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Urban agriculture in Maputo

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Maputo in order to improve nutrition levels and reduce dependence on imports constitutes a contribution to the body of knowledge about urban development in Africa. Furthermore, the importance of this research lies in its contribution to understanding the role of institutional support to urban agriculture, and of the significance of secure land-use rights to household welfare, as well as in the absorption of unemployed and under-employed city dwellers into productive activities.

1.2 The structure of the report

After outlining the basic economic and social indicators for Mozambique in Chapter 2, the report in Chapter 3 describes the background to Mozambique's food crisis by looking at the evolution of agricultural policy since independence, the combined effects of war and natural disasters leading to the emergency relief programme and structural adjustment, and the government's attempts to alleviate the situation in Maputo. Chapter 4 reviews the literature on urban agriculture with regard to: definitions of the practice; official attitudes to city farming; who engages in agriculture in cities; what crops and other products are produced; the problems faced by urban farmers; and urban agriculture in Mozambique.

Chapter 5 deals with the methodology used in this study, as well as with the reliability of the data. Chapter 6 examines the political and legal framework for the practice of agriculture in Maputo. Chapter 7 discusses the institutional framework for support to city farmers, examines estimates of the numbers of farmers and the areas cultivated, and analyses the development of producer co-operatives in Maputo. Chapter 8 paints a pen portrait of some of the farming areas and the farmers. Finally, Chapter 9 presents conclusions and recommendations, and suggests further areas for research.

Chapter 1
Introduction

1.1 The research problem

While Mozambique has for many years experienced severe food shortages, the urban farmers in Maputo city have contributed to food supplies in the Mozambican capital, thus relieving dependence on food produced in the rural areas and on imports. In order to understand this phenomenon, information is needed about the institutions giving assistance to the producers, and the nature of this support, as well as on the varieties of crops and livestock produced. The official support and encouragement of urban agriculture in Maputo could provide lessons for policy makers and planners in other cities.

1.1.2 Research questions

(i) What is the statutory framework for "green zone" production in Maputo city?

(ii) Who are Maputo's farmers and why are they there ?

(iii) What and how much do they produce?

(iv) What support mechanisms exist for farming co-operatives in Maputo?

1.1.3 Objectives of the research

This study is mainly exploratory and descriptive, since the history and development of farming in Maputo city is a subject which has received relatively little attention by researchers outside Mozambique. Moreover, research results published in Portuguese are inaccessible to most English-speaking academics and policy-makers.

As the literature review demonstrates, there is currently a great deal of interest in and investigation of urban agriculture in the context of planning economically sustainable cities, not only in the underdeveloped world but also in the industrialised countries. An exploration of the Mozambican experience of promoting the production of food in

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List of abbreviation

GZV Green Zones Office

UGC General Union of Co-operatives

INPF National Institute of Physical Planning

DCU Directorate of Construction and Urbanisation

DPCCN Department for the Prevention and Combat of Natural Disasters

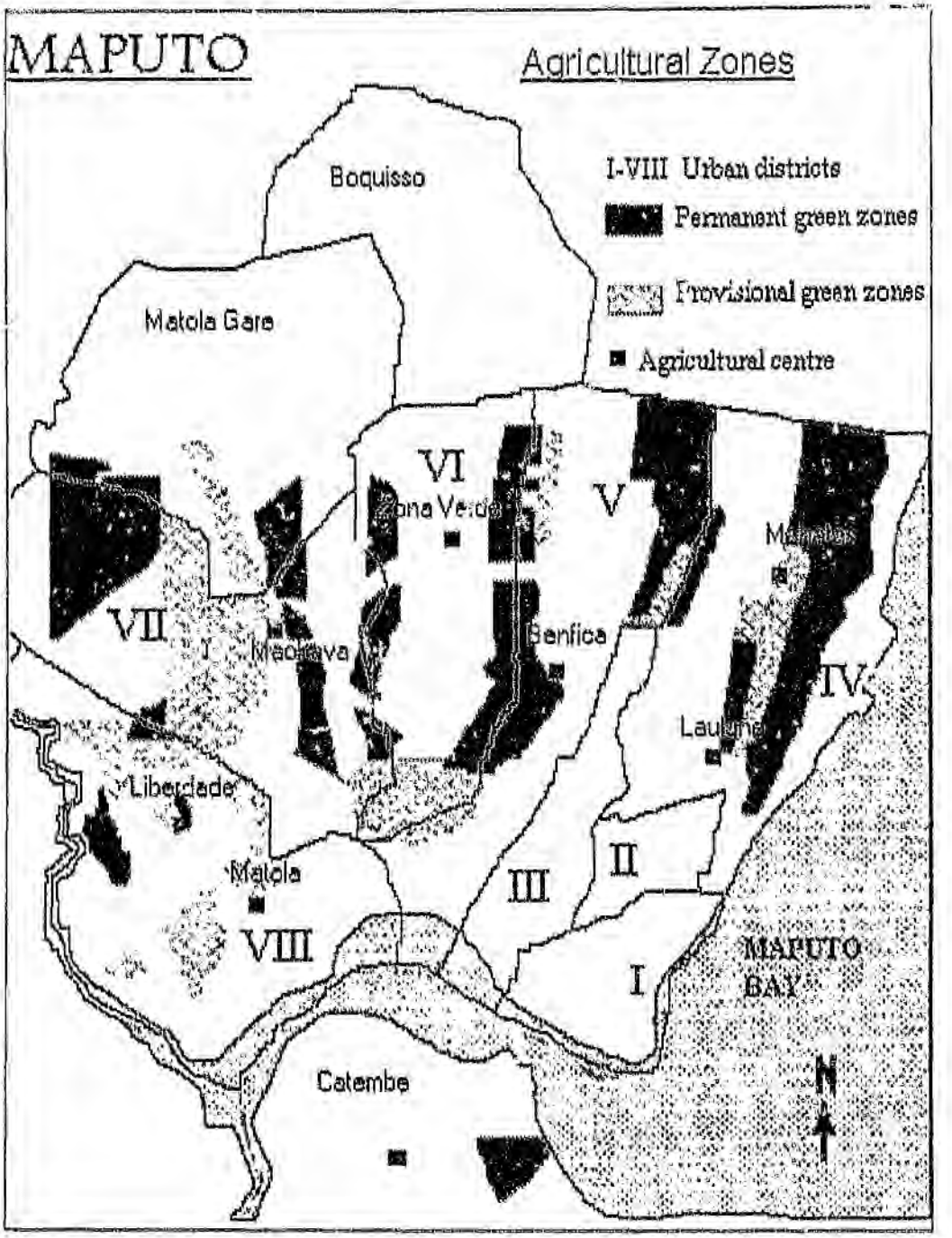
DNE National Directorate of Statistics

UNICEF United Nations Children's Fund

PNUD United Nations Development Programme

FAO Food and Agricultural Organisation of the United Nations

AIM Mozambique Information Agency


MAPUTO
Agricultural Zones
Boquisso
Matola Gare
I-VIII Urban districts
Permanent green zones
Provisional green zones
Agricultural centre
VI
V
VII
I
Benfica
IV
Liberdade
Matola
III
II
VIII
I
MAPUTO
BAY
Catembe
N

Abstract

This report covers the development of agricultural production in Maputo city. After reviewing the literature on urban agriculture, it examines the political and legal framework for the practice of agriculture production in the Mozambican capital. The development of institutions designed to support small-scale producers is then investigated. The functioning of the institutions and the nature of the assistance given to peasant farmers and co-operatives is described. The separate advances of the independent co-operative movement are contrasted with the still uncertain future of the government's Green Zones Office.

The areas dedicated to agriculture and the numbers of farmers are estimated. The risks to household welfare from difficulties in securing title to land-use rights are highlighted. The report concludes that the benefits from urban agriculture are found both in the supply of quality foodstuffs to the city and in the provision of income-earning opportunities for city dwellers. Recommendations are made on the legalisation of the Green Zones Office and on the simplification of land concession procedures.

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I declare that this research report is my own unaided work. It is submitted in partial fulfilment of the requirements of the degree of Master of Management (in the field of Public and Development Management) in the University of the Witwatesrand, Johannesburg. It has not been submitted before for any degree or examination in any other University.

Frances Michele Christie
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URBAN AGRICULTURE IN MAPUTO

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why the rice harvest had failed in the Limpopo valley. The 16,000 hectares sown to rice in the Limpopo Agro-industrial Complex (CAIL) we. expected to produce a crop of 44,000 tonnes. In fact the harvest was only 25,000 tonnes (AIM 1981b). The World Bank (1988, p 3) survey observed that "many are not even able to cover their operating costs, let alone administrative overheads and debt service.

Frelimo policy makers had implicitly recognised the poor performance of the state farms in 1983 when the Fourth Congress of Frelimo drew up economic directives emphasising the peasant family sector in agriculture. Production incentives, inputs and consumer goods needed in the rural areas were to be guaranteed and extension services set up (Frelimo 1983). In fact the break-up of CAIL began after the Fourth Congress. Ten state enterprises, including three factories processing pork, dairy products and rice and seven state farms, averaging 1,500 hectares each were formed and the remainder of CAIL land was distributed to private and peasant farmers (Tanner *et al* 1992)

Economic policy directives notwithstanding, a 1984 report on the agricultural sector documents the excess demand for agricultural implements in the family farming sector, showing a deficit of almost 5.5,000 hand tools, more than half the estimated requirements (MONAP 1984).

The creation of communal villages facilitated the provision of health and education services to people in the rural areas previously living in dispersed homesteads. The price for this however was a greater distance between home and field because of the concentration of farming families in the villages. The scope for shifting cultivation was thus reduced, leading to a decline in soil fertility and lower yields (World Bank 1988). Frelimo was still calling for special attention to be paid to the family farming sector when the theses for its fifth Congress were published in 1988 (Mozambiquefile 1988, p 13). The World Bank (1988) survey also recommended that Mozambique's limited resources be concentrated in the family sector rather

they cover, their rational organisation of human and material resources and the immediate availability of machinery" (Frelimo 1977). In the four years after the Third Congress, Mozambique imported 3,000 tractors and 300 combine harvesters (Hanlon 1984, p 100). By that time state farms covered over 130,000 hectares. The largest was the Limpopo Agro-industrial Complex (CAIL) which at its peak covered some 26,000 hectares (Tanner, Myers, Ond, Ellsen & Mucamo 1992). However, Dolny (1985) observed that the state farms should also have been influential in building farming co-operatives by giving technical support and training to co-operative members. Even so, the co-operative and peasant farming sectors were largely ignored. "Between 1978 and 1982, over 90 per cent of the government's investment in agriculture and nearly all available technical assistance, together with substantial amounts of scarce foreign exchange and skilled manpower were allocated to the state farms" (World Bank 1988, p 3). However, there was an attempt in 1981 to lay the foundation for a system to give technical assistance to small farmers, with the establishment of agricultural development centres on state farms (AIM 1981c). According to AIM, one of the main aims of the centres was to stimulate the growth of agricultural co-operatives by introducing improved farming techniques and appropriate technology to peasant farmers. It was planned to build a network of 12 centres to cover the whole country by the end of 1982, at a cost of US$ 6.5 million (Ibid.).

Mozambique adopted the model of a centrally planned economy, and almost all policies and decisions in the economic sphere appeared in the context of the central state plan. This plan set production targets and determined the distribution of the resources required to achieve them. "Monetary and pricing policies played a limited role in resource allocation" (Ratilal 1990, p 21). Nevertheless, the economy grew at a modest 2.8 per cent a year from 1977 to 1981, and exports climbed from US$ 153 million in 1977 to US$ 281 million in 1980 and 1981 (DNE 1986).

Despite the priority given to state farms in the allocation of scarce investment resources, their performance was dismal. In 1981 the government set up a commission of inquiry to discover

found on coastal areas in the north and in the Zambezi valley, where alluvial soils and good seasonal rains permit this type of cultivation. Drier types 4 and 5 occur in northern Manica and Sofala and in Tete, supporting semi-extensive mixed crop and livestock systems. Practically the whole of the northern region is semi-intensive, although tsetse fly limits cattle production. Most of the south suffers from low and irregular rainfall. This is where Type 4 and 5 extensive and semi-extensive utilisation is found (Mozambique & UNICEF).

3.2 Post-Independence policy

At its first session in July 1975, the Council of Ministers decided to nationalise all land and ban the collecting of rent for land (AIM 1976). The state's ownership of the land in Mozambique is confirmed in the 1979 land law and enshrined in the Constitution of 1990 (Mozambique 1990). Twenty years later, land policy in Mozambique is still a subject of debate, as will be shown later in this report.

3.2.1 State farms versus co-operatives

It was decided in 1976 that development in the countryside could best be achieved by the creation of communal villages, engaged mainly in collective production (Dolny 1985). Nevertheless, a year later emphasis had switched to the establishment of mechanised state farms on the abandoned farmland, in order to cope with growing food shortages in the urban areas.

The settler farms were not large, but being adjacent to each other in specially-demarcated settlement areas, it was easy to cultivate them together. These farms had been partly mechanised. According to Hanlon (1978), there were 4,500 tractors and a few combine harvesters in Mozambique before independence, but by 1977 only 2,500 tractors were operational. That year Mozambique imported over 1,200 tractors "and a large quantity of agricultural machinery" (AIM 1977).

The Third Congress of the ruling Frelimo Party in 1977 decided that "State-owned enterprises are the quickest way of responding to the country's food needs because of the size of the areas

Table 3: Land and Water Resources

Land Use Potential	Million Ha.	%
Total area	79.9	100
Inland water	1.3	2
Land area	78.6	98
of which:		
National Parks, Conservation	10.1	13
Forestry	16.2	20
Urban areas	0.7	1
Unsuitable for agriculture	15.6	20
Cultivable	36.1	45
of which:		
Climatic risk - low	20.3	25
moderate	4.5	6
high	2.6	3
unsuitable	8.7	11
Irrigation potential[1]	3.3	5
of which:		
suitable	2.0	3
conditional	1.3	2

Source: World Bank 1988, p 9.

Whichever of these arguments holds true depends on the specific circumstances in Mozambique's five agro-ecological regions. Type 1 is specialised and diversified utilisation, concentrated in small pockets of higher hillside land with good soils and rainfall, mainly in the north, for example the tea plantations in Zambezia and the citrus plantations in Manica province. Type 2 is intensive utilisation and Type 3 is semi-intensive utilisation. These are

[1] These data were estimated before the completion of the Corrumane dam in Maputo province.

noted that almost half (49 per cent) of agricultural output in the south of Mozambique at the time of independence was peasant subsistence production and well over a third (39 per cent) of total output from agriculture in the three southern provinces of Maputo, Gaza and Inhambane came from settler farms.

Most of the 250,000 Portuguese settlers left Mozambique around the time of independence, throwing the economy into crisis. The rural marketing network collapsed as Portuguese and Asian traders either left the country or moved to the cities to take over businesses there (Hanlon 1984). Wuyts (1979) commented that the breakdown of rural markets caused a reduction in the income generating capacity of Mozambican peasants.

The massive abandonment of farms by settlers, as well as the destruction of equipment and livestock resulted in a rapid drop in the production of food for the market. Wuyts (1978) estimates that gross agricultural output in the country as a whole in 1975 was 13 per cent lower than in 1973, but that marketed output of agricultural crops fell by 43 per cent in the same period.

