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Environmental Change in South Central Chibuto Southern Mozambique 1965-2000

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Chapter 3

Land-use Change in South Central Chibuto 1965-1975

3. 1 Introduction

In the previous chapter the main environmental characteristics of the study region were described through a detailed overview of the region. A detailed description of the natural features and the resources of the site were given, including the way this resource base has and is actually used by local people**.** This chapter examines the dominant land-uses and some of the socio-political causes of such land-use change during various periods to 2000, in the following chapters beginning here with the period of 1965-1975. This period was chosen for the beginning of the study period because of the availability of the data sources including aerial photographs and oral histories. Historical documents also show this last decade of Portuguese colonialism as a relative uniform period in terms of economic development. The period was viewed as an "open doors" policy period, attracting foreign capital when Portuguese colonialism was under pressure of the liberation struggle initiated in 1964. This period also serves as a baseline from which subsequent land-use can be introduced and compared. The chapter begins with the presentation of an overview of historical and socio-cultural aspects of the Tsonga before 1965 followed by the examination of the specific political economic strategy of the period 1965-1975. The second part describes the resultant land-uses in the region. The chapter concludes with an assessment of the impact of the land-use structure and changes in the natural and socio-economic environment.

3.2 A Historical background of the study area before 1965

South Central Chibuto region is mostly settled by the Tsonga-Shangana:

> "Tsonga are part of a linguistic group known as Southeast Bantu. Other members of this family include Sotho, Venda and Nguni" (Smith, 1973, 270).

The Tsonga entered southern Mozambique in the first half of the first millennium AD (Young, 1977). The term Shangana derives from Soshanagane, the founder of the Gaza-Nguni kingdom in the 1820s (Liesegang, 1981; 1986).

Cultivation and animal husbandry are the main economic activities of the Tsonga, largely divided according to gender. Cultivation is mainly a women's activity, while herding, hunting and migration to South Africa have been a predominantly male-dominated activity. Although not used for traction in pre-colonial society, cattle were the principal form of surplus accumulation (Young, 1977). The Nguni incursions of the 1820s mark a major watershed in Tsonga-Shangana economic history. After Nguni rule was established, both trade and cattle keeping were greatly disrupted, placing severe pressure on the Tsonga economies as a whole and in particular compelling a redirection of male energies, which helps to explain the subsequent movement of Tsonga men in migrant labour (Young, 1977; Rita-Ferreira, 1983; Macamo, 2002). The decimation of the cattle during war events, which was used for marriage as bride price, meant that they had to be replaced with cash earned in labour migration (Rita-Ferreira, 1963; Covane, 1996).

The natural environment of Southern Mozambique is also seen as having contributed to the gender division of labour in the Tsonga-Shangana society. In contrast to elsewhere in Southern Africa, where the adoption of the plough intensified male participation in agriculture, no such effect was evident among the Tsonga where the use of plough was basically inappropriate in this region of sandy soils (Rita- Ferreira, 1963; Young, 1977). This is true, however only in the highland sandy soils. In the fertile alluvial soils of Limpopo Valley, men did participate side by side with their wives in agricultural activities. Both women and men have used ox-plough teams since the 1930s (Young, 1977; Lifestories, 2002, 2003, 2004).

3.2.1 The colonial economy

The majority of the people in South Central Chibuto and Southern Mozambique in general, have produced for their subsistence use. The pre-colonial societies, however,

have been involved in merchant activities and negatively affected by them. In Mozambican history, the period of mercantile capital is divided into three time periods according to the commodity dominating each era: 1498 to 1693 period of gold trade; 1693 to 1797, period of ivory trade; and 1785 to 1870 that of slaves (Munslow, 1983). Other products traded in small quantities by rural societies were: oleaginous seeds, wax, beans, tobacco, cashew nuts as well as cattle and copper (Junod, 1913a; Junod, 1973; Young, 1977, Liesegang, 1981).

In the early colonial period 1880 to 1930, the central and northern parts of the country were leased to foreign-chartered companies and the south became a labour reserve for the South African mines. Then, in the middle colonial period (1930 to 1960), colonial authorities attempted to limit foreign economic influence and Mozambique became a direct source of profit for the Portuguese economy, including attempts to reduce labour migration to South Africa (Rita-Ferreira, 1983; Covane, 1996). Forced crop cultivation and forced labour were intensified in order to supply raw material to Portugal (Munslow, 1983; Issacman, 1995). In South Central Chibuto in the period 1930-1960, for example, forced cultivation of cotton was implemented. Compulsory cotton cultivation occurred in the *bila* fields (Lifestores, 2002, 2003, 2004).

In the *bila* lands, compulsory cultivation of cotton and rice had been officially imposed from the 1930s until 1961(Fortuna, 1993; Isaacman, 1995; Covane, 1996). Africans were subject to a system based on a law established by Portugal in 1926 to assure adequate supplies of cotton for the Portuguese textile industry. Private companies were granted zone concessions in the principal cotton growing areas. In return for exclusive purchasing rights, the companies were charged with siding and supervising the African growers and with ginning, loading and shipping of cotton. Strong external criticism and people's dissatisfaction with compulsory cotton production led to legislation in 1961 to abolish the compulsory cultivation of cotton (Fortuna, 1993; Isaacman, 1995: Covane, 1996).

There were many negative aspects in the compulsory cultivation of cotton, but the most important were related to the lack of time available to the peasants to produce food crops, which ultimately affected food security and nutrition. This is because for

those peasants who did not possess oxen-drawn ploughs and with a low labour force, cotton cultivation became a very burdensome activity (Roesh, 1991; Lifestories, 2002, 2003, 2004).

Other negative aspects of cotton cultivation during this period were the degradation of soil due to increased soil erosion and the pollution of soils by DDT, which was the main pesticide (Roesh, 1991; Fortuna, 1993). Since the 1950s, forced cultivation of rice had been introduced in the Lower Limpopo region in order to improve the food supply for the growing urban population (Roesh, 1991). During the PRA undertaken for this study, many people reported that after independence, they abandoned the cotton cultivation because it was burdensome and it was imposed on them during colonialism (Isaacman, 1995). A positive aspect of forced cotton cultivation was that for some peasants it was an opportunity to accumulate wealth and purchase industrial goods, including agricultural implements. In Southern Mozambique, big polygamous families, who possessed cattle, could simultaneously cultivate cotton and produce food crops, and used the cash from cotton to buy food during the dry hunger season. This money could also be used for the education of the children's school fees and education materials[8] (First, 1983; Covane, 1996; PRA, 1999).

3.2.1.1 The migrant labour to South Africa

Like the rest of Southern Mozambique, South Central Chibuto passed under formal Portuguese colonial rule with the military conquest of the Gaza pre-colonial kingdom in 1895 (Roesh, 1991). At the time of colonial occupation, the Limpopo valley and South Central Chibuto, in particular, were already supplying large numbers of migrant labourers to South Africa. The development of capitalist mining and agricultural enterprises in South Africa during the second half of 19th century led to the rapid development of a pattern of migrant labour from Southern Mozambique to South Africa (Rita-Ferreira, 1963; Katzenellenbogen, 1982; Covane, 1996).

[8] Respondents interviewed during the course of fieldwork about the issue of compulsory cultivation replied that some people cultivated cotton voluntarily but during the campaign the whole process of growing was under compulsory supervision by the authorities (see also Manghezi, 2003).

