

Traditional Forms of Common Property Rights: A Case Study in Southern Mozambique¹

Arlindo Gonçalo Chilundo and Boaventura Manuel Cau

Nucleus for Land and Development Studies, Eduardo Mondlane University, Mozambique
Phone/Fax: (258-1)494743
E-Mail: netuem@zebra.uem.mz

Summary

Traditional systems of common property rights in natural resources management have existed over a long time in Mozambique. These are systems that have been, for so long, ignored and considered inappropriate, but nowadays they are being recognized as effective instruments in sustainable use of natural resources. At present, land, forestry and wildlife resources are state property and there is evidence that the state is too weak, in some places, to implement sustainable resource use and management.

The Mozambican colonial and post-independence legislation, which did not recognize the traditional systems of natural resources management, has contributed to the erosion of the community sense of ownership over resources. However, one of the principles defended by the new land, forestry and wildlife laws is the recognition of local communities' participation in sustainable use and management of natural resources thereby entrenching community property rights. However, these are new laws that are beginning to be implemented. There is indeed a gap between the laws and their practical application in that the pertinent regulations are still being developed.

In Southern Mozambique, there have been traditional forms of natural resources management based on common property rights. The examples include: (1) exploitation of mussels; (2) salt extraction; (3) fishing in lagoons and use of traditional water sources; (4) common use of sacred areas; (5) common use of rangelands; (6) common use of medicinal plants and some wild fruits; (7) common use of Miombo forests for mushroom collection, and (8) common use of forests for various other wood and non-wood forest products.

This paper seeks to analyze the common use of these natural resources, including the means employed to regulate use and exclude non-members of the group. An analysis of factors that may contribute to the decline of common pool resources is done, with emphasis on: (1) population growth, deforestation and loss of plant and animal habitats; (2) destabilization caused by civil war; (3) loss of sense of ownership; and (4) monetarization of the economy, state intervention and market forces.

The principal argument is that in Southern Mozambique, there is local communities' history and experiences in common property natural resources use, control

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and management that were effective for conservation purposes and in satisfying people's needs. This local knowledge and experiences are important to study and incorporate in rural development initiatives by the government, non-governmental organizations and the private sector. It can also orient the establishment and promotion of successful community-based natural resources management programs in the country.

1. Introduction

The interest on traditional management systems, including natural resources common property rights is increasing worldwide and in Mozambique, in particular. This has come about as a recognition of the important role that these systems have played through generations in sustainable use and management of natural resources.

The traditional systems of natural resources management are part of traditional knowledge, sometimes despised and considered inadequate. Nowadays however, there is recognition that efforts in rural development can fail if they do not take into account the dimension of local community life, experiences and knowledge (Waner, 1991; Mafalacusser, 1995).

The realization in July 1999 of the Natural Resources Common Property Rights Conference in Zongoene, Mozambique, is an indicator of the importance that the Mozambican Government gives to the issue of common property resources and its contribution to sustainable use of natural resources and rural development.

In Mozambique, there have been and still experiences of natural resources management based on common property rights. These experiences are useful in highlighting both opportunities and constraints that government, non-governmental organizations and private operators in Mozambique could take into account in their rural development interventions. This article is an attempt to highlight some experiences in Community-Based Natural Resources Management (CBNRM) or Common Property Rights regimes from Southern Mozambique. The paper is a product of oral history collection and the author's own experience from involvement in CBNRM programs.

Detailed research on traditional forms of natural resources common property rights in Mozambique may bring about more revealing findings than this paper which in turn would assist in the orientation, establishment and promotion of successful CBNRM programs in the country.

2. Natural Resources Common Property

The continuing problems of resource degradation and depletion have motivated many scientists and researchers worldwide to seek solutions to these problems. About more than three decades ago, Garret Hardin tried to explain the problem in the context of "The Tragedy of the Commons" (Hardin, 1968). This has been a controversial and powerful theory (McCay and Acheson, 1987).

Hardin (1968) argued that people are in systems that encourage them to increase, as much as possible, the exploitation of limited resources – a situation that leads to ruin for all. Once resources are open to all, each user attempts to maximize his/her take without taking into account resource conservation, and the needs and benefits of the others (Hardin, 1968). Hardin further argued that the solutions to the problems of resource depletion and degradation are not technical but rather lie in governmental control and regulation of resource use and suggested privatization as an optimal solution capable of avoiding the ruin for all (Berkes *et al.*, 1989).