3.1.2 Land resources

There are differing views on the abundance or scarcity of land in Mozambique. The World Bank (1988) argued that land is abundant, relative to the population. Green (1991b) counters that with an assertion that in large parts of Mozambique land is in fact scarce. He argues that the arable land available for family sector households, including a reserve for purposes of rotation, is barely enough for an income at or just above the level of the absolute poverty line, taking subsistence production and market sales together. Green's calculation takes into account land officially allocated to commercial farmers, agricultural companies and forestry, and of unusable plus urban land. This position is supported by Myers (1993).

The following table shows the Ministry of Agriculture's estimates of land and water resources, as quoted by the World Bank.

severe food shortages in the rural areas and 2.6 million people in the cities and towns faced food shortages in the commercial networks. The appeals became an annual event, and the requirements increased year by year (Mozambique & United Nations 1987, 1988, 1990, 1991, 1992, 1993). The table below illustrates the development of the food crisis in Mozambique.

Table 2: Cereal Imports (000t, actual arrivals)

Year	73	76	77	78	79	80	81	82	83	84	85	86	87	88	89
Aid	0	114	75	114	168	139	137	194	221	332	249	253	560	527	393
Commercial	118	36	112	190	192	196	187	112	72	24	71	0	0	0	0
Total	118	150	187	304	360	335	324	306	293	356	320	253	560	527	393

Source: Hanlon 1991

The table shows the steady increase of food aid against the fall in commercial imports, which dropped to less than the quantity of aid in 1982. Clearly as Mozambique's need to import food grains increased, the capacity of the country to pay for its imports declined. With no commercial imports from 1986, conditions were created for the emergency relief and the structural adjustment programmes that were introduced in 1987.

3.1.1 The agricultural heritage

Previously, Mozambique had been a large exporter of agricultural products and a net exporter of food (Direccao Nacional de Estatistica 1985). The basic structure of agricultural production inherited by Mozambique at independence in 1975 was divided between peasant, plantation and commercial farming. Central Mozambique was dominated by an export-geared plantation economy, the north was mainly peasant cash crops oriented towards the export market, while the dominant feature in the south of the country was medium-sized settler farms mainly aimed at supplying the internal market for foodstuffs (Wuyts 1979). The plantation crops were sugar, tea, sisal and copra, and the peasant cash crops were cotton and cashew nuts. The great majority of the population, however, was engaged in slash and burn subsistence agriculture characterised by extremely low productivity (Abrahamsson & Nilsson 1994). Wuyts (1979)

Chapter 3
Background to the food situation

3.1 The roots of the food crisis

The depth of Mozambique's economic decline in the first decade of independence is clearly illustrated by the following statistics quoted from Hermele (1990, p 11). Moreover, the fact that cashew nuts, together with prawns, port and rail charges and remittances from migrant workers, were a major source of foreign exchange earnings (Ratilal 1990), serves to underline the seriousness of the economic disintegration.

Table 1: Anatomy of an economic collapse 1973 - 1986

Index: 1973 = 100	1973	1980	1986
Industrial output*	100	77	35
Marketed agricultural output (volume)			
Cashew	100	45	20
Cotton	100	45	7
Maize	100	54	18
Rice	100	79	55
Exports of merchandise**	100	122	34
Service receipts**	100	79	55
Imports of merchandise**	100	232	157
Service expenditures**	100	79	293

Source: Hermele (1990, p 11)

*Constant 1980 prices

**Current US dollars

In 1987, the Mozambican government appealed to the international community for emergency aid to prevent mass starvation. By 1988 it was estimated that some 1.1 million rural Mozambicans were displaced inside the country, a further 2.2 million people were affected by

Most Maputo residents (67.1 per cent) own their own home. These are mainly flimsy structures of reed, mud and zinc sheeting. Another 32.9 per cent live in houses rented principally from the state housing authority. Only 38.5 per cent of Maputo houses have electricity, 33.2 per cent have piped water and 20.6 per cent have a flush toilet.

Wood and charcoal are the main cooking fuels, used by 71.6 per cent of Maputo households. Electricity is used for cooking by 16.9 per cent of households and gas by 7.5 per cent.

Of the economically active population[1], 12.9 per cent are unemployed. Almost a third (31.5 per cent) of those in employment work in commerce. Industry absorbs 16.6 per cent, agriculture, forestry and fishing 9.8 per cent, public administration 6.7 per cent, the health service 2.5 per cent, education 2.2 per cent, banks and other financial institutions 1.3 per cent, and other services 13.9 per cent.

Despite Maputo's poverty, its people are surprisingly well-educated. More than four fifths (82.7 per cent) of people aged 15 years or more are literate, while 14.1 per cent have received no schooling at all. Literacy is almost universal (94.7 per cent) among men, but falls to 72 per cent for women.

[1] People aged from 15 to 59 years.

proportion of the population living in towns and cities was 30 per cent and would reach 41 per cent by the year 2000.

2.5 A profile of Maputo

Data from a series of surveys carried out in Maputo by the National Planning Commission between April 1991 and May 1992 show that the per capita income in the Mozambican capital was just 28,000 meticais (US$17.2 at 1991 exchange rates) a month. A fifth (20.6 per cent) of Maputo families had monthly per capita expenditure of less than 20,000 meticais. Just under a quarter (23.3 per cent) spent between 20,000 and 30,000 meticais per capita, 17.6 per cent between 30,000 and 40,000 meticais and 10 per cent between 40,000 and 50,000 meticais. This means that over 70 per cent of the population of Maputo were subsisting on the equivalent of less that US$30 per capita per month. Only 7.3 per cent of families spent over 100,000 meticais (US$58) per capita per month.

Taking the total income in Maputo, 51 per cent came from waged labour. Income from business and trade came to 24 per cent of total income, shared almost equally between the formal and informal sectors. Agricultural production accounted for 7.7 per cent of the total, while 4.6 per cent was in the form of transfers from abroad.

The largest proportion of household spending, 74.6 per cent, was on food, drink and tobacco. Housing and fuel took up 11.7 per cent, transport 4.7 per cent, clothing 3.7 per cent, education and entertainment 1.4 per cent and health care 0.8 per cent.

On average each resident of Maputo consumed 9.8 kilos of cereals and bread a month, 5.1 kilos of fruit and vegetables, 1.3 kilos of sugar, 1.1 kilos of fish and shellfish, one kilo of root vegetables (cassava and sweet potatoes), half a kilo of meat, half a litre of vegetable oil and 1.2 eggs.

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2.2 Economic indicators

The gross national product (GNP) in 1993 was estimated at US$ 90 *per capita*. The average annual growth rate of the GNP between 1980 and 1983 was negative at -1.5 per cent. In 1993 agricultural production represented 33 per cent of gross domestic product, industry 12 per cent and services 55 per cent. Mozambique's total external debt stood at US$ 5.3 billion in 1993. The average annual growth rate of food production per capita from 1979 to 1983 was negative at -2.1 per cent (World Bank 1995).

2.3 Social indicators

Life expectancy in 1993 was 46 years, a decline from the estimated 49 years in 1989. Infant mortality likewise deteriorated, from 137 per thousand in 1989 to 146 per thousand in 1993 (World Bank 1991, 1995).

The World Bank estimated the adult illiteracy rate in 1990 to be higher for women at 79 per cent, than for men at 67 per cent (World Bank 1995). This corresponds to the UNICEF estimate for women in the same year, but UNICEF puts the male illiteracy rate at a much lower 55 per cent (Mozambique & UNICEF 1994).

The supply of safe water in the rural areas rose from five per cent coverage in 1980 to 33 per cent at the end of 1992. Urban coverage declined over the same period from 50 per cent to 23 per cent. The rate of improvement in the rural areas and decline in the urban areas can in part be explained by the flow of people from war-affected rural areas seeking safe haven in the urban centres (Mozambique & UNICEF 1994). Thus the reduced population in the rural areas caused demand to decline, while the growth of the urban population placed additional pressure on the existing facilities.

2.4 Urbanisation

In 1960, four per cent of the Mozambican population lived in urban areas. By 1992, the United Nations Development Programme (PNUD 1995) estimated that the

Chapter 2
Basic indicators

2.1 Population

The Population in Mozambique in 1995 was estimated to be 17.4 million inhabitants (DNE 1994). This figure was based on projections from the 1980 census, taking the annual population growth rate as 2.6 per cent. There is considerable debate about the national population figure, but this matter will only find resolution when a new national census is taken. The last national census was in 1980 (Mozambique 1983). However, during the 1980s and early 1990s the war in Mozambique caused major upheaval among the population, displacing millions of people both inside the country and over its borders as refugees (Mozambique & UNICEF 1994). G 1a) points out that war deaths and war-related deaths may have reduced the population growth rate to two per cent per year in the period from 1980 to 1990. He stresses that reliable data do not exist and probably will not exist until a national census is carried out and analysed (Green 1991a). Preparations have already begun to hold a new census in 1997 (*Noticias* 1996).

2.1.1 Occupational structure

According to the 1980 census, 85.3 per cent of the economically active population was engaged in agriculture. Of this total, 62.3 per cent were women providing unpaid labour in the family sector (Mozambique 1983). The percentage of the workforce engaged in agriculture remained at 85 per cent through to 1992 (PNUD 1995). Although this source does not estimate the participation of women in agriculture, it indicates that 47 per cent of the adult workforce over the age of 15 years was women. However Green (1991b) estimated the percentage of the Mozambican population in the peasant family sector, that is subsistence households, as 70 per cent in 1991. As with all demographic questions in Mozambique, the answer to the current participation of the population in agriculture will only be found once a new census has been held.

growing class" emerging in urban Uganda from about the mid-1970s, evidence of what they describe as the "Vanishing rural-urban gap in sub-Saharan Africa". Given the difficulties in many countries, especially in Africa, of maintaining national food self-sufficiency, Rakodi (1985) asks whether it is realistic to expect rural populations to provide a surplus to feed the cities.

What is urban agriculture? Mougeot (1994a, p 1) defines it as the "production of food and non-food plant and tree crops and animal husbandry [...] both within [...] and fringing [...] built-up urban areas". In the case of Harare, Mbiba's definition is confined to the "production of crops on land which is administratively and legally zoned for urban uses" (Mbiba 1994, p 190). This is similar to the definition used in a study, which investigated the cultivation of field and agricultural crops in six Tanzanian towns and cities (Mlozi, Lupanga & Mvena, 1992). However Smit and Nasr (1992) extend the definition to include food and fuel grown within the city or town. Their food products range from fish and livestock to tree crops and vegetables. Egziabher (1994) also includes vegetables, herbs, fruit, livestock, flowers, fish and fuelwood in her definition of urban agriculture, but expands it further to embrace parks, forestry and bee-keeping. For Bibangambah (1992), urban agriculture is used as a euphemism for subsistence agriculture and is simply a symptom of economic decay, on a par with smuggling, junk collection, prostitution and drug peddling.

4.2 Official attitudes to city farmers

The attitude of the authorities towards urban food production covers a wide spectrum, from outright prohibition through toleration to active encouragement. When the administrative boundary of Nairobi was enlarged after independence, areas of farmland were incorporated into the city. "Even today, working farms over eight hectares are regarded as legal within the city area, but any other form of cultivation on public or private land is prohibited by the City Commission" (Freeman 1991, p 41). However, Lado (1990) observed that the City Commission in Nairobi ignores private farm plots on enclosed residential ground, and low-level food crops of less than three metres high at maturity grown on vacant land.

Chapter 4
Literature Review

4.1 Defining urban agriculture

There would almost seem to be a contradiction in terms to talk of urban agriculture, since farming is normally regarded as a rural activity, the means of livelihood of people living outside of towns and cities. However, Tinker (1994, p vii) considers this attitude to be at the root of the neglect of urban food production by academics and agricultural planners around the world. The inference to be drawn from this rural/urban divide is that "cities do not produce their own food but must rely on rural populations to do so" (Douglass 1989, p 37 - 38).

Simon (1992, p 11) argues that there is no "simple dichotomy" between 'urban' and 'rural'. He prefers to "conceive of a rural-urban continuum, given the diversity of urban areas and sizes, the blurring of boundaries and the degrees of functional overlap". This opinion is echoed by Tinker, who notes that "as cities expand they often engulf existing villages whose residents continue to farm in increasingly constricted surroundings" (Tinker 1994, p x). But the trend may be in the opposite direction. Bibangambah (1992) talks of the ruralisation of urban areas in Uganda, because urban agriculture has been observed in all parts of Kampala, including the central business district, residential and recreational areas and industrial zones. Since the end of the 1950s, China has experienced an integrated process of rural urbanisation and urban agriculturalisation through the promotion of small-scale industries in the rural areas and the encouragement of cultivation in the cities (Deng 1992).

Absolute dependence on rural food supplies is not therefore the norm in many of the world's large cities, particularly in Asia, but also in Africa. "In the late 20th century, the greatest advances in production and marketing systems for urban agriculture are found in and around major Asian cities" (Mougeot 1994a, p 4). For example, "large Chinese cities produce 90 per cent and more of their vegetable requirement within their urban regions" (Smit & Nasr 1992, p 142). Jamal and Weeks (1988, p 288) discerned a "trader-cum-wage-earner-cum shamba-

valley on the west side of the city. Technical assistance was provided by a special office set up for the purpose, the *Gabinete das Zonas Verdes* (GZV).

The growth of agricultural co-operatives was rapid. A report from Maputo's co-operative union showed the number of co-operatives increasing almost fivefold, from 24 in 1981 to 151 in 1984 (GZV 1985). Although membership of the co-operatives also increased by about the same proportion, from 1.2 thousand to 8.3 thousand members in the same period, the report indicates that area under cultivation rose from 171 hectares in 1981 to just 471 hectares in 1984. Nevertheless, a study of the food and agriculture sectors in Mozambique in 1984 makes no mention of the phenomenon of urban cultivation (Caballero, Thomsen & Andreasson 1984). A 1993 study of the informal sectors in African countries estimated that between 10,000 and 20,000 people in Maputo are engaged in agricultural activities (Assuncao 1993, p 32). This research project has shown that this figure is probably an under-estimation.

FAO/WHO minimum of 2,200 kcals a day (Ibid). The following year, the results from a survey by the National Directorate of Statistics (DNE) of 1,274 households in Maputo showed that half of the households were absolutely poor, that is *per capita* expenditure was less than US$15 a month (Ibid.). Moreover, the income distribution was skewed in favour of the top 20 per cent of households which accounted for 46 per cent of total income (Ibid.).

A rapid nutritional survey conducted in three peri-urban areas of Maputo in 1994 found that children were chronically subject to the multiple stress of past and chronic food deficits, poor housing and high population density (Karlin, da Silva & Duco 1994).

3.8.1 The population of Maputo

Official estimates of the current population of Maputo are practically unobtainable. At the time of the 1980 census, the capital's population was 740,000 (Mozambique 1983). During the years of war, the city's population swelled with the influx of displaced people from the war zones. Estimates of the population range from 2.2 million in 1994 (Swilling, Johnson & Monteiro 1994) to 1.37 million in 1992 (Mozambique & UNICEF 1994). Applying the UN's estimated population growth rate of three per cent for the period from 1989 to 2000 (World Bank 1992) to the 2.2 million inhabitants in 1994, the population in 1995 would be approaching 2.3 million. Calculating from the lower estimate, the population in 1995 would be 1.48 million. However, those estimates are based on natural population increase and make no allowance for a further influx to squatter settlements in and around the city. Moreover, the three years of peace since the 1992 accord between the government and the former Renamo rebel movement have seen no obvious decrease in the squatter population because of displaced people returning to their homes in the rural areas.