The impact of the migrant labour to South Africa in the area under study had a number of consequences, not least land-use change. Some of the causes of the exodus of the men in this area and coping strategies are provided (Marvin, 1959; Rita-Ferreira, 1963; Young, 1977; Katzenellenbogen, 1982; Penvenne, 1995; Macamo, 2002), including:

- Irregular rainfall, prolonged droughts and epidemics of cattle diseases led frequently to famine conditions. Each year the storehouses of most households emptied out before the new harvests became available.
- Irregular rainfall created the need for additional sources of foodstuffs, but the existence of large areas with loose sandy soils made agricultural tasks such as hoeing manageable by women and young girls so men could be freed from those tasks.
- The existing variety of soil types and edible fruit trees helped the households to cope with the rainfall variability while men were away in the mines. This includes the existence of sandy soils and a variety of wild trees and plants bearing edible fruits.
- Young men needed money for the paying of the bride price (*lobolo)*, which should be paid either in cattle or in cash.
- Finally, there were tensions produced by the polygamous Tsonga family hierarchy. The sons of the headmen, in addition to being ranked by the order of birth were also ranked according to the position of their respective mothers. The ranking order among the half brothers of the homestead frequently led to significant socio-economic deprivations of the sons of junior wives, who could not acquire the means (cattle) to pay a bride price for their marriage (Marvin, 1959). This is also a consequence of the decimation of cattle during the Nguni rule and cattle epidemics such as rinderpest. The *lobolo*, which was previously paid in cattle, started to be paid in cash (Young, 1977; Katzenellenbogen, 1982) (**Table 3.1**).

The aforementioned factors and others, including colonial repressive policies are seen as having allowed and encouraged Tsonga males to become available for migrant labour in relatively large numbers**.** Southern Mozambique labour was contracted for twelve or eighteen months' period on average longer than those migrants of other countries. This labour was re-contracted regularly and thus an experienced labour force became available and a class of worker-peasants was formed (Rita-Ferreira, 1963; Munslow, 1983; Penvenne, 1995). Labour migration impacted on almost all the aspects of the livelihood of the rural communities in the study area (Wuyts, 1997, 2001).

The number of the livelihood activities and assets generated by the migrant migration earnings were various and of great importance for local communities. They included the purchasing of agricultural implements (e. g cattle and ploughs) and tools for petty commodity production, etc. The women left behind could contract male labour for cultivation and undertake activities such as building and rehabilitating houses, roles which were traditionally not undertaken by female[9] (Young, 1977; First, 1983; Wuyts, 1997; 2001).

3. 3 The 1965-1975 developmental strategy

During this period (1965–74) Portugal was under pressure from the liberation struggle led by FRELIMO as well as from calls for decolonisation by the international community including the United Nations. As a result, the colonial authorities began to treat the African population more humanely, encouraging community development and working to modernize the economy. Education, heath care and agricultural extension became preoccupations of the Government:

> "Social expenditure was stepped up with greatly increased budgets for education and health provision and mobile health units operated by the army in the zones infiltrated by FRELIMO" (Newitt, 1995, 582).

In terms of the political economy, the period from 1961-1974 was named the period of the crisis and the restructuring of capital. This is because under external pressure, Portugal was forced to abolish the forced labour of crops including cotton and rice as well as to abolish the compulsory work in the construction sector. Portugal had also been forced to open the doors to foreign capital and modernize the economy (Wuyts, 1980, Munslow, 1983; Abrahamsson and Nilsson, 1995).

[9] This is important in the region of high rainfall variability where during severe floods people lose almost every thing. Large losses are also incurred during severe droughts (Boudreau, 2001).
During field work, through lifestories, this issue was underscored by many informants (e. g., the number of contracts enabling a person to acquire assets of long-term investment during their lifecycle: wives, cattle and ploughs and stone houses) (e.g, Matsombe, pers.com, 2003; Manhiça pers. com, 2004,).

> "The percentage of foreign capital in total annual investment increased from 0, 8 per cent in 1959 to 26, 7 per cent in 1966 (Munslow, 1983, 11)".

The afore-mentioned political and economic measures also included gradual improvements in transportation facilities and the marketing system in order to persuade farmers to produce for the market.

To foster the intended development objectives, research on the natural resources base was also undertaken. For these purposes, agronomic research institutions played an important role (Barradas, 1962, 1966). The agronomic research on agricultural potential of Southern Mozambique was focused on the Lower and Middle Limpopo regions where high potential for irrigation agriculture was identified. The authorities identified a need to re-zone land in the Limpopo basin allocating the most fertile land to white settlers, and marginal land to the black peasantry, for use in rain-fed areas (Barradas, 1966). White settlers, who were considered progressive, were assigned an important role in the agricultural production of the region.

The last period of colonial administration was also characterised by the establishment of various development plans encouraging the intensification of agricultural production by using the existing land-use capabilities in the alluvial soils of Limpopo and Shangane Valleys (Barradas, 1962, Romano, 1963; 1966; Portugal, 1973). Because of the considered benevolent climate in Southern Mozambique, this region was considered suitable for Europeans.

One of the main goals of the colonial development plans in Mozambique, in the middle 1960, beginning of the 1970s was to improve the productivity of traditional African agriculture (Portugal, 1973). At that time it was found that the main cause of the low productivity of the African traditional agriculture had been the apparent backwardness of the technologies used, the dispersion of the population and the size of agricultural plots. The solution for these problems was found in the land-use planning *(ordenamenamento)* and the development of co-operatives (Barradas, 1966;

Portugal, 1973). The following land-use structures were delineated[10]:

- Irrigated farms were run mainly by white settler in the *bila* close to rural roads.
- Extensive and intensive pastures were run by both the African peasants and the Portuguese.
- The Portuguese occupied the best pasture in sites with water. Traditional agriculture was run by the local
- African population mostly in the rain-fed sites such as the *serra* (Portugal, 1973).

For the development and modernisation of the African traditional agriculture, the following measures were proposed (AHM, SE, P8; AHM: SE, AII, P9; Barradas, 1966):

- Construction of water reservoirs for people and cattle.
- Increase in the number of dip points for cattle and improvement of the veterinary service.
- Improvement of agricultural extension including the veterinary service.
- Improvement of communications: A road from Chibuto to Chokwe (a major rice production settlement with a considerable number of European settlers), for example, was tarred. Cement bridges replaced the bridges, which had been made of wood.
- A budget for the construction of a secondary school in Chibuto Town was approved.

One of the preoccupations of the Portuguese administration was also labour migration to South Africa. Although this practice was a source of foreign currency, migrant labour also provoked shortages of labour for the plantations, particularly rice and sugar cane plantations during the periods of harvest (Rita-Ferreira, 1967; Munslow, 1983; Covane, 1996).

3.3.1 Administrative Division

Having outlined the general macro-economic aspects attention now shifts to a brief description of the administrative division, which was a crucial issue in the economic development and which was to undergo substantial changes after Independence.

[10] This includes the creation of cooperatives by the African peasants.
Coincidently Chibuto was the first place to have a native cooperative during the colonial period (Macalawane Co-operative) which did not last long (see AHM, CCH, Cx275.d1and Rita-Ferreira, 1963).
May because of that it was also the first place to adhere to the socialist style of co-operative (25 de Junho Co-operative (see Issacman, 1978 and Maueia, 2000).