In recent years, however, many researchers have questioned Hardin's. According to Berkes *et al.* (1989), Hardin defended the divergence between individual and collective rationality in resource use without considering the auto-regulation capacity of users. In addition, he assumed that persons are unable to limit access and institute rules that regulate use without governmental control or privatization (Berkes *et al.*, 1989; Feeny *et al.*, 1990). In many parts of the world, Hardin's arguments were used to nationalize and privatize natural resources which strengthened top-down planning and development approaches, ignoring local institutions (Arnold and Campbell, 1986). These have undesired social and environmental impacts.

Other solutions exist beyond those proposed by Hardin because governmental control or privatization have no success in some situations (Hanna *et al.*, 1996; Ostrom *et al.*, 1999). For example, a large appropriation of renewable and non-renewable resources by national and international capital in some regions of Brazilian Amazon, led to unprecedented depletion of natural resources and the marginalization of local populations (Diegues, 1997:57).

Hardin's theory confounded common property resources and free access – the absence of property rights and a situation where rights and duties are not well defined (McKean e Ostrom, 1995; McCay e Jentoft, 1998) thus leading to overexploitation. By equating common property rights with free access, and assuming that free access leads to overexploitation, Hardin's theory equated common property natural resource management regimes with overexploitation (McCay and Acherson, 1987; Berkes *et al.*, 1989).

On the other hand, the theory assumes that individual interests are incompatible with existent management institutions but, in many communities, natural resource users are driven by social pressure to be in conformity with enforcement rules and conducts prescribed (McCay and Jentoft, 1998). In common property systems, all group members (community or interest group) have equal rights to use the resource and to exclude non-group members (Ciriacy-Wantrup and Bishop, 1975), and have to regulate this use and invest in conservation. One of the objectives for excluding non-members is to avoid overexploitation of the resource without contributing to its management and conservation (McKean and Ostrom, 1995).

All this has led to the recognition nowadays, of the importance of common property natural resource management regimes. Therefore, there is a need to revitalize

and rediscover local community natural resource management systems – in particular, communities managing their resources (sometimes with exterior support) to the collective well-being and for the benefit of future generations.

Common property rights are a form of private property (McKean and Ostrom, 1995) because community members or members within an interest group are co-owners of the resource and have the right to exclude others from use of the resources. In essence, there is privatization of access and use rights by a group without dividing the resource in parts (ibid.).

Common Property Resources

Common property resources include fisheries, wildlife, ground and surface water, pasture and forests (Feeny et al., 1990:3).

Resources can be used through more than one regime, but the most frequent are (Feeny et al., 1990; McKean, 1992):

- a) *Free Access* when resource use is open for all due to non-existence of clear property rights. The resource has no owner or property rights are not well defined. Within this regime, the resources are highly prone to over-exploitation and degradation.
- b) *Private Property* where an individual or corporation carries out the use and has full rights to exclude other resource users and regulate management unilaterally.
- c) *State Property* where the State regulates the access and utilization of the resource.
- d) *Common property* when the rights to use the resource belongs to a group composed of individuals that can regulate use and exclude other resource users. Members of the group share rights and duties to the resource.

Berkes et al., (1989); Feeny et al., (1990); and McKean and Ostrom (1995), distinguish two basic characteristics of common property resources: exclusivity and subtractability

The first one is that these are resources that due to their physical nature, controlling the access of potential users is quite difficulty.

The second characteristic is subtractability. This is due to the fact that somebody is capable of subtracting from the collective welfare.

3. Some Examples Around the World

In some countries of the world, there is a legal recognition of the local systems of natural resources management, based on common property rights. Berkes et al. (1989) state that in Thailand, the exploitation of high value timber was traditionally regulated by local government. However, the rapid commercial exploitation of some timber species in the nineteenth century led to the nationalization of all forest. State ownership of the forest was not able to offer an efficient resource use and enforcement in such a way that illegal logging activities increased. In addition, the low conservation of environmentally sensitive areas led to land degradation. This occurred because community members no longer felt the forest belonged to them as they were not motivated to exclude the illegal

operators.