3.8.2 Farming in the city

Rationing was not the only method used to deal with food shortages in Maputo. In 1980, the Mozambican president took steps to encourage the production of vegetables and small livestock in what became known as the "green zones" around the Mozambican capital. Co-operatives, formed mainly, but not only, by women, began to cultivate plots in the Infulene

Table 4: Cereal donations for commerce 1990 - 1995 (000t, actual arrivals)

Year	1990	1991	1992	1993	1994	1995
Maize	79.3	123.5	256.1	66.7	72.7	63.6
Rice	29.0	47.1	53.9	25.2	19.5	24.2
Wheat	101.5	80.5	60.7	46.8	67.4	70.9
Total*	209.7	251.1	370.8	138.7	159.5	158.7

Source: Ministry of Commerce, Industry and Tourism

* Column totals may not add up correctly because of rounding.

3.8 Coping with the crisis in Maputo

In 1980, the population of Maputo was estimated at 740,000 inhabitants (Mozambique 1983). Many of the city residents were spending long hours queuing for a chance to buy something of the scarce food commodities in the shops and markets. The government chose a two-pronged approach to dealing with the food shortages. A rationing system for staple foods and other basic goods was introduced in Maputo in 1981 to ensure minimum supplies of basic goods, specifically maize, rice, beans, sugar, oil and soap to the urban population (AIM 1981a). The rationing system continued until it was affected by the changes introduced in the structural adjustment programme in 1987. These changes resulted in the removal of subsidies from the food ration. A price increase on basic foods in March 1988 meant that the food ration cost four times more and for the first time rationed food was being left unclaimed in shops (Hanlon 1991 p 139). Since then the rationing system has been abandoned, although it has not been officially abolished. Market mechanisms were allowed to take over in the food distribution network and the rationing system just died away (Mavie 1996).

This does not mean that the food crisis has been solved for all of Maputo's population. Although food is freely available in the city's shops and markets, the problem for most poor households is purchasing power (Mozambique & UNICEF 1994). A 1991 survey of 1,200 Maputo households found that 65 per cent had a *per capita* food intake of less than the

- Fewer prices were to be regulated. Only essential consumer goods and the main crops were to have fixed prices; for others, guidelines would be set and prices could be determined by companies within those rules.
- Wages were increased by between 50 per cent and 100 per cent. New wage rules encouraged bonuses, incentives, and profit sharing, and permitted greater differences between high and low paid.
- Private employers and the state were encouraged to sack unneeded workers 'wherever possible'; the state should redeploy underused staff if possible.
- Prices paid to farmers were increased: maize was tripled, peanuts and beans increased four-fold.
- A special ... marketing fund was established to ensure that consumer goods reached the countryside to stimulate peasant production" (Hanlon 1991, p 119).

Mozambique still needs large amounts of food aid for the commercial sector, as Table 4 on cereal donations shows. However, the steep fall after 1992 indicates that it may be beginning to recover its capacity to import its needs in cereals, particularly maize and rice. The donations of wheat reflect the fact that this cereal is hardly grown in Mozambique.The following table shows the donations of cereals to Mozambique for distribution through the commercial networks, that is for sale in shops to town and city dwellers.

a. reverse the decline in production;

b. ensure a minimum level of consumption and income, especially for the rural population;

c. reduce domestic financial imbalances;

d. strengthen the balance of payments position; and

e. lay the foundation for economic growth.

More specific aims are to:

a. increase agricultural production for domestic consumption, export and agro-industries;

b. increase industrial production to support agricultural marketing, for import substitution and to stimulate the development of exports ...

c. rehabilitate physical infrastructure ...

d. increase international rail and port traffic; and

e. mobilise external resources and allocate them to priority sectors" (Mozambique 1987 cited in Hanlon 1991, p 119).

The structural adjustment programme was Mozambique's version of the standard World Bank/IMF package. It began with a massive devaluation of the national currency, the metical, to one fifth its previous value (Hanlon 1991). The whole package had serious effects on consumers. Hanlon (1991) noted that it involved "a wide range of actions:

- Consumer prices were increased: basic food and water and electricity prices doubled; beer, cigarettes, newspapers, bus fares, postage, telephones and a wide range of similar items tripled (that is increased two-fold); and a few items including soap and paraffin (kerosene) for lighting increased five-fold or more.

At the height of the drought in 1992, Mozambique asked the international community to provide 1.3 million tonnes of food aid, 816,000 tonnes of which were intended for distribution through the commercial networks mainly to urban dwellers (Mozambique & the United Nations 1992a). The 1992 drought appeal estimated that 3.2 million people needed emergency relief aid, while 5.9 million inhabitants of the towns and cities were to be supplied through the market. Estimates of the marketed production of cereals from the 1993 harvest stood at just 46 thousand tonnes (Ibid.).

After a peace agreement was signed between the Mozambican government and Renamo in October 1992, the government requested 1.1 million tonnes of food aid to assist 3.8 million Mozambicans still in need of relief supplies and six million urban dwellers dependent on the market. Commercial imports were estimated at 103 thousand tonnes of cereals. (Mozambique & the United Nations 1992b).

The relief food distribution programme continued through to 1995. That year the government relief agency, the Department for the Prevention and Control of Natural Disasters (DPCCN) distributed 191.5 thousand tonnes of maize, 10.7 thousand tonnes of beans and 7.7 thousand tonnes of vegetable oil to refugees who had returned from neighbouring countries and were resettling in Mozambique and to sections of the resident population classified as affected and still suffering the effects of war and drought (DPCCN 1995). The DPCCN projections for people in need of relief supplies in 1996 stood at just over one million affected people and half a million resettling refugees (Ibid.).

3.7 Structural adjustment

The first emergency appeal was launched just two months after the Mozambican government had introduced a structural adjustment programme prepared in consultation with the World Bank and the IMF. In its report to the Paris Club meeting of donors in July 1987, the Mozambican government stated that: "The broad objectives of the programme are to:

The effects of the drought which struck in 1992/93 were magnified by the already serious war-related emergency situation in Mozambique (Mozambique & the United Nations 1992b). More than a decade of destabilisation had forced millions of people to abandon their homes and farms, leaving them dependent on external aid. A special appeal (Ibid.) prepared by the government and the United Nations noted that the Food and Agricultural Organisation and the World Food Programme had confirmed the almost total loss of the main cereal crops in the centre and south of the country.

3.5 Relief food distribution

While Mozambique had been receiving relatively small donations of cereals since 1976, by 1983 the combined effects of drought and war forced the government to make a special appeal to the international community for food aid for four million people in eight of the country's ten provinces (AIM 1983). The relief food distribution programme was late in starting because donations only began to arrive in 1984 (MONAP 1984). As of December that year, 1.2 million people were still registered in the relief programme (Ibid.). Rather than improving, however, the situation deteriorated because of the spreading activities of the Renamo rebel movement. There was such massive displacement in the following years that the government declared the situation an emergency and appealed through the United Nations for urgent assistance in 1987 (Mozambique & the United Nations 1988).

3.6 The Emergency Programme

The food supply situation continued its rapid decline. Some 5.9 million people were estimated to be affected by food shortages in 1988 (Ibid.). This total included 1.1 million people displaced inside the country, 2.2 million rural population classified as affected and 2.6 million urban dwellers facing food shortages in the commercial networks. A further 700,000 Mozambicans were refugees in neighbouring countries. The food requested for 1988 amounted to 730 thousand tonnes of cereals and 234 thousand tonnes of non-cereals, specifically pulses, sugar and vegetable oil.

AIM said that the marketed domestic production in 1986 represented only about a tenth of Mozambique's grain supply. The remainder came from food aid.

Agricom remained the principal marketing agent until its responsibilities were taken over by the Cereals Institute in 1994 (Mozambiquefile 1994b). Although the government tried to encourage private traders to market agricultural produce, the system still faces many problems. For example, it was reported in January 1994 that 34,500 tonnes of food crops, mostly maize, from the 1993 harvest were stockpiled in warehouses in Cabo Delgado province because local businessmen had been unable to find markets for the produce (Mozambiquefile 1994a).

Even though the peasant family sector is the largest producer of food crops in Mozambique, there is little information available on total production. The national statistics office publishes data only on marketed crops.

3.4 Natural disasters: a frequent threat

Agriculture in Mozambique is subject to risk from drought, floods and cyclones. There were floods on three main rivers in 1977 and 1978 which damaged large areas of farmland and caused serious loss of human life, crops, cattle and infrastructure (Ratilal 1990).

In 1979, a cyclone in the north of the country damaged crops and the fishing fleet. The southern African drought, which began in 1981 and persisted into 1984, brought famine to many parts of Mozambique, mainly in the provinces of Maputo, Inhambane, Gaza and Tete, affecting 4.5 million people (Ibid.). According to Ratilal (1990), it was the worst drought in the recorded history of the region which caused the death of an estimated 100,000 people. A cyclone hit southern Mozambique in 1984, leaving 50 thousand people homeless, destroying the crops of 350 thousand peasants and drowning five thousand head of cattle (Ibid.).

(Ibid.). But by 1982 peasant farming in Mozambique was in crisis. Empty shelves in rural shops meant that peasant farmers, with nothing to buy, returned to subsistence farming and grew little for sale (Haulon 1982). Imports of consumer goods had been cut to allow more machinery imports. Commenting on the failure of centralised planning to take account of the reality in Mozambique, Christie (1989, 9 138) related the following:"The story is told of a senior planning official in Maputo who was presented with a draft import budget which included several million meticais (the national currency) to buy pots, mirrors watches, belts, combs, trinkets and assorted odds and ends to stock rural shops. He threw out the proposal angrily, arguing that the state was not going to use its funds to buy baubles when the money could be used to import useful things". The government appealed to the international community for food aid the following year (AIM 1983).

The prices of a range of fruit, vegetables and small livestock were freed from government control in May 1985 (Ferreira 1995). According to the World Bank (1988), this measure resulted in large increases in the availability of these products on urban markets, but at prices that were high in relation to the purchasing power of the population.

The liberalisation of fruit and vegetable prices had practically no effect on the marketing of staple food crops. In 1987, Agricom announced the results of the 1986 marketing campaign which were described as "the lowest figure in the recorded history of agricultural marketing in Mozambique" (AIM 1987). AIM said that marketing records began in 1956, when 101 thousand tonnes were marketed. The 1986 figure at 40 thousand tonnes, although some 130 thousand tonnes had been recorded in 1982. The main reason for the collapse in marketing was "the destabilisation of the country through armed banditry, causing insecurity in the rural areas, especially in the main producing provinces in central and northern Mozambique where there has been massive disruption of the commercial network"(AIM 1987, p 11). A further cause was "the overall effect of the country's difficult economic situation: transport problems, lack of agricultural inputs, lack of consumer goods, etc." (Ibid., p 11)

than state farms, although it stopped short of recommending privatisation. That was to come later.

3.2.2 The end of state farms

Privatisation of state farms was put on the agenda in 1990 when Mozambican Prime Minister Mario Machungo told a meeting to discuss a strategy for reorganising the state agr[illegible]l sector that it was not in the state's interest to consolidate inefficient sta[illegible] (Mozambiquefile 1990). This move should be viewed in the context of the changing political climate in Mozambique. All references to "Marxism-Leninism" were dropped from Frelimo's Programme and Statutes in 1989 and the constitution which came into force the following year ended Frelimo's 'leading role' in the state and society.

In 1989, as part of its negotiations on aid from the United States, the Mozambican government was required to agree to privatise three thousand hectares of state farm land a year (Hanlon 1991). Furthermore, the remaining state farms in the Limpopo valley were closed and the land distributed in 1991 to family sector and private farmers (Abrahamsson & Nilsson 1994).

3.3 Marketing

Faced with the collapse of the rural marketing system, the government of independent Mozambique created a directorate in the Ministry of Agriculture with responsibility for input supply, crop purchase, storage and marketing (World Bank 1988). The *Empresa das Lojas do Povo* (People's Shops Enterprise) supplied consumer goods in the rural areas (Ibid.). After the creation of a Ministry of Internal Trade in 1978, the responsibility for crop marketing was taken over by the National Directorate for Agricultural Marketing in that ministry because of the interdependence between agricultural marketing and the supply of consumer goods.

In 1980 the *Empresa das Lojas do Povo* was dissolved and its chain of shops sold to private traders and co-operatives. The following year Agricom, a state-owned marketing firm was created. Producer prices and profit margins were fixed by a prices and wages commission.

The Department for the Prevention and Control of Natural Disasters (DPCCN) made its 1995 annual report available to determine the numbers of people receiving emergency food supplies and the quantities of food aid distributed in 1995. The Ministry of Commerce, Industry and Tourism provided data on the donations of cereals for the commercial sector in 1995. Other data on production, exports and imports were obtained from the National Directorate for Statistics (DNE), which also provided data for the basic indicators.

Rapid appraisal methods were used to survey four farming areas in Maputo: Machava, Liberdade, Laulane and Benfica. This consisted of field trips to observe farming operations, crops growing in the fields and the existence of livestock, as well as informal interviews with co-operative members, family sector farmers in a farmers' association and one private farmer, on their history as farmers in Maputo, their production possibilities and choices and on the constraints to improving production. The interviews with the women co-operative members were carried out through an interpreter from Shangan to Portuguese. The interpreter for these interviews was a woman. The interviews with the farming association farmers and the private farmer were held in Portuguese, except for one woman member of the association. That woman farmer spoke through an interpreter who was male.

5.2 Data reliability

The data on national statistics should be treated with caution. As in many other developing countries, data are collected through administrative procedures which may be inefficient or incomplete (Casley & Lury 1987). For example, agricultural production figures in Mozambique are based on official marketing data. Even before the turn towards a market economy in 1990, the state marketing body, Agricom, was unable to track sales of commodities on the parallel market (World Bank 1988). Since 1990, the sale of maize in some areas of Mozambique involves transactions directly

Nhachungue, was also interviewed with regard to the evolution of land use planning in Mozambique.

Archival searches were also carried out in the Centre for African Studies, the Land Tenure Centre and the Historical Archive of the Eduardo Mondlane University for literature relating to research into the Maputo green zones and other green zones in Mozambique. These searches also sought literature relating to land and agricultural policy in Mozambique.

An in-depth interview was carried out with the senior Ministry of Agriculture official in charge of green zone development in 1982 and 1983, Mr Joao Ferreira. Mr Ferreira was the Secretary of State for Cotton from 1980 to 1982 and then Minister of Agriculture from 1983 to 1987. The interview probed the political background to the development of agricultural production in Maputo, as well as the conflicts over policy within the Mozambican government.

Interviews were carried out with officials in the General Union of Co-operatives (UGC) in Maputo. Mr Valeriano Ferrao, an adviser to the UGC, provided valuable information about the current financial status of the UGC and its poultry production activities. Ms Ana Augusta Sumbana, a director in the UGC, filled in historical detail missing from the reports of the UGC. In addition, the UGC provided access to its annual reports and planning documents.

The director of the Maputo Green Zones Office (GZV), Mr Luciano Sambane, gave several interviews dealing with the historical development of the GZV and its current status. GZV reports were also available for analysis.

Chapter 5
Methodology and data reliability

5.1 Methodology

The researcher spent three months in Maputo towards the end of 1995 to investigate the development of agricultural production in the green zones in and around the Mozambican capital. This period coincided with the start of the rainy season, which usually lasts from about October\November until March/April. The research project as a whole constitutes a case study of urban agriculture in Maputo. A combination of secondary and primary data sources were used. According to Casley & Lury (1987, p65), "the case study uses a mixture of methods: personal observation; the use of informants for current and historical data; interviewing; and the tracing and study of relevant documents and records." All these components constituted the overall methodology of the study.