These changes included the way land was allocated by the local authorities, an important issue of concern in land-use studies.

During the last years of the colonial system Mozambique (1965-1975) was a "State within the Portuguese State" (Nelson, 1984). Mozambique was divided into 9 districts (Cabo Delgado, Niassa, Tete, Mocambique, Zambezia, Manica e Sofala, Inhambane, Gaza and Lourenço Marques) (Nelson, 1984). The districts encompassed townships *(concelhos)* and *Circunscrições*. Within *circunscrições,* are administrative posts (*Postos Administrativos).* Under the administrative posts are *regedorias*, which are groups of African settlements. *Regedorias* were places where Africans lived in traditional fashion and under customary law. The *regedoria* was ruled by a *Regulo* and under the *Regulo* there were *Chefes* or headmen (Feliciano, 1998). *Regulos* and *Chefes* directed the community's life according to both Portuguese law and traditional custom. After independence, the districts were transformed into provinces and the *concelhos* into districts. The districts where then divided into *Postos Administrativos* and localities (Nelson, 1984). According to the colonial administrative division, South Central Chibuto encompassed the capital of the *Circunscrição* of Chibuto, *Posto sede* de Chibuto and included the *regedorias* of Canhavano, Macalawane, Chidinuane, Maiumbo, Hoio-Hoio and Combo (Marques, 1960; Portugal, 1972, Mocambique, 1977).

After Independence in 1975 the country was divided into 10 provinces and districts, which were subsequently, divided into *Postos administrativos.* The *Postos Administrativos* are subdivided into localities including towns and villages. South Central Chibuto includes the Chibuto Town, the capital of Chibuto District and the surrounding territory belonging to the *Posto Administrativo* of Godide and the villages of Samora Machel, Eduardo Mondlane and Chimundo. In the late 1990s, it was estimated that 80 000 inhabitants lived in the study area (General Population Census, 1997).

3. 3. 2 Land tenure system and land holding

Having outlined the general macro-economic policy, attention now turns to the examination of the land tenure system, which during this colonial period was designed to assure the maintenance of the desired economic structure. This system, it is argued, consequently impacted on the land-use pattern, which will also be described in subsequent sections.

Until national independence, land tenure was governed by two separate systems: one based on African customary law, the other on Portuguese law. Under the traditional African system, land was regarded as belonging to the community, consisting of clans and chiefdoms (Feliciano, 1998). Land laws were linked to social and economic structures of the community and there were differences in details among ethnic groups. But it was universally accepted that any household that belonged to the community was entitled to use land for cultivation (Nelson, 1984).

The power to allocate land was held by the lineage clan village chief elders from whom the household received the usufruct rights to a specific area. Individuals received access to land by virtue of being a member of kin groups. Authority over land was transmitted patrilinearly among Tsonga communities (Feliciano, 1998; Cau, 2003).

Under land law in force since 1961 until independence, there were three classes of land tenure (Decree-Law 77 Number 43 894):

- Class 1. Land in population centres and their surroundings (formal cities and villages)
- Class 2. Land necessary for African population groups for their use in harmony with custom and usage (land for traditional rain-fed agriculture and settlement)
- Class 3. Land, which could be acquired only through concessions, granted in compliance with the legislation in force (land for commercial farming and development in general.

It is important to underline that the land necessary for the African population could be included in the third class of land tenure. White settlers frequently demanded land for cultivation and livestock production thereby forcing the African peasantry to resettle and occupy marginal lands (O' Laughlin, 1995). Various other factors including marriage and gender influenced who had access to land. Gender division of labour and the Tsonga inheritance system is an important issue, because customary laws and practices play an important role in the process of land allocation and cultivation patterns in general which will be outlined in the following section.

3.3.2.1 Access to land by women

Marriage is the most conventional way for women to gain access to land within the customary system. A new bride initially obtains land at the husband's homestead through the husband's relatives, as Tsonga society is patrilineal and virilocal (Feliciano, 1998). According to this system, in the rural areas, there was a tendency for parents to reserve land and residential spaces to sons whose plots would be cultivated by their future wives "but in no case did they do this for daughters" (Andrade *et al*., 1997, 68). When a woman gained access to a piece of land, she could strengthen her claim, by removing vegetation to create a cleared area, which could be cultivated. Boundaries (*mutrele* in S*hangana*) divide the field usually by making a shallow path along the boundaries separating the field from neighbour plots or other types of land-use including residences and trails are created. Traditional boundary marks between plots, consist of objects such as big trees and termite mounds and trails (Junod, 1913b, Gengenbach, 1998; Andrade *et al.*, 1997). Trees left in the fields, mostly used as marks between plots, are also used for shadows during the warm periods and as places to rest and as well as performing other agricultural tasks (Wilson, 1989; Lifestories gathered during field visits, 2002, 2003 and 2004).

Both married and divorced women can farm their mothers' lands, especially if they live in the same or neighboring location. Aged women can borrow land from their friends and also lease land to friends. Usually, the strategies to cope with the vagaries of the environment are undertaken by women who rely on friends living in different but complementary ecosystems, as mentioned in Chapter 2 (Covane, 1996).

According to Cossa (interviewed while ploughing a field in *bila* land in 1999), during the 1991/92 severe droughts, his mother borrowed a plot of land from her friend in a site with irrigation facilities, and she migrated to that place in order to farm and use the harvest to feed the family (Cossa pers. com, 1999). It is important to mention that mobility as a strategy to explore landscape diversity and minimise the impact of natural environmental constrains is widely used not only in the study area but also in other Southern African regions (Scoones *et al*., 1996).

3.4 Land-use pattern

Land-use during the period 1965-1975 has been examined using aerial photos, literature review and oral informants. The interpretation of aerial photographs and oral information (e.g. Mariana Tivane, pers. comm., 1999, and PRA open forum discussion) shows that towards the beginning of the 1960s, the territory of South Central Chibuto had undergone a long process of historical land-use change. In this process, the former open Miombo forest, savannahs and riverine environments were converted to a variety of different land-uses and covers (Marques, 1960; Leach, 1992, Lifestories, 2002, 2003, 2004). The land-use at the beginning of the study period, included cultivated lands under traditional agriculture, homesteads, white settler irrigated commercial farms, the village of Chibuto, pastures and sacred places. In response to human and natural disturbances, a variety of management strategies were introduced to prevent the rapid decline of natural resources (Feliciano, 1998; Farina, 2000) as described in the previous chapter.

3.4.1 Medium and small-Scale white settler farms (irrigated commercial farms).

Medium and small-scale white settler farms were located in the Limpopo valley and comprised fertile alluvial soils, usually on the edge of the ancient dune-*serra* escarpments. In these sites, normally there was an accumulation of ground water and formation of hydromorphic soils. These lands belonged to the settlers who produced for sale to towns in order to satisfy the consumption patterns of the white settler community (Barradas, 1966).