In Nepal, a country where traditional systems of natural resources management based on common property rights are many, due to the increase in demand of forestry products, the government decided to nationalize the forests in 1957 to stop the process of deforestation and degradation as well as to improve the productivity through the establishment of more effective management systems. However, the government failed through this policy principally due to the difficult of enforcement of thousands of forest hectares, sometimes located in places with poor access. As a result, by end of 1970s, the government launched an initiative towards community-based forest management (Arnold and Campbell, 1986).

In the Brazilian Amazon, where local community natural resource management systems were almost disappearing in the name of “modernization” (Diegues, 1996), there are currently projects in the form of common property rights regimes. The communities supported, for example, by non-governmental organizations (NGO’s) and the research institutions, outlined strategies to use the lakes on a sustainable base. The communities met and agreed in defining categories of lakes: i) lakes for reproduction of fish; ii) subsistence lakes; iii) market oriented lakes; and, iv) the lakes for use of the nearby urban centres. The communities also agreed on the types of sanctions to be applied to members committing infractions (op. cit. p. 72).

In Southern Africa, many communities have from time immemorial practiced natural resources management based on common property rights. The sharing of beliefs were important in creating a sense of solidarity among community members and this affected the decision system about natural resources. Land was property of the communities and no one had exclusive rights to natural resources. There have been many experiences of community ownership of land, pastures, forestry and wildlife. The information and knowledge about their successes and failures are hidden along many forms of the African landscape, awaiting the archaeological analysis to come out (Mpinga, 1994).

Today, there is in the southern Africa region, experiences of natural resources management involving local communities (Mukute, 1994; Chileshe, 1998; Fakir and Mayet, 1998; Negrão, 1998; Vudzijena, 1998; White, 1998). Although lacking information and understanding about their successes and failures and the real impacts in improving rural livelihoods, their existence alone is something positive.

4. A Few Examples From Mozambique

In Mozambique, land, forest and wildlife resources are state property. In relation to land, individuals, including foreigners, can only acquire usage rights. For the local communities, the new land law (Law n° 19/97, of 1 October) recognizes community title to the land through long-term occupancy (more than ten years) based on oral testimony (strong as the written proof) of community members. The right of acquiring community land titles opens the possibility of community intervention as stakeholders in partnership

with private operators and state agencies towards rural development. In case of non-community members seeking land use rights in the same area, they are required to present a development plan. The individual who receives such land usage rights has two years to implement a development plan if s/he is a foreigner and five years if s/he is a national. Non-compliance to this stipulation automatically leads to loss of land usage rights. However, before the approval of any application for land usage rights, there is a need for consulting with the communities in that particular area as a means of ascertaining whether the required land area is in use or not. This opens room to minimizing land-use conflicts which have been frequent in the past between community members and investors. In the previous legislation, land use by peasants was not recognized in the formal system, and there have been reports of cases in which land was allocated to other individuals or entities because of lack of information on its current use and because of lack of co-ordination between the central and local authorities involved in the land concession process (Myers, 1993).

In relation to forestry resources, in our country there are two ways through which entities and individuals can acquire rights to harvest timber (Law n° 10/99). There are short-term forest extraction licenses and long-term forest concessions. The short-term licences permit individual or small operators to harvest a certain volume of certain species of timber per year. They are sometimes called “simple licences”. The long-term forest concessions are exclusively allocated to industrial operators and confer areas of high timber value. The concessionaire is required to pay an annual fee for each extracted volume of timber. With the long-term forest concession, the state guarantees to the operator that for the period fifty years, s/he will be the unique entity that can engage in commercial logging operations in a specified area. The licence is also renewable. Subsistence activities of communities surrounding forest concession areas are safeguarded.

In a study carried out in Zambezia Province, central Mozambique on forest licensing system, Kloeck-Jenson, (1998) noted a number of problems. While long-term forest concessions were designed to provide incentives to loggers to engage in more sustainable practices (due to long tenure), he argued that short-term forest licenses did not offer the same incentives due to a lack of guarantee that loggers will return to the same area in the future.

