and downstream to be coordinated and the resources to be properly managed. But in Tanzania, rules introduced by the government after independence demarcated new boundaries that catered mainly to administrative convenience rather than other socio-ecological aspects. This led to mismatches and fragmentation in resource management, harming rural livelihoods and the sustainability of the resources.

Traditional rules governing common resources

- Societies in developing countries have traditional rules to govern common resources. This issue of *evidence for policy* uses the Pangani River Basin in northern Tanzania as a case. The South Pare Mountains are an important catchment for the Pangani River. The over 14,000 ha of forests in the mountains are an important source of plants and fuel for local people. Sacred areas in the forests are the sites for various rituals. The nearby semi-arid lowland provides grazing land for livestock, while pockets of wetland are used to grow rice and other crops and as grazing reserves in dry seasons.
- Before Tanzania became independent, forest, water for irrigation, and grazing lands were held in common because they fulfilled vital economic,

social, and cultural functions. These resources have two characteristics typical of common resources:

- It is difficult to exclude potential users from using the resources.
- Whenever someone uses a unit of the resources, less is available to others.

The combination of these characteristics bears potential for conflict.

Traditional institutions in the Pangani Basin regulated the use and management of common resources. The commons were governed by chiefdoms through a combination of informal laws, cultural norms and regulations, and formal colonial laws. The chiefs' administrative units ran from the mountains down into the adjoining lowlands; the administrative

Featured case study

Institutional changes in the management of common-pool resources in the South Pare Mountains, Tanzania

Common-pool resources in Tanzania, and particularly in the Pangani River Basin, are subject to unprecedented utilisation and management problems. This stems from changes in the governance structures in the 40+ years since independence.

A study traced the institutional changes in managing upstream–downstream common-pool resources – particularly forest, pastures, and water for irrigation – as well as their consequences on peoples’ livelihoods and the resource base. The results show that the main underlying principles of socio-ecological organisation in common-pool management in common property institutions have changed over time. Institutional changes led to changes in power relations, resulting in shifts in the communities’ endowment and entitlement structures. Resource-use conflicts revolved around utilisation of the forest, grazing lands, and water for irrigation.

The study concludes that institutional changes have resulted in poor management of common-pool resources, likely leading to a “tragedy of open access”. To redress the situation, the rules for managing common-pool resources in the South Pare Mountains and adjoining lowlands should be changed; the resources should be managed under an ecosystem-based management system (Mbeyale 2009, Mbeyale 2010).

- boundaries thus followed the ecosystem boundaries of the resources in a cultural landscape. This allowed for coordinated upstream–downstream resource management.
- The regulations covered water, grazing land, and forests as a unit.

- **Water.** The Chome forest reserve, which includes the highest part of the range, is considered sacred: it is known locally as *Shengena* (the Mountain of God). Mountain residents dug large ponds in the forest (*ndiva*) to use for irrigation; people further downstream dug channels down the slopes and smaller ponds near their villages for the same purpose. During the pre-independence era, rules guided by the chiefs required that the mountain communities use the water in the daytime, but allow it to flow down during the night to the lower-lying villages.

- The adjoining semi-arid lowlands, dominated by the Maasai pastoralists and the Pare agro-pastoralists, are important for rice production and livestock keeping. The communities in the lowlands grow irrigated rice for food and cash, as well as other food crops such as banana, maize, sorghum, and beans. During the coffee boom of recent decades, they grew coffee in their ancestral homelands in the mountains. Therefore, maintaining the flow of water was crucial not only economically but also culturally and socially.

- **Grazing land.** Before independence, water was allowed to flow down from the mountains once a week to flood

the Mkomazi game reserve (now a national park) to ensure grazing for livestock and wildlife. The rules prohibited the mountain and lowland communities from diverting water from the streams. Pastoralists used the dryland areas for grazing during the rainy seasons when they were rich with fodder, leaving the wetland as grazing banks or reserves during the dry seasons. They called these wetland reserves *mlimbiko* (“savings”).

