

Biodiversity conservation and indigenous knowledge in Tanzania

Introduction

Indigenous peoples occupy a substantial share of the country's least-disturbed forests,

of indigenous peoples in Tanzania. The strong presence of indigenous peoples in northern part

What a coincidence? Biodiversity hotspots and indigenous peoples overlap.

mountains, and grasslands including wetlands. The best example of notable overlaps between indigenous peoples and biological rich areas is the case of Ngorongoro-Serengeti Ecosystem, Simanjiro-Kiteto grasslands, Ihefu-Kilosa wetlands and the surrounding of mount Meru, Kilimanjaro and Eastern Arc Highlands. In fact, there is a clear correspondence between areas of remaining wildlife hotspots and the presence

of the country, alone, which accounts for the 60 per cent of all popular national parks, is remarkable.

There is ample evidence of indigenous knowledge and practices involved in enhancing biodiversity at the landscape level. The Hunter-gatherers communities are known to possess detailed technical knowledge of fire, and used it effectively to improve feeding habitat for game and to assist in the hunt itself. Lewis and Ferguson theorized that cross-cultural comparisons of hunting communities at global level from Amerindians of North America, through Australian aborigines to Hadza of African origin indicate functionally parallel strategies in the ways that hunter-gatherers used fire. Another widely used traditional practice, that of rotation of harvesting pressure, would similarly contribute to landscape heterogeneity. The principle of rotation in agriculture is well known: land is periodically fallowed or "rested", and often planted with species that help restore soil fertility. Less well known is the use of rotation for grazing lands and for hunting and fishing grounds. In semiarid regions such as the Maasai plains, plant productivity is seasonal and follows the rains. Many of the larger herbivores have adapted to



Figure 1: A sacred *Ficus religiosa* tree believed to harbor fortunes. Myriads of such sacred trees still dot the Maasai countryside.

this pattern by migrating seasonally, and the migrations of traditional herding peoples also follow the same adaptation. Much of the problem of the Maasai plains is traceable to the disruption of this adaptation by the settlement of herding peoples. The yearly cycle of nomads and their cattle is a rotation, providing a chance for the recovery of heavily grazed rangelands. Throughout arid and semiarid East Africa, traditional herders followed migratory cycles, rotating grazing land seasonally and, in some cases, also rotating adjacent grazing areas in the same season. In this case, the function of the rotation was to reduce ecological disturbance from grazing and to allow harvest for subsistence needs with a minimum disruption of the large landscape.

With their interest in the availability of a wide diversity of resources within their resource catchments one expects indigenous people to contribute to restoration of biodiversity in the depleted landscapes as well. Where a stake in local resources has been created for them, indeed they do so, their detailed knowledge of succession and habitat preferences of the different species greatly contributing to such a process. Such knowledge is explicit and socially transmitted from one individual to another within and across generations in the same manner as scientific knowledge.

Compliance is often facilitated through religious belief, ritual, and social conventions. Four kinds of indigenous conservation practices are of particular relevance. They include:

- All individuals of certain species of plants and animals may be afforded

total protection. Trees of all species of genus *Ficus* (iretet) are protected across Maasailand. Local people seem to be aware of the importance of *Ficus* as affording food and shelter for a wide range of birds, bats and primates, and it is not difficult to imagine that such understanding was converted into widespread protection of the *Ficus* tree at some point in the distant past. It is more difficult to visualize the ecological significance of protection on a local scale, a large number of different plants and animals as being symbolic.

- Certain particularly vulnerable stages in the life history of an organism may be given special protection. Thus, among Hadza community, for example, animals may be hunted but not during breeding season, or at heronaries. The danger of overharvest and depletion of population is clearly far greater if these vulnerable stages are hunted and the protection afforded to them seems a clear case of ecological prudence.
- Major events of resource harvest are often carried out as a group effort. Indigenous groups have a tendency of engaging once a year in a large-scale communal hunt. Such a group exercise may have served the purpose of group-level assessment of the status of prey populations, and their habitats. This in turn may have helped in continually adjusting resource harvest practices so as to sustain yields and conserve diversity.