The State, through the National Directorate of Forestry and Wildlife (NDFW) and *Serviços Provinciais de Florestas e Fauna Bravia* (SPFFB) (Provincial Services of Forestry and Wildlife)- are the agencies responsible for implementing and enforcing the forest law including issuance of licences, supervision and monitoring of infractions. The State is, however, unable to carry out enforcement effectively due to a lack capacity on the part of the National Directorate of Forestry and Wildlife and the Provincial Services of Forestry and Wildlife - basically scarcity of financial, material and human resources (MAP, 1997). Kloeck-Jenson (1998: 13) pointed out that, “...the SPFFB often lacks the will to enforce the rules, even when they know there is a violation. ”. This permits the occurrence of the illegal and unsustainable timber exploitation that can lead to resource degradation.

In Zambezia Province, there are loggers who harvest timber, principally Umbila (*Pterocarpus angolensis*) and Pau-preto (*Dalbergia melanoxylon*) without licenses; loggers that harvest timber in excess of licensed volume; licensed loggers harvesting from areas for which they are not licensed to harvest, and loggers that harvest premature trees (op. cit. p. 11-14). Isn't this a clear case for establishment of collaborative management systems between the state and the local communities located around licensed areas?

Communities could help the state in enforcing timber harvest regulations to avoid resource degradation and revenue losses. The new Forestry and Wildlife Law states that "all the citizens and, especially the local councils of resources management, as well as the licence bearers, have to collaborate on the needed vigilance exercises to protect forestry and wildlife resources, report infractions that they have knowledge about to the more proximate authorities". Many examples around the world show that the sharing of benefits is a crucial element for the motivation of local communities to actively participate in such processes. Do communities have rights to obtain direct benefits beyond short-term employment from timber harvesting activities carried out in areas surrounding their territories?

There is a state will in terms of local communities participating in forestry and wildlife resources management as enshrined in the New Forestry and Wildlife Law. It refers for example, that "... the policies of economic and social development and of biodiversity preservation and conservation, must involve local communities, the private sector and the civil society in general, with the objective of achieving sustainable development in the present and for future generations ". However, there is a lack of specification of the mechanisms to put in practice this will so that it can impact rural livelihoods. Maybe the regulations that will accompany the New Forestry and Wildlife Law will shed some light on this. In 1998, Kloeck-Jenson (1998:15) affirmed that " at present, local communities have no voice regarding whether and which loggers may harvest timber...local communities are not formally consulted as part of the process in allocating short-term forestry extraction licenses or long-term forest concessions ". He adds that the important aspect on this, " is not 'consultation' itself but rather, providing local communities a legal basis upon which to block, encourage, and negotiate with loggers regarding forestry activities on community lands " (op. cit. p. 16).

As there is not a single property regime that can be effective for all situations and contexts, the choosing of the appropriate property regime will vary case by case. A certain natural resource could be used in accordance with the mechanisms and procedures prescribed by one or other property right regime (state property, private property or communal property) in accordance with the physical nature and economics, cultural and ecological specificities of the place where it is located. The type of property regime that is more adequate is one that responds to population needs such as development, health and environmental sustainability.

Co-management is an alternative institutional arrangement that has worked

elsewhere in abating natural resource degradation and depletion. An effective co-management arrangement is one where the planning and management of natural resources is obeying participatory mechanisms – where the state, the national and foreign investors and the local communities are all involved, seeking to safeguard their interests and collaborating in resource conservation (IUCN-Mozambique, 1997). The New Forestry and Wildlife Law in part prescribes this. Although it is a new law awaiting implementation, what sometimes happens is that there is a gap between the law and its practical application.

However, there are projects which envisage the involvement of local communities in the use and management of forestry and wildlife resources. These include(MAF, 1998):

- Project on Forestry Resources and Wildlife Management (in the provinces of Sofala, Cabo Delgado and Manica);
- Project on the Conservation of Transfrontier Areas (which includes rehabilitation of the Banhine and Zinave game parks and the development of community programs)-funded by World Bank and Global Environmental Facility (GEF);
- Project on Support for Community Forestry and Wildlife Management (which includes pilot areas in the provinces of Nampula and Maputo) – funded by the Dutch Government and implemented by FAO of the United Nations.