Forests and wildlife. The mountain forests were also regulated: harvesting followed customary rules and the chiefs’ directives. For example, traditional doctors were allowed to harvest only part of a medicinal plant, not the whole plant. Other rules governed the extraction of timber and building poles.

Such management was possible only because the upstream and downstream areas were under the same administration. Moreover, the people respected and trusted the management system because it related to their social, economic, and cultural conditions.

Changed rules

After Tanzania’s independence in the 1960s, the government strove to consolidate its powers from the national down to the village level. The Native Authority Act no. 32 of 1963 abolished the position and functions of the chiefs, who had come to be seen as instruments of the colonial administration. In the 1970s, the government created a new local government structure consisting of divisions, wards, and villages, separating the



Water from the South Pare Mountains in Tanzania is vital for people living in the floodplains downstream. Photo: Gimbage Mbeyale

mountain communities from those in the lowlands. Responsibility for managing resources fell under different ministries and different administrative units:

- **Water** now comes under the Ministry of Water. The Water Resources Management Act of 2009 established water offices for each river basin; these offices are responsible for forming water users' associations and collecting user fees. However, the water offices are not responsible for managing the forest catchments or ensuring a sustained flow of water to users.
- **Forests** fall under the Ministry of Natural Resources and Tourism, and are partly managed by the district councils.
- **Grazing lands** come under the Ministry of Lands and Human Settlements Development (the National Land Use Planning Commission), the Ministry of Livestock Development and Fisheries, as well as village administrations. Protected areas are managed by the Ministry of Natural Resources and Tourism. The Land and Village Land Acts of 1999 established how land can be acquired and used.

The need for new order

Such changes may be politically convenient, but they affect the management of the resources and the livelihoods of communities who depend on them. They have come at the expense of sustainability of the common resources and the economy of the people.

The resources are the key livelihood assets for most local communities. The disruption in the management of the resources meant increasing resource-use conflicts, particularly between the upland and lowland communities who use the resources in different ways. Conflict can also arise among people in the lowlands themselves.

The current system makes it difficult to manage the resources and coordinate their use. Resource degradation and conflicts over use result. Three long-term trends threaten the sustainability of the common resources and the livelihoods of people who depend on them:

- **Poor communication and coordination** among resource users and regulators between upstream and downstream areas, leading to the risk of a "tragedy of open access" since the institutions governing the

commons are no longer functioning.

- **Unsustainable use of common-pool resources by local users** due to socio-economic changes (e.g., rising market prices for common-pool resources), shifting power relations, and increasing individual self-interest over collective interest – mainly due to the failure of the rules in the current disjointed situation and the shift from common to state property.
- **Unsustainable use of common-pool resources by external users** for commercial purposes because of high relative prices for timber, land, and water and because of de facto open access that erodes long-term interest in the sustainable use of the resources.



The floodplain is important for rice production and grazing, relying on water from the mountains. Photo: Gimbage Mbeyale

Definitions

Common-pool resources

The "commons": a resource where it is difficult to exclude or limit users (the "exclusion problem") and one person's consumption of part of the resource makes that part unavailable to others (the "subtractability problem") (Ostrom 1990).

Common property institutions

Rules, laws, regulations, norms, and values that coordinate the use of common-pool resources and structure the way (via constraints and incentives) in which resources are used and managed by the members of a community. They reduce transaction costs, secure information about resource users, monitor resource use, provide incentives, and enforce sanctions (see Ostrom 1990, Ensminger 1992).

"Tragedy of open access"

G. Hardin's frequently cited theory of the tragedy of the commons is more accurately described as a tragedy of "open access": the idea that no one has an incentive to maintain a common-pool resource when there is a complete lack of ownership. In the case of common property, by contrast, given resources are owned by the community.



