WILDLIFE CONSERVATION IN TANZANIA

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Abstract

Conflicts between wildlife conservation and rural communities raise great concern regarding the sustainability of conservation areas in the face of increasing human population growth and demand for maximum utilisation of land resources. Furthermore, in developing countries the overall technical, financial, and infrastructural requirements of protected area management are rarely satisfied by national budgets as international support is cut down. This paper presents a historical perspective of wildlife conservation in Tanzania and discusses the main arguments for conservation and the socio-cultural, economic and ecological implications. The paper recommends some alternative management approaches including the multiple land use approach as a means of alleviating the land-use conflicts and ensuring sustainable wildlife conservation.

Introduction

Conservation is the management of human use of the biosphere so that it may yield the greatest sustainable benefit to the present generation while maintaining its potential to meet the needs and aspirations of the future generations (IUCN, 1980). Conservation is thus positive, embracing preservation, maintenance, restoration, sustainable utilisation, and enhancement of the natural environment.

Wildlife conservation in Tanzania faces heavy competition for open land (rangelands) from farming, livestock rearing and settlement. The problem is compounded by high human population growth rate (2.8% p.a.), high in-country migration, the country's subsistence agriculture-based economy and trade liberalisation. The main dilemma facing wildlife conservation, therefore, is how to deal with land-use conflicts in areas containing wildlife in a manner that will meet both the wildlife conservation requirements and the human needs.

This paper traces the history of wildlife conservation in Tanzania. It discusses the main arguments for conservation and the socio-cultural, economic and ecological implications. The paper recommends several alternative management approaches including the multiple land use approach as a means of alleviating the land-use conflicts and ensuring sustainable wildlife conservation.

History of Wildlife Conservation in Tanzania

Wildlife Conservation Before Independence

The interaction between humans and wildlife in Tanzania and East Africa as a whole dates back to the year 110 A.D. when trade in wildlife (including plant)

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products motivated slave trade through the demand for porters to transport the products to the coast. The human suffering related to the slave trade has been suggested as one of the reasons why Africans developed supposedly negative attitudes towards wildlife (Marekia, 1991).

Until the end of the 19th century, there was a balanced co-existence between humans and the natural environment. This was possible mainly because the human population and density at the time was relatively low, so that human population pressure on wildlife was minimal. At that time, there was a successful "ecological control system" because the African husbandman's farming systems ensured the survival of game and his livestock as well as maintenance of a clean environment and finally the survival of man himself (Yeager & Miller, 1986). The coming of colonialism shattered this ecological balance by land privatisation and alienation, marginalizing pastoralists and peasants in the interest of white settlers, cash cropping and wildlife protection (Arhem, 1986; Yeager & Miller, 1986).

The idea of exclusive game reserves was first introduced by the Germans who ruled Tanzania between 1891 and 1919, and was motivated by the Germans' desire to protect certain species of wildlife from becoming extinct. Thus, the colonial ordinance of 1896 created two hunting reserves in northern and eastern Tanzania. The Germans later increased the number of these reserves before German imperialism was banished from Africa in 1919. When the British took over the administrative control of Tanzania in 1922, they added new reserves and extended the game reserve concept to include the eviction of the local people from locations considered essential to wildlife protection. This was the beginning of the two policy conceptions: (1) consolidating local populations for economic and social reasons and (2) exclusion of large tracts of land for game conservation.

Wildlife conservation After Independence

At Tanzania's independence in 1961, there were three national parks (Serengeti, Manyara and Arusha) and the Ngorongoro Conservation Area (NCA). Today there are 12 national parks, 18 game reserves and 56 game controlled areas, and the Ngorongoro Conservation Area. Together, national parks, game reserves, game controlled areas and the NCA constitute about 25% of the land area of Tanzania.

Table 1 shows the four types of Tanzania's game wildlife sanctuaries. In national parks which comprise more than 3,746,575 ha.,., total protection of the environment and all wildlife species is legislated. Serengeti and Manyara national parks are additionally classified as Biosphere Reserves while Serengeti is also a World Heritage Site. Biosphere Reserves are internationally designated sites

managed for research, education and training, while World Heritage Sites are world's unique natural and cultural sites nominated by countries that are Party to the World Heritage Convention.