Different models of sharing benefits among the state, the communities, private companies and operators are also being implemented (IUCN – Mozambique, 1997; Negrão, 1998). This process can be found in the cases of the Tchuma-Tchato Project in Bawa, in the confluence of the Luangwa and Zambezi rivers in the District of Mangoé, Tete province; the Conservationist Project in the Bazaruto archipelago, the Project in Niassa Wildlife Reserve and the one in the Gorongosa National Game park (ibid.).

The Tchuma-Tchato project started in 1994 with the aim of promoting sustainable use of forestry and wildlife resources. Community representatives and conservation officials allocated quotas of animals, which could be killed by Safari Operators, which brought trophy hunters to Bawa. A fee is charged to the hunters and part of the revenue is used in the construction of social infrastructures, and the remainder is distributed to local families (IUCN – Mozambique, 1997; Kock, 1998). Sustainability of some of these projects is questionable due to the fact that they depend solely on tourists, and do not develop any other income generating alternatives. In the particular case of Tchuma-Tchato, if for any reason there is a reduction of the number of tourists coming to the resort, or if donors stop their assistance, the project's continuity will be prejudiced (Negrão, 1998). However, despite these uncertainties, other communities in Tete Province would like to see the Tchuma-Tchato experience replicated in their respective communities (MAP, 1997).

5. The Case of Southern Mozambique

There is historical evidence of traditional forms of natural resources management based on common property rights in Southern Mozambique albeit in transformed status.

The Exploitation of Mussels

On the southern Mozambique coast there are marine rocks where mussels and other resources occur. The marine zone with those rocks is divided into areas that belong to certain coastal communities. For example, in the coast of Manjacaze district, Gaza province, there is an area with rocks called '*linene*' that belongs to communities of Dengoine, Chissaque, Massango, Chidenguele, etc. In Inhambane province, there are *linene* of Canda, Fondo, etc.

For a long time, the exploitation of mussels in such rocks was done on community basis. The members of those communities, represented sometimes by the elders and traditional chiefs of the communities, developed rules that regulated the use of resources. Thus, the mussels were exploited between the months of December and February of each year. All community members were responsible for the enforcement of the mussel exploitation utilizing sometimes taboos². The taboos served to control the members' behavior and attitudes in relation to the resource.

During the month of December of each year, community representatives went to the rocks to verify whether the mussels were sufficiently developed to be exploited. If they were well developed, three big sample baskets were extracted and distributed one to the community traditional chief, and other two to the elders' representatives of all community villages. In the meeting of bags giving, the elders were informed about the date when exploitation would start and this was transmitted orally among villages. When the day came and when the sea tide was down, mussel exploitation started.

Community members obeyed local rules and traditions of mussel exploitation because this brought collective benefits (e.g. species preservation and collection of big mussels). It was believed for example, that if all the community members were not invited to mussel exploitation or if they exploited the mussels before the right time, the ancestral spirits would be annoyed and would reduce the abundance of mussels in the following years. Community members would also be less protected which could result in increased injuries and human disappearances caused by fury of the waves.

By accepting that the exploitation was to be done between the months of December and February, they were investing in the conservation and productivity of the mussels. However, in the area of each community there were spaces destined to free access, where anyone at anytime of the year would exploit the resource for current subsistence needs. The mussels extracted from the sea were important to the local economy. They were used for family consumption (fresh or dry) and for sale to other distant communities.

² There were a tell that when somebody went to stole mussels he or her were carrying on the risk of encountering guard-cats or, would contract wounding or disappear into the sea .

The Salt Extraction in Marangue Lagoon

The Marangue lagoon is situated in the interior of Manjacaze District, Gaza Province. It is a lagoon of marine origin, part of those created by the processes of marine transgression and regression which occurred during the Quaternary (Barradas, 1945; 1949; 1955). Their water was left in the interior when the coastline dislocated to where it is today.

The interior Manjacaze climate tends to dryness. The average annual precipitation is between 600 and 700 millimeters and the potential evapotranspiration is quite high. For that reason, in the dry period occurs salt formation in the lagoon margins by natural processes. This salt is the resource used by the communities that live in areas close to the lagoon and even those from distant locations.