Secondary and primary sources were researched to determine the statutory framework for the existence of green zone producer co-operatives in particular and farming activities in the green zones in general. This included archival searches of the official gazette (*Boletim da Republica*), the national daily newspaper *Noticias*, the weekly news magazine *Tempo* and the *AIM Information Bulletin* and *Mozambiquefile* of the Mozambique News Agency (AIM).

The archival research produced the land law and its regulations, but no legislation or by-laws relating to zoning or land use. Thus interviews were conducted with officials in the Maputo Directorate for Construction and Urbanisation, the city body with responsibility for land concession in the municipality, to determine the existence of regulations on land use. The officials were Mr Edgar V.Maxlhanga, chief of urbanisation, Mr Eduardo Jorge, chief topographer and Mr Niraj Sacarlal, architect. The director of the National Institute for Physical Planning (INPF), Mr Erasmo R.

Ayisi (1995, p 14) describes women farmers in Beira as "subsistence farmers who grow one or two crops, usually rice and sweet potatoes". However, the local extension centres in Beira have demonstration plots and are teaching the women to grow vegetables. They also sell vegetable seeds at subsidised prices (Ibid.). Farmers in Nampula grow maize, beans and rice (Marshall & Roesch 1993). Moreover, "marketed production levels have jumped from a mere 11 tonnes of maize, beans and rice in 1989 to 100 tonnes of diverse products in 1990 and 190 tonnes in 1991" (Ibid., p 265).

subsistence (Akesson 1988). However, Akesson viewed the practice of agriculture as "both an economic necessity and the peasant tradition which women follow (Ibid., p 13). Green zone production in the northern Mozambican city of Nampula was also found to be an economic necessity. "Nobody works in Nampula for their salary alone. People all over Nampula have land in the green zone and beyond. It's convenient to have a job and a work card, just to be legal, to be employed. But virtually nobody counts on this as the income on which to live" (Interview with Pinto Luciano, Director of the Nampula Green Zones Office, cited in Marshall & Roesch 1993).

Neither is the practice a recent phenomenon. "In colonial times, people coming to work in the city needed a small plot of land to build a house, and a garden in which to grow crops to supplement the low wage. This desire for land did not disappear at independence. Workers who were not allowed to have their families in the city in colonial times, brought them after independence. They then needed land in order to ensure basic household subsistence" (Akesson 1987, p 1). Little (1992), in his study of vegetable traders in Maputo, found that 71 per cent had been resident in the city for at least 15 years. White (1982), on the other hand, observed that the farmers she studied in Maputo were migrants, although she makes no indication of when they arrived. "The cooperative members were a diverse group of people with no history of working together, as they were mainly migrants into the area (Ibid., p 16).

Akesson (1987) studied a project in Beira which drained two thousand hectares of swampy land within the city boundary with the twin aims of increasing the area available for cultivation and improving the city environment. She found the proportion of women registered for plots ranged from 91 per cent to 96 per cent, compared with four per cent to nine per cent for men. This contrasts with the gender composition of the city farming population in Nampula city. "Formal membership in the co-operatives of the Nampula green zones was overwhelmingly male. Women made up only about five per cent of the membership, many of these being widows or single women" (Marshall & Roesch 1993, p 255).

that orderly land-use planning and development should be ignored. This opinion is also held by Mosha (1991), who stresses the need for local authorities to regulate the practice of urban farming through the allocation of land, and for co-ordination with town planners, administrators, environmentalists and other concerned groups. Mazambani (1982) highlights the importance of supporting ecologically sound farming practices in the intensification of cultivation.

Furthermore, urban production is not of relevance only to persistent food deficit countries, but also to apparently well-endowed and potentially self-sufficient countries, which nevertheless import food. This apparent contradiction illustrates Sen's contention that "starvation is a function of entitlements and not of food availability as such" (Sen 1987, p 203). Put another way, "many food imports are dictated by middle-class dietary preferences or are available only to those with money or influence..." (Drakakis-Smith 1993, p 207). For Hietkamp (1995), the reasons for supporting urban agriculture include the promotion of community and household self-reliance, encouragement of a less built-up urban area and management of the urban environment.

Many writers agree that much more investigation is needed into this relatively unresearched field. Mougeot (1994b), for example, suggests comparative and longitudinal studies on the benefits of urban agriculture, research into technologies adapted to urban cultivation, as well as its contribution to the urban ecosystem and economy. In the South African context, the potential areas of research include the environmental effects, resource constraints and viability of city farming (Rogerson 1993, p 42).

4.7 Urban agriculture in Mozambique

Many researchers have found that city dwellers in Mozambique practise agricultural production to supplement the household's wage income. In Beira, for example, it was found that more than 90 per cent of the households engaged in cultivation around the city had the household economy based on wage work. Agriculture was more a complement to household

Looking at Africa as a whole, Mascarenhas found that "the main barriers to urban food production are of an institutional nature: price subsidies for imported staples, the city by-laws which prevent cultivation of crops, and the belief that traditional foods hinder national development" (Mascarenhas 1986, p 57).

Smit & Nasr observe that the specific conditions in a city will dictate the potential for urban agriculture. They argue, however, that "non-availability of land and water surfaces tends not to be a constraint to urban agriculture. The limits are more likely to be labour costs, or returns to labour, legal restrictions and land rent considerations." (Smit & Nasr 1992, p 147). This was not found to be the case in Bandung, where urbanisation, including residential development and recreational areas were displacing food production activities (Hietkamp 1995).

Just over a third of a sample of farmers in Nairobi claimed to have no problems in relation to their farming activities (Freeman 1991). The remainder of the sample, however, mentioned many different difficulties. The first of these was drought or irregular rainfall. Others included crop pests, theft, lack of working capital and fear of eviction from borrowed land.

As in the Pacific Islands, obstacles to the promotion and development of urban cultivation in Mexico City have been identified as the scarcity of land, only moderate rainfall and poor soils (Wade 1987). One proposed solution was again hydroponics, which also failed because of the high costs of inputs and lack of expertise.

4.6 Policy options for urban agriculture

That urban agriculture has potential for meeting the needs of cities for certain quality foods and of enhancing the income of sections of the population is clear. What is perhaps less clear is the policy options most favourable to realising that potential. As Rogerson (1992) points out, the recognition of urban farming as a valid activity in the urban environment does not imply

The food gardens of the Pacific Islands show great agricultural diversity, containing staple root crops, supplementary food plants, tree crops and many non-food plants (Thaman 1995). On Fiji, for example, Thaman identified 10 root crop species such as taro[1], cassava, sweet potato and yams, 65 other food crops and 39 food tree varieties. He also noted that attempts at hydroponic vegetable production in South Tarawa[2] have been unsuccessful because of the high cost of inputs and lack of technical expertise. Although of less importance than cropping activities, small-scale animal husbandry is also practised by households in urban areas of the Pacific Islands who may keep chickens, pigs or ducks. Livestock are also kept by urban dwellers in Kenya, the most common being chickens, followed by goats, sheep and cattle in the smaller towns (Lee-Smith & Memon 1994). This study found that livestock in Kenya is mainly kept for subsistence purposes, but eggs and meat in particular are also produced for sale.

4.5 Problems faced by urban farmers

Apart from possible hostility on the part of the authorities, urban farmers are faced with a range of other problems. Thaman (1995) reported that the most commonly mentioned problems in the Pacific Islands are unfavourable climate, poor soils, cost and availability of land and water, insufficient time and labour, theft and lack of government assistance.

Access to land with secure title for cultivation emerged as the major issue among groups of urban farmers investigated in South Africa (May & Rogerson 1995). The study found that women farmers at Tembisa, a formal township near Johannesburg, were continually removed from their fields by the current owners. The land farmed by the Tembisa farmers was either vacant land earmarked for residential development or left vacant by white farmers. May & Rogerson found further problems related to finance, machinery and transport. Theft of livestock, especially around the time of religious holidays, was a particular problem mentioned in the Nigerian study (Gefu 1992).

[1] A plant of the Arum family widely cultivated in the Pacific region.
[2] Hydroponic production, in which plants are grown in sand or gravel containing a chemical solution without soil could be important in the areas such as the Pacific region with poor and infertile soils.

those which function as "economic and administrative filters between rural areas at the lower level and regional and national areas on the higher level" (Holm 1992, p240).

4.4 What do they produce?

With regard to what urban farmers produce, the products vary widely. "In New York City, gardens grow where urban wastelands existed a few years ago; the South Bronx herb gardens supply gourmet restaurants in Manhattan" (Tinker 1994, p ix). A broad range of crops is grown in urban areas in Zambia. "The most common, usually grown by about 90 per cent of farmers is the staple maize. Over half in most areas grew beans, groundnuts and pumpkins." (Rakodi 1988, p 506). Similar findings were produced in a Nigerian study where maize and cowpeas were the favourite crops (Gefu 1992). In addition, some 81 per cent of the Nigerian respondents also kept livestock, raising goats, poultry and sheep. In Nairobi, the most common crop was again maize, recorded in almost 55 per cent of urban plots, and frequently interplanted with beans (Freeman 1991). Other crops found in Nairobi include potatoes and sweet potatoes, a local variety of spinach, cocoyams, cabbage, onions peas and tomatoes. Banana was the most common tree crop in Nairobi. Freeman relates the relative absence of tree crops to the insecurity of tenure of the majority of urban farmers in Nairobi. In Kenya as a whole, it was estimated that the urban areas in one season produced 25.2 thousand tonnes of crops worth about four million US dollars in 1985 (Lee-Smith & Memon 1994). Farmers in Bissau grow rice as a subsistence crop for household consumption, while artisanal fishing provides both for consumption and for cash income from sales (Lourenco-Lindell 1995). Maize once again was an important crop in the Tembisa area in South Africa, together with vegetables, but sugarcane was favoured by farmers at Groutville near Durban on South Africa's Indian Ocean coast (May & Rogerson 1995).

A great variety of crops reach the Bandung markets from city farms. These crops include potatoes and rice, as well as vegetables, chilis, ginger and fruit (Hietkamp 1995).

labourers, the unemployed and part-time and full-time workers, although the breadth of participation was related in part to declining real wages (Sawio 1994). A similar range of participation was found in a Nigerian study, which likewise noted that eroded purchasing power among wage earners was a reason for engaging in part-time farming (Gefu 1992). Sanyal (1985) points out that the practice of urban cultivation may not be governed by need alone. He argues that household cultivation may be considered a form of investment by low-income households. This investment requires "land, domestic labour time and financial resources for purchasing other inputs such as seeds, water and fertiliser" (ibid., p 23). These resources seem to be available to richer households in low-density areas of Dar es Salaam which engage in urban agriculture for the lucrative commercial opportunities it offers (Sawio 1994). Hietkamp (1995) found that urban farmers in Bandung included market gardeners, subsistence producers and gardeners who grow some part of their diet as a liesure activity.

Urban agriculture is not confined to the Third World. The owner of Kona Kai Farms in Berkeley, California grows salad vegetables, herbs and edible flowers to earn 250 thousand US dollars from under half a hectare of land (Tinker 1994).

Recent migrants to the cities were not found to be the people most often engaged in urban cultivation. Among households studied in Addis Ababa, urban agriculture "was not the first but usually a second or third stage of a process of seeking options within the urban economy" (Egziabher 1994, p 92). Sanyal (1986) noted that over 60 per cent of households practising cultivation in Lusaka had lived in the city for more than five years before starting their gardens. The proportion in Nairobi was found by Lado (1990) to be even higher: 85 per cent of the farmers had resided in the city for at least five years. Sawio (1994) defined recent migrants as those who had arrived in Dar es Salaam within the past ten years, and only one fifth of his sample fell into this category. However, a different picture is painted by Holm (1992) of Makambako, an intermediate town in Tanzania, where migrants continue a rural style of living after taking up residence as urban dwellers. He defines intermediate towns as

There is official encouragement of urban food gardening in some Pacific island states. Thaman (1995) notes that an agricultural extension agent was appointed in Port Moresby in Papua New Guinea in the late 1970s to promote urban food gardens, although most planners and policy makers were not clear about the implications for planning. He mentions campaigns to promote urban food gardens in Fiji, Kiribati, Vanuatu, Tuvalu, Palau, Federated States of Micronesia and the Marshall Islands, where increasing incidence of nutritional disorders has become serious. City councils in the Pacific Islands have often inherited colonial regulations restricting urban cultivation, and although these are not strictly upheld, Thaman views them as a disincentive. In Nigeria, the government supports urban agriculture through the provision of farm inputs at highly subsidised prices (Gefu 1994).

4.3 Who are the urban farmers?

On the question of who engages in urban agriculture, the answer varies widely. "Food production in Zambian cities is predominantly a women's activity, determined by the size of household, income *per capita*, stability of urban residence, and the availability of land for cultivation around the house and/or within reasonable walking distance" (Rakodi 1988, p 514). That women outnumber men in urban agriculture was also found to be the case in Tanzania (Sawio 1994) and Kenya (Freeman 1991). In Nairobi 62 per cent of urban farmers are women (Lee-Smith & Memon 1994).

Although many writers equate participation in urban cultivation with survival strategies of the poor (e. g. Egziabher 1994; Drakakis-Smith *et al* 1995; Mlozi *et al* 1992; Sanyal 1986; Rakodi 1988), findings have at times been mixed. A study in South Africa which classified households into seven different types according to the level and source of income found participation in urban agriculture to be spread relatively evenly across the seven types of household, with the "smallest proportion deriving from both the most poor and the most wealthy households" (May & Rogerson 1995). In Dar es Salaam it was found that the urban farmers include professionals, teachers, administrators, government officials, decision-makers, urban planners, married women, single mothers as heads of households, students, casual

In Harare, on the other hand, cultivation is legal on individually owned land, and may be authorised by the local authority on public land. Before 1985/86 the Council in Harare tried to discourage urban cultivation by trying to educate people about its negative effects. After that time, it took prohibitive measures in the form of slashing maize (Mbiba 1994). However, cultivation within 30 metres of a water course is illegal, and this is the most actively implemented legislation for the control of farming activities in Harare, to the extent that crops have been destroyed even in times of drought, such as in 1992 (Drakakis-Smith, Bowyer-Bower & Tevera 1995).The slashing of maize plants was a tactic also used by the city authorities in Lusaka to curb urban cultivation until 1977, when the Zambian president called on the residents of the capital to grow their own vegetables and cereals (Sanyal 1986). Today the urban councils in Zambia have a responsibility to help their residents find land for food production (Wade 1987).

In contrast, "Kampala City Council will not lease public land in the city for agricultural purposes, but the evidence is that the City Council does not interfere with people farming on leased land, so long as the formal purpose of the lease is residential or commercial" (Maxwell 1994, p 58). Squatter communities in Quezon City in the Philippines were permitted by the authorities to cultivate vacant land owned by the housing department, but the successful vegetable garden was eventually bulldozed to make way for a warehouse (Wade 1987). There is currently no stated government policy on urban agriculture in Ethiopia, although the government itself, through the ministry of state farms, runs dairy, sheep and poultry farms in Addis Ababa (Egziabher 1994).

The municipality of Bandung provides extension services to urban farmers (Hietkamp 1995). Agriculture within the city of Bandung is seen as a limited means of decreasing the city's dependency on food supply from other areas, as well as adding to urban greening and urban aesthetic value (Ibid.).

question of family production," Ferreira explained. "It was not permitted to assist peasants individually because that way we would create kulaks[2]", he added.