Table 1: Tanzania national parks and wildlife areas

Management Category	Number of Units	Millions of hectares	% of Total Land Area
National Parks	12	3.8	4.1
Ngorongoro C.A.	1	0.8	0.9
Game Reserves	18	9.7	10.4
Game Controlled Area	56	9.0	9.6
TOTAL	86	23.3	25.0

(Source: MLNRT, 1989)

The Ngorongoro Conservation Area comprising about 828,800 ha. is a multipurpose conservation area which caters for game, livestock, forestry and human settlement. Cultivation was prohibited in the Ngorongoro crater in 1982 and over the whole conservation area in 1975, although recently some cultivation has been allowed. The area is also a World Heritage Site and a Biosphere Reserve.

Game reserves, covering 9,670,000 ha., have similar status to national parks except that in the former, licensed hunting is permissible. The Selous, which alone covers 5,000,000 ha is also a World Heritage Site. In game controlled areas no hunting is allowed without a licence, otherwise there is no control on land use.

Evaluation of Tanzania's Conservation Approach

Wildlife conservation will be evaluated based on three principles of sustainable development: socio-cultural sustainability, economic sustainability and ecological sustainability as follows hereunder.

Socio-Cultural Sustainability

For wildlife conservation to be socially and culturally sustainable, it must lead to the increase of people's control over their lives, it should be compatible with the culture and values of the people affected by it, and should lead to maintaining and strengthening of community identity.

The exclusive protection of wildlife introduced by the colonial governments translated into uprooting African subsistence communities, reducing the amount of land for their shifting cultivation and semi-nomadic pastoralism, and confining subsistence farming and livestock to marginal areas. While these changes took place, human and animal population densities increased creating more pressure on the land resources. These developments created a psychological antipathy among the

indigenous people towards wildlife.

Establishment of reserves created frontiers between wildlife on the one hand, and the local people and their livestock on the other, which to a large degree still exist today. Since independence more reserves have been created based on the western philosophy of national parks as the last bastions of wildlife, islands of untouched nature within a sea of landscape altered by man. The prevalent attitude towards local communities has been simply to keep them outside the park boundaries. As a result the park authorities have often been at odds with local communities. Armed confrontation between "poachers" and enforcement staff, has been a common practice and deaths and injuries on both sides have been regular (Ngowo, 1992; Newmark et al., in press).

Less than 20% of Tanzania's land area is arable, and this is where the majority of Tanzanians are densely settled and engaged in subsistence agriculture. Urban dwellers depend heavily on food surpluses from this subsistence sector. In most cases, however, these surpluses are very meagre because of low productivity due to factors like adverse weather conditions, poor states of the country's economy and public policy failures. The re-settlement of people in permanent villages in the 1970s has led to localised human population densities that often exceed the carrying capacity of the land, fragmentation of holdings and land shortages. These imbalances have led to agricultural encroachment into marginal areas which are unsuitable for farming using the existing traditional technologies. This unchecked demographic pressure has created localised environmental stress that has in some places reduced the survival capacities of man and his livestock (Arhem, 1986; Mwalyosi, 1992). Wildlife resources are a common property, belonging to no one individual or a group of individuals. If we accept that in semi-arid areas where wildlife is the most sustainable form of land use, and that development and prosperity of the local people in those areas depend on such wildlife resources, then conservation authorities and the government in general should take account of the welfare of local communities when planning for wildlife conservation and management in such areas.

Economic Sustainability

Wildlife conservation is said to be economically sustainable if it can provide economic benefit to present human populations as well as future generations. Because of high species diversity and differing intensity of managerial requirements, tropical parks and reserves are more expensive to manage per unit area compared to temperate ones (Janzen, 1988). It is estimated that to stop the decline in rhino and elephant populations, expenditures of US$ 230/sq km/yr and $ 215/sq km/yr for 100 and 25,000 rhino and elephants respectively, is needed (Leader -Williams, 1990)..

Analysis of the Tanzania National Parks (TANAPA) budget for 1989/90 which was increased significantly over the previous years, shows a projected average expenditure of US$ 24/sq km/yr for all the 12 parks. Clearly, this figure is incredibly low and points to the dangers of the current management system.