In the areas where communities extracted the salt, everybody and especially fishermen were prohibited from taking baths or depositing rubbish there. The salt could be extracted by a community member for self-consumption or for sale. All community members benefited from saline conservation including the fishermen and their families.

Fishing in Lagoons and Use of Traditional Water Sources

For a long time, people have been taking water for consumption in the river courses, in lakes and lagoons. In certain regions, people adopted the construction of traditional water sources, opening a hole in the river, lake or lagoon. With the objective of supporting the hole walls and maintain cleanliness, a clay pot or peeled tree trunks were used for drawing water. But they also used to take water from the hole without clay pots and peeled tree trunks³. These traditional water sources, located normally in the valleys, in margins of rivers, lakes and lagoons, were for a long time objects of common use by the communities living in these places. In this case the resource for common property was water. The community members used this resource collectively and all were responsible for enforcement and management. For example, there was a prohibition to take a bath or wash clothes in the proximity of traditional water sources or in the river courses and other areas reserved for drinking and cooking water. If someone were found breaking these rules sanctions were applied.

For cleaning of the traditional water sources, there was a rotation system between zones called *Sigava* or *Miganga*. At given periods members of from *Tchigava* or *Muganga* cleaned and maintained the traditional water sources and other places for taking water. This system was functional because there was strong solidarity among the group members.

In the villages without water sources, the inhabitants used to take water from

³ The inhabitants of regions fare from natural water sources (rivers, lakes and lagoons), used to take water in the holes that occurred in high age tree stems - *munzati*. Some trees, when in old age, develop a hole in the terminal part of the stem where rain water accumulates during the rain season. The inhabitants of those regions used to clean the hole during the dry season to accumulate clean water during the rain season.

some places of the river course or lagoon. In these places, there was also a prohibition to wash clothes or take a bath. These attitudes were seen as provocation to spirits. For example, if somebody saw some extraordinary thing floating in the water or on the river and lagoon margins or around the place used to take water, s/he were prohibited from exclaiming or taking out the thing. This spiritualization of water sources and the associated environment stewardship contributed to the protection and conservation of common pool resources including water and preservation of plant and animal species.

The social changes that occurred over time have contributed to the weakening and sometimes disappearance of local management systems of common pool resources in certain areas. For example, in some places, the population now use modern water sources but even then, there still exists the need for local community members to define and agree on rules for efficient utilization of water resources.

In relation to fishing, it seems that subsistence fishing was done on the basis of almost free access regime. This could be because the number of people involved in subsistence fishing was small. Normally, there was no exclusion of individuals using line and fishhook, arch and arrow to fish. The quantity of fish that somebody could catch using these methods was reduced because these methods call for greater efficiency. Nevertheless, there were some restrictions for all (for both community and non-community members) such as, the use of fishing nets with small openings, the use of fishing traps that do not select the size of fish taken out from the water, and the use of traditional drugs that used to kill all the fish and other living organisms.

Machongos' Reeds⁴

In the Chilundo community, Zavala District, there are swampy valleys located between the coastal and interior dunes with soils of high organic matter content – *machongos*. In these machongos occur reeds with high capacity of superficial water retention. The local population maintained the reeds over generations because they permitted the existence of superficial water and the associated organisms that were used for multiple purposes.

The introduction of rice cultivation during the colonial era provoked a massive removal of reeds. The disappearance of reeds led to the elimination of living organisms within the microenvironment and the drying of machongos' water. This made continued rice production impossible. However, the consequent abandonment of rice production permitted reed regeneration over time and the abundance of superficial water.

⁴ The *machongos* are soils constituted almost completely by organic matter or with this component in high percent. They have abundant water immediately below the surface layer. They can be “pure *machongos*”, “sandy *machongos*” and “clay *machongos*” (Barradas, 1944). *Machongos* occur in many coastal valleys of Southern Mozambique.

Common Use of Sacred Areas

Sacred areas have existed for a long time within many communities as a common pool resource for use by all members. Members have equal rights and access to these areas and believe that they could benefit from their maintenance and preservation. The belief that making traditional ceremonies could bring rain, abundant harvest and would promote good health and less disgrace were all assumed as benefits. The examples are many in southern Mozambique and in other parts of the country.