Gimbage Mbeyale, PhD
 Senior lecturer and researcher
 Sokoine University of Agriculture
 Tanzania
 mbeyale@suanet.ac.tz



Boniface Kiteme, PhD
 Regional Coordinator East Africa
 NCCR North-South
 Nanyuki, Kenya
 b.kiteme@africaonline.co.ke



Tobias Haller, PhD
 Professor and researcher
 Institute of Social Anthropology
 University of Bern
 Switzerland
 haller@anthro.unibe.ch

Policy implications of North-South research

A better way to manage the commons would be to regard the resource system as a complex whole. Management should not concentrate on individual resources such as forests alone, or demarcate small areas for administrative convenience. Instead, it should consider it as a complex socio-ecological system with a number of stakeholders, which needs coordinated management between the lowlands and the mountains. In this way, old institutional elements could be reintroduced in combination with new institutions – crafted in a bottom-up, participatory way (e.g., local-level creation of by-laws for resource management) – as part of an overall effort to end the fragmentation of resource governance.

Central and local governments should seek ways to avoid the mismatch between administrative boundaries and resource systems that have been the source of mismanagement, degradation of the resources, and resource-use conflicts. The existing administrative boundaries do not match with the currently adopted basin management/catchments approach (Water Act, 2009). This needs to be changed. The inter-ministerial coordination is also held back by the administrative structures that have been forced on the resource boundaries. Such changes need political will and proper understanding of the situation by policymakers.

Stakeholders such as NGOs and organisations concerned with the environment and community well-being can support the government to implement changes to enable appropriate, sustainable interaction between resources and local people, and to improve management and avoid resource-use conflicts. This could be done by developing a platform for the crafting of new institutions, based on a bottom-up process rooted in village land acts. Such a process would need to account for local power relations and enable groups with different bargaining power to discuss issues among themselves before pooling their management concepts and agreeing upon new institutions.

Further reading

- **Mbeyale GE.** 2010. From integrated slope management to fragmented use: Common-pool resources, institutional change, and conflicts in Pangani River Basin of Same District, Tanzania. In: Haller T, editor. *Disputing the Floodplains: Institutional Change and the Politics of Resource Management in African Wetlands*. African Social Studies Series 22. Leiden, The Netherlands: Brill Academic Publishers, pp. 195–242.

Mbeyale GE. 2009. *The Impact of Institutional Changes on the Management of Common Pool Resources in Pangani River Basin: A Case of Same District, Tanzania* [PhD dissertation]. Dar es Salaam, Tanzania: University of Dar es Salaam.

Ostrom E. 1990. *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge, England: Cambridge University Press.

The National Centre of Competence in Research (NCCR) North-South is a worldwide research network including six partner institutions in Switzerland and some 140 universities, research institutions, and development organisations in Africa, Asia, Latin America, and Europe. Approximately 350 researchers worldwide contribute to the activities of the NCCR North-South.

Regional Coordination Office

- Boniface Kiteme, PhD
- CETRAD
- P.O. Box 144-10400
- Nanyuki, Kenya
- b.kiteme@africaonline.co.ke

This issue

Editor: Paul Mundy
 Series editor: Boniface Kiteme
 Design: Conrad Mudibo and Simone Kummer
 Printed by: Ecomedia

evidence for policy

evidence for policy provides research highlights from the NCCR North-South on important development issues. The policy brief series offers information on topics such as governance, conflict, livelihoods, globalisation, sanitation, health, natural resources and sustainability in an accessible way. *evidence for policy* and further research information are available at www.north-south.unibe.ch



FONDS NATIONAL SUISSE
 SCHWEIZERISCHER NATIONALFONDS
 FONDO NAZIONALE SVIZZERO
 SWISS NATIONAL SCIENCE FOUNDATION



UNIVERSITÄT
 BERN



Schweizerische Eidgenossenschaft
 Confédération suisse
 Confederazione Svizzera
 Confederaziun svizra

Swiss Agency for Development
 and Cooperation SDC

- **Citation:** Mbeyale GE, Kiteme BP, Haller T. 2012. *Managing the commons upstream and downstream: the need to adapt institutions*. Evidence for Policy Series, Regional edition East Africa, No. 2, ed. Boniface Kiteme. Nanyuki, Kenya: NCCR North-South.