Early warning systems: Reading nature's imprints to envisage climate uncertainties

Indigenous people comprehend nature by reading prevailing codes of their surroundings. Paying attention to wild voices, observing migratory behaviours, and intuiting environmental rhythms including phenological performances, all contribute to the outstandingly body of knowledge of indigenous communities have about nature. To the Maasai, appearance and positioning on the sky of some

celestial bodies like stars and the moon, would signal particular weather events. For instance, the delayed rise of a certain group of stars called *ingakwa*¹ accompanied by inclination of the moon to the left, would mean extreme weak

¹ These group of stars, in good seasons, usually rise and set in the month of February. Delayed rise would go as far as March.

long rains season in that specific annual calendar.

Plants and insects do play precise roles in understanding nature among ecosystem communities. Greening of acacia species and appearance of ants would indicate affluent rain season ahead, especially short rains - *irkisirat*. This is every important period because, given bad condition of livestock following dry term, rich short rains means quick recovery of the

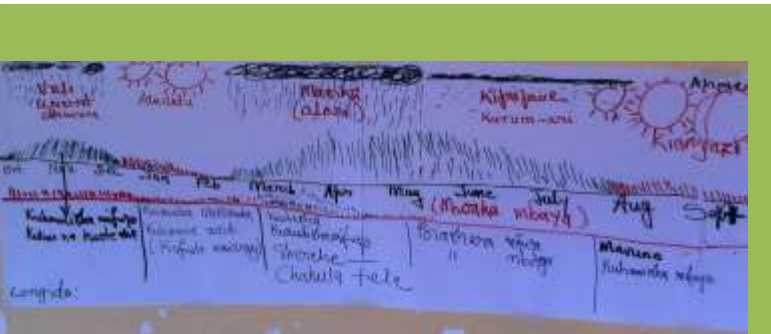


Figure 2: Maasai description of annual calendar

head and elevated house food security. The month of December, which is usually mid-short rains bears the name *irr-irpala* to purport rejuvenation for both livestock and people.

Demeanours of certain mammals and birds species can be translated by ecosystem communities to foretell weather patterns. Particular cries made by male ostriches (*esidai*) and early immigration of wildebeests, would mean, to the Ngorongoro Maasai, opulence wet periods. Moreover, domestic animals by raising their heads towards certain directions or resisting to cooperate in particular instances do guide shepherds in understanding their environments.

There is little doubt that traditional conservation with social restraints is real; there is little doubt also that traditional conservation has (or bad) survival value. As stated by Oldfield and Alcorn², 'archaic conservation limited extraction according to local rules that prevented destruction of nature because nature was the pre-eminent resource base'. However, as

² Oldfield, M. L., & Alcorn, J. B. (1991). *Biodiversity: culture, conservation, and ecodevelopment*

['archaic conservation limited extraction according to local rules that prevented destruction of nature because nature was the pre-eminent resource base']

traditional peoples are integrated into the global economy, they lose their attachment to their own restricted resource catchments. This could lead to a loss of motivation to observe social restraints towards the sustainable use of a diversity of local resources, along with the pertinent indigenous knowledge that goes with it.

Indigenous peoples' perceptions in contemporary biodiversity conservation enterprises

Indigenous people believe that biodiversity conservation is not always compatible with economic development (Western-guided philosophy ecological preservation) and that protected areas under this thinking deprive native communities of access to lands and resources without offering them compensation or alternative livelihoods. To them, it is no longer a question as to whether protected areas contribute to poverty alleviation or make local social and economic conditions more difficult by limiting access to natural resources. Moreover, contemporary "conservationists" and indigenous peoples are perceived to have very different agendas since the priority of the former is to protect and legalize their territories for their own use, while for the conservationists, the priority is to establish protected areas with no human presence, if possible. Indigenous people perceive that if "conservationists" go so far as to include local communities in their management plans, they only take them into account as a means to an end and not an end in themselves. What is certain is that conservation

organizations have been increasing their work with indigenous peoples around the world in recent years, recognizing that effective conservation is not possible without effective participation of the people who live in the place. Aware of this reality, the Program of Work on Protected Areas, developed in 2004 during the Seventh Conference of the Parties (CoP7) to the Convention on Biological Diversity, established as one of its goals (Goal 2.2) the achievement, by 2008, of a full and effective participation of indigenous and local communities in the management of existing protected areas and the establishment of new areas in full compliance with their rights and recognition of their responsibilities, and consistent with applicable national law and international obligations, as well as with the participation of other relevant stakeholders.

International policies related to indigenous people and biodiversity conservation