Most of the financial resources for park administration and management are derived from tourism. On average, 55% of the tourists who visit Lake Manyara national park are foreigners who also contribute 80.5% of the parks's revenue through gate fees (Figure 1). This proportion is almost the same for all Tanzanian national parks. It should be noted that like any other industry, tourism is subject to market forces. Changes in prices of fuel or spare parts can make African safaris expensive for client and uneconomic to run, and political instability even in neighbouring states can have a devastating effect on the number of tourists visiting the country. Thus, tourism came to a virtual standstill in 1977, beginning with the collapse of East African Airways Corporation and subsequently the entire East African community. A later closing of the border with Kenya, compounded by the general economic malaise and a short but unsettling war with Uganda, almost completely sealed Tanzania off from the then Nairobi-based tourist trade, hence the decline in tourist numbers and revenue in the early 1980s.

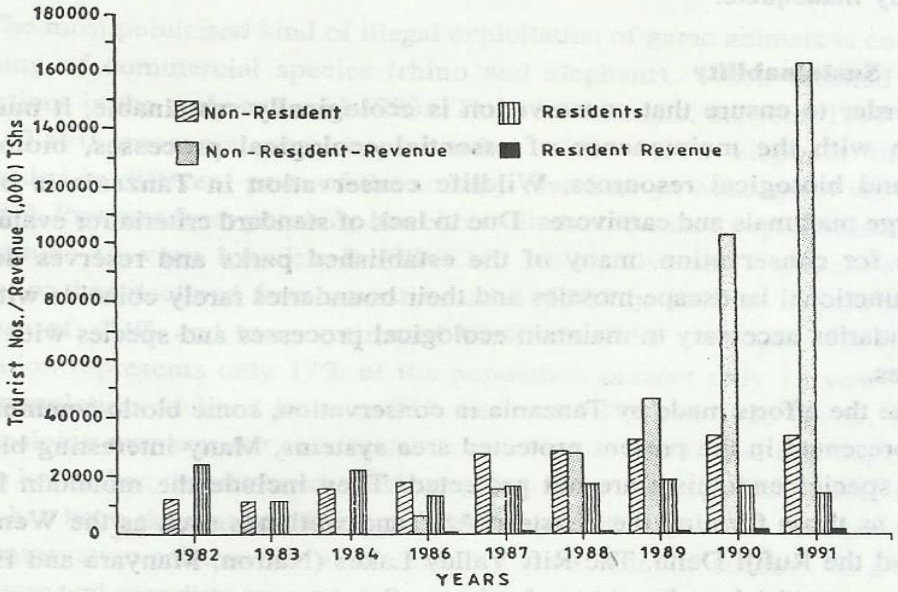

Figure 1 Tourism and revenue in Lake Manyara

Unless carefully controlled, the volume of tourists may have deleterious impact on the parks and may eventually destroy the very resource on which tourism depends. Some of the most important game reserves and national parks in Tanzania are located in semi-arid areas which are marginal lands. Such areas are characteristically fragile, easily becoming vulnerable to uncontrolled vehicular traffic (Onyeasnus, 1986). Tourist off-road driving is common in Manyara National Park and Ngorongoro Conservation Areas (personal observation) and is indicative of tourist recreation pressure on the reserves. One of the main motivations for the regular off-road traffic is to get a closer view of large carnivores e.g. lion (*Panthera leo)* and mammals like rhinoceros *(Diceros bicornis).* These animals are either very shy or exist in low populations, so that tourist vehicles very often go off the roads for considerable distances in search of them. In the process, a lot of damage is done to the grassland standing crop by vehicle tyres while dust deposition on the pasture leaves interferes with the photosynthetic process. In addition, concentration of tourist vehicles around a single predator can result in severe stress on sensitive species such as cheetah (*Acinonyx jubatus*) unnecessary habitat destruction and deteriorating visitor satisfaction (IUCN, 1986). Such problems are already apparent in the popular tourist areas in Manyara, Ngorongoro and Serengeti where off-road tracking and devegetation is on the increase. The necessary control measures require the monitoring of changes which needs resources and trained manpower both of which are currently inadequate.