In Chirindzene, within Xai-Xai district, Gaza province, there exists a sacred forest with more than 6 hectares belonging to a community composed of 9 villages. This forest constitutes a local resource where community members make sacrifices and offerings to their ancestors in request for rain, abundant harvest, etc. The traditional chief of Chirindzene recently remarked that in the past the requests were sufficiently satisfied by the ancestors but this did not happen today due to changes in the relations among people, ancestors and the environment (Cau, 1999). In Chirindzene, "some time ago the forest was dense, there were prohibitions to cut whatever tree within the forest, contrary to what is partly happening today. This resulted in reduction of the ancestral capacity to respond to our problems" (op. cit. p. 8).

The members of these 9 villages were co-owners of the forest and used it together for sacred and spiritual purposes. This permitted the conservation of the forest until today that it constitutes among other things a small forest reserve with scientific, environmental and cultural importance.

In Zavala District, Inhambane Province, there is a sacred area called Mandevuene. In this coastal area, there are mobile and fixed dunes, coastal forest and some small wild animals. The mobile dunes constituted by heaps of white sand are located in the central part of the Mandevuene sacred area. The local inhabitants affirm, for example, that as someone is walking on the mobile dunes some mysterious and invisible power extinguishes footsteps. No one is allowed to exclaim about anything nor pull out a plant, kill an animal or take out whatever thing. The reality or falseness of these declarations does not appear to be more important. The critical aspect is that the community uses collectively the forestry, wildlife and landscape resources for sacred purposes and this constitutes a traditional form natural resources management. The place has a beautiful landscape that could have been destroyed had it not been for the existence of a traditional management system in the area.⁵

Common Use of Range Lands

The plain areas between the coastal lagoons and the Indian Ocean in certain places of Gaza Province have been used for extensive cattle grazing. Following independence, many community members owned cattle and the need to control grazing became apparent with increased livestock population. Cattle owners used the pastures in common and they had the power to exclude others. In certain places, they used to

⁵ Mandevuene can be seen at northeast Quissico Village, Zavala district capital.

contribute labor and materials towards maintenance of enclosures and fences or stakes left by Portuguese citizens during the colonial era. In addition, they controlled the access to the pastures of cattle belonging to non-community members since these were not contributors to the labor and materials (wire or stakes) required to maintain the enclosures. These enclosures were necessary to prevent the evasion of agricultural fields by stray cattle.

This system had among others, the following faults:

- ◆ Lack of willingness for enclosure maintenance;
- ◆ Difficulties to identify cattle belonging to each owner;
- ◆ Difficult of resolving problems originated by cattle evasion of nearby crop fields;
- ◆ Conflicts among cattle owners over need to control cattle; and
- ◆ Reduction in cohesion between the community members (cattle owners + nearby crop fields owners).

This is an example showing the existence of pastures as common property resources although there are doubts about the efficiency of the system for sustainable management. It is possible that the increase in livestock population exceeded the pasture carrying capacity resulting in overexploitation. This situation could have been avoided by reducing cattle numbers and even the other faults indicated above could have had community solutions.

Common Use of Medicinal Plants and Some Fruit Plants

In Southern Mozambique there were trees which, the rights to fruit consumption belonged to all the community members. This is the case of *Muneve*, *Mutiva* or *Nzhiva* and *Mundula*. When the fruits of these trees were mature, community members directly responsible for the trees (i.e., those with trees in their fields) would request young boys to take to fill a bag of fruits, consumed it, and if ready, would advise other community members that harvest time had come. On that day, community members went to harvest fruits for their consumption. There was restriction of the use of large saws to cut the inaccessible tree branches and no one was allowed to harvest fruits before the right period.

Medicinal plants were also treated as common property for all community members. The individuals who the medicinal plants were within their fields had not right to exclude other community members from use of the plants.

Common Use of Some Miombo Forest Mushroom

Miombo forests of predominantly *Brachystegia spp.* occur in some parts of southern Mozambique. The most common tree species includes *mutondo* or *tsonzo*. The accumulated *mutondo* or *tsonzo* leaves on the ground favors the growth of mushrooms during certain periods of the year, especially after the rains. Mushroom collection is open to all community members but outsiders are excluded. However, there are rules that have

to be obeyed by the community members. These rules included the prohibition to start forest fires and defecate within the forest. The individuals in the community were motivated to enforce compliance with these rules because they had benefits from the resource. They felt that it was self-prejudice to not enforce and obey the rules.

