Chapter 5
South Central Chibuto: the war, the peace and reconstruction 1987-2000

5.1 Introduction

In chapter 4 the impact of the implementation of the villagization and socialization programme and its impact on the livelihoods of the local people were examined. In this chapter, the role of the war and the consequent reconstruction afterwards are highlighted as key drivers of land-use change. The chapter starts with the description of the impact of the civil war and its role in displacing the people and associated civil unrest. The impacts of such radical changes on the community’s livelihoods are also presented. Policies adopted by the Mozambican Government aimed at economic recovery are also analysed.

Due to the magnitude and impact on the economy and society in Mozambique, the 2000 floods that also radically transformed the landscape, is also described. The chapter ends with the examination of the cumulative impact on the environment of the drivers of land-use change during 1987-2000 and the impact of the 2000 floods.

5.2 The War, the Peace and Reconstruction

5.2.1 The War

During the FRELIMO and RENAMO war, the internal displacement and dislocation of people outside the country characterized the life in Mozambique. Of a population of 14.7 million, approximately 1.0 million were refugees living outside the country with an estimated 2.0 million displaced inside the country. About 4.7 million had drastically reduced their production capacity and another 3.7 million in towns were in need of food support (UNDP, 1998).

The war between FRELIMO and RENAMO in South Central Chibuto started approximately in 1983 and coincided with a severe dry spell between 1983 and 1992 (PRA, 1999; later interviews, 2002, 2003 and 2004). The combination of these two
phenomena provoked a mass exodus of people (Knight, 1988; Finnegan, 1992; Urdang, 1989). The war dislocated people from all over the district of Chibuto and concentrated them in South Central Chibuto, which was regarded as a place of relative safety.

Since Chibuto does not border any neighbouring country, the war caused a greater number of people to be displaced internally in the area rather than prompting refugees to flee abroad (UNHCR/UNDP, 1997). Many people fled to Chibuto from distant places including the northern part of the Gaza Province and Inhambane Province. According to UNHCR, estimates at the time of the Peace Agreement in October 1992, there were 65,000 internally displaced people in the Chibuto District, which fell to about 3000 by September 1994. This drop in number of the displaced is related to the resettlement of some people in their previous locations (UNHCR/UNDP, 1997).

Due to its strategic location in the centre of the Gaza Province, Chibuto Town was chosen for the housing of the Gaza Province Command of the Mozambican Armed Forces. Although the town of Chibuto was a Provincial Command and presumed to be a relatively safe area, the surrounding communal settlements were constant targets of RENAMO’s violent attacks. For example, on the 30th April 1989, 9 civilians were murdered and 26 wounded in Chibuto Town suburbs (Information Service News Review May, 1989). On the 9th August 1991, 41 people were massacred in an attack carried out in the outskirts of the town and a further 77 people were injured in the raid (Information Office News Review, August 1991)

Since the establishment of the Communal villages in February 1977, outlined in chapter 4, waves of displaced people continuously fled to South Central Chibuto. Besides the aforementioned relative security due to the existence of the Command of Gaza Province, people preferred to migrate to an ecologically suitable site such as South Central Chibuto, which provided opportunities for a diversified livelihood (e.g., cultivation of food crops, fruit trees and fishing) (Araujo, 1988).

During the RENAMO attacks, people often left their homes with their few belongings and fled to the Changane and Limpopo riverbanks. There, they usually stayed
overnight and sought refuge until the government forces quelled the attacks. RENAMO guerrillas, moreover, also avoided the riparian environments of lower Limpopo with terrain that provided little cover that was full of meanders and ox-bows (Roesh, 1995; Edson Macuacua, pers. comm, 1999).

In cases of more prolonged attacks, people fled during the night to distant places, up to 20 km from Chibuto, to the localities of Maniquenique and Chongueni. Local merchants who possessed trucks, helped in transporting people to these places. Old people and the sick or disabled could, however, not afford to flee and stayed hidden in the town (Mariana Tivane pers. comm, 1997).

Displacement greatly affected one of the most important sources of livelihood in South Central Chibuto, namely cattle. During the war, tens of thousands of cattle died in the affected zones. In most cases, people fled without their cattle, which died due to the lack of water and care (PRA, 1999). Livestock thieves were also active in war areas, stealing animals during raids, for sale in Maputo Town and other towns (Christian Council of Mozambique, 1988). The insecurity of the war period was rather high; people could not even farm poultry animals for their survival such as chickens and rabbits (Sidaways, 1992). Thieves were difficult to control because there was always an increasing number of newcomers (Adam and Coimbra, 1995) (Tables 5.1 and 5.2).

Table 5.1: Cattle numbers in Chibuto District according to various sources, 1960-1995.

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14 The war and dislocation led to the erosion of the social capital e.g., the relationships of trust between communities members built through the investment of time and face-to-face interaction over long periods (Watson, 2001; Robbins, 2004). Conflicts also decreased the moral economy, the capacity of collective regulation and social punishment (Watson, 2001; Qiu, 2005).
<table>
<thead>
<tr>
<th>Year</th>
<th>Cattle</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960</td>
<td>81 593</td>
<td>Portugal (1972, 695)</td>
</tr>
<tr>
<td>1966</td>
<td>71 514</td>
<td>AHM: SE.AII.P9:181</td>
</tr>
<tr>
<td>1980</td>
<td>10 000</td>
<td>Adam and Coimbra(1995, 5)</td>
</tr>
<tr>
<td>1995</td>
<td>5 000</td>
<td>Adam and Coimbra (1995, 5)</td>
</tr>
</tbody>
</table>

In a questionnaire undertaken during January 1999 and administered to 146 households in South Central Chibuto, almost half of the 63 respondents who had abandoned cattle farming, almost half identified the war as the main cause of the abandonment of cattle farming activities. Other causes such as sales and lack of pasture were also related to the war (Table 5.2). Increase in population numbers and the need to flee the area constantly when the RENAMO guerrillas attacked, discouraged people from farming cattle.

**Table 5.2:** The causes of reductions in cattle farming.

<table>
<thead>
<tr>
<th>Causes</th>
<th>No. of responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortage of pastures</td>
<td>4</td>
</tr>
<tr>
<td>War (robbed)</td>
<td>21</td>
</tr>
<tr>
<td>I have sold it</td>
<td>13</td>
</tr>
<tr>
<td>Lack of labour</td>
<td>3</td>
</tr>
<tr>
<td>Diseases</td>
<td>14</td>
</tr>
<tr>
<td>Other</td>
<td>10</td>
</tr>
</tbody>
</table>


The civil war dramatically impacted on the local livelihoods in different ways. This situation was exacerbated by the coincidence of the civil war period and a dry spell. The traditional strategy of coping with environmental constraints through mobility was seriously compromised. Relatively secure areas including towns were the most
preferred areas with people abandoning the rest of the countryside. The following quotation illustrates the situation during the 1991/92 severe drought:

“Currently not only are districts being abandoned by residents in their search for security from MNR attacks, but also for food and water supplies. Residents have seen wells either deliberately contaminated by the MNR or drying up as a water table levels drop or became saline” (Mozambique Information Office, Special Report, May 1992).