Ecological Sustainability

In order to ensure that conservation is ecologically sustainable, it must be compatible with the maintenance of essential ecological processes, biological diversity and biological resources. Wildlife conservation in Tanzania is biased towards large mammals and carnivores. Due to lack of standard criteria for evaluating landscapes for conservation, many of the established parks and reserves do not comprise functional landscape mosaics and their boundaries rarely coincide with the biotic boundaries necessary to maintain ecological processes and species with large home ranges.

Despite the efforts made by Tanzania in conservation, some biotic communities are not represented in the present protected area systems. Many interesting biomes of highest species endemism are not protected. They include the mountain forest relics such as those forming the "Eastern Arc" and wetlands such as the Wembere swamps and the Rufiji Delta. The Rift Valley Lakes (Natron, Manyara and Eyasi) which are among the breeding areas for lesser flamingos and many of the greater flamingos in Eastern Africa are not protected. Similarly, none of the great lakes

(Victoria, Tanganyika and Nyasa) having among the highest fish species diversity and endemism in the world are protected.

Some of the wildlife species protected in Tanzania are migratory (e.g. wildebeest, zebra and gazelles). At certain times of the year these animals utilise areas outside the formal boundaries of parks and reserves. In almost all the parks in Tanzania, special habitat and dispersal needs of these migratory species have been overlooked. The present system of 'island' reserves with game animals using adjoining private/public lands, is unlikely to remain viable in the face of growing human populations. Agriculture and settlement are expanding into animal habitats and block the dispersal routes for these migratory animals. Continued reduction or loss of animal habitats erodes bio-diversity while insularization of reserves renders their continued viability questionable because of enhanced species extinction

Because of economic hardships, people often encroach into game reserves and engage in illegal exploitation of wildlife and other resources. Thus, for example, the boundaries of Maswa Game Reserve have been changed three times during the last 25 years and a substantial area has been degazetted to accommodate the demand for more agricultural land. The Mkomazi and Umba Game Reserves have seen an influx of several thousands pastoralists' with over 100,000 head of cattle in search for grazing and water. As a result, wildlife populations in these areas have declined considerably.

The most publicised kind of illegal exploitation of game animals is currently the poaching of commercial species (rhino and elephant), which reached epidemic proportions in the early and mid-1980s. Thus, for example, between 1979 and 1986, about 2,370 poachers were apprehended while 7,370 elephant tusks were impounded in different parts of the country (Jamhuri ya Muungano wa Tanzania, 1986/87). Pressure from poaching has either eliminated entire populations or reduced populations to very low levels (TWCM, 1991). Overall, Tanzania's elephant population has declined from an estimated 316,300 in 1979 to 85,000 in 1987 (a decrease of 73% and to an estimated 52,400 in 1991 (AECCG, 1991). Today's population represents only 17% of the population present only 12 years ago. The rhino population declined by over 98% between 1978 and 1988 (FAO, 1988) and the remaining numbers are only in the low hundreds. It is feared that these numbers may be lower than the minimum viable population for these species (Soule, 1989).

It has been demonstrated (Leader-Williams, 1990), that the resources put into any conservation scheme will relate directly to its ultimate success. In a survey of manpower and spending by central governments within conservation areas in Africa, Cumming et al., (1984) also noted a direct relationship between spending and the estimated changes in rhino and elephant numbers in each country. Absence of

adequate and sustained supply of manpower and resources has made law enforcement techniques to resolve conflicts between protected area managers and the local people in Tanzania less successful (MLNRT, 1989). This points to the need to adopt a non-repressive approach in dealing with such conflicts.

Debate on Wildlife Conservation in Tanzania

Caro (1986) lists the cost and benefits of six methods used to promote wildlife conservation in Africa (Table 2). I will outline four of these methods that have been used to further the goal of wildlife conservation in Tanzania, namely, (1) big game hunting, (2) game cropping, (3) wildlife-based tourism and (4) aesthetics.