Common Use of Forests

In relation to the forests, in some communities there was a system of zoning without concrete physical boundaries. In forests located in the proximity of residences and crop fields of community members, there was no permission required to collect fuelwood, stakes, poles, ropes, grass, bamboo, medicinal roots and leaves by individuals who were community members. For non-community members, permission of traditional authorities was required. Nevertheless, there were other areas apparently free where someone, including individuals from other communities could use the forest products without need for any form of permission.

6. Natural Resources Common Property Rights Decline

There is a complex of factors that together provoked changes that contributed to the disappearance and abandonment of certain forms of natural resources common property rights. Some factors were more determinant than others. However, even today the communities apply this form of use to certain resources.

Population Growth, Deforestation and Loose of Plant and Animal Habitats

Human population increase in the case of southern Mozambique, accompanied by crop fields extension, contributed to deforestation and transformation of traditional systems of natural resources management based on common property rights into free access or almost free access. The introduction of obligatory cotton crop production during the 1930s (Hedges and Rocha, 1993; Pitcher, 1995; Ombe, 1998) also led in subsequent years to massive natural vegetation removal. Mozambicans practiced both subsistence and commercial farming for self-consumption and sale to Portuguese companies, respectively. Until that time some forests were intact and their resources were used on a community basis. The deforestation caused reductions in both quantity and quality of vegetal species and also altered or reduced habitats which led to extinction of some animal species or migration to areas with secure ecological conditions.

Anti-colonial and Destabilization War

Mpinga (1994) states that in countries like Mozambique and Angola, the war was responsible for the destruction of traditional systems of natural source management including common property rights. First was the anti-colonial war and the civil war that occurred after independence. The wars in Mozambique provoked the assimilation of new behaviors and attitudes in relation to natural resources and caused weak cohesion and solidarity among people. The sacred places were violated and there was dislocation of

people from their areas of origin. These people found themselves in situations of extreme poverty. This situation obligated them, to survive, to collect out from the nature all what could be immediately marketed (Lopes, 1996).

Loss of Sense of Ownership

The old legislation that did not recognize the traditional forms of natural resources management also contributed to reduction of community motivation to exclude the non group members and avoid overexploitation (Arnold e Campbell, 1986). Over time, this contributed to the erosion of the traditional forms of natural resources management based on common property rights. For resources such as mussels for example, it is difficult nowadays to exclude anyone because communities do not have legal authority to do that. In case of forest resources, Kloeck-Jenson (1998:17) affirmed that “ local communities, after years of colonial and post-independence rule in which they have not been consulted or have been ignored in decisions regarding the use of forestry resources, may not themselves have a keen sense of ownership”.

Economy Monetarization, State Intervention and Market Forces.

The development of coconut and cashew trees crops and the recruitment of Mozambicans to work in South African mines have contributed widely to economy monetarization in Southern Mozambique (First *et al.* 1979). This permitted for example, that some local community members had to leave the dependency on collectively used traditional water sources in favor of underground cemented cisterns opened using money obtained from South Africa mines and from sale of cashew nuts. The money enabled the communities to reduce the extraction of salt in Marangue, in favor of buying iodized salt sold in local shops. In some areas, the State initiated the process of improvement of traditional water sources (cementation). This led for example, to the abandonment by communities of using water taken from tree stem holes.

The market forces constitute an element that contributed sometimes to changes in attitudes in relation to common property resources (Jodha, 1992). For example, the great fuelwood and charcoal demand in southern Mozambique cities, forced some members and non-members of communities to exploit the resources with market objectives, which often led to resource degradation. “ The mangroves of our coast are being decimated as an excellent quality raw material to produce vegetal charcoal, putting in risk a second resource, the prawn (Araujo, 1998:8). In part, this happened because the resident communities had lost the sense of ownership in that they lacked the authority to exclude the non-members and adequately coordinate resource use. However, poverty is the first element that motivates people to overexploit forestry resources for fuel wood and charcoal.

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