Ferreira recalls being summoned to a meeting of the Cabinet to explain the purpose of the agricultural centres. "The discussion was so enormous, the misunderstanding was so great, that Samora[3] transformed the Council of Ministers. For two months, on Saturday afternoons and Sundays, brigades of two or three ministers, deputy ministers and secretaries of state toured the districts of Maputo city to try to understand what these agricultural centres were about," he said. "It is important to understand that there was a considerable faction in the government which did not understand this question and almost succeeded in halting the creation of the agricultural centres" (Ibid.).

The purpose of the agricultural centres was to provide assistance for peasant farmers in the actual farming areas. They were installed in abandoned houses and brought supplies of farm inputs to where they were needed. One initiative of the agricultural centres was to call a mass meeting of the local residents in order to identify available skills, particularly those of the water diviners and well builders. From that time, families requiring a new well could contact the local well builder through the agricultural centre. Extension agents were placed in the agricultural centres to give advice and assistance to the local farmers (Ferreira 1995).

The agricultural centre also carried out public education campaigns aimed at improving the diet of Maputo's residents. "A puppet theatre was created which travelled around the neighbourhoods and through humour and stories taught people

[2] According to Chambers Concise Dictionary 1991 edition, this is defined as "in Tsarist times, a rich peasant; later, an exploiter".
[3] Samora Machel, the first President of Mozambique, who led the country from independence until his death in October 1986.

Ferreira (1995) confirmed that the attention of the GZV lay mostly outside Maputo. Its interests stretched "from Marracuene to Namaacha," he said. Marracuene is about 20 kilometres north of Maputo, while Namaacha lies 75 kilometres to the west on the border with Swaziland. Ferreira said there was enormous disparity among the various farming enterprises "occupying different agricultural spaces with varying technological requirements".

Although he was Secretary of State for Cotton, Ferreira was given the task in 1982 of re-organising the GZV, which he described as "macrocephalic" There were dozens of people occupying office space and drawing a salary every month while "the peasants around Maputo city received no support whatsoever" (Ferreira 1995). At that time there were 2,137 peasant farmers registered in farming co-operatives (UGC 1995).

When first established, the GZV was hierarchically linked to the Office of the President. It passed over to the Ministry of Agriculture in 1982, with links to the Executive Council of Maputo (GZV 1995). In order to re-orient the work of the GZV towards peasant farmers, what were called *casas agrarias* (agricultural centres) were opened in each urban district in the city except Districts 1, 2 and 3. The city of Maputo is divided into eight urban districts. Districts 1, 2 and 3 contain the built-up areas that include the central business area and the residential areas. Thus there were five agricultural centres. As Ferreira (1995) tells the story, the appearance of the agricultural centres was a source of conflict with the local government structures and also within the central government. The basis of the conflict was the fact that they called into question the ideological principles of the Soviet model of development being followed in Mozambique, which favoured large state farms against small-scale farmers. "There was a great taboo in Mozambican governance at that time on the

The DCU was established in 1983 to take responsibility for land use matters, to provide topographical and cadastral services and land registration. The process of registration only applies to the land in the demarcated permanent green zones, that is in the areas that were demarcated and registered in colonial times, since land surveying and demarcation have not been carried out in the non-demarcated permanent green zones (Muxlhanga *et al* 1995).

Roth *et al* (1992) describe some extra-legal exceptions to that rule which they noted. In these exceptions, influential or wealthy individuals hire topographers from the DCU to conduct land surveys and demarcation of land parcels outside the demarcated permanent green zone area. These individuals, having acquired a new demarcation, skip the procedures described in the 14 steps above, and deal solely with the DCU, which is officially authorised to grant concessions, although there is no formal administrative or legal framework for this process (Roth *et al* 1992).

The land question in Mozambique is such a knotty problem that a Land Commission was set up in 1995 to study the situation and draft legislation (Nhachungue 1995). A Land Tenure Centre was also established at the Eduardo Mondlane University to carry out research into all aspects of land, both urban and rural (Ibid.).

6.3 The functioning of the GZV

Despite being called the green zones of Maputo, the initial focus of the *Gabinete das Zonas Verdes* was not on farming areas in Maputo itself, but on large farms in Maputo province. The Mozambique Information Agency reported in December 1980 that the GZV was employing some 500 people on three large farms in districts to the north and south of the Mozambican capital. The report mentions the production of bananas, maize and groundnuts (AIM 1980).

"14. An announcement may be made in the official gazette allowing 30 days for any objections to the concession to be filed" (Roth *et al* 1992, p 18 - 19).

The paper chase described in these 14 steps is clearly biased against illiterate or semi-literate peasant farmers who may have heard of banks but certainly have never seen a salary cheque.

6.2.3 City zoning

Although plans were produced by the INPF for some cities and towns, they were never implemented because of the lack of a statutory framework. City Executive Councils may accept or approve plans drawn up by the Physical Planning Institute, but they are under no legal obligation to implement them (Nhachungue 1995).

According to Roth *et al* (1992) the plan produced for the city of Maputo in 1985 delineates areas for permanent and provisional green zones and zones of urban expansion. The permanent green zones are the highest quality agricultural lands most suited to intensive vegetable production based on soil quality and access to natural irrigation. The total permanent green zones are estimated to comprise 5,230 hectares. This permanent zone was subdivided on the basis of cadastral status in the colonial period. The demarcated permanent green zone (1,190 hectares) includes areas demarcated and officially registered with the municipality before independence. Most of these parcels have a house and some other infrastructure, such as pig sties and wells, and were partly or fully occupied by 1985. The non-demarcated permanent green zones (4,040 hectares) contain land of similar quality which was never surveyed or formally registered. The provisional green zones (2,575) are less suited to agriculture and have been earmarked for future development of other types of urban occupation, including residential expansion and industrial parks. Rainfed agriculture is allowed on these areas, under the condition that the producers will vacate the land with no compensation when the urban projects begin.

"3. The applicant must obtain a written declaration from the dynamising group in the neighbourhood where the parcel of land is located, confirming that the parcel of land exists and is not already occupied.

"4. The applicant must obtain a written declaration from his/her employer confirming his/her employment and salary level. Or

"5. The applicant must obtain a written statement from the bank documenting his/her savings balance.

"6. The applicant must submit with the application a written plan describing his/her plans to develop the parcel.

"7. The applicant must obtain a written declaration from the agricultural centre of the district where the parcel is located confirming the appropriateness of the parcel to the applicant's development project.

"8. The applicant must include a topographical map of the parcel.

"9. After the documents in steps 1 to 8 are assembled, the file is forwarded to the district administration. If the District Administrator has no objection to the concession, he forwards the documents, along with his written approval, to the DCU.

"10. The registry section of the DCU checks the topographical map to ensure that it coincides with their own cadastral maps.

"11. If no problems arise with step 10, a member of the external brigade of the DCU (those members located in the urban districts whose responsibility it is to confirm land occupations and that development plans are being executed) goes to the parcel again to confirm that it is not already occupied.

"12. If step 11 confirms the land is vacant, a concession is granted and fees are assigned for registration services rendered.

"13. On payment of the fees, the concession is registered in the DCU registry. At this point a document certifying the registration may or may not be given to the applicant.

renewable five-year concession; and definitive, which is a permanent concession (Muxlhanga, Jorge & Pacarial 1995). Roth *et al* (1992, p 17) explain the three different types of concession as follows. "The first precarious and provisional categories were created as subdivisions of temporary titles. The precarious concession was to be issued to producers in those areas planned for urban expansion projects in the near future, or to producers lacking clear and strong potential for developing the parcel (of land). The precarious concession was not intended to lead to a definitive title, rather it was meant to temporarily provide tenure security to producers operating in areas of future urban expansion, until such time that they were asked to leave. The provisional category was intended to lead to a definitive title once the individual demonstrated the capacity and willingness to develop the parcel.

Muxlhanga *et al* (1995) outlined the process of acquiring title for the "use and enjoyment" of land as follows. An application must be filed stating the purpose for which the land will be used. The first step is to receive a concession on the land, which is valid for two years. Should the land use be for construction, title is granted if 50 per cent of the planned activity has been completed at the end of the two years. Concession for agricultural purposes requires the application to be accompanied by a plan of activities for two years. Title can be granted if 30 per cent of the planned activities have been carried out by the end of the second year.

Roth *et al* (1992) described the steps required in greater detail.

"1. The applicant acquires an occupation request form from the DCU. This form requests demographic information on the individual, location of the parcel, and the terms of occupation.

"2. The applicant must obtain a written declaration from the dynamising group[1] in the place of residence, confirming residence in that neighbourhood.

[1] Formerly the local level political structure, now the grassroots level of the local administration.

was engaged in agriculture or fisheries, although it is unclear whether this refers to the settler population only (Mendes 1985).

The National Institute for Physical Planning (INPF) was set up in 1983 and given the responsibility for drawing up guidelines for urban planning, including regulations and standards for urban plans (INPF 1985). However, this was never formalised through legislation. Moreover, the Land Law of 1979 and its Regulations of 1987 (Mozambique 1987) do not give clear directives for the management of urban [illegible]. Nor is any specific provision made for the treatment of agricultural land in urban, as opposed to rural areas. The Constitution that was adopted in 1990 maintains the principle that the ownership of all land in Mozambique is vested in the State. Article 46 of the Constitution states that "Land may not be sold, mortgaged, encumbered or otherwise alienated" (Mozambique 1990, p 5). According to Article 47, "The State shall determine the conditions under which land may be used and enjoyed. The right to use land shall be granted to individual or collective persons, taking into account its social purpose" (Ibid., p 6). Thus title to land in the Mozambican context is the lease of use rights from the state.

Title does not grant unconditional use rights. The land must be used rationally and must conform to an authorised development plan. If the title holder does not meet the conditions of the development plan, the lease may be terminated and the management of the land revert to the state. Private farmers are required by law to hold the title to their land, to register the title and pay tax on their land (Roth, Boucher & Francisco 1992).

Land concessions in Maputo city are granted on an *ad hoc* basis by the *Direccao de Construcao e Urbanizacao* (Directorate of Construction and Urbanisation), each application being considered on its merits. There are three categories of concession: precarious, which is a one-year renewable concession; provisional, which is a

- to develop fish production in natural lakes and rivers in order to improve the diet of city dwellers where such natural conditions exist;

-to create areas of recreation and natural beauty, complementing measures necessary for environmental equilibrium;

-to create forested areas for the production of fuelwood, construction materials, honey and beeswax" (GZV no date a).

6.2 The legal framework

6.2.1 Establishing the GZV

The *Gabinete das Zonas Verdes* (Green Zones Office) was established in 1980 by Resolution 35/CM/80 of 5 May 1980 of the Council of Ministers. The Resolution gives the GZV a mandate to:

" -co-ordinate the activities of all production units in the green zones;

- survey the occupation of land and make an inventory of existing infrastructure, with a view to making full use of it;

- study and carry out maintenance and conservation of green and recreational areas in Maputo city, especially tree planting, public gardens and children's parks;

-define the support from the state with regard to equipment, supplies, purchasing guarantees and technical and financial assistance" (GZV no date b).

The Cabinet Resolution was never published in the official gazette, the *Boletim da Republica* and consequently the GZV has never had any legal foundation for its existence (GZV 1995).

6.2.2 Land legislation

There is no specific legislation or city by-laws governing agricultural production in Maputo city, neither to permit it nor prohibit it (Nhachungue 1995). In the colonial period, urban plans and planning regulations were only concerned with the *cidade de cimento*, the cement city where the colonial population lived. Even so, a study on Maputo city before independence reported that 48.9 per cent of the active population

the communal neighbourhoods and one of the ways to help solve the unemployment problem, the minister said. He also explained what was meant by a communal neighbourhood. It was not simply a grouping of houses, but a superior form of organisation of the towns. There, the population organise themselves in collective ways of living and working. In them, the residents must of necessity have a collective economic organisation, constituted more often than not by co-operatives of production tor consumption, especially vegetable growing, small animal breeding, artisans, carpenters, cobblers, tailors and other trades. He added that the residents of communal neighbourhoods must take on political and organisational tasks, in the production and supply of produce, in literacy education, in sport, public health and hygiene, security and public order. "Thus in the communal neighbourhoods new social relations will be established, forging a new life in the cities and consolidating the power of the labouring classes."

Speaking of the colonial origin of Mozambique's cities, Monteiro said that the town halls established by the Portuguese had been intended to serve the interests of the settlers and Mozambicans had no say in their composition. They ran services such as garbage collection, public parks and drainage, but did not concern themselves with wider economic and social matters. New executive councils had replaced the colonial town halls and would guide not only the former services, but also production, commerce, the supply of goods, schools and health services. Boards corresponding to the various fields of state activity would exist at city level, linked to both local and central government (Ibid.).

The objectives outlined at the meeting were:

" - to use the available labour force by integrating the urban unemployed and under-employed population into productive tasks;

- to supply the population of the cities with agricultural produce, with special emphasis on the production of vegetables, fruit and small livestock;

Chapter 6
The political and legal framework

6.1 Government policy

The idea for the establishment of green zone production in Mozambique's cities was first tabled in 1979 at a meeting organised by the Minister of State in the President's office, Oscar Monteiro. The meeting, called the First National Meeting of Cities and Communal Neighbourhoods, was aimed at solving the most pressing urban problems. The guidelines for action were contained in a speech to the meeting by Oscar Monteiro (AIM 1979).

Listing the main problems affecting the urban zones, Monteiro said the first and most important was the constant influx of people from the countryside into the cities. The phenomenon was creating more p oblems, such as irregularity in the supply of produce and the resultant shortages and queues; speculation and hoarding; insufficient piped water, electricity and public transport; growing unemployment and underemployment which lead in turn to crime and prostitution. The minister noted that although the influx into the towns increased the available manpower there, this manpower was not being used productively. It was of fundamental importance, he said, to ensure that the whole urban population was engaged in productive and socially-useful work.

Monteiro went on to refer to two fundamental aspects of Frelimo's strategy for the urban areas: the creation of green belts around the cities and the organisation of the urban population in communal neighbourhoods. "Through this strategy we will solve some of our principal urban problems, especially in relation to organising new social relations and getting the urban population to contribute to the supply of produce for the cities they live in," he said.

The green belts would be a way of providing the economic basis for collective life in

As regards the interviews aimed at collecting historical data related to the establishment and development of farming in the green zones, the reference period was in effect closed, dealing particularly with the period from 1980 to 1983. Telescoping and end effects could, nevertheless, have occurred because of the long recall period. In spite of that, the qualitative nature of the data means that their reliability would not be unduly affected. Moreover, some of the data could be cross-checked by means of historical documents and records.

The reliability of the data collected in the course of this study may therefore be considered reasonable for the purpose of this investigation.

between private traders and farmers, and consequently goes unrecorded by the Ministry of Agriculture[1].

Export figures may likewise be suspect. World Bank data on Mozambique's exports in 1994, compiled from data on imports reported by importing countries, show that the official Mozambican data under-reported exports of prawns by some 30 per cent (Hanlon 1996). It is presumed that the unrecorded exports were smuggled.

In the case of the data on the green zones, except for the co-operatives, the farmers themselves do not usually keep records of production and sales. Data on production, therefore, is estimated from crop area, average yields and quantities of seed planted (Sambane 1995). With regard to the numbers of farmers, these data are based on a mixture of surveys and guesswork and should be treated with caution.

Data on co-operative production may be regarded as reliable for poultry, since this is a highly commercial operation subject to external auditing (Ferrao 1995). Crop production, on the other hand, was and in some cases is still recorded by newly literate and numerate farmers who may have experienced some difficulties. Moreover, many high value crops such as lettuce and cabbage are marketed continuously throughout the season, leading to the assumption that production and sales records are liable to be incomplete. This in turn could indicate a possible under-estimation of the quantities produced.