The main agricultural products were rice, wheat, potatoes, and a variety of vegetables and fruits, meat and eggs. The production in the commercial farms involved the use of relatively modern agricultural implements such as tractors and fertilizers and selected seeds. White settler farmers relied mostly on family work but sometimes they also hired labour during the peak period, particularly, to scare birds in the rice plantation. This work also included harvesting and preliminary processing of rice. Because the majority of men were involved in labour migration, women and young girls formed the bulk of the labour force in those commercial irrigated farms (Wuyts, 1977; 1985; 2001).

An important activity of the settlers' farms was commercial cattle production. According to archival materials in 1967 in the *circunscrição* of Chibuto, now the district of Chibuto; there were 49 kraals of cattle belonging to about 45 settlers. Commercial livestock production was undertaken in fenced farms with sizes ranging from 100 to 7000 hectares scattered over the territory of Chibuto. The number of cattle owned by commercial farmers ranged from 4 to 2000 head (AHM: ACCH, Cx 312, d18). These farmers supplied meat to the Chibuto Town for consumption mostly by the local white community. In addition, they sent cattle to bigger towns such as Lourenço Marques (now Maputo). The Government at that time regularly organised cattle fairs where the farmers could sell their cattle. Black people were also allowed to buy and sell cattle for their own needs. For their agricultural activities, white settlers required relatively big tracts of land ranging from ten to several thousands hectares. The biggest farms of more than one hundred hectares were required for cattle production.

3.4.2 The African peasant farms (traditional agriculture)

Traditional agriculture was the main activity for the majority of the population. During this time 1965-1975 the main characteristics of land-use was traditional agriculture, including the conservation of trees within farms and the practice of fallow land. In this way, the cultivated lands were interspersed with forests and bushes in various stages of re-growth (intensive, long and short fallow). The different types of vegetation left within and outside the farms provided the population with building

materials, fruits, medicine, privacy and wind barriers within the homesteads, fuel wood and sites for gathering of small animals and mushrooms. Fallow lands were used for grazing and also for gathering fruits and insects

African peasant farms were located both in the Limpopo valley's fertile alluvial soils (*bila)* and ancient dunes' (*serra)* poor sandy soils. The production of the African peasant was mainly for subsistence with a relatively small-marketed surplus. The main agricultural products of this sector were maize (*Zea mays*) and groundnuts (*Arachis hypogea*) in the *serra* and maize and pumpkins (*Cucurbita spp*) in the *bila* (**Tables 3.1 and 3.2**) (Marques, 1960). Inter- cropping and the scattering of agricultural fields were the predominant strategies to cope with ecological constraints, as fertilizers were not used.

Until the end of the study period, the practice of long fallow of more than 5 years for the recovery of vegetation and replenishment of the soil nutrient was practiced in the *serra* sandy soils. Burning of vegetation for reopening agricultural fields under big trees was also practised (Marques, 1960: PRA, 1999)

In the *bila,* fertile soils, 'peasants' sometimes practised monoculture of maize, cotton and rice like the white settlers used to do. In the *serra,* monoculture was also practised in the case of groundnuts. Although groundnuts were intercropped with maize, the risk of failure of maize is so high that groundnuts became a monoculture in certain parts (Marques, 1960).

During the period under study (1965-1975), there was also a process of differentiation of the African peasantry and the establishment of an African middle peasant farm similar to the white settlers' farms. African middle class farmers, however, had fewer inputs. These farms were owned mainly by peasants who, after a series of contracts on the South African mines had acquired enough means of production to settle themselves in agriculture for the market (Rita-Ferreira; 1963; Roesh, 1991; Covane, 1992; Lifestories, 2003, 2003, 2004).

The African middle peasants cultivated fertile alluvial soils of the Limpopo valley and could acquire ploughs oxen and sometimes pumps for their agricultural work, or even hire tractors from white settlers (Roesh, 1991; Covane, 1996). First (1983), however, calls attention to the fact that there was no absolute division between the middle and ordinary or poor peasants, because the majority of middle peasants, as they grew old and were less able to work in agriculture or mining, were forced into the poor group (First, 1983).

The *bila* fields were cultivated in an adapted system of soil, crop and water management in a system called recessional retreat irrigation with seasonal river flood (Wisner, 1988). 'The main ecosystems in the *bila* are marshland, well-drained flood plains, riverbanks and river terraces. The main crop cultivated in *bila* fields is maize (*Zea mais*), which is grown both in the summer, and winter seasons in relatively well-drained patches **(Table 3.1).** Maize is usually inter-cropped with pumpkins in the summer and beans in the winter. According to Beinart (1982), who studied the intercropping system in Pondoland when inter cropping maize and pumpkins,

> "The maize sprouts first and after it has been hoed a couple of times, pumpkin runners began to fill the spaces in between the stalks, downing out the weeds. The beans would twine themselves around the maize stalks" (Beinart, 1982, 100).

Sorghum, a traditional crop in the area, was gradually abandoned and substituted by maize as a staple food because of the birds which always ate the cobs and because of increase in education attendance by girls as well as the labour migration to South Africa, which provoked a shortage of labour for sorghum production. Relatively, waterlogged marshy patches were used under pasture during the rainy season in the summer. In the winter, however, this land could be used to cultivate green vegetables such as onions and garlic in the following way. After the floodwater has receded, depressions remain filled with water forming numerous marshes along the length of the river. These marshes usually dry up during the dry season due to evaporation and infiltration. Sowing was made around the edges of the waters in the marshes. As the marshes dry up, farms are extended downwards towards the centre of the marsh and ultimately drier beds of the marsh are completely under cultivation (Felgate, 1982,

PRA, 1999). Few peasants cultivated wheat during the winter period. The production of wheat was being promoted by the Institute of Cereals of Mozambique (Christian Council of Mozambique, 1988; Lifestories, 2002, 2003, 2004).

The *bila* fields were cultivated mostly by ploughs because the soils are relatively heavy. The ploughs were introduced during the 1930s by the labour migrants to South Africa and became popular. Likewise in parts of Southern Africa, Protestant Missionaries provided ploughing classes as a civilising accompaniment to spiritual evangelisation (Scoones *et al.*, 1996; Covane, 1996; Lifestores, 2002).

Table. 3. 1: Land-use in the *bila* environment.

Well drained alluvial soils	**Marshes *Dunyi***	**River banks *Lidonga***	**Sandy terraces *Lhavathi***
Maize (*Zea mays)* Cotton (*Gossipium hirsutum*) Wheat (*Tricum sp*) Pumpkins (*Cucurba sp)* Castor seeds. Beans. Melons. *Mafurra* trees.	Sweet potatoes (*Ipomea batatas*) Horticulture (e.g.): garlic (*Allium sativum*) Onions (*Allium sepa*) Pasture, raw material for Making mats and thatch.	Sweet potatoes (*Ipomea batatas*), Pumkins, Horticulture, the more suitable area for building houses.	Maize (*Zea mays)* Groundnuts (*Arachys hypogea*) Beans *(Faseolus vulgaris* and *vigna sinens*is)' Melons, Mafurra trees (*Sclerocarya birrea*).

Source: PRA, January (1999) and Marques (1960). The table shows the traditional pattern of land-use practiced before Independence in the Changane and Limpopo flood plains.

3. 4. 2. 1 The *serra* fields (traditional agriculture short and long fallow).