Having attempted to summarise the living conditions of the community during the war, attention now shifts to the examination of the development policy for the period 1987-2000. The impacts of such policy on land-use in the study area are also investigated.

5.2.2 The Policy of Economic Rehabilitation, the Peace and Reconstruction

In 1987, during the war, a new developmental policy was approved, called the Policy of Economic Rehabilitation in Portuguese Programa de Reabilitacao Economica (PRE), which was the structural adjustment policy (SAP) for Mozambique supported by the World Bank and the International Monetary Fund, delineated and implemented to correct former developmental problems and enhance the economic growth in the country (Abrahamsson and Nilsson, 1995; UNDP, 1998). This policy was approved on the assumption that the centrally planned developmental policy had been inadequate (Roesh, 1988; Abrahamsson and Nilsson, 1995; Zandamela, 2004). In this period, it was found that huge agricultural projects including the Limpopo Agro-Industrial Complex, and the rapid mechanization in general, that had prevailed was economically inadequate, and that family production, private farms and market oriented co-operatives could play an important role in the rural development (Mozambique, 2001).

The starting point of the economic reforms was the FRELIMO Fourth Congress held in April 1983. Around this period, there was a deep economic crisis in the country,
provoked both by the war and natural disasters, mostly by the dry spell from late 1970s until roughly 1992. One of the objectives of the FRELIMO Fourth Congress was to address this economic crisis (FRELIMO, 1983). In the agriculture sector this policy, for example, called for a halt to further expansion of the state-farm sector, and for the re-organisation and better management of existing state farms. The Congress further re-oriented state structures to provide much greater support to the cooperatives and family and private sectors, as part of a general shift away from large-scale, centrally-planned capital intensive development projects, in favour of more decentralised market-oriented small-scale initiatives (Roesh, 1988; Abrahamsson and Nilsson, 1995; Wuyts, 2001).

The main aspects of the macroeconomic policy were further improved after peace was achieved in October 1992 and the establishment of a democratically elected government in 1994 (UNDP, 1998; Mozambique, 2001; Pitcher, 2002; Zandamela, 2004). The main goals of the PRE were:

- To reverse the decline in production and restore a minimum level consumption for all the population including rural areas.
- To substantially reduce domestic financial imbalances (e.g. devaluation of the currency and reduction in public expenditure in the early phase of the implementation of the programme).
- To enhance efficiency and establish the conditions to return to higher levels of economic growth (e.g. privatisation and reduction of the public expenditure).
- Related to poverty alleviation, measures have been outlined including:
  - Maximising competition in agricultural markets (e.g. liberalisation of prices, eliminating any unwarranted and burdensome regulation on the licensing and operation of agricultural traders).
  - Investing in pro-poor rural infrastructure (e.g. rehabilitation of roads water supply infrastructures, small-scale irrigation schemes etc).
  - Increasing the share of government expenditure on primary education and primary health care (e.g. rehabilitation of schools and hospitals that had been destroyed by FRELIMO and RENAMO war).
  - Building a Disaster Response Safety Net. In Mozambique a Department for the Prevention and Combating of Natural Disasters (DPCCN) was created with responsibility for co-ordinating the Government response to future natural disasters. A National Nutrition Surveillance System has been established which leads other departments and NGOs with the monitoring of the nutrition situation of the children and pregnant women and gathers data on
situations of Low Birth Weight and Growth Faltering of the children because of malnutrition. This information is needed for emergency activities during droughts and other natural disasters and is used to mitigate and reduce risk to disasters (Government of Mozambique, 2001).

- Creating a national capacity for poverty analysis and implementing a Poverty Alleviation Unit subsequently created in the National Planning Commission (Mozambique, 2001).

The rehabilitation program led to a series of impacts at both national and local levels. In the rural areas including South Central Chibuto and countrywide in general, the economic and political reforms encouraged the increase in the crop prices and this stimulated agricultural production and the quality of foodstuffs and goods available in the rural markets (Table 5.3). As a result of economic reforms, the peace achieved in 1992, and the wet spell, which started in 1992, there was a reduction in the emergency food aid, from 43% of national food production in 1989/90 to 2.1% in the 1996/97 agricultural campaign. National food production increased from 1 072 000 tons to 1 507 100 tons in the same period (Inter-sectorial Vulnerability Assessment and Mapping Group, 1999).

Table 5.3: Proportion of food aid, commercial imports and national food production.

<table>
<thead>
<tr>
<th>Year</th>
<th>Food aid (Commercial and emergency)</th>
<th>National Food Production</th>
<th>Food Aid as % of national production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1989/90</td>
<td>470 000</td>
<td>1 072 000</td>
<td>43.8</td>
</tr>
<tr>
<td>1990/91</td>
<td>587 000</td>
<td>1 318 000</td>
<td>44.6</td>
</tr>
<tr>
<td>1991/92</td>
<td>653 000</td>
<td>1 191 000</td>
<td>54.8</td>
</tr>
<tr>
<td>1992/93</td>
<td>788 000</td>
<td>1 204 000</td>
<td>71.8</td>
</tr>
<tr>
<td>1993/94</td>
<td>370 000</td>
<td>1 340 000</td>
<td>30.8</td>
</tr>
<tr>
<td>1994/95</td>
<td>418 000</td>
<td>1 476 000</td>
<td>31.8</td>
</tr>
<tr>
<td>1995/95</td>
<td>233 000</td>
<td>1 476 000</td>
<td>15.8</td>
</tr>
<tr>
<td>1996/97</td>
<td>230 000</td>
<td>1 507 000</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Having outlined the policy aspects linked to the structural adjustment policy, attention now shifts to the examination of the implementation of this strategy in South Central Chibuto, including priorities identified.

5.2.2.1 South Central Chibuto as a strategic region for the rehabilitation programme

After the approval of the policy of economic rehabilitation during the war, the provision of state investment followed a policy of economic pragmatism. Scarce agricultural resources were channelled to the most efficient producers, whether state farms, co-operatives, private farmers or family producers (Egero, 1990; Roesh, 1988). As a strategy for rural economic revival, a programme of priority districts was approved. This programme aimed at rehabilitating rural infrastructure in the selected 40 districts including the Chibuto District. These were considered to have a high potential of rapid agricultural recovery, better infrastructure and security than other districts, including better land-use suitability for food and cash crops (Urdgang, 1989; Mate, 1993). For the implementation of the Priority Districts Programme, the National Directorate for Rural Development within the Ministry of Agriculture (Mosca, 1989; Hanlon, 1991) was created.