The data on green zone farming were not intended for statistical analysis, but rather to assist in painting a qualitative picture of Maputo farming. Under these conditions their reliability for this purpose may be accepted.

[1] The researcher personally observed such transactions in Manica province in March/April 1994 while acting as advisor to the Manica Provincial Government on emergency relief operations.

Table 5: The evolution of Maputo co-operatives from 1981 to 1994

Year	No. of coops	Members	Area (Ha)	Production (tonnes) Agriculture	Livestock
1981	24	1,177	171.5	148	6.0
1982	33	2,137	200.0	350	62.0
1983	81	4,707	328.5	706	125.0
1984	151	8,289	471.9	1,108	209.0
1985	181	10,282	577.0	1,671	309.0
1986	194	10,500	651.0	2,245	365.0
1987	210	11,000	725.0	2,662	268.5
1988	195	10,200	850.0	3,064	232.0
1989	196	8,500	930.0	2,770	750.0
1990	182	5,400	1,000.0	2,071	800.0
1991	182	5,400	1,000.0	3,500	952.0
1992	183	5,450	1,000.0	6,150	1,150.0
1993	183	5,450	1,000.0	5,800	1,200.0
1994	183	5,450	1,000.0	5,812	1,500.0

Source: UGC Maputo

Table 5 shows the growth in membership of the Maputo co-operatives to its highest point in 1987 of 11 thousand members. The biggest rises are found from 1981 to 1982, when there was an increase of 82 per cent, from 1982 to 1983, when the increase was 120 per cent and 1983 to 1984 when the growth rate had slowed down somewhat to 76 per cent. The pe d of rapid growth of the Maputo co-operatives coincided with a major southern African drought that began in 1981 and persisted into 1984 (Ratilal 1990). It was in 1983 that Mozambique launched a special international appeal for food aid because of the combined effects of drought and war (AIM 1983a). Growth in co-operative membership was modest after 1984: 24 per cent in 1985, two per cent in 1986 and just less than five per cent in 1987. After that the

real advances of the movement and underestimation of the serious economic problems. In these circumstances it was impossible to design a coherent strategy for the transition to socialism. The co-operatives could therefore never be economically or socially viable (Tibana 1986).

7.2.2 The General Union of Co-operatives

As well as providing a framework to help the co-operatives become autonomous and democratic, the UGC also secured supplies of seeds and tools for production and basic foodstuffs for the co-operative members. However, the organisation of the co-operative union was not immediately successful in securing full autonomy for the co-operatives. There were apparently still problems with local officials. The GZV (1984) plan for the co-operatives in 1984 makes an oblique reference to this: "With regard to the ownership of the means and factors of production, attitudes opposed to the socialisation of the countryside may be seen in the transfer of land from the co-operatives to the benefit of other sectors and in the forcible transfer of certain resources to benefit various entities...Such attitudes arise often among state officials at different levels who, ignoring the co-operative nature of the ownership and confusing the scope of their authority, commit these violations" (GZV 1984, p 60).

The growth and expansion of the co-operative movement prompted a decision by the UGC to form local co-operative unions (Sumbana 1995). As Sumbana explained, the co-operative members in the more outlying areas of the city had to travel long distances to the green zones office located in the central business district of the capital just to buy a small amount of seed. In 1983, when there were 81 co-operatives, 11 local co-operative unions were set up in various parts of the city. These local unions took over the task of supplying seeds and tools to the co-operatives (Ibid.).

The following table shows the evolution of co-operative membership from 1981 to 1994.

any case, were unsuitable for the heavy soils of the valley bottoms. "One response to this ambiguity seems to be typical of an employer-employee situation rather than co-operative work: work avoidance" (Ibid., p 20).

White (1982) criticised the undemocratic-decision making of the GZV with regard to the co-operatives. "Decisions crucial to the success and functioning of the co-operatives had been made by GZV officials and simply announced to co-operative members who in some cases were very unhappy about the decisions but had no organised way of expressing their opinions" (Ibid, p 20). She regarded the creation of the UGC as an inappropriate imposition when the co-operatives were not yet financially viable. A slightly different view was held by Ferreira (1995), who was put in charge of the GZV in 1982. He concurred in the reasons for work avoidance but regarded the UGC more as a solution than an imposition (Ibid.). For Ferreira (1995), the Maputo co-operatives were organised "administratively". "That is why, at that time, reports from the co-operatives indicated absenteeism of 30 per cent. When 30 per cent of workers is absent that is not a co-operative" White's (1982) description of a meeting between GZV officials and representatives of the co-operatives bears this out. "We were told by ordinary co-operative members that all important decisions were made at the monthly meetings of co-operative leaders and GZV officials. However, the meeting we attended turned out to have a format which allowed no discussion" (White 1982, p 18). The entry of Celina Cossa into the leadership of the co-operative movement was seen by Ferreira (1995) as the factor which made the co-operatives grow. "Who created the co-operative union, who made it grow, was Celina Cossa," Ferreira said. Till then the UGC had been operating as a department of the GZV. "It had nothing to do with the principles of co-operatism," he added. Celina Cossa was one of three women chosen at a meeting of representatives of the existing co-operatives to work in the co-operatives section of the GZV. She had previously been the president of a co-operative (Sumbana 1995).

A third view held that the leadership of the co-operative movement in Maputo had a utopian vision of the role of the co-operatives in society. This in turn led to an overestimation of the

7.2 The Maputo co-operatives

Although much impetus for the development of the co-operative movement in Maputo came from within the GZV, its rapid development led to a break away into an independent non-government body. An early report from the green zones office mentions seven co-operatives with 500 members producing four tonnes of meat in 1980, but has no information on the area belonging to the co-operatives nor to any crop production (GZV 1984). In 1981 there were 24 co-operatives with 1,177 members cultivating 171.5 hectares of land[6]. That year the Maputo co-operatives produced 148 tonnes of crops and six tonnes of meat. A year later the number of co-operatives had risen to 33 with 2,137 members (UGC no date a). But the path to independence was not always smooth.

7.2.1 Growing pains in the co-operative movement

A document from the UGC (no date a) noted a serious problem in the proprietorial attitude of some Frelimo officials towards the co-operatives (UGC no date a). The concept of co-operative farming was ill-understood, and many of the peasants believed that the political officials were now their bosses. Moreover, the relationship between the GZV and the co-operatives was somewhat ambiguous. It was unclear whether the aim was a social welfare effort to help the poor and the widows; a moral clean-up of unemployed women who brewed illegal beer or earned income in other socially undesirable ways; or a financial business exercise (White 1982). Because the GZV served as a channel for foreign aid, White (1982) found that this created an unequal relationship in which the co-operative members never knew if they were being helped or exploited. "Were they being helped by the GZV to set up and strengthen their co-operative or being asked to work for the government without wages?" she queried. The result was tension, with the GZV on the one side finding the co-operatives not sufficiently grateful, while the co-operative members were never sure if they would be required to pay for something which they had not requested. White (1982) gives as an example co-operatives being charged for the unsolicited services of small tractors which, in

[6] It has been all but impossible in the time available for this study to gather information on the existence of co-operatives prior to 1980. Ana Augusta Sumbana, a director in the Maputo Co-operative Union, mentions in an interview (23/11/95) that her mother joined a farming co-operative in the Costa do Sol suburb of Maputo in 1975 and is a co-operative member to this day.

7.1.4.2 Drainage and irrigation

Drainage and irrigation works have been a major part of GZV activities, according to the GZV (1995) report. A drainage scheme in the swampy area of the Mahotas basin constructed 11.2 kilometres of main drainage channels and 22.8 kilometres of secondary channels, as well as footpaths for access. This work was carried out by the hydraulics section of the GZV (Ibid.).

The drainage and irrigation works in the Infulene valley were on a much larger scale and were organised in a very different manner. The Infulene project was financed by the Italian government and managed by Italian technicians. According to the GZV (1995) report, the river bed was cleared of weeds and vegetation along a stretch of 16 kilometres. Volunteer workers opened 13 kilometres of main channels, 130 kilometres of secondary channels and 150 kilometres of tertiary channels. There were about 1.5 thousand volunteers, mostly women peasant farmers in the Infulene valley (Sambane 1995).The GZV report documents the project co-ordinator's estimate that two hundred cubic metres of soil were moved during about 50 thousand workdays (GZV 1995). In all, the Italians donated about US$ 10.2 million to green zone projects from 1985 to 1993 (Sambane 1995).

Because of their close involvement in the implementation phase of the Infulene project, the local smallholder farmers decided to set up an association to manage the drainage and irrigation scheme after the Italians left in 1993. The Association for the Management of Hydraulic Infrastructure in Maputo Green Zones had 5,277 founding members (GZV 1995).

7.1.5 GZV funding

The GZV is funded from the general state budget to cover wages and other running costs. Donations for special projects have come from France, Italy and UNICEF (GZV 1988). A GZV (1995) report observes that these foreign financed projects all have one feature in common: a lack of continuity after foreign technical assistance ends. The projects were not sustainable, either financially or in terms of human resources.

With regard to the organisational structure of the GZV, a 1995 report (GZV 1995.) mentioned departments for planning, supplies, finance and assistance to farmers' associations. The planning department prepared the general plan of activities of the GZV, collected and processed data on agricultural and livestock production and prepared and monitored budgets for green zone projects. The supply department dealt with the purchase and sale of equipment and inputs through the agricultural extension centres, as well as stock control and maintenance. The finance department looked after the internal finances of the GZV. The interests of associations of small farmers were the responsibility of a special department which assisted in the formation and organisation of associations[5]. The livestock section provided technical assistance to breeders in Maputo, monitored livestock production, implemented a programme to control epidemics, provided technical training to livestock producers, carried out vaccination campaigns for cats and dogs and captured strays, monitored rabies and Newcastle diseases and managed a dip tank for cattle. The water supply section implemented water projects in the green zones and gave technical assistance to farms with wells, boreholes, irrigation systems and pumps (Ibid.).

7.1.4 GZV activities

7.1.4.1 Livestock

The report (GZV 1995) described various problems facing Maputo's livestock producers. An outbreak of African swine fever in 1994 all but wiped out the pig population. The National Veterinary Institute estimated that the disease killed off some 16 thousand pigs. After the outbreak, the GZV registered only 480 pigs in Maputo. Chicken producers were in trouble because of rising costs of production. Unlike the co-operatives, family sector farmers have practically no access to credit. The cost of day-old chicks increased by about 11 per cent at current prices from 1991 to 1994, while the price of feed rose by 66 per cent in the same period. Thus chicken production in 1994 was less than half of the 1993 level (Ibid.).

[5] The small farmers' associations increase members' access to purchased inputs by overcoming the financial limitations of individual farmers. The agricultural centres do not sell small amounts, for example, part of a bag of fertiliser (Roth *et al* 1992).

A report from the Mozambique Information Agency (AIM) in June 1982 gives the flavour of the beginning of the green zone campaign. AIM said the Maputo city council was promoting agricultural production because of "the paradoxical situation in Maputo. Vast areas of land in and around the city lie uncultivated, while they could be producing the vegetables that are in short supply on the city markets" (AIM 1982, p 5). It noted that the city council, through the GZV, had mounted a publicity campaign in the press and radio to promote vegetable growing. According to AIM, the GZV was selling seeds for onions, lettuce, carrots, tomatoes and beans and seed potatoes. The report said that about seven thousand people had bought almost a tonnes of seed. The GZV was also selling tools, as well as ducklings and geese for breeding purposes. "The scheme should go a long way towards ending the city's absolute dependence on the rural areas for food supplies," AIM concluded (AIM 1982, p 6). What AIM omitted to report was the small number of tools sold in the campaign. A GZV report lists sales of 725 hoes, 1,080 rakes, 509 spades, 513 machetes, 30 forks and two wheelbarrows, as well as 32 tonnes of chicken manure (GZV 1982).

7.1.3 The organisational structure of GZV

For purposes of agricultural extension, GZV divided the city into eight zones, each of which had a GZV official responsible for agricultural production (Ibid.) The functions of the agricultural official were wide-ranging, and probably unrealistic, given the serious lack of technical and professional skills at that time. The zone officials for agriculture were to work closely with the dynamising groups and the district administrators in their main task, which was mobilising people to clean up the abandoned farms so as to grow fruit and vegetables for home consumption and for sale. Furthermore, the zone officials were to make a list of all the farms in their zone, both abandoned and occupied farms. The extension messages to be passed on included improved basic techniques, home production of animal feed crops, safety measures for handling toxic chemical inputs and techniques for small-scale fruit and vegetable processing. The zone officials were also supposed to mobilise farmers to open and repair wells and to repair windmills and pumps (Ibid.).

That year the GZV documented 12.4 thousand hectares of crop land, of which seven thousand hectares were in the family sector and 5.4 thousand hectares belonged to private farmers. The crop area in both the family and private sectors was lower in 1994, totalling 9.7 thousand hectares: 4.5 thousand hectares of private fields and 5.2 thousand hectares of family plots (GZV 1995).

The obvious consequence of this decline in crop area was lower output of crops. Total production from the private sector fell from 34.3 thousand tonnes of vegetables, oil seeds, cereals and tubers in 1993 to 21.9 tonnes of the same crops in 1994. The director of the GZV blamed the decline in production on shortages in the supply of seeds (Sambane 1995).

A survey carried out by the GZV in 1995 in five urban districts in Maputo found that most farmers (96.8 per cent) do not hold title to the use rights of the land they farm, although 27 per cent of the farmers interviewed in District 4 and 37 per cent district 8 had initiated the process to obtain the title (Ibid.).

7.1.2 The family farming sector

The GZV provides assistance to farmers in the Maputo green zones through its *casas agrarias* (agricultural extension centres), now numbering seven. When attention turned to the small-scale farmers in 1982, the GZV had 46 *enquadradores* which translates roughly as organisers. They shared 15 motor cycles and 13 bicycles for travelling around in the neighbourhoods (GZV 1982). According to a 1995 report from the GZV, the majority of its extension agents are classified as auxiliary agricultural technicians. The GZV staff has 62 of these lowest level technicians, eight basic-grade technicians, four intermediate-grade technicians, one veterinary surgeon, one agronomist and one agricultural engineer. In addition, the Ministry of Agriculture and Fisheries has seconded four senior agricultural technicians and a topographer to work in the GZV (GZV 1995).

Geral das Cooperativas (General Union of Co-operatives or UGC for short), leaving the GZV with responsibility for the small-scale family sector and private farmers[3].

7.1.1 How much land? How many farmers?

Given its new emphasis on small-scale farmers, the GZV in 1982 parcelled out the farms it had been operating and distributed the land to co-operatives and family and private farmers, except an experimental plot retained for seed multiplication (GZV n. d. b).

The farming potential in the area of greater Maputo lies essentially in two river valleys: the Mahotas basin on the north-east side of the city and the Infulene valley to the west (GZV 1995).

There are various estimates as to the area suitable for farming in the Maputo green zones. As already noted in Chapter 5, the National Institute for Physical Planning (INPF) estimated the area with good farming potential at 8.5 thousand hectares (INPF 1985). Nevertheless, the GZV in 1988 put the estimate at 15.3 thousand hectares, farmed by some 60 thousand family farmers, 400 private farmers and 11 thousand co-operative farmers[4]; a total of 71.4 thousand farmers (Sambane 1995). However, a 1986 survey estimated that 80 thousand families were involved in basic farming activities and had at least one member of the family working the land or breeding small animals. The survey report said that nearly all the families worked on small family plots, on average 0.25 hectares, cultivating mostly rainfed crops and some vegetables for home consumption The report suggests that there are about 25 thousand hectares of potentially arable land in the green zones, but only 14 thousand hectares were under cultivation at that time (UGC & UNICEF 1986). By 1993, the GZV's assessment of the number of farmers was still based on 60 thousand family sector farmers. About 14 thousand of these peasant farmers had been organised in farmers' associations, the number of private farmers had doubled to 800 and co-operative farmers had stabilised at 5,450 (Sambane 1995).