The *serra* was used for the cultivation of drought resistant crops because the soils are loose and the water-holding capacity of the soils is very low. The main crops were maize in plateau regions and groundnuts on the slopes of the ancient dunes, the latter fields were called *marhangavene***.** Maize could be inter-cropped with beans and cassava where the main crop is cassava (**Table 3.4**). Variation in topography in the undulating landscape is particularly important in farming in South Central Chibuto. Farming in the micro level spatial variation or catena sequences typically involves a gradation from upland areas through transition zones to sink areas at the bottom of the slopes (Scoones *et al.,* 1996, PRA, 1999). More drought tolerant crops such as cassava and groundnuts are usually cultivated in the intermediate parts of the catenal sequences, where the drainage is excessive. Where there are depressions with accumulation of water in these parts, bananas and sugar cane are the most cultivated crops (**Table. 3. 5**).

The *serra* agricultural system constituted the main producing zone for cashew trees. This tree *(Anacardium occidentale)* grows to maturity in 10-12 years. As these trees are very susceptible to fire, they have to be kept free from weeds, a factor which stimulated almost continuous cultivation of under stores (Nelson, 1984). Cashews, which have been Mozambique's largest foreign exchange earner, were introduced from Brazil by the Portuguese in the sixteenth century (Spencer, 1991; Nelson, 1984; Kanji *et al*, 2002). Commercial exploitation began in the 1920s when India began importing raw cashew, which was then exported as Indian cashew nuts. High global prices in the sixties led to the start of local processing and by the end of 1970s, over two thirds of Mozambican exports were in the form of cashew nuts. Most of the cashew harvest was carried out by African peasants mostly women and children, who collected the nuts from trees scattered over fields (First, 1983; Nelson, 1984; Spencer, 1991; Lifestories, 2002, 2003, 2004). For poor families without relatives working in South Africa, cashew nuts were the major source of cash needed to purchase food,

clothes, and agricultural implements and school materials.[11] Other important fruit trees in the *serra* cultivation of economic and dietary importance are (Spencer, 1951; FAO/IFAD, 1982):

- *Sclerocarya birrea (kanyu),* the flavour of whose fruit is highly appreciated. The fruit is used for making soft drinks. It is an important traditional tree and its harvest is celebrated and ceremonies of first fruits and renewal of the fertility of land is performed by drinking large quantities of beer collectively. In the collective parties of *ukanyu*, much traditional environmental knowledge is transmitted because the parties include everybody, men and women young men and young girls as well as elderly. The advertisement of land holding proprieties rights and various skills as well as the oral transmission of the history of a site are passed on (Feliciano, 1998). The seeds of *Kanyu* trees seeds are also used for cooking and heating in the case of shortage of fuel wood.
- *Trichilia drageana (mafurra)*, a very large tree which produces seeds, which are collected for the production of oil. The leaves of *mafurra* are appreciated by goats. Its extensive shadows are favorite places for people to rest on hot days. Until the late 1960s, the seeds of the *mafurra* had been sold to the local shops and then exported to the soap factories in Inhambane and Maputo. Nowadays, soap is made by most abundant coconut copra; only in Inhambane province are *mafurra* seeds still being used to produce soap in a factory located at the Inhambane Town. Chope people from Northeastern Gaza and Southern Inhambane use the *mafurra* seeds for the production of cooking oil *(Minyantsi)*, which is widely appreciated among Thonga people of Southern Mozambique (Spencer, 1951 Marques, 1960; FAO/IFAD, 1983).
- *Strychnos spinosa (massala) and Strychnos madacascarensis (macuacua)*: this produces fruits, which are widely appreciated and eaten and often form an important source of food in dry years.

The aforementioned is only a small selection of the variety of perennial crops, mostly fruit trees, which were available in the *serra*. Others are *Garcinica livingstonii (bimbi), Dialum schecteri (Kurre), etc (*FAO/IFAD, 1983).

Generally, the production of perennial crops, due to the lack of processing industry, far exceeded the local and even regional absorption capacity. Only for cashew nuts was there a reliable organisation for utilisation and distribution. Local people found a

[11] Lifestories undertaken in the years 2002, 2003 and 2004 corroborated data from literature review and field observations about the role of cashew economy in the study region.

way of using these fruit trees by preparing beers and distilling alcoholic beverages from them in order to generate revenues (FAO/IFAD, 1983).

Generally speaking, the agriculture of the *serra* was a traditional agroforestry system where annual crops and perennial trees were grown. During the fallow period, the fields are used as pasture for cattle and goats and can supply fodder for rabbits and pigs (Macucule, 1997).

Table. **3.2**: Land-use in the *serra* environment.

Plateau ***(rhengeni, hozwi)*** (all seasons)	**Steep slopes** ***(marhangaveni*** (wet season)	**Internal depressions*(tsovo)*** (dry season)
Maize (*Zea mais)*, Cowpeas (*Labar nijer*), Pumpkins (*Cucurbita sp*). Cassava (*Maniot utilissima*), Cashew trees (*Anacardium occidentalle*), Mafurra trees (*Trichilia drageana*)and Kanyu trees (*Sclerocarya caffra*) Castor seeds	Groundnuts (*Arachis hypogea*), Cassava (Maniot *utilissima*), Cow peas *(Lalab nijer*), Kanyu trees (*Sclerocarya caffra).* Melons, Castor seeds.	Sweet potatoes (*Ipomea batatas*), Rice (*Oryza sativa),* Castor seeds, Sugar cane, Bananas.

Source: PRA, January (1999) and Marques (1960). The Table shows the traditional land-use pattern practiced in the *serra* before independence.

3.4. 3 *Cultivation Calendar*

Having described the main characteristics of the land-use in the area, attention now turns to a description of the cultivation calendar (**Table 3.3 and 3.4**).

The cultivation in the traditional agriculture depends on the amount of precipitation and the water-holding capacity of the soils. The majority of seeds are sown in the beginning of the rainy season in the October-November period (Macuacua, 2000). The harvest is generally in March. During the dry season from April to September, lands are either under fallow or winter crops. In the *bila,* winter crops are beans, maize and horticulture including onions, garlic, cabbage, etc (Tables 3.6 and 3.7). The cultivation calendar, however, undergoes constant adaptations due to the irregularities of rainfall, for example, used to plant when the rains came. Even within the same field different schedules of sowing can be applied. This system is called 'opportunistic' farming (Scoones *et al*., 1996), (PRA, January.1999). Detailed explanation on constraints and coping strategies to rainfall variability was shown in Chapter 2.

Table. 3.3: Farming Calendar in the *serra* environments.

Activities	**Period (month)**	**Crop**
Cultivation	September	Maize Groundnuts, Cow peas
Cultivation and Seeding	October	Maize, Groundnuts, Cow peas, Cassava
Harvest	November	Cashew
Harvest	December	Cashew
Harvest	January	Cashew, *Kanyu, Mafurra*
Harvest	February	*Mafurra*
Harvest	March	Maize
Harvest	April	Cow peas, groundnuts
Fallow	May	Pasture and cow peas leaves
Fallow	June	Pasture and Cow peas leaves
Fallow	July	Pasture and Cow peas leaves
Fallow	August	Pasture and Fallow

Source: PRA, January (1999).

Table.3.4 : Farming calendar of the *bila* environments: main crops.