Table 2: Cost and benefits of different methods used to promote wildlife conservation in Africa

	Short term		Long term	
	Benefits	Costs	Benefits	Costs
Non-economic	Personal enjoyment	None	Personal enjoyment	None
Economic				
Medicine products	Personal enjoyment	None	New products	Few
Tourism	Foreign exchange	Habitat disruption	Foreign exchange	Demand may fall
Cropping	Meat	Reduced species	Meat	Reduced species
Farming	Meat	Very few species	Meat	Loss of habitat

(Source: Caro, 1986)

Big Game Hunting

Hunting is a legitimate form of wildlife utilisation which the Government of Tanzania supports and is keen to develop. Game hunting has both short-and long-term pay offs and can be convincingly used to construct policies that discourage agricultural encroachment on wildlife areas because the profits from big game hunting have, to-date, been large. For example, in 1987, approximately US $ 3.3 million accrued to the Tanzania Government from sport hunting which is 33% of the gross value (US $ 10 million) of the safari industry (Table 3). Elsewhere, it has also been used as source of revenue and for controlling wild animals whose populations have exploded in and around national parks (Cumming, 1981). Generally, big game hunting recognises the need to preserve natural habitats and ecosystems, but has shortcomings: (1) it may alter the relative abundance of some species especially those which are difficult to shoot (e.g. leopards), (2) it can lower the recruitment rate of others (e.g. the lion) (Caro, 1984) and, (3) it may cause

behaviour changes of others due to human disturbance.

Game Cropping

Game cropping in Tanzania is carried out on a small scale and involves sustainable culling of a known percentage of animal populations, the meat being sold locally and the main animal products (hides, trophies, etc.) going to the central government (MLNRT, 1989). Accordingly, approximately 4000 animals are cropped per annum, mostly wildebeest and zebra mainly in Arusha region (op.cit). Generally, the monetary benefits from cropping have been high in certain countries, but marginal in Tanzania because of high overhead costs due to communication and transport problems (Ecosystems, 1980).

Game cropping emphasises short-term gains while the long-term considerations suffer. For example cropping reduces the genetic diversity of a population, thus speeding up the process of inbreeding (Soule, 1980). Cropping also reduces the stability and resilience of a population in a number of ways that makes it vulnerable to future environmental changes (Caughley, 1979). In areas set aside for cropping schemes, efforts are often taken to eliminate "nuisance" predators so as to concentrate only on a few economically viable species (Luxmoore, 1985).

Wildlife-based Tourism

Generally, tourism in Tanzania is underdeveloped and Government revenue from tourism is low. It is estimated that the gross value of wildlife tourism was US $ 33 million in 1987, of which US $ 2 million (6.1%) went to government (Table 3). The most popular destinations are Serengeti, Manyara, Kilimanjaro and Mikumi National Parks and Ngorongoro Conservation Area. The government's interest for economic gains from wildlife industry was demonstrated by the establishment of the Ministry of Tourism, Natural Resources an Environment in 1990. Accordingly, the emphasis on tourism development was not accompanied by increased government spending on this sector (Table 4). The government is encouraging local and foreign private sector to invest in wildlife industry (tourism, safari hunting, game cropping, etc.) Thus, many private tourist hotels have been constructed and many more are planned especially in the northern circuit.

These developments do not take into account the status and capacity of the resource base in the concerned areas. Thus, in the Serengeti alone apart from the three old hotels, two new ones have been established and seven others are planned. In Lake Manyara national park one new hotel is operational (originally there was only one) while three more are planned. In both cases, hotel beds will almost double the present number. Some of the hotels are constructed on the migration routes

e.g. the Tented Camp at the hot springs in Lake Manyara National Park) and others are located on strategic/sensitive animal habitats e.g. the hotel constructed at Nyaruboru Hills in the Serengeti by Consolidated Tourist and Hotels). In general, the environmental impacts of these developments have not been given due consideration. As a result, these developments are likely to lead to resource and habitat degradation as well as loss of biodiversity.