[3]The distinction between the family and the private sector in Mozambique is in the employment of non-family wage labour. In fact this distinction is false, since even some co-operative members were found during the research to employ hired labour on their private plots.
[4]The UGC figure for co-operative members in 1988 is down to 10,200 from 11,000 in 1987.

Chapter 7
The Green Zone Farmers

7.1 The Green Zones Office

Farming in the green zones of Maputo had its origin in settler farms in the peri-urban areas of Maputo abandoned around independence in 1975. These abandoned farms were taken over by Mozambicans, but lack of technical and management skills and the almost total lack of spares for the maintenance of equipment meant that production did not recover and the food supply crisis in Maputo continued (Sambane 1995).

The government's answer was the creation in 1980 of the *Gabinete das Zonas Verdes* (GZV) which was charged with the task of ensuring that recovery in agricultural production to supply the Mozambican capital was successful. In the beginning the GZV directed its efforts towards large farms employing labour, in the mould of the state farms, rather than giving assistance to small-scale farmers (see Chapter 4). Clearly those in power opposed to support for the peasant family sector were prevailing[1]. By 1982, however, the GZV had turned its attention to the small-scale farmers who had occupied the abandoned farms and other who were encouraged to put vacant land to productive use (Ferreira 1995). The development of farming in the Maputo green zones took two separate but not unrelated paths. Even as some members of government were opposing the encouragement of peasant farming, the ruling Frelimo Party and the Mozambican Women's Organisation were mobilising peasant farmers to form co-operatives, with some success[2]. The department in the GZV charged with giving special support to farming co-operatives eventually broke away to establish the independent *Uniao*

[1] Some members of the government held the position that it would be wrong to assist individual peasant farmers because of the danger of creating a rural bourgeoisie, hence the emphasis on state farms and collective forms of production. (Ferreira 1995)

[2] This mobilisation was at times coercive. See for example Tibana (1986) who notes the pressure used by local political structures to impel unemployed people in their neighbourhood to join or form production co-operatives.

have no provision in their functions for the practice of agriculture in the cities. Secondly, as a Directorate in the city government, the GZV would have to abandon its commercial and practical activities such as the sale of inputs, the management of irrigation schemes and the running of its seed processing factory. The Gabinete das Zonas Verdes still has no legal existence and is waiting for a decision on its future from the Ministry of Agriculture and Fisheries (Sambane 1995).

According to the land law (Mozambique 1987b), family sector producers are not required to register their land, but they may if they choose to do so. However, there are many family sector farmers outside the demarcated areas in the permanent green zones who have no means of acquiring an official concession. The GZV has been promoting the formation of small farmers associations in order to seek collective title to plots occupied but not formalised. While this may protect the rights and livelihoods of farmers in the demarcated green zones, those in the non-demarcated zones are at risk of losing their land to wealthy or influential individuals who are able to acquire land concessions through extra-legal procedures (Sambane 1995).

to eat carrots, lettuce and tomatoes, because then it was not part of their tradition," Ferreira recounted.

It was intended that the agricultural centres would become co-operatives under the control of the population which they served, but this plan failed to materialise (Ibid.).

The city of Maputo covers an area of 675 square kilometres, of which the green zones occupy an estimated 74 square kilometres (INPF 1985). The land in the permanent green zones is low-lying with fertile clay soil with a high water table and is suitable for most crops. Some land in these areas has problems with drainage and salination and is at risk from flooding. The provisional green zones are located on higher land which has sandy soil and a low water table, at times as low as 40 metres. This land is poorly suited to agriculture, particularly when the unreliable rainfall is taken into account. Much of the soil in these areas is at risk from erosion. A study by the National Institute for Physical Planning indicates that the area of land suitable for agriculture in the permanent green zones is about 8.5 thousand hectares (Ibid.).

6.4 An uncertain future

The *Gabinete das Zonas Verdes* remains without any legal standing. In recent years, proposals have been made to rectify this situation (Sambane 1995). According to Sambane (1995), drafts of a decree on the creation of the *Gabinete das Zonas Verdes*, Statutes and of a ministerial diploma approving the staff and career structure of the GZV were presented to the Ministry of Agriculture. The drafts were rejected, along with the suggestion that the GZV be legally integrated into the ministry. It was argued that the logical placement for the GZV was within the structures of the city government. A proposal to transform the GZV into a public company was also rejected. Discussions were then held about the creation of a Directorate of Agriculture and Fisheries in Maputo. This was in turn rejected for two reasons. Firstly the new municipal councils, which replaced the executive councils in 1995,

The high season for vegetables is from March to May, when there is plenty of water available after the rainy season and the temperatures have begun to fall (Guambe 1995). The director of the Laulane agricultural centre said that there was little production of chickens among his clients because few farmers have sufficient capital to invest in chicken farming. Nor can they obtain credit because most farmers do not hold title to the land they work (Ibid.).

The main farming area in Laulane is low-lying and irrigated. The parts that are not irrigated are not very productive (Ibid.).

A short drive from the Laulane Agricultural Centre, in the irrigated low-lying area, is the Eduardo Mondlane[1] Farmers' Association. The association has 750 members, 500 men and 350 women, farming a total of 37 hectares (Vicente 1995). According to the president of the association, the land is divided into parcels ranging in size from 225 square metres (0,0225 hectares) to three thousand square metres (0,3 hectares). Sr Americo has one of the largest parcels in the association. He farms three thousand square metres, producing lettuce for sale throughout the year by staggered planting on different plots (Americo 1995). The well-watered black cotton soil was also producing beet root, green peppers, okra, pumpkin (for the leaves), coriander and parsley. No one in the Eduardo Mondlane Association grows tomatoes because of problems with pests (Vicente 1995).

Sr Americo arrived in the city of Lourenco Marques (as Maputo was then called) in 1971 and found a job in a supermarket. The Portuguese owner left for Portugal in 1978 and the supermarket went into decline. Sr Americo moved out to Laulane in 1981 and began farming (Americo 1995).

[1] Eduardo Mondlane was the first president of the Mozambique Liberation Front (FRELIMO).

Chapter 8
Thumbnail sketches of the green zones

8.1 Laulane

Despite the uncertainty surrounding the future of the *Gabinete das Zonas Verdes* and the chronic economic problems in Mozambique, the agricultural extension centres seem to function reasonably well. The researcher paid several visits, both pre-arranged and unannounced, to the Laulane centre. Laulane is a poor suburb about 10 kilometres north-east from the centre of Maputo. Once away from the main tarred road, the roads of Laulane are paved with deep sand. The agricultural centre is unmistakable: a two-storey farmhouse faced with blue ceramic tiles in the Portuguese style. There is usually a queue of Laulane residents, mostly women and children, lined up to fetch water from the centre's outside tap. The client population of this centre is about six thousand farmers, comprising 12 smallholders' associations and the remainder family sector and private farmers (Guambe 1995). Sr. Guambe has been head of the Laulane centre since May 1995. He said he needs to carry out a survey in order to update the data on farmers in his catchment area.

Besides the director, the Laulane centre is staffed by an agricultural technician and a livestock technician, a secretary/book-keeper and five workers, four women and a man, who cultivate the centre's demonstration plots. The plots were planted with lettuce, green pepper and spring onion. The centre sells seeds, pesticide and manure made from residue from a vegetable oil factory. The seeds most in demand are lettuce and cabbage, both fast-growing crops with high returns, as well as green pepper and pumpkin and a little maize and onion (Guambe 1995). Guambe said that onions are less popular, partly because they frequently suffer from theft and partly because of competition from imports from Swaziland.

Constraints of time and other resources for this study made it impossible to estimate the contribution of the farmers to Maputo's food requirements. However, a 1987 survey estimated that the green zones supplied 15 per cent of the fruit and vegetables sold in Maputo (Ribeiro, Poncas & Baptista 1987).

7.2.11 Legal status of the UGC

The UGC registered as a company in 1990 and the individual co-operatives became its shareholders (Ayisi 1995). Today this organisation of Mozambican peasant women has assets worth US$ 8.8 million[8] approximately three fifths of which is buildings and two fifths equipment.

The staff of the UGC is now comprised of nine university graduates: two veterinarians; one sociologist; two accountants; two electrical engineers; one project consultant; and one public relations consultant. At the intermediate level are four poultry technicians, two electricians, four hydraulics technicians, one draftsman and one civil construction supervisor. There are 16 basic level and 20 elementary level poultry technicians, 20 administrative staff, 55 skilled workers (builders, mechanics, plumbers and electricians) and 1,100 unskilled workers (Ferrao 1995).

7.3 Marketing

None of the farmers interviewed in the course of this investigation owned means of transport for marketing purposes, except for the private farmer in Laulane. The other farmers all depended on vegetable traders who went to the farms to buy produce for the city markets. All of these vegetable traders were reported to be women (Fabino 1995; Vicente 1995; Sigauke 1995).

The director of the GZV estimated the number of women fruit and vegetable traders serving the green zones as a whole to be about 15 thousand (Sambane 1995).

The marketing of poultry and eggs, on the other hand, was assisted by the UGC in terms of transport of chickens to the abbatoir and sales of chickens and eggs through the UGC butchery and by means of contracts with hotels, restaurants and firms with large numbers of employees such as Radio Mozambique (Sumbana 1995).

[8]According to an undated document obtained from Mr Valeriano Ferrao, the evaluation of UGC assets was performed by Ernst & Young Ltd.

techniques, but records 802 students educated at secondary level from 5th to 9th grade. (UGC 1990). The report on the following year's activities in the Maputo co-operatives noted that the secret of success lay in making the best use of "the great human potential represented by the sons and daughters of the co-operative members" (UGC 1991, p 13). Thus the typists and computer operators in the UGC were co-operative members or children of co-operative members. Vocational training was given to 868 people in 1990, including 100 from other provinces. In addition, the secondary school classes continued with 862 students enrolled in 5th to 9th grade.

An intermediate level technical school was started in 1992, functioning in the UGC central offices in Maputo, to complement the general education stream, which that year included 6th to 10th grades. However the low 38 per cent pass level in general education in the 1991 to 1993 period prompted the UGC to review this activity in order to seek ways of improving performance (UGC 1994). This review led to one secondary school being closed in 1994 pending re-organisation. The 1994 report stressed the importance of the technical school to the poorer members of the organisation because of the now high costs of educating children in the normal school system. The technical school in 1993 had one class of 14 students who attended lessons at night in the UGC offices.

The UGC sought to improve the quality of the education and training it offered to its members and their children. In 1994 it organised a series of training courses and seminars for trainers and teachers. The topics included the psychology and pedagogy of adult education, rural development, project planning and evaluation, agricultural and organisational management and civic education. A total of 529 participants attended the different seminars (UGC 1995). The pass rate in general secondary education improved somewhat to 51 per cent of the 760 students Ibid.).

were also sold to private producers. Three trucks made weekly trips to South Africa to load up with feed concentrates for the feed mill. The birds which are ready for the table are slaughtered in the UGC abattoir.

Poultry capacity has since increased further with the purchase of two more chicken farms and a new hatchery at Machava in 1995 (Ferrao 1995). The UGC itself has almost 20 thousand square metres of chicken houses producing broiler chickens, the co-operatives have another 25 thousand square metres and the UGC supplies family sector producers who have 6.6 thousand square metres (Ibid.). Altogether this capacity is enough for about half a million broilers (Ibid).

The UGC also has capacity for 65 thousand chickens laying eggs to hatch broilers and 1.5 thousand laying eggs to hatch layers. Eggs for consumption are produced by 70 thousand layers.

7.2.10 Educating co-operative farmers

The educational activities of the UGC expanded rapidly from the initial literacy training programmes. Specialised courses were begun in 1981 when 20 people were given training in book-keeping and 15 people received agricultural training. In 1982, training in livestock production techniques was added to the range of courses which that year were given to 75 co-operative members. The courses on offer were increased the following year to include management and child care and the number of trainees rose to 260 (GZV 1984). The choice of courses available continued to expand and in 1984 the list covered co-operative leadership, warehouse control, auto mechanics, tractor driving and night classes offering 7th to 9th grade. At the same time the number of trainees increased to 368. An abandoned farm in the Mahotas suburb was turned into a training centre for the co-operatives (GZV 1985).

The opening of the training centre enabled the UGC to separate its extension activities from formal schooling. The report on 1989 no longer gives figures for farmers trained in production

By 1990, the UGC felt that conditions were suitable for the establishment of a savings and loan co-operative, which also helps the co-operatives to improve their book-keeping (UGC 1994).

7.2.8 From collective to individual labour

The General Assembly of the UGC took a decision in 1991 that any co-operative which wanted to change from collective methods of production should be given help to parcel out the co-operative's land into individual plots for each member (UGC 1994). Just over half (145) of the existing co-operatives opted for the distribution of property. Low cost tools such as hoes and watering cans became individual property while the more expensive items of infrastructure such as poultry sheds, water pumps and vehicles remained the collective property of the co-operative (Ayisi 1995).

7.2.9 UGC income generation

In order to support its own expenses, the UGC undertook its own income-generating activities. The earliest of these were duck breeding in the Chicabela suburb and pig breeding at Laulane (Sumbana 1995). The UGC also opened a pottery in Machava and a butchery in Jardim. Its own bakery supplies bread to the co-operatives (Ibid.). However, Sumbana (1995) observed that the UGC and most co-operatives had given up pig production. She put this down to the emergence of a large number of pig producers "and we gradually lost our market, so we changed over to poultry". There were also technical problems with pig production, according to Tibana (1986). He pointed to the limited capacity for technical assistance existing in Maputo, shortages of construction materials on the local market restricting the expansion of infrastructure, as well as serious problems with the supply of feed as serious constraints.

The UGC in 1989 ventured into chicken farming , which was to become the largest source of income for the co-operatives and for the UGC itself (UGC 1994). The 1994 report describes the resources devoted to chicken production. A feed mill was rehabilitated to production capacity of 900 tonnes of feed a month. An incubator allowed the UGC to produce 80,000 day-old chicks a week. These not only supplied the UGC farms and the co-operatives, but

7.2.7 Investment in production

It is only in 1983 that the co-operatives begin to show accumulation of capital (GZV 1984). Spending on investment appears to take off in 1984, when aid and donations to the co-operatives are acknowledged (GZV 1985). The 1985 report mentions assistance from local church organisations such as Caritas Mocambicana and the Christian Council of Mozambique, and foreign organisations like the World Lutheran Federation and the governments of the Netherlands and Norway, UNICEF and several small non-governmental organisations (Ibid.).

By 1985 the co-operatives had invested about 30 million meticais (US$ 700 thousand) in construction and 20 million meticais (US$ 500 thousand) in equipment and inputs, with a further three million meticais (US$ 70 thousand) in on-going construction work (Ibid.).

Recurrent spending on such items as seeds and pig feed was also financed through loans and donations. Per capita investment in 1984 was 8.5 thousand meticais (slightly less than US$ 200), compared with five thousand meticais (about US$ 116) in 1983 (Ibid.).