Activity	**Period**	**Crop**
Cultivation	September	Maize, Pumpkins
Cultivation and seeding	October	Maize, Pumpkins
Seeding	November	Maize, Pumpkins, Beans
Weeding	December	Maize, Pumpkins, Beans
Weeding and Harvest	January	Melons, Pumpkins
Harvest	February	Maize, Melons, Pumpkins, Beans
Harvest	March	Maize
Cultivation and Seeding	April	Horticulture
Seeding and weeding	May	Horticulture
Seeding	June	Maize, horticulture, Beans
Harvesting	July	Horticulture
Harvesting	August	Horticulture, maize and Beans

Source: PRA, January (1999).

3.4.4 The *muti, Chibuto Village/Town and commercial settlements*

One of the most important aspects in the rural transformation (1965-75) is change in settlement patterns, which is intimately linked with production and local livelihoods, which was examined in the last section. In the next section a detailed description of the traditional settlement and its major function is shown in order to contrast this with future settlement patterns induced by further political and economic transformations

3.4.4.1 The *muti*

In the Tsonga village of the colonial period, a *muti,* was made up of a group of adult Tsonga males and their dependants, who came from different clans and who were authorized to settle in the territory by the village headman a *muganga* chief. The cluster of *muganga* forms a *tico* and the *tico* forms a higher rank administrative division, a *regulo.* A headman leads an extended family (Feliciano, 1998). The

extended family lives in a compound *(muti)*, which consists of a cluster of houses or huts and is usually referred to by the name (usually the surname) of its head *mnumuzane.* A young man who has just built a house for himself and his wife may also refer to it as his *muti*. In reality such an isolated house is the nucleus of a compound since other buildings may shortly be constructed to house the wives (if he marries a second wife), to store grain and to shelter domestic animals (Feliciano, 1998).

The *muti* traditional settlement was a strictly organised space of production, reproduction and consumption, each part of which had its peculiar function:

> "The Tsonga village, this closed circle of huts, is a living organism. All members form a whole whose unity is remarkable" (Junod, 1913b, 317*).*

The different parts of the *muti* performed specific functions. The main functions included space for houses and their respective appendices such as granaries and kitchens. The roofs of the kitchens were usually used as granaries for maize so the smoke could be used to protect the maize from insects and drying it properly after harvest. Each wife had her house and there were also separate houses for daughters (Southern side of the *muti*) and sons (Northern side of the *muti*) (Casal, 1996).

The cattle kraal occupied the central part of the household. This is because it symbolized the wealth of the family, its reproductive capacity.

> "The marriage of the male members of the family and the continuity of the household depended on the presence of cattle for *lobolo* which was of about eleven cows. The household received cattle when the female members of the family married" (Casal, 1996, 80).

A sacred tree, which represents the ancestors place of sacrifices and family as well as trees for resting and doing domestic activities were also important functional parts of the *muti* (Junod, 1913b).

Tsonga *muti* was usually built in the middle of a bush or forest. During summer temperatures, it is an advantage to build a house in the shade provided by the bush

and forest. According to Junod (1913b), the building of homesteads in the middle of the bush helped to protect the houses from the wind coming from the South, and as fences for the privacy of homesteads activities. In addition, people used the bush as a toilet before latrines were widely adopted. In the case of South Central Chibuto, only after the post-independence sanitary campaigns for the habit of building latrines became widespread. In a survey undertaken in January 1999, of 146 households, 100% of the informants said that they possessed latrines (Fieldwork, 1999).

It is important to mention that due to the influence of Portuguese colonial culture, many aspects of the traditional settlement did not follow the ideal model as described in this section. In this period, for example, an increasing number of young men preferred to build modern houses outside the compound enclosure. The size of traditional compounds has therefore become smaller over the years and in some localities, the large traditional family compound existed in more remote areas (Young, 1977; Udo, 1982). In southern Mozambique, the atomisation of the household is largely related to the impact of the labour migration to South Africa. A young man no longer requires the permission of his father to marry because he relies on earnings gained in labour migration. Before labour migration, a young man had to ask for cattle from his father to marry and with this capital, form his own independent household**.**

One of the most important characteristics of the landscape of the *muti* traditional settlement is the net of trails linking the different parts of the territory. The need for greater control of the African communities by the colonial administration (e. g. control of forbidden brewing of traditional alcoholic beverages, which were forbidden in order to promote Portuguese wine) (Covane, 1996) led to the opening of a series of rural roads and trails. The roads connected the homes of the *regulos* and the chiefs (traditional authorities) to the Chibuto Village the capital of the *Concelho*. Other trails and roads were established for the economic purpose of connecting settlement clusters, commercial settlements, and irrigated farms and livestock farms. The densest network of short cuts linked different homesteads and clusters of homesteads with the water sources, and traditional agriculture fields located in the valley-bottom lands (Ombe, 1991).

The trails which led to water sources, besides being used by women transporting tins and pots of water, was also used by boys and men who used the draught force of donkeys to pull fifty-litres of wooden Portuguese wine-rolling barrels. These donkeys and barrels, however, could usually be purchased by wealthier families, which mostly relied on labour migration earnings. After independence, both the donkeys and Portuguese wine barrels disappeared, because wine was no longer imported in barrels (Ombe, 1991).

Herdsmen in this period usually led the cattle to the Changane and Limpopo rivers and Lakes *Gourwane* and *Nyassangale*. In these places, there was good grazing land as well as water. In the afternoon, the herds returned to the kraals in the homesteads. This constant movement of cattle, from homesteads to pastures, and also to dip tanks led to the establishment of large cattle trails. As the number of animals passing through the trail increased, trails expanded (Ombe, 1991).

The homesteads of the *bila* as mentioned above were built according to micro relief patterns of the site mainly due to the water logging which occurs after heavy rains and floods. In the topographic maps made from aerial photographs in late 1950s, the distribution of homesteads show clustering, whereby homesteads were scattered in groups leaving open spaces for ploughed cultivation. The homesteads of *serra* were however more randomly distributed. In the well-drained sandy soils, the fields surrounded the homesteads, except on the relatively steep slopes where there were very few homesteads. In the *serra muti*, due to the high biodiversity in terms of vegetation cover, the number of household structures (e. g., houses for each wife, kitchens, storehouses, etc) was relatively higher than in the *bila muti* (**Figs. 3.1 and 3.2**) (Marques, 1960, Portugal, 1972).

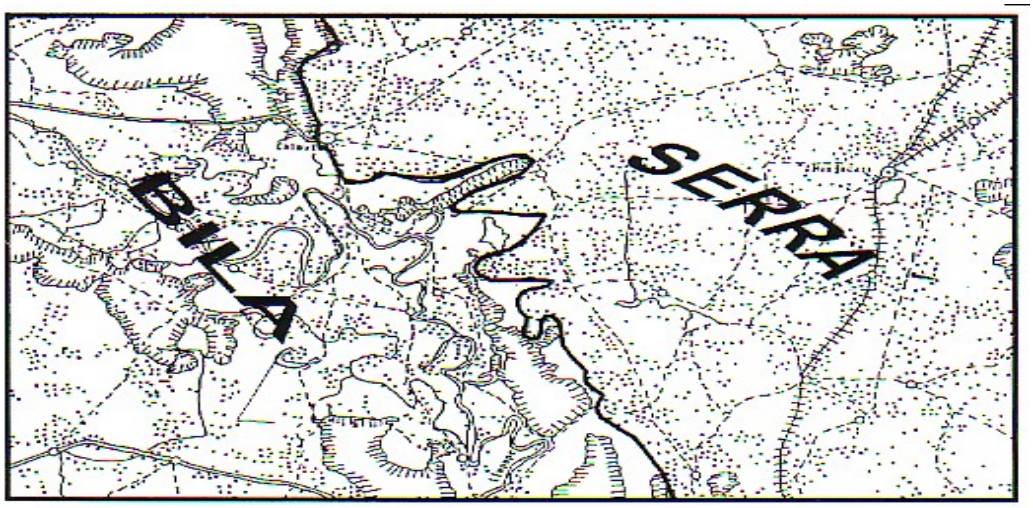

Fig. 3.1: The settlement pattern of the lower Limpopo area: The *bila* (lowlands) And the *serra* (uplands). The dots represent houses and the discontinuous lines are trails. Source**:** Araujo (1988).