5.3 The Programa de Reabilitação Económica and land-use, 1987-2000.

In the late 1980s and early 1990s, a number of changes occurred in the structural policy, both economic and political structures which necessitated a new approach to land-use and land tenure policy. These changes included (Abrahamsson and Nilsson, 1995; Saul, 2005):

- Radical economic change (the transition to market based economy);
- The legal change (the adoption of the new democratic constitution in 1992) and
- The political change (the end of FRELIMO and RENAMO war).

As a corollary of aforementioned drivers, it became necessary to revise many outdated laws and regulations, including the Land Law approved in 1979. The discussion of a new Land Law was introduced in 1996, and was finally approved in
1997, Law 19/97. The regulations for its implementation were approved in 1998, Decree 66/98. Although a privatization programme was delineated and implemented in Mozambique at that time, the new Land Law assured access to land by the majority of Mozambicans practicing traditional agriculture in the rural areas (Abrahamsson and Nilsson, 2005; Hanlon, 2004)

The Law 19/97 enabled the promotion of private investment in rural areas and at the same time preserved the traditional system of agriculture with scattered plots of land over the area. Land in this traditional agriculture did not need to be demarcated, and traditional law could be applied for the land allocation and conflict resolution. The new land-use structure emerging from the SAP economic reforms relied mostly on investment in the private and family farming (Hanlon, 2004). The ways people can gain land-use rights in the Mozambican land law 19/97 are as follows (translation from Portuguese by Hanlon, 2004):

“(1) Mozambican individuals and communities have the right to land that they have traditionally occupied. This right of occupancy is permanent.
(2) Mozambicans have right to land which they occupied “in good faith” for at least ten years. This right of occupancy is permanent.
(3) Mozambican and foreign individuals and companies can be authorized by the government to use land for 50 years, and this can be renewed once for another 50 years. This is in effect a lease” (Hanlon, 2004, 605).

5.3.1 Private Farms

The private sector or private farms produced mainly for market and they relied both on family labour force and hired labour mainly seasonal. In the period, 1987-1995, due to the abundance of foodstuffs imported under the emergency programme, the local production of cereals such as rice and maize was discouraged. In an interview with Machai (1999), a black private farmer since the colonial period, it found that the more profitable crops were vegetables such as onions, garlic and tomatoes. The increase in people living in the relatively secure zones also resulted in the rise on the demand of the vegetables, which they had previously produced on their own lands (Armando Machai, pers. comm., 1999; PRA, 1999). For a profitable production however, transportation was needed to sell the products in bigger markets. Because of
those only foreign enterprises with high capital investment could produce large quantities for export, local farmers were only able to supply the expanding informal sector in the villages and towns (PRA, 1999).

5.3.2 Family farms

Although the production on family farms was for subsistence, there was a tendency to produce for the market, due to the incentives provided by the liberalisation of the crop market and the revitalisation of the market economy as part of the macroeconomic policy. The wet spell and the peace initiated in 1992 also contributed to the development of this sector. Peasants could again rely on a network of friends living in different environments to obtain land for cultivation. At the same time, the peace, the market economy and a wet spell stimulated the necessity of cultivating larger plots of land because of the expected good harvests, and this in some cases caused land disputes. In the family sector, the importance of the cultivation of green vegetables to sell in the market has grown due to the liberalization of the prices (PRA, 1999). Small-scale irrigation, using water from marshes was one of the most important ways of producing green vegetables. During the fieldwork in 1999, for example, in left bank of the Changane River near the feet of the serra escarpment, a 1/2 hectare of land was being cultivated by more than 30 peasants who were growing annual vegetables for sale in the market. The size of the plots was approximately 150 m² (PRA, 1999; Macuacua, 2000). Because of the abundance of ground water, the small plots were intensively cultivated for domestic consumption and for markets. This land-use type known as horticulture is widespread over African countries as an adaptation to growing urbanization (e.g., Kenya, Senegal, Zambia, and Zimbabwe; (Moyo, 2004; Keys and McConnell, 2005).

Although the Structural Adjustment Policy focused on private and family sector initiatives to recover, the former co-operatives and their management under new conditions were undertaken in South Central Chibuto. This is because the land, under former socialist co-operatives, belonged to the peasants who needed them for their subsistence and at the same time were under irrigation schemes the operation of which needed large investments. Only by relying on external donor funding could
peasants operate irrigation schemes. Thus a new style cooperative emerged in South Central Chibuto (Christian Council of Mozambique, 1988).

5.3.3 A new capitalist co-operative

In 1987, a new type of co-operative has emerged that was different from the former socialist co-operative. In the new co-operatives, each peasant has a plot of land, and peasants share infrastructure, mainly water and irrigation facilities with other farmers. Both family farms and co-operatives are a focus of NGOs, both national and international. During the period of the development of the Chibuto region, such co-operatives were established in the former 25 de Junho and Samora Machel co-operative land. The co-operative was promoted by the Christian Council of Mozambique, which helped to rehabilitate the irrigation infrastructures. In the new system, farmers are grouped into blocks of 20 hectares (each farmer with 1 ha field) and each block is represented by a water-worker (usually a man for cleaning the channels). The position of the water-worker is filled on a rotational basis so that all farmers participate in the administration of the water program and fully understand the responsibility of each person in the chain (Christian Council of Mozambique, 1988; Virginia Lhambisse pers, comm, 1999). Despite the water-worker programme, water remained a major problem of the co-operative because many peasants were old and could not fulfil the tasks of water management properly. In a study undertaken in 1988 by Christian Council of Mozambique, for example, among a sample of 48 families it was found that 22% of husbands and or sons of the families interviewed were absent (Christian Council of Mozambique, 1988). Most of them were working in South Africa and the rest were employed in Maputo or doing service in the military. In addition, 45% of the women indicated that they were always working alone on their fields with no other member of their family helping them to cultivate their land. These women were generally had children too small to help, and either had husbands in South Africa or were widows (Christian Council of Mozambique, 1988; Urdgang, 1989).

Although the Christian Council of Mozambique project, addressed the needs of local people, and emphasised their participation, and empowerment, it seemed to suffer
from the same problems which negatively affected the developmental policies in the past, including:

- The migration of male members to South Africa and bigger towns in Mozambique. This situation creates labour force bottlenecks,

- The speed by which changes in the land-use tradition were expected to happen. This aspect is considered to have caused the failure of socialist style co-operatives and state farms,

- The production in the farms became less attractive to the new generation of educated people, including girls.

When we visited the Christian Council of Mozambique co-operative in January 1998 we observed that the majority of the workers are old women. Younger women and men are not participating even if they are in the region. Most young children attend schools either locally or as boarders with relatives in large villages and towns such as Xai-Xai and Maputo. This situation is similar to other parts of Southern Africa (e.g. Dahlberg and Blaikie, 1996). Because of the absence of labour, some farmers prefer the former dry land agriculture than irrigation (PRA, 1999).