Table 3: Estimated economic value of wildlife (in millions)

Utilisation Type	Gross Value US$	Forex Revenue US$	Government Revenue US$	Off-take No. of Animals
Legal				
Cropping	0.5	0.2	0.5	4000
Sport hunting	10	10	3.3	4000
Resident hunting	3	-	0.2	30000
Crop protection	0.5	0.5	0.5	7000
Export live	1	1	0.1	-
Wildlife tourism	33	25	2	None
Sub-total	48.0	36.7	6.6	45000
Illegal				
Ivory trade	10	10	-	10000
Meat poaching	50	-	-	400000
Sub-total	60	10	-	410000
TOTAL	108	46.7	6.6	455000

(Source: MLNRT, 1989)

Table 4 Annual budget (Tsh.) for Tourism Department 1989-1993

Year	Development	Recurrent	Total
1989/90	53,900,000	53,900,000	89,300,000
1990/91	63,900,000	45,966,000	109,666,300
1991/92	44,105,600	7,500,000	51,665,600
1992/93	33,900,000	40,479,500	74,279,500

(Source: Budget speeches, 1989-93, United Republic of Tanzania)

Conservation for Aesthetic Reasons

Conservation on aesthetic grounds, though non-economic involves the preservation of natural habitats as we find them today so that future generations can gain aesthetic pleasure from these areas in the same way as we do. Basically, this is a

long-term strategy that excludes the short-sighted, selfish use of wildlife now or in future. Although a number of people consider this kind of argument rather whimsical and lacking in conviction, such antipathy may merely be historical because appreciation of wild places has only recently been regarded as a legitimate leisure activity. Nevertheless, even opponents of this view recognise that many people's interests in wildlife conservation began not from utilitarian considerations, but from aesthetic reasons, and that the sentimental value attached to wildlife is an important force in raising funds for conservation.

Alternative Wildlife Management Approaches

Background

In the light of the conservation problems discussed above, compounded by human over-population and the consequent increased demand for land, wildlife stands little chance for survival under the present conservation system. It appears that in order to maintain extensive wildlife dispersal areas, conservation authorities have to influence the rate and nature of land use changes around their reserves. Where land use becomes more hostile, more extensive and representative protected areas have to be acquired. However, financial resources are limiting. Although the latter problem can be tackled by reducing the reserves and concentrating conservation spending in smaller areas, it has been established that threats to wildlife come mainly from outside the reserves, so that small and isolated reserves are particularly vulnerable to anthropogenic disruption (White & Bratton, 1980; Noss & Harris, 1986). Therefore, only large reserves are likely to be viable on the long term.

It has been shown that the cost of some of the methods used to promote wildlife conservation in Tanzania are very high in terms of species loss and vulnerability to external forces. Some methods put emphasis on short-term gains at the expense of long-term considerations. Tourism development, for example, does not consider the environmental implications.

From the above discussion, economically, wildlife is certainly one of Tanzania's most valuable resources, contributing substantially to the national income. Therefore, prudence would seem to dictate that the wisest use be made of these resources. To replace wild animals with subsistence agriculture especially in semi-arid areas is, in ecological terms, unwise land-use policy. Moreover, any land use conflict between conservation and other rural development activities in such areas is likely to be disadvantageous to both (Mwalyosi, 1992). The dilemma facing the country, therefore, is how to balance the rural land-use needs and protection without denying either. Since each nation has its own specific problems, the path to conservation must be tailored to suit the particular needs of each area in each country. The following

management approaches namely fencing, compensation schemes, buffer zones, and corridors and multiple landuse may be adapted by Tanzania

Fencing

Fencing is the most common way of reducing conflicts with wildlife, but must be installed in such a way that corridors are left for wildlife movement, especially along migratory routes and dispersal areas in order to minimise species extinction due to insular and edge effects (Lovejoy et al. 1986). A variety of fencing methods have been proposed (IUCN, 1986), but are expensive for poor countries like Tanzania and may not be effective for certain species of animals (especially the small ones) because of high permeability.

Compensation Schemes

Since income obtained from the wildlife industry does not benefit the local people living adjacent to the parks/reserves, very little co-operation can be expected from the local people in park/reserve management. It would probably stem the tide if a portion of funds generated from wildlife industry was deposited into an insurance scheme to compensate for crop and livestock damage as well as human injury/death caused by wildlife.