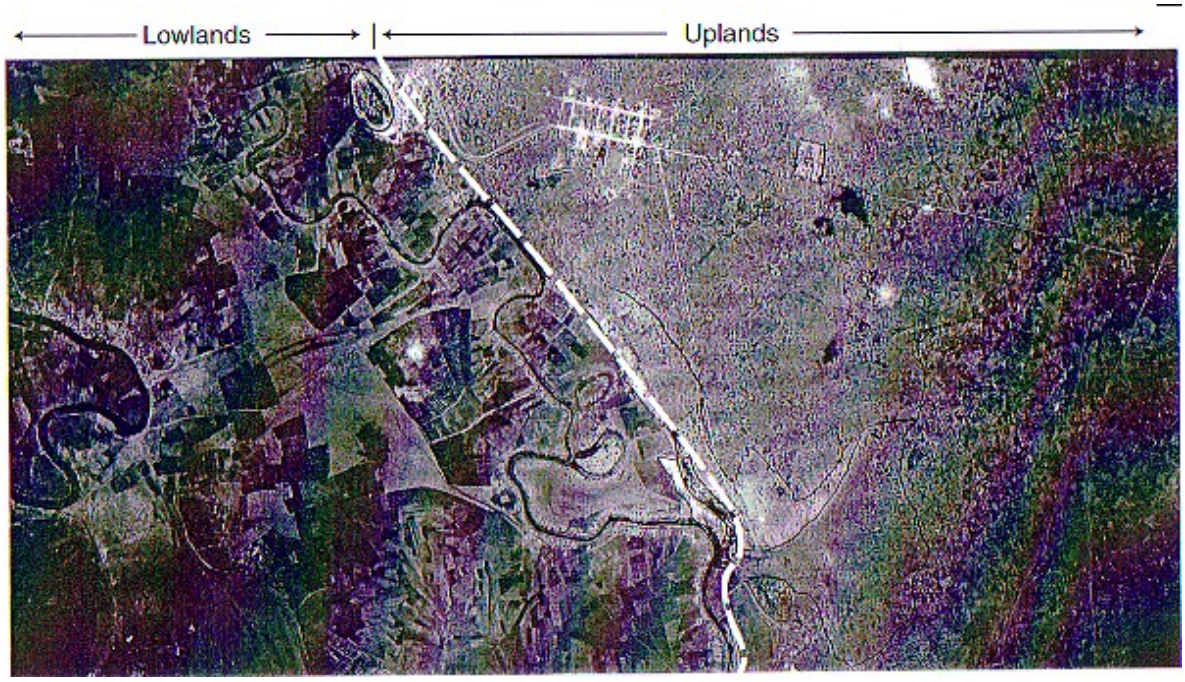

Fig. 3.2: The view of the *serra* (above) and *bila* (below) from an aerial photograph of 1964. In the *bila* the limits of the cultivated field are clear, while in the *serra*, there is a fine-grained mosaic (Farina, 2000) of fields, bushes, *muti* and trails.

3.4.4.2 The Chibuto Town

Having described the characteristics of the traditional settlement and their relationships with the physical landscape and farming system, attention now turns to a description of the formal settlement and its links with the formal economy of the region.

The majority of white people in the district (approximately 100 people) lived in Chibuto Town or in rural commercial settlements. Few of them settled on the edge of the *serra* near their fields in the bottom of valley. Besides the Chibuto village, there were commercial settlements consisting of two to four shops in the Chibuto district (former *circunscrição*).

The commercial settlements were of great importance in the rural economy. Through them, peasants could sell their products and buy the industrial goods they needed. White settlers who lived in the countryside were responsible for the transportation system in the rural areas. Chibuto Town was a big transportation centre. It had a large bus station for people who travelled from the remote parts of the Gaza Province to the then Lourenço Marques (Wuyts, 1977).

The most important commercial settlements in the *Circunscrição* of Chibuto were Jantigue, Mohambe, Alto-Changane, Maqueze, Meboi, Chimbimbanine, Mundiane (Mate, 1993). Besides Portuguese white settlers, Asian people were an important part of the Chibuto population and were actively engaged in rural commerce, transportation of goods the migrant labourers from Chibuto to and from remote areas of this *circunscrição*, now a district (Wuyts, 1985; Mate, 1993).

Chibuto settlement was also a military post during the Portuguese occupation campaigns against the pre-colonial Gaza-Nguni kingdom led by Ngungunyane at the end of the 19th century (Mate, 1993; Manganhele, 1997). The settlement became a

city in 1971 as a result of the economic development in the Lower Limpopo, and the increase in its importance as an administrative and economic centre (Mate, 1993).

White settlers, *mestiços* and Asians dwelt in the village, while the overwhelming majority of the black population lived in homesteads scattered over the territory. In the last decade of colonialism, 1965-1970, the population of Chibuto district was 141 936 people and the number of white settlers was 137, the majority of whom lived in South Central Chibuto in the Chibuto village (Statistical Yearbook of Mozambique, 1965-1972).

The most important economic function of the town in this period included processing and commercialisation of agricultural produce and export to areas outside Chibuto (Pedersen, 1997). The main product was rice, which was harvested in the Lower and Middle Limpopo regions, processed in Chibuto and distributed to the major towns in Southern Mozambique such as Maputo (former Lourenço Marques), Xai-Xai, Maxixe and Inhambane. Cattle production was also an important feature of the Chibuto district (Wuyts, 1977; Mate, 1993).

Another function of the town was the local distribution of local produce. This included mainly the distribution of green vegetables in the bazaars, distribution of meat and chicken, fish from Limpopo and Changane Rivers as well as from the famous Bambene Lake located far north of the village. Other products produced both by white settlers' farms and African peasants were also distributed, such as beans, maize, groundnuts, castor seeds and cashew etc (Marques, 1960; Mate, 1993). In good years after harvests, peasants usually sold more products than they could afford in order to pay taxes and industrial goods (Lifestories, 2002, 2003, 2004). Later on in the same year, they had to buy the same products again from merchants for higher prices. Usually in November, December and January they had to sell products such as cashew nuts, *mafurra* seeds or even sell their labour force in the plantations to buy food while waiting for the harvest (Marques, 1960).