5.3.4 The dismantling of State farms

The only state farm existing in the region was created in 1983, called Empresa Agraria do Chibuto (part of the UPBL-Unidade the Produção do Baixo Limpopo) with 2000 ha of cultivable land (Santos, 1987). Because of the new policy, which put more emphasis on the rentability of the enterprises, this state farm was dismantled in 1987 and the land was given to co-operatives and the family sector. The dismantling of this state farm was attributed to the decline in production and the inability to pay out the loans, which had been taken from the BPD (Peoples Development Bank) (Santos, 1987). In 1987, it probably had to sell some property to pay the loans (Table 5.4). Data on the way reimbursement was made is unavailable but at that period it was the usual way for payment. The process of dismantling of state farms and the re-distribution of land to private and family farmers was the major characteristic of the period 1987-1999.
Table 5.4: Evolution of the loans in the Empresa Agrária do Chibuto taken from BPD, People’s Development Bank (in thousands of metical).

<table>
<thead>
<tr>
<th>Period</th>
<th>Loans used</th>
<th>Loans reimbursed</th>
<th>% Reimbursed</th>
</tr>
</thead>
<tbody>
<tr>
<td>83/84</td>
<td>38 235, 2</td>
<td>3 947, 3</td>
<td>10, 3</td>
</tr>
<tr>
<td>84/85</td>
<td>30 258, 4</td>
<td>5 897, 2</td>
<td>19, 5</td>
</tr>
<tr>
<td>85/86</td>
<td>7 575, 0</td>
<td>6 667, 2</td>
<td>24, 3</td>
</tr>
<tr>
<td>86/87</td>
<td>14 676, 3</td>
<td>15 777, 8</td>
<td>107, 5</td>
</tr>
</tbody>
</table>

Source: Santos (1987, 9).

Having examined the main issues related to the production in the agricultural sector, attention now shifts to the characterization of the economic environment in the Town of Chibuto, the most important market for local products.

5.3.5 Chibuto Town: shift to informal economy

“War should not be considered purely in terms of disaster. Rather it must be viewed in its dialectical relation to society as a social process capable of inducing simultaneous deconstruction and reconstruction, destroying some markets and creating others, where none existed (…)” (Chingono, 1996, 120).

The emergence of an alternative informal economy in Mozambique resulted from the forced dislocation of thousands of people, both physically and socially. The male members of the community were either conscripted into the army or migrated to bigger towns searching for better living conditions, leaving the production in local communities mostly in the hands of women who lacked support from male members (Urdgang, 1989; Chingono, 1996). Describing the situation of women and the war the Mozambican Information office stated:

“Women are the most vulnerable in the case of war, Men may have to leave to join the army or move to town in search to food or work when drought and shortages occur, leaving women increasingly forced to take on new economic and social roles such as heads of households, but women have no access to land, credit or employment. In addition male domination at all levels leaves women less protected in periods of shortages” (Mozambique Information Office Special Report No. 19, 1992) (italics added).
As a consequence of the destructive war, the most important function of the Town had radically changed. The war, which coincided with the dry spell in Southern Mozambique and the emergency situation (hosting large numbers of refugees), which increased over time, changed the features of the town. Consequently, the formal economy was transformed from mainly transportation and commerce into an informal economy, and on the dependence of food aid from the international organizations including International Red Cross, the Christian Council of Mozambique and the Catholic Church (Christian Council of Mozambique, 1988; Macuacua, 2000).

Due to the shift to an informal economy, the former nucleus of the central business district located in the western part of the Chibuto Town has been abandoned. The economic activities moved to the less developed areas by the end of colonial period, eastern parts of the town. In this area a myriad of small businesses in a relatively small space was providing a large variety of goods and services: the businesses included kiosks selling vegetables, snack bars, open-air car repair services and informal transportation, etc (Figs. 5.1 and 5.2). Peace was finally achieved in 1992 and the opportunities of business were further expanded. The number of commercial farming products also increased to include goats taken from far north of Chibuto, cassava and fruits from Inhambane Province, etc. In summary, the exchange of products between regions has increased over the last 8 years because of the peace (PRA, 1999).
Fig. 5.1: Evolution of the Chibuto Town.
Source: Topographical and land use map of Chibuto and aerial photographs.
Scale: 1cm+= 200m (approx).

Fig. 5.2: South Central Chibuto informal sector, January 1999.

Many displaced people from different parts of the Gaza Province and some from Inhamabane, and the ex-combatants who chose to settle there permanently, lived in the surroundings of the Chibuto Town. As expected, the poorest people could not
find good stable lands for their dwellings and they are now occupying environmentally dangerous areas such as steep slopes which contact abruptly with the Limpopo and Changane River valleys (Fieldwork, 1999) (Fig. 5.3).

5.3.5.1 Many displaced do not return home after war

Although there was a shortage of cultivable lands in the region, many peasants displaced by the war preferred to stay in South Central Chibuto instead of returning to their previous residential places. After the war, there were organizations such as the International Migration Organization, which helped peasants to return home, offering them construction materials to rebuild their houses. Many preferred to stay in South Central Chibuto because they were used to that place, having established new lives there (PRA 1999). Many children have been born in the displaced places and have attended local schools and people have settled their informal activities. Soon after the peace in 1992, people also feared the restarting of war, the poorest, however later on, could not afford to return home and the international organizations were no longer available to help people return (Eliseu Ukalangue pers. comm, 1997). A woman in Figure: 5.3, for example, is head of a five member household and she would like to return home but needs support to transport her building material and return to her previous home.
5.4 Environmental problems in the period 1987-2000

Having examined the main characteristics of the period 1987 to 2000 in terms of driving forces of land-use-change, attention now turns to the characterization of the environmental problems. These were due mostly to the war and changes in climatic conditions including a dry spell culminating in the 1991/1992 severe droughts and followed by a pronounced wet period.

5.4.1. Erosion and sedimentation

Soil erosion has been intensive in South Central Chibuto since 1992. Because of the intensive extraction of resources and influx of displaced people over time rapid vegetation degradation occurred. This situation was exacerbated in 1991/92 by droughts, which desiccated the vegetation, that usually protect soils from erosion.
In 14 June 1992, for example, heavy rains led to runoff with extensive gully formations, which swept away houses built on the left bank of the Changane River. People displaced by the war had built houses in the steep slopes of the left Changane River bank, and some people from the houses were buried in mud. By 18 June, 53 bodies had been found, with a further 70 people injured (Noticias, 16/6/1992). Gullies formed after this period, are more frequent in steep slopes around Chibuto Town were tarred and paved surfaces have lowered infiltration capacity. Large gullies 5 to 10 m deep and three 3 to 6 m maximum width began to form on the edges of the plateau and spread downwards to valley-bottom lands. In subsequent years, these gullies were continuously deepening after each rainy season. Prior to this period few gullies were evident (Barradas, 1962; Ombe, 1991, 1998).