Buffer Zones and Corridors

Buffer zones can be defined as areas adjacent to protected areas, on which land use is partially restricted to give an added layer of protection to the protected area itself while providing valued benefits to neighbouring rural communities (IUCN, 1986). Thus, where the primary interest is on wildlife conservation, **extension buffering** can be used. This extends the area of habitats contained within the protected area into the buffer zone, thus allowing large breeding populations of plant and animal species than could survive within the reserve alone. The problem with this type of buffering is that almost always the extra land would have to be re-allocated from public/private land. **Socio-buffering** on the other hand considers wildlife use of the buffer zone as secondary to providing products of use or value to the local people, as long as the type of land-use does not conflict with the objectives of the protected area.

In order to avoid conflicts of interest in using the buffer zone, the management of the latter should be vested in the most competent or suitable agency e.g. reforestation scheme under the control of the Forestry Department. Within the buffer zone, limited levels of use intermediate between the strict limitations of the protected area and the more liberal land use outside can be allowed.

Corridors act like stepping stones of natural habitat between reserves. Such corridors are particularly important for some species as routes for local dispersal. However, need for corridors particularly does arise when dealing with migratory species which move in response to shortages in pasture/water or to avoid disease infected areas (Fryxell & Sinclair, 1988; Mwalyosi, 1991).

Multiple Land-use

A more practical strategy for wildlife protection would have to accommodate the involvement of local people and other land-uses adjacent to the protected areas. Lusigi (1981) proposes the "conservation unit" approach according to which three land use categories are recognised: the national park, the protected area and the multiple use area (Figure 2).

This land-use categorisation works where new parks or reserves are being created. In the case of already established parks and reserves the best approach would probably be to have only two categories: the park/reserve area and adjoining private/public land -often referred to as "Communal Area Management". Principles and guidelines for integrating the development of protected areas and the adjacent rural land-uses have been proposed by IUCN (1985), Sournia (1986) and Hough (1988).

The boundary of the multiple land-use area would be demarcated based on knowledge of the extent of wildlife utilisation of the area based on long-term monitoring. Within the area adjoining the park/reserve, controlled grazing by livestock and hunting by the local people would be permitted. In other words, the human residents would be permitted to establish or continue their traditional way of life as long as it does not conflict with conservation interests. Lodges and game viewing for tourists would be accommodated and safari hunting concessions might be permitted. Game cropping and live capture of animals on a sustained yield basis, would be organised so as to control the herds migrating in and out of the park.

The major purpose of the multiple use area would therefore be management of natural resources and livestock which would be co-ordinated by the local residents. However, wildlife management would be given priority, the use of fire and water developments would form part of the management plan. The multiple land-use area would be managed as a single entity, with marked and patrolled boundaries, and entry through manned gates on access roads. To make this type of land use effective some form of contract would be necessary between the residents and the conservation authorities.

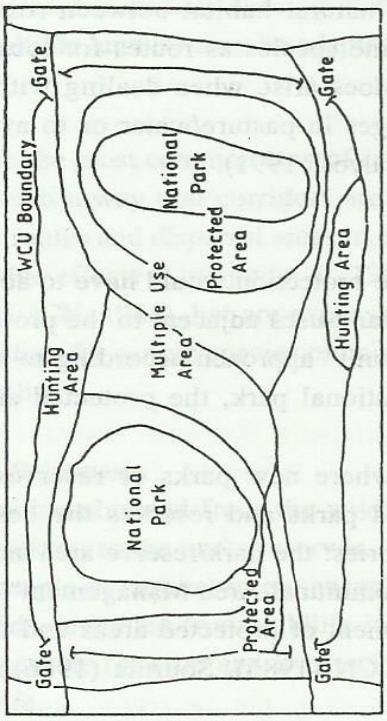

Figure.2 Diagramatic model of a Wildlife Conservation Unit (WCU) (Lusigi 1981)

The protected area would have minimal development. Within the park/reserve, areas for total protection would be demarcated whereby no human activity would be allowed except for scientific research. Such areas would include areas of special interest or unique scenic features and habitats for sensitive wildlife species like cheetah, rhino and other rare species that require a minimum of human interference. The other zones would include those meant for seasonal tourism and/or for limited activity and those for full development. In the latter zone, exploitation of some resources by the local communities proximate to the park may be permitted as long as this does not conflict with conservation interests, e.g. collection of dead wood, harvesting thatch grass, collection of sand and/or gravel for building purposes. In addition, local communities proximate to the park, should be eligible to some proceeds accruing from conservation. In return, park management activities such as anti-poaching and combating wild fires should engage the local people.