The town also distributed goods imported from bigger towns such as Lourenço Marques (now Maputo) (Mate, 1993 Wuyts, 1997; 2001; Pedersen, 1997). This

included mostly the distribution of industrial consumer goods such as clothes, foodstuffs, oil soap, paraffin and agricultural implements such as ploughs and hoes (Boudreau, 2001). By the end of the colonial period cars, motorcycles and bicycles were also sold in Chibuto shops and were bought by the Portuguese settlers as well as a few middle-class African farmers *machambeiros* (Roesh, 1991). Chibuto was also a centre for the delivery of social services and administration of the territory in general, such as education health care, banking, etc.

In studies on Mozambican colonial economy, which draw comparisons with the post-independence political economy, the interactive rather than additive character of the economic activities is highlighted. For example, the traditional agriculture labour migration, white settler commercial farms and rural shops interacted under the colonial economy. The complementarities existing in that economy seem to have been overlooked by the centrally planned socialist development strategy with strong emphasis on state farms after independence (Abrahamsson and Nilsson, 1995; Wuyts, 2001)

3. 4.5 Uncultivated lands: sacred places, water bodies and pasture

The inclusion of sacred places in land-use is important due to the increased contemporary interest of indigenous knowledge and practices and its relevance for environmental conservation. This relevance includes the potential of these sacred places for eco-tourism activities and income generation.

By the end of the colonial period, uncultivated lands existed and were used mainly as pasture and for gathering of fruits as communal lands as well as for sacred places. In South Central Chibuto region, there were two main sacred places. One of the sacred places was called Shinvongweni. It was an old meander of the Changane River, an ox -bow whose shores have been used as a cemetery for stillborn children according to local tradition. According to Tsonga tradition, stillborn and aborted children including infertile women were considered sources of contamination of the land and were associated with heat, fire and lightning. It was also believed that they were

capable of blocking rain and soil fertility (Young, 1978; Feliciano, 1998; Ombe, 2003).

The Shinvongweni sacred place was considered a female space where only old women could participate in the ceremony of the burial of the stillborn children. The space was also used for ceremonies of the expulsion of the caterpillar's locus, which regularly devastated the crops in the region. This ceremony of expulsion was only performed by women (Lifestores, 2004, 2003, 2004; Young, 1978; Gengenbach, 1997).

Another sacred place is called *Ganga la Shimbutsu* which means the Mount Shimbutsu. Local people believed that it was the dwelling place of gods or spirits (Junod, 1913b; Feliciano, 1998).

Having described the use of sacred places, attention now shifts to the characterization of water bodies and other uncultivated lands and their use. These ecosystems play a vital role in the local livelihoods by allowing a diversification of sources of food particularly during droughts.

3. 4.5.1 Water bodies and fishing

Normally, people fished in Changane and Limpopo Rivers as well as in small lakes and depressions a scattered over the territory. In the lower Changane, traps could be made from reeds, which were placed across the river to trap the fish. During severe droughts or during a dry period in a normal rainfall year, a type of collective fishing was used for famine alleviation. The fishing was performed in lakes and rivers which were drying up and the fish, mostly cat fish, were forced to congregate in smaller areas (Junod, 1913b; Ombe, 2003; Lifestories, 2002, 2003, 2004). Besides fishing during severe droughts, the lakes were used to collect the tuber of nanuphars (*Nymphea stelata*) as was previously mentioned.

3. 4.5. 2 Other uncultivated lands

Land left under fallow could also be used to gather small animals, caterpillars and other insects (e.g. the caperpillar *matomane Urota spinope* that are found in families on *Kanyu* trees during October (Junod, 1913b). Lands under open spaces or uncultivated lands could also be used for the gathering of wood for crafting of domestic utensils by men as well as the collecting of clay from termite mounds by women for making pottery to store water, to transport water and for cooking. Uncultivated lands with grasses in the *bila* could be used for gathering special grass for weaving mats (Ombe, 2003).

Some spaces in South Central Chibuto are also devoted to pastures. Many African peasants raised cattle, which provided draught power, meat and fuel. Cattle were an important instrument in averting risk. It enabled more effective farming and reduces the need for labour**.** The meat from cattle and goats was used mainly during traditional religious ceremonies, weddings and other parties. The pastures were located mostly on the left Changane riverbank where the soils are marshy and saline and, so difficult to cultivate. Cattle were usually grazed by groups of neighbouring shepherds belonging to an individual site, *muganga*, who could help each other in the case of difficulties. White settlers' farms were usually fenced and occupied big areas of land from a hundred to several thousand hectares as was previously mentioned.

3. 6 Environmental problems

Having examined some of the historical features of drivers of land-uses during the 1960s and early 1970s, attention now shifts to the characterisation of the environmental problems, which arose from the land-use activities during this period.

3.6.1 The expansion of cultivated areas

The forced cultivation of cotton and rice and forced labour in general, as well as the need for commodity production by rural African peasantry resulted in changes in the

way people cultivated the land. According to Roesh (1991), changes included increased erosion and deforestation. The increase in the periods of use of the same fields in the *serra* without shifting or rotational cultivation and therefore reducing fallow periods, increased the rate of soil exhaustion and soil erosion. Soil erosion and rapid deforestation affected mainly subsistence farmers, who cultivated poor steep lands on the ancient dunes (Marques, 1960; Roesh, 1991).

3 .6.2 Farming and soil erosion

Although ploughing was unsuitable because of the light soils in the *serra*, the cultivation of both *serra* and *bila* lands by some families and the production of cash crops increased the use of the plough into the light *serra* soils, which led to the intensification of their usage and erosion (Ombe, 1991).

A specific problem of this period was also tensions between the livestock and crop farming. The cattle herds had to be brought to the central dipping tank by crossing cultivated lands, and this movement pattern resulted in erosion. As the number of animals passing through the cattle trails increased, the trails expanded, leading to the formation of a large runoff and gullies. When the gullies degraded the cattle trail, another trail was opened near by. This was one of the most important forms of land degradation and led to a decrease of cultivable lands (Ombe, 1991; 1998). Even at the beginning of the 1960s, symptoms of soil exhaustion were evident:

> "The farms are intensely cultivated, frequently crops are cultivated in rapid succession and, with the whole area occupied, a shortage of land is becoming apparent "(Marques 1960, 97).

Summary

The political economy of Portuguese colonialism in the period between 1965-1975 has been described. The main characteristics of this period are the dominance of the dual economies. White settlers produced for the market and African peasantry produced for subsistence and at the same time supplied labour to white- settler plantations and South African mines.

White settlers possessed the main fertile lands for their cultivation and cattle farming while the African peasantry cultivated the less fertile soils. Differences in objectives of production resulted in differences in crops planted and the agricultural landscape of both sectors.

White settler plantation users were under irrigated monocultures of rice, maize and horticulture. The African peasantry cultivation was characterised by intercropping of different crops including cowpeas, maize, and beans.

Different economic conditions, cultural and other local traditions influenced different natural environments (serra) and (bila) and also shaped differences in settlement patterns. White settlers lived in a nucleated settlement in Chibuto Town while the African peasantry lived in scattered homesteads interspersed with agricultural fields and bushes.

The prevalent land-use practices resulted in the intensification of the use of the soils and by the end of the colonial period; symptoms of soil erosion were noted in the ancient dunes slopes. In the next chapter, the land-use pattern in the next period under the Aldeias comunais policy (1975-1987) will be described.