5.4.2 Degradation and recovering of sacred places

In 1977, when the communal villages were constructed, the population of the surrounding sacred place lands suddenly duplicated. The increase in the need for agricultural lands by the resettled people and the recurrent droughts during the 1980s increased the demand for land in general, for relatively moist places by riverbanks and water reservoirs such as ox-bows. In the period after 1983, people gradually began to clear the riverine forest of the Shivongueni sacred place and started to grow vegetables on its shores. The Lake Gorwani area was increasingly cultivated (Ombe, 1991; PRA, 1999). During the war for example, due to the lack of security, people could not travel far away from their homesteads for land and fuel. People could no longer rely on the network of relatives and friends living in different ecosystems for help. Consequently, during 1983-1992 an intensive clearance of vegetation and cultivation of the sacred places continued. During RENAMO attacks on the town of Chibuto and surroundings, people used to seek places to hide in the Shangane riverbanks including sacred places of Shimbvongueni and Mount Shimbutsu (Edson Macuacua, pers. comm, 1999).

Attitudes towards sacred places, however, during the last period of the war experienced a significant change. Due to the recurrent drought and famine, people
began to interpret it as punishment from the ancestors and that the bloodshed was sterilizing the land (Ombe, 1991; Kreike, 1996). It was a common perception during the end of the 1980s that because God and the spirits of the ancestors were upset, then rivers no longer house fish, and fruit trees no longer bore edible fruits, etc. (Roesh, 1986; 1996). In order to praise the ancestors, some degraded sacred places such as Ganga la Shimbutsu (Mount Shimbutsu) were officially recognized and people were again mobilised to respect them. During the 1991/92 rain prayers in the severe drought were authorised and promoted (Roesh, 1996; Edson Macuacua pers.com, 1999; Ombe, 2003).

Having examined the drivers of land-use change induced by the war and structural adjustment policy, attention now shifts to the characterisation of the 2000 floods with tremendous change induced in land-use in Southern Mozambique.

5.5 The impact of the catastrophic floods of 2000 on local livelihoods in South Central Chibuto

The Southern Mozambique climate is characterized by very high rainfall variability. Extreme weather events including floods (e.g., 1977), droughts (e.g., 1991/92) and tropical cyclones have historically caused devastating damage to the economy of the region, including loss of life and destruction of public infrastructure. These events also induced significant land-use changes in many areas of Southern and Central Mozambique. The 2000 catastrophic floods in Southern Mozambique led to the third wave of migration to Chibuto. The first wave occurred in 1977 after catastrophic floods; and the second wave was provoked by the escalation of war activity (1983–1992) as was shown in previous section.

This section begins with the description of the impacts and response to the disaster at national and local levels including the losses of valuable assets by the local people. The effectiveness of mitigation strategies adopted by the Government, which were mostly structural, is also discussed. In order to illustrate such structural measures, the Chimundo resettlement camp is used as an example of a new settlement that emerged as a result of floods.
Chibuto Town and its surroundings are located on higher ground and include an airstrip. For these reasons the town was chosen as an accommodation centre during the floods for the rescue operation in the heavily affected Lower Limpopo areas. Another advantage of the site is its linkage by a tarred road to the national road, N1 that links Mozambique from the South to the North.

5.5.1 The human dimension of the tragedy

The 2000 floods affected 27% of the total population of Mozambique, or 4.5 million people living in South and Central Mozambique in the provinces of Maputo, Gaza, Inhambane, Manica and Sofala (Mozambique, 2000) (Fig. 5.4). Two million suffered severe economic difficulties because they lost assets such as houses, crops, animals as well as shops and means of transportation. In terms of macroeconomic impact, the floods damaged 10% of the cultivated area in Mozambique and 90% of the irrigation system including more than 20,000 cattle, public buildings, schools; hospitals and systems of water and energy were also destroyed. Population losses were approximately 699 and an estimated 95 were unaccountable. The total economic loss was about 400 million American dollars (Mozambique, 2000) (Table 5.5).

Table 5.5: Direct and indirect losses caused by the floods.

<table>
<thead>
<tr>
<th>Designation</th>
<th>Costs in million dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructures</td>
<td>273</td>
</tr>
<tr>
<td>Reduction in production (including multiplier effect)</td>
<td>247</td>
</tr>
<tr>
<td>Reduction in exports</td>
<td>48</td>
</tr>
<tr>
<td>Increase in import for consumption</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>599</td>
</tr>
</tbody>
</table>

Source: Mozambique (2000, 6).
The Government of Mozambique reacted to the disaster with very limited resources available at the time (e.g. The Fire Brigade, the Navy, one airplane and 5 boats). However, in response to the emergency appeal launched on the 10th February 2000, Mozambique was supported by immediate and invaluable interventions by many countries and organizations.

Civil society was also involved in a variety of ways, from individual donors to participation and donations by both national and foreign non-governmental organizations, religious communities, associations and companies (Mozambique, 2000; Christie and Hanlon, 2001).
International support and national organizations were used to rescue people trapped on tops of trees and houses and other isolated areas. Several people were resettled in rescue camps. An important role in this process was played by the armed forces of different countries of the world namely: Twelve countries from Africa (e.g., RSA and Malawi), Europe (e.g. United Kingdom, Portugal, Spain, and Germany) and America (e.g. USA and Canada) (FADM, 2000).

The nature and magnitude of the disaster demanded an intensive use of airplanes and boats because the distances from the affected places to safe places were in many cases more than 100kms. After the rescue operations were over and camps established for the displaced, further assistance was needed to assist people with food and health care. After April 2000, emergency operations continued to rely heavily on air support because the roads were still damaged. The flood waters took a long time to recede and as a result, peasants could not cultivate their fields until June 2000 because many places remained isolated.

“Local participation and international solidarity prevented the Mozambique floods of January-March 2000 from becoming a catastrophe, although 700 people died there 45,000 were rescued, there were no major outbreaks of diseases and no serious malnutrition in accommodation centers and isolated locations holding up 500 000 who had to flee their homes” (Christie and Hanlon, 2001, 2).

5.5.2 The livelihoods of the households affected by the floods in Mozambique

The existing practice of vulnerability assessment in Mozambique undertaken by the Inter-sectoral Vulnerability Assessment and Mapping Group created a basis for a better assessment of the 2000 floods on people’s lives. The shock provoked by the floods impacted on the access to food by hundreds of thousands households in most parts of Mozambique (Instituto Nacional de Gestão de Calamidades Naturais, 2000).

The floods impacted directly by destroying the domestic resource capacity of households. Access to markets by roads and increasing distance to them was an important indirect consequence of the floods. In summary, the year 2000 catastrophic floods dramatically changed the food production capacity in Mozambique by
impacting on food security through destruction of crops and agricultural implements, including durable assets like cattle and tools. This also included the damage of communication networks and markets, thus reducing off-farm sources of income. By provoking dislocation and affecting the integrity of the families and social networks, the floods caused considerable damage to social capital (Medicins Sans Frontiere, 1999).