Because of their financial power, conservation authorities are in a better position to establish trust by initiating local involvement/participation and binding themselves

to these undertakings. Once effective communication is established, areas of common interest can be explored and positive joint actions will further promote the trust-building process and enable more difficult issues to be addressed.

There would be a number of advantages in such an approach:

1. Unique wildlife populations, habitats or scenic features would retain a wilderness atmosphere without being isolated.
2. Migratory wildlife populations would be maintained by controlling their ranges inside and outside parks.
3. Wildlife populations would be harvested as necessary outside the parks to control populations and provide meat to the local communities.
4. Harmony between the local people and wildlife would be restored by involving the people directly in wildlife management and by removing unnecessary restrictions in their way of life.
5. The system would foster more co-operative relationship between government and the residents living with the resources, reduce the costs of law enforcement and increase revenues for other aspects of wildlife management as well as the immediate community development.
6. Livestock populations will also be controlled so as to minimise overgrazing and its associated negative impacts.
7. The local people would reap some of the economic benefits of the parks from tourism, through wages, sale of souvenirs and game cropping and sale of live animals.

Some Innovative Examples

The above proposals are not a rhetoric whim but are practicable. A number of donor assistance pilot programmes under way in some of the target areas (especially in the Selous, Ngorongoro and Serengeti) are a manifestation of the need and attempts to address the basic threats to wildlife.

The GTZ support the Selous Village-Based Conservation Programme (SVBCP) which incorporates community wildlife management and conservation by creating a buffer zone around the Selous Game reserve (SGR) for community wildlife utilisation and conservation by the villages bordering SGR. NORAD through the IUCN is supporting the Serengeti Regional Conservation Strategy (SRCS) programme which covers Ngorongoro Conservation Area and the Serengeti National Park as well as Maswa Game Reserve. The Programme's objective is to design and implement a package of integrated and cross-sectoral activities in the Serengeti Region aimed at ensuring the long-term conservation of the protected areas by stabilising land-use, improving farming practices and providing benefits from wildlife utilisation to local

communities, and by promoting the effective management of the protected areas themselves. The results from these pilot projects are promising so far.

Tanzania National Parks (TANAPA) have recently established a Community Conservation Service (CCS) to begin to address the role of national parks within the context of the communities of which they are a part. DANIDA through the WWF is supporting Kilombero Valley Natural Resources Conservation and Land Use Management Project whose objective is conservation and small scale sustainable utilisation of the natural resources of the valley. The Tanzania Forest Action Plan (TFAP) (MLNRT, 1989) emphasises the introduction of village wildlife management schemes as a means of involving the local communities in wildlife resource management.

Outside Tanzania, such innovative communal area management systems have been initiated in Zimbabwe (Campfire Programme), Zambia (Luangwa Integrated Resource Development Project and Kenya (Amboseli and Maasai Mara) with varied consequences.

Concluding Summary Notes

1. A multiple land-use approach to wildlife management is desirable to sustain wildlife conservation.
2. Experimental programmes in Zambia have tested the feasibility of allowing local residents to participate in managing wildlife resources through joint partnership with the national parks and wildlife services. Similar experiments are being organised in Tanzania (Serengeti and Selous) and all seem to have promising results.
3. Partnership, in the form of village wildlife management committees, deployment of village scouts, a sustained yield of wildlife utilisation scheme managed by local villagers, and wildlife-related employment for local residents, may increase local authorities' involvement in planning for their wildlife resources.
4. The cost-effectiveness of wildlife law enforcement would increase with the establishment of village scouts, who are local residents trained under a special programme to manage and police the wildlife resources in their areas.
5. Revenue earned by charging a concession fee for a self-sustained and carefully regulated off-take of wildlife trophies by safari hunting sportsmen could be sufficient to meet the recurrent costs of such programmes.

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