The floods particularly affected the most productive districts with alluvial soils, which are used for production both for subsistence and for market purposes. The areas affected are predominately those suitable for commercial agriculture, growing, mainly sugar cane (Incomati basin), rice, vegetables and commercial cattle (Limpopo basin), maize and sugar cane (Buzi and Pungue basins). The area affected belongs to the river basin’s food system, which hosts 90% of the irrigated lands in Mozambique and which is also used for export (Gomes, 1999). These districts are also cattle areas with good pastures located on fertile, alluvial soils. The southern region is free from tsetse fly and this also enhances the area for cattle farming. It is important to mention that the floods came at a time when food production in Mozambique was experiencing a steady increase after the war, from 100kg of cereals per capita in 1992 to approximately 300kg per capita in 1999 (Medicins Sans Frontiere, 1999; Intersectorial vulnerability Assessment Group, 1999; Grupo Interdisciplinar de Avaliação e Mapeamento da Vulnerabilidade, 2000) and provoked a serious setback to people’s livelihoods.

The floods were, however, of unprecedented magnitude, and the topographical features and management practices upstream encouraged catastrophic runoff, as was described in the last section. In the following section the characterization of the impact of the floods at local level in Chibuto will be undertaken.

5.5.3 The human dimension of the tragedy in South Central Chibuto

South Central Chibuto, as mentioned in previous chapters, is located in a gradient zone between two major ecosystems, the valley bottomlands of the Lower Limpopo floodplain and the ancient upland dunes. The complementarities are that the
floodplains are granaries and the uplands are raised grounds where people flee during the floods and during droughts, where drought tolerant crops can be grown to alleviate hunger.

People living in the floodplain adjacent to Chibuto Town highlands, were severely affected. From an estimate of 54,349 people affected, approximately, 12,543 were taken into accommodation centres, 110 died. People also lost their assets of long-term investment, including 4000 cattle and 2000 houses (Conselho Municipal da Cidade de Chibuto, 2000) (Table 5.6). The total number of affected people represented approximately 40% of the total population of the district. The flood plain constitutes the food basket for the rest of the 60% not directly affected.

The assessment of losses undertaken by the Chibuto Municipal Council showed that there was a considerable loss of people’s livelihood assets such as cattle, goats and poultry. Food crops and other household possessions were damaged and lost (Tables 5.6, 5.7, 5.8 and 5.9).

A key impact in terms of land-use cover and change was the movement of people into South Central Chibuto. South Central Chibuto, more particularly Chibuto Town has been used for the resettlement of the people as accommodation centre for assistance. International agencies were based in South Central Chibuto such as the Air Forces of South Africa and USA to rescue people by helicopter. More than 2000 people rescued received assistance in Chibuto Town (Concelho Municipal da Cidade de Chibuto, 2000). The accommodation centre of Chibuto also served people from other districts, which shared the river valley environment such as Xai-Xai, Chokwe and Bilene. The importance of Chibuto in these operations is that it possesses an operational airstrip for landing airplanes and is located 80m to 100m above sea level. The local hospital, moreover, could be used for emergency health care as was alluded to before.
Table 5.6: Lost houses in Chibuto District.

<table>
<thead>
<tr>
<th>Type of houses</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement houses</td>
<td>6</td>
</tr>
<tr>
<td>Huts</td>
<td>2033</td>
</tr>
<tr>
<td>Zinc roofed and reed walls</td>
<td>600</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2639</strong></td>
</tr>
</tbody>
</table>

Source: Concelho Municipal da Cidade de Chibuto (2000). Note the overwhelming number of huts, vulnerable to floods.

Table 5.7: Animals destroyed in Chibuto District.

<table>
<thead>
<tr>
<th>Type of animals</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>4001</td>
</tr>
<tr>
<td>Goats</td>
<td>1700</td>
</tr>
<tr>
<td>Sheep</td>
<td>388</td>
</tr>
<tr>
<td>Pigs</td>
<td>102</td>
</tr>
<tr>
<td>Chickens and ducks</td>
<td>2590</td>
</tr>
</tbody>
</table>

Source: Concelho Municipal da Cidade de Chibuto, 2000. Note the diversity of livestock, showing economic recovery after war and the dry spell.
Table 5.8: Agricultural loss in Chibuto District.

<table>
<thead>
<tr>
<th>Type of crops</th>
<th>Ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>14 875</td>
</tr>
<tr>
<td>Cow peas</td>
<td>1 109</td>
</tr>
<tr>
<td>Groundnuts</td>
<td>1 460</td>
</tr>
<tr>
<td>Tomato</td>
<td>102</td>
</tr>
<tr>
<td>Bananas</td>
<td>30</td>
</tr>
<tr>
<td>Total</td>
<td>18 576</td>
</tr>
</tbody>
</table>


Other losses included:

- Damage of electrical system;
- Disruption of water supply system;
- Damage of drainage system of Chibuto City;
- Damage to 230kms of roads;
- Damage to 3 bridges;
- Destruction of a road linking Chibuto and Guija (Concelho Municipal da Cidade de Chibuto, 2000).

One of the impacts of the floods in Chibuto was the change in the current vulnerability of households by decreasing the production capacity during the 1999/2000 agricultural campaign. Because of damage to roads, the district also experienced a rise in food prices and the total collapse of the food markets from February to June 2000.
Table 5.9: Place of resettlement in Chibuto District.

<table>
<thead>
<tr>
<th>Place of resettlement</th>
<th>Number of families</th>
</tr>
</thead>
<tbody>
<tr>
<td>Samora Machel</td>
<td>320</td>
</tr>
<tr>
<td>Chimundo</td>
<td>249</td>
</tr>
<tr>
<td>Eduardo Mondlane</td>
<td>114</td>
</tr>
<tr>
<td>Coca Missava</td>
<td>422</td>
</tr>
<tr>
<td>Guemulene</td>
<td>190</td>
</tr>
<tr>
<td>Total</td>
<td>1205</td>
</tr>
</tbody>
</table>


5.5.3.1 The floods, land-use change and livelihoods: the case of Chimundo resettlement camp in South Central Chibuto

The Chimundo Resettlement Camp is located in the eastern part of the Chibuto Town and is a former cultivated area with short fallow. The area is characterized by gentle sloping land and plateau site, not prone to erosion. It was previously inhabited by a permanent rural population of Chibuto. During the war these people moved closer to the city for more security. Chimundo exhibits suitable physiographic conditions, which had been identified by the local municipal authority, for expansion of the town and the establishment of a resettlement camp.

The majority of the resettled in the camp lived in elevated areas such as river terraces in the Lower Limpopo around commercial settlements along major roads linking Chibuto with Maputo (e.g. Maniquenique) and Chibuto with Xai-Xai (e.g. Mondiane). These areas are usually only affected by floods of high magnitude including those of 1977 and 2000:
“Ernesto Mazive, for example, is a head of a 7 persons household. He had lost 4 houses, 50 cattle, 10 goats and 8 pigs. He lived in Mondiane since he was born and remained there during the war. He was donated 1 house and he said that he is suffering from unemployment and hunger in the resettlement camp” (Ernesto Mazive pers.com, 2000).

During the war, as was mentioned in previous sections, the Lower Limpopo was a relatively secure region because the guerrillas avoided attacking these areas. In this period the predominant migration was from the northern uplands southward to South Central Chibuto (Fig. 5.5 and table 5.10). There were also people who, during the war, preferred to abandon unsafe communal villages like the one called Eduardo Mondlane, to settle in the floodplain.

“Carlos Matavele and his family were rescued in an elevation when they were already covered by water up to the knees. He had abandoned the Eduardo Mondlane Communal Village in Chibuto district where he was rescued in the 1977 floods due to the intensification of the war” (Carlos Matavele, pers.com, 2000).

The following figure (Fig.5) and table (Table 5.10), illustrate the migration pattern in the region of Chibuto since the 1977 catastrophic floods up to those of 2000.
Fig. 5.5: The migration pattern in South Central Chibuto, 1977-2000. Sources: Moçambique (1977); UNHCR/UNDP (1997) and fieldwork 2000.
Table 5.10: Causes and predominant direction of migration in South Central Chibuto 1977-2000.

<table>
<thead>
<tr>
<th>Period</th>
<th>Predominant direction of migration</th>
</tr>
</thead>
</table>
| 1977-1983       | Construction of communal villages, people migrate from scattered rural settlements into demarcated urban settlements in the *serra*.
| Floods and Communal Villages |                                                                                                  |
| 1983-1992: War  | Dislocation of people seeking refuge in Chibuto Town and its surroundings from different parts of Southern Mozambique, mostly from Northern Gaza Province |
| 1992-2000: Peace| People leave Chibuto to their previous pre-war locations. Very few people return to Chibuto as ex-combatants or captured during the war. Some people abandon communal villages uplands (*serra*) to lowlands (*bila*) under influence of peace and the onset of wet spell. |
| 2000 Floods     | People from lowlands (*bila*) affected by floods are resettled to uplands. Creation of Chimundo Resettlement Camp. |

More than 50% of those interviewed were rescued in the Mundiane location, 20km from Chibuto Town. Other people were rescued in Maniquenique, 15km away including Languene and Gudo Gudo, also 15 to 20 km away from Chibuto.

The majority of these interviewed (56%) were rescued while trapped in the tops of trees; 30% rescued were on the tops of houses and the remaining 14% in other elevated grounds. The majority lived in huts and their dwellings were completely damaged. For example, only four out of 118 houses belonging to those interviewed were conventionally built and could resist floods. These houses can be rehabilitated after the floods:
“Etelvina Manuel Macuacua, for example, a female head of eight person household was rescued with her family on the roof of a shop in Mundiane. She had lost all her belongings including her two huts, two cows, two pigs and five chickens. She suffers from the lack of land and employment” (Etelvina Macuacua pers.com, 2000).

From the 44 household interviewed, quite a number of domestic animals were lost mostly goats and cattle (Table, 5.11). This shows that in people’s livelihoods the farming of cattle played an important role for agricultural production. Regular rains after 1992 enabled many peasants to recover their livelihoods after years of war and the 1991/92 severe drought. Most people, who died during the floods, were trying to save animals and other belongings.

Table 5.11: Animals Lost in South Central Chibuto.

<table>
<thead>
<tr>
<th>Type of houses</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>77</td>
</tr>
<tr>
<td>Goats</td>
<td>127</td>
</tr>
<tr>
<td>Pigs</td>
<td>35</td>
</tr>
<tr>
<td>Sheeps</td>
<td>8</td>
</tr>
<tr>
<td>Ducks</td>
<td>46</td>
</tr>
<tr>
<td>Chickens</td>
<td>41</td>
</tr>
</tbody>
</table>

Source: Questionnaire, October 2000.

A total of 208ha of crops of the interviewed households were lost, and of these, the majority, 60 %, were under maize. After the floods, some people managed to recover their goods such as domestic utensils and agricultural implements, mainly ploughs. Some clothes, cement houses and a few cattle were also recovered. During the war, the majority of the respondents, more than 70%, were living in the same place where they were hit by the floods.
In order to be established in their new dwelling places, all the respondents received plots of land and a kit of domestic utensils for cooking, fetching and storing water, as well as blankets from the Government and NGOs (e.g. The Santo Egideo Community from Rome). NGOs are helping to build houses in three phases. In the first phase, people are resettled from a crowded accommodation camp to a demarcated plot of 30*40m size and they live in tents. In the second phase, a two-room house of walls made of reeds and poles and covered by zinc is built and given to a resettled personal family. In the third phase a conventional house of two bedrooms and one dining room is erected to a resettled personal family (Fig. 5.6).

Fig. 5.6: The Chimundo Resettlement Camp in October 2000 in the transition from tents to houses. Note the conversion of traditional agriculture in the *serra* into urban land-use: The trees are mainly cashew, the crops are cassava and maize. Refer to traditional agro-forestry alluded to in Chapter 3. 
Source: Fieldwork, October 2000.

Having outlined the main aspects related to the damage caused by the 2000 catastrophic floods in both National Provincial and local level, attention now shifts to the exploration of the potential impact of the disaster management strategies including resettlement programmes on local livelihoods.
5.6 The importance of the traditional land-use practices in flood mitigation in South Central Chibuto

“Currently, supply-side approaches (e.g. increasing flood defences, building weirs, utilizing water storages, including natural systems, improving infrastructure for water collection and distribution) are more widely used than demand-side approaches (which alter the exposure to stress); the latter is the focus of increasing attention. However, the capacity to implement effective management responses is unevenly distributed around the world and is low in many transition and developing countries” including Mozambique (IPCC, 2001, 5), (italics added).

Mitigation actions taken to reduce the effects of the floods on the population and the economy have been undertaken since the colonial era in Mozambique. These mitigation measures include both structural and non-structural measures (Vaz, 2000). Structural measures are related to the building of dams such as Massingir and Macarretane in the Limpopo basin, including dykes to protect commercial farms and towns in Chokwe, Chibuto and Xai-Xai (Vaz, 2000). After Independence and the 1977 catastrophic floods, the most important mitigation measures comprised of producing a new settlement structure in the Limpopo Valley where people were resettled to higher grounds in Aldeias Comunais as was mentioned in previous chapters. The Villagization land use policy discouraged and in some cases prevented the building of houses in the flood plain. The floodplain had to be used for intensive agriculture in state farms and co-operatives.

According to accounts from local people in Chibuto, during the single-party centralized economy, it was forbidden to return to the flood plain again after having received a plot of land in a communal village. People could return only for agricultural purposes. In order to discourage people to return to bila, people who abandoned their villages were not supposed to be given any assistance by the authorities in cases of emergency during the years of droughts and famines. Field observations showed that after the peace accord many peasants abandoned their houses in the villages and settled again in the flood plain. Wealthier families however, managed to leave part of the family in the village uplands.
One of the reasons that people return to the flood plain is that floods allow the practice of a flood-resection system of agriculture, which benefits the peasants. Floods of high frequency and low magnitude of impact are beneficial to the peasants (Carmo Vaz, pers. comm, 2000).

“An analysis of 32 years of available data on maximum annual river levels in Chokwe between 1953 and 1994 showed that in half of the years, mild or moderate floods were recorded. Mild floods (with river levels between 4-6 meters) hit seven times in 32 years and moderate floods (with river levels between 6-8 meters) occurred nine times in 32 years. Severe floods (levels over 8 meters) happened only four times in the 32 years: 1977, 1975, 1972 and 1955. In 2000, the river may have reached over 10.5 meters compared to the previous high of 8.5m in 1977. (Precise measurements are not available because gauging instruments were submerged)” (INGC, 2003, 78).

After normal floods or effective rains, the peasants rush to use the maximum amount of available moisture. Increasing distances from the residences to the fields provoked by resettlement programmes constitute the biggest constraints, which make the peasants decide to remain in floodplains and sometimes by even refusing resettlement (Group Discussions in the National Seminar on 2000 catastrophic floods in Mozambique, Polana Hotel, September, 2000).

Another contributory factor that keeps the peasants in the valley prone to floods is the cattle. Good palatable pasture and water are abundant in valley environments. Besides this fact, the bila environment became less densely populated and cattle may graze relatively free from the risk of damaging somebody else’s property. The peasants from the bila are traditionally those who mostly rely on cattle in their economy that is principally in agricultural activities. Decision to leave the place after being warned about floods was made with difficulty because of the cattle. According to Nataniel Muchanga, who works as an assistant in the Provincial Delegation of the National Institute of Disaster Management in Gaza Province many, people died because they wanted to be rescued with their goats (Nataniel Muchanga pers. comm, 2000).

The existing dams upstream manage to control the most frequent floods, which benefit the peasants and alter the floodplain ecosystem, including decreasing soil
fertility. However, the catastrophic floods of low frequency due to their construction, which aims at preventing droughts by storing huge quantities of water, are, not prevented (Christie and Hanlon, 2001). This includes inadequate management in the Mozambican side. For example, the Dam of Macaretane near Chokwe was considered to have increased the magnitude of the floods due to its poor management in the following way:

“(…) on Saturday night 26. This time the water rose very rapidly, when the gates did not open, pressure built up behind the dam. Late Saturday night the dykes broke in two places destroying the bridges connecting the main road and the railway line to the top of the dam (…) These breaks caused the waves to rush towards Chokwe, just after midnight water levels rose more than a meter between midnight and 2 am on Sunday morning” (Christie and Hanlon, 2001, 201).

Carmo Vaz also argued that, peasants knowing that catastrophic floods are of low frequency are often reluctant to abandon the floodplain when asked to by warning agents (Carmo Vaz, pers. comm. 2000). Although peasants do not argue theoretically this way, the settlement pattern of the bila fields shows that the houses are built in micro-relief elevations and riverbank levees in order to avoid inundations during heavy rains. Furthermore such adaptation should include avoiding low magnitude but more frequent floods as indicated in chapter 3. The peasants defend themselves against water while utilising it for crop production. This situation is illustrated by the following news in the Lower Limpopo:

“In March 1988 floods affected the Limpopo River, 11 400 people have to left their homes (...) but the Maputo daily Noticias reports intensive activity as peasants prepare to replant and take advantage of the exceptionally moist soil. But National Water Board officials are warning families in the area of precautions and that there is still a danger that their crops may be swamped” (Mozambique Information Office News Review No.125 3 March, 1988).

The resettlement has severely impacted on the poor, who live far from the bila fields and cannot afford to hire labour for better cultivation, and also cannot enjoy the advantage of living near towns and informal employment opportunities. Furthermore, resettlement to villages and peri-urban areas may have, in some cases provoked the loss of cultural and moral values (e.g. leading to prostitution and theft).
consequence of the resettlement process often means the destruction of the community’s social network and the annulment of important livelihood strategies, accumulated over time. It includes, according to Thabane, 2000, who investigated this issue in Lesotho, fears and feelings of insecurity and uncertainty (Thabane, 2000). Connor, (2005) for example, highlights that the loss of land may intensify the desire to recapture lost territory and retain kinship ties.

Recognizing the complexity of the mitigation of the disasters through resettlement in a draft prepared by the Ministry of Environmental Affairs of Mozambique and the United Nation Environmental Program, it was concluded that the 2000 floods have been the worst in living memory and that communities had lost everything they owned, including cattle. However, despite all the suffering, the communities insisted on returning to the floodplains. The only solution was to assist them to continue staying in the plains by adopting preparedness and mitigation measures for future floods. The focus would need to be on practical approaches to disaster management, stressing prepared mitigation techniques, which emphasize avoidance (ILO, 2000).
Summary

Land-use and cover were clearly impacted by two large-scale processes. First the FRELIMO and RENAMO war and Structural Adjustment Policy which was implemented while the war was taking place, and the second was the 2000 devastating flooding.

The period 1987-2000 is characterized by a further intensification of land-use both in settlement activities and farming. The intensification was impacted by the arrival of waves of resettled from different parts of the Gaza and Inhambane Provinces to Chibuto. These people needed space to build their houses and cultivation for their subsistence. The increase in population, however, posed major pressure over the existing natural resources. Livelihood assets such as cattle were seriously affected weakening livelihoods.

Peace finally was achieved in 1992 and together with previous economic reforms based on the market economy these contributed to the creation of new opportunities for the local peasantry. The Government adopted policies to reduce poverty and address vulnerability.

Severe droughts together with the war contributed to the increase in the vulnerability of the people and contributed to a host of environmental problems. The isolation of South Central Chibuto during the war heightened pressure over local resources, mostly its soils vegetation and water. The period between 1992 and 2000 was also characterized by a wet spell, and although this contributed to increases in crop production on the one hand, on the other hand the rains increased the risk of soil erosion.

The region of South Central Chibuto and Southern Mozambique in general has been ravaged by floods of unknown periods of return. These floods are a result of a combination of natural and socio-economic factors enhancing risk. Natural factors are related to the coincidence of a strong La-Niña and two strong cyclones. Human factors are related to the land-use changes in the cachment and management of dams.

The floods impacted on the lives of the people in South Central Chibuto. Firstly, resulting in human losses, loss of assets (e.g. houses, cattle and crops). Secondly, the floods provoked changes in the livelihoods of people in scattered homesteads who had to be resettled to new places as well as other various environmental impacts.

The balance of losses and gains, as a consequence of resettlement has been analysed in this chapter, but still needs further research. The 2000 floods had the potential to raise awareness on disaster mitigation in Mozambique. In the next chapter the discussion of the land-use change process and its impact on people’s livelihood will be summarized. The consequences of the changes in the 'state’ of the environment will be also shown.