With backing from the UGC, some co-operatives were able to obtain credit from the *Banco Popular de Desenvolvimento* (People's Development Bank)[7]. The 1984 plan (GZV 1984) records that the co-operatives had outstanding credit from the bank of 23 million meticais, equivalent to about US$ 570 thousand. By the end of 1984, 68 co-operatives had received a total of 106.5 million meticais in credit, equal to about US$ 2.5 million. The remaining co-operatives had not yet reached sufficient financial stability to qualify for bank loans (GZV 1985). The report notes that the support from the BPD had been part of a process of "banking education". Only one co-operative had difficulties in meeting loan repayments (Ibid.). Later reports do not include detailed information on financing and investment at the level of the co-operatives, but foreign assistance and donations continued until 1992 (Ayisi 1995).

[7] The difficulties normally faced by small farmers in obtaining credit from the banks is one of the arguments used to support the repeal of the law nationalising all land in Mozambique.

installed new ones. The service co-operatives were financially autonomous and received fees for their services to the farming co-operatives (GZV 1984).

The UGC in 1984 moved out of the GZV to its own premises in the Bagamoyo suburb of Maputo (Sumbana 1995). The move was taken in part to improve the working conditions but also to emphasise that the UGC is distinct from the GZV, that it is a peasant co-operative structure and not part of the state apparatus.

7.2.6 Profits to share

In 1981, two co-operatives began to distribute a monthly share of profits to their 110 members. The following year the number had risen to 12 co-operatives with 508 members and in 1983 1,966 co-operative members in 40 co-operatives received a monthly share of profits (GZV 1984).

The internal organisation of the co-operatives is standard. The membership elects the office holders, who are the president and members each responsible for production, finances and social affairs (Sumbana 1995).

The norms for the distribution of profits were set by the UGC. The share received depended on the amount of labour provided to the co-operative. "The amount of labour provided by the co-operative members is counted by recording the days worked on a special card. The card is checked daily by the co-operative's book-keeper and chief of production (GZV 1984, p 20). In 1984, the UGC established a minimum sum to be distributed, which was 62.5 meticais for one eight-hour day. The share of profits distributed to co-operative members is now set at about 25 per cent above the minimum wage (Ayisi 1995). However, profit sharing was only begun after the co-operative had accumulated sufficient funds in the bank to guarantee the repayment of bank loans (Sumbana 1995).

Table 6 The evolution of productivity in the Maputo co-operatives from 1981 to 1994

Year	Members	Average	Ha/member	Crop Yields Tonne/ha	Productivity: tonne/member Agriculture	Livestock
1981	1,177	49	0.15	0.86	0.13	0.005
1982	2,137	64	0.09	1.75	0.16	0.03
1983	4,707	58	0.07	2.15	0.15	0.03
1984	8,289	54	0.06	2.35	0.13	0.03
1985	10,282	56	0.06	2.9	0.16	0.03
1986	10,500	54	0.06	3.45	0.21	0.03
1987	11,000	52	0.07	3.67	0.24	0.02
1988	10,200	52	0.08	3.60	0.3	0.02
1989	8,500	43	0.11	3.0	0.33	0.08
1990	5,400	29	0.2	2.0	0.38	0.15
1991	5,400	29	0.2	3.5	0.65	0.18
1992	5,450	29	0.2	6.15	1.1	0.2
1993	5,450	29	0.2	5.80	1	0.2
1994	5,450	29	0.2	5.81	1	0.3

Source: UGC Maputo

7.2.5 The activities of the UGC

In its first three years of existence, the UGC started an adult literacy programme in the co-operatives, helped in the establishment of creches to care for the children of working mothers, opened a market in one of the main farming suburbs to ·ide co-operative produce and began selling seeds, hoes and watering cans to co-operative members. It was also able to provide technical services to the co-operatives by hiring mechanics, electricians and plumbers, who were later organised into service co-operatives under the umbrella of the UGC. The mechanical maintenance co-operative provided services for mechanical pumps and windmills and the plumbing and water supply co-operative maintained small-scale irrigation systems and

outside the co-operative. More than a quarter (26.3 per cent) were widowed or separated, a further four per cent were single, and the remainder were married. With regard to the size of the co-operatives, about a third (31.2 per cent) had between 20 and 39 members in 1984. However, over a quarter (27 per cent) had 60 or more members. Vegetables, fruit, maize, groundnuts, sweet potato and beans were the main crops grown, while pigs, ducks and chickens were the most common livestock. The produce of the co-operatives was first and foremost intended to meet the needs of the members. Some produce was sold in th neighbourhood of the co-operative, and the UGC gave help with transport to market vegetables and pigs beyond the neighbourhood (GZV 1984).

7.2.4 Co-operative productivity

From Table 6, showing the evolution of productivity in the Maputo co-operatives from 1981 to 1994, it can be seen that the decrease in the number of co-operative members has resulted in a more favourable ratio of the membership to the land available. The lowest area of land per co-operative member was in the period from 1984 to 1986, when each co-operative farmer on average had access to 0.06 hectares of land. This coincided with a period of severe scarcity. It also followed "Operation Production" which in 1983 coercively moved thousands of people out of the cities to be resettled in the northern provinces of Niassa and Cabo Delgado (AIM 1983b). The co-operative members' land ratio reached its mo ...rable in 1990, when 0.2 hectares was the average land area per member. This de ... was accompanied by steadily increasing productivity of the co-operative m ... except in 1984 in which a decline was recorded, to a peak of 1.1 tonnes of agricu... produce per member in 1992, a ten-fold rise in productivity in 10 years. Crop yields per hectare increased along with the the rising productivity of the farmers. The slight decline in 1993 and 1994 was explained by poorly-germinating seeds (Ferrao). Productivity in livestock production likewise grew with the improved land area per member, reaching its highest point in 1994 of 0.3 tonnes of meat per member.

number of co-operative members began to decline: by seven per cent in 1988, 16 per cent in 1989 and 36 per cent in 1990. This decline began in the year that the Mozambican government introduced a World Bank/IMF-sponsored structural adjustment programme, which the Prime Minister presented to parliament in January 1987 (Hanlon 1991). Structural adjustment involved devaluation of the national currency to one-fifth of its previous value. Consumer prices increased: basic food water and electricty prices doubled (Ibid.). Faced with rising prices and all-round belt-tightening, large numbers of co-operative members felt that they could not survive if they waited for the co-operative to show a profit (Sumbana 1995). Sumbana explained that because of the high cost of living "many co-operative members had to [illegible] the co-operatives. They went into the small markets in order to sell something, anything to earn their daily bread, because many co-operatives at that time had still not reached the level of development that we have today. Women withdrew from many co-operatives because they were working but receiving no monthly payment. They needed the fruits of their labour to feed their children." From 1990, the membership of the co-operatives stabilised. The UGC is not seeking at present to increase the membership, but rather to consolidate its successes (Ferrao 1995). Most of the co-operatives in existence today date from about 1985/86 (Sumbana 1995).

7.2.3 Who joins co-operatives?

The vast majority of co-operative members are women, 92.8 per cent in 1984, rising to 95 per cent in 1995 (Ayisi 1995). A survey of the co-operatives carried out by the GZV (1984) showed that almost all (99.5 per cent) of the co-operative members were from the three southern provinces of Mozambique. Although 85 per cent of the members were born outside the city of Maputo, 26 per cent were from Maputo district and a further 12 per cent were from other districts in Maputo province. The survey indicated that only about four per cent of the co-operative members had a spouse who was not working. Most of the spouses who had jobs were classed as unskilled workers. With regard to schooling, 67 per cent of the members were completely illiterate and another 17 per cent had only attended the first two years of primary school. Most of the members of the co-operatives (85 per cent) cultivated a family plot of land

While the GZV remains something of an orphan, the UGC has grown into a strong organisation of peasant women with assets valued at over US$8 million.

9.2 Recommendations

In order to secure the livelihoods of green zone farmers, the GZV should continue its assistance and support for the establishment of associations of small farmers with a view to obtaining title to land use rights. Furthermore, the procedures for registering title should be simplified so as to remove the bias against small farmers.

The UGC is an example of what peasant farmers can achieve given sufficient levels of support. The GZV will only be able to provide similar levels of assistance to farmers outside the co-operative sector once the question of its legal status is resolved. Accepting that the commercial activities of the GZV may be inappropriate for a local government department, the most suitable solution to the status of the GZV could be to transform it into a non-governmental organisation. This would require a certain measure of state aid during the transformation.

As well as putting food onto Maputo tables, the green zones provide a livelihood or supplement the incomes of thousands of residents in the Mozambican c[illegible]. Continued development of farming in Maputo would maintain existing income ear[illegible] opportunities and could provide more. This is particularly important in the light of th[illegible] unemployment and underemployment levels in Maputo.

In addition, the lack of provision for the practice of agriculture in the functions of the new municipal councils which replaced the executive councils casts a shadow over the future of green zone farming.

Maputo's farmers are not new migrants to the city. The records of the UGC show membership of farming co-operatives already numbering over one thousand in 1981. Most of the co-operatives operating today have been in existence since 1985/1986, almost ten years. The former settler farms in the Maputo green zone are obviously occupied by farmers who migrated after independence. This was not a case of in-migration from the rural areas, but rather Mozambicans moving into the farming areas from the townships to which they had been confined by the colonial system.

The products of the Maputo green zones are varied: vegetables, cereals, beans, herbs and poultry. It was not possible to determine the quantities produced overall, although the data on vegetables existing in the UGC are probably reasonably accurate. The data on poultry production suggest that the green zones meet a significant proportion of Maputo's demand for eggs and chickens.

The GZV and the UGC both provide extension and veterinary services to green zone farmers, as well as production inputs for vegetables and cereals and technical assistance with irrigation. The UGC also supports poultry production by co-operative and other farmers. Through the UGC, the co-operatives have access to credit to finance production operations.

Chapter 9
Conclusions and recommendations

9.1 Conclusions

The practice of agriculture in Maputo is clearly beneficial. There are multiple benefits from the production of vegetables, fruit and livestock in the Maputo green zones. Firstly, the city's food supply is not wholly dependent on production in the rural areas or on imports. Secondly, the city dwellers in general and the farming households in particular have the possibility to enjoy a diversified and healthier diet. Thirdly, the farming activities provide income earning opportunities, not only to the farmers, but also to the fruit and vegetable traders.

The answer to the first research question, as set out in Chapter 1, is indeterminate. In 1979 and 1980, the political will existed to encourage and develop green zone farming, despite some opposition within the government. Nevertheless, this political will has never been translated into statutory instruments for the implementation of the policy. To this day, the GZV has no legal existence.

The fact that many co-operatives have registered title to land-use rights with the Maputo Directorate for Construction and Urbanisation (DCU) bodes well for their future security. Less certainty surrounds the future of the farmers outside the co-operative sector, particularly in the light of the *ad hoc* procedures and complicated paper work required to apply for land concessions, coupled with the risks of corruption associated with extra-legal concessions.

preparo breakfast and the mid-day meal. Most of the members of the co-operative are Maputo-born. Two others, like Sra Florinda, are from Gaza province.

When this researcher visited the *7 de Abril* co-operative a training session was in progress in co-operative management. Representatives from seven co-operatives in the Liberdade suburb had attended a one-day training course at the UGC training centre. The seven representatives and the UGC trainer then held training sessions at each of the seven co-operatives to transmit what they had learned on the course (Sumbana 1995). The presentation was given with drawings and other visual aids, since the women are mainly illiterate. The presenter was the representative of the *7 de Abril* co-operative, observed and assisted by the other participants and the UGC trainer. The subject of the training session was the need for participation by all members of the co-operatives in discussions leading to decisions about the functioning and organisation of the co-operative.

operative, Florinda Francisco Sigauke, the members decided in 1990 to divide the land into individual plots for its 14 members, all women (Sigauke 1995). The co-operative has no irrigation system, and so the crops produced are rainfed crops like maize, groundnuts and beans. Sra Florinda said that they hoped to be able to install an irrigation system in order to grow vegetables, but was unable to give definite prospects (Ibid.).

Broiler chickens are also produced and marketed through the UGC, which provides veterinary assistance. Although the members receive a cash payment every month, this is not a fixed amount, but depends in income from sales. Sra Florinda estimated that the payment is usually between 150 thousand and 200 thousand meticais, equivalent to between US$14 and US$18 (Ibid.).

There is some doubt about how many members the *7 de Abril* co-operative had when it was set up. Sra Florinda at different times gave the figure as 198 and 181. Nevertheless, the 14 remaining members have all been with the co-operative since its inception (Ibid.). In 1982, the women who formed the *7 de Abril* co-operative had been farming individual plots. The income from those plots was very low, and so Sra Florinda and her colleagues responded to the call to form co-operatives in the hope of improving their standard of living (Ibid).

Sra Florinda arrived in Maputo from Gaza province in 1972 because her husband had a job in a Maputo factory. She started farming a small plot on the outskirts of the city to supplement the family income. Her private plot still occupies Sra Florinda's time at weekends (Ibid.).

The *7 de Abril* co-operative has a creche where three child carers look after 22 children (Ibid.). Part of the co-operative is also set aside as a kitchen where the women

group very well. Many people thought, 'good let's join the co-operative then a boss will appear to pay us wages'". With regard to the co-operatives that flourished, this was because "the people who were smarter realised that no one was going to be the boss of the co-operative unless they themselves organised in order to have a wage" (Fabiao 1995).

The co-operative was all women in the beginning, "but now that the men see that the co-operative really pays out money they are asking to join" (Ibid.). Sra Leonora added that the reason there were few men in the beginning was because "Mozambican men traditionally don't do agricultural work. They always considered that women's work. A man's work was in the mines or the railways, or cutting poles for house building". Five of the members of the *1º de Maio* co-operative are now men (Ibid.).

The abandoned farm was allocated to the *1º de Maio* co-operative by the local dynamising group when the women asked for land. Two or three years after starting to farm this piece of land, the *1º de Maio* co-operative began the process to obtain the title to use rights, which they now have (Ibid).

When the *1º de Maio* co-operative was formed, the initial intention was to grow food for subsistence. "But later we realised that a person working for subsistence was not enough. We needed money to buy other things." Sra Leonora explained That was when the co-operative decided that some of the produce should be sold. "Time dictated the best means of survival, and so we opted to follow the two paths of subsistence production and market sales" (Ibid.).

8.4 The *7 de Abril* co-operative

The *7 de Abril* co-operative is situated in the Liberdade suburb, about 15 kilometres west of central Maputo. As with the *1º de Maio* co-operative, it was founded in 1982, but there the similarity ends. According to the president of the *7 de Abril* co-

There is a pottery located within the *1º de Maio* co-operative, although it is a separate operation. The pottery belongs to the UGC and the women workers are members of other co-operatives who learned their skills in pot making to diversify the UGC's activities. The plates, bowls, cups and teapots produced in the Machava co-operative are sold through a stall in one of Maputo's markets (Augusto 1995).

The president of the *1º de Maio* co-operative, Leonora Fabiao, was born in the Chibuto district of Gaza province. A widow now, she came to Lourenco Marques, as Maputo was called, because her husband had a job in a factory. She does not remember the year that she arrived in the city, but her children were all born here, and the oldest was aged 28 years. Sra Leonora had 10 children, seven of whom survived.

Ever since she came to the city, Sra Leonora has been cultivating family plots which she continues to do. All the women members of the *1º de Maio* co-operative still have private plots, but those plots have no irrigation, and so they only grow rainfed crops in the wet season. Because they work six days a week in the co-operative, various arrangements are found for taking care of the private plots. Women with children get help when the children are not at school. Most of the women spend Sundays on the family plot, and some use their cash income from the co-operative to hire labour for their individual plots (Fabiao 1995).

The *1º de Maio* co-operative was formed at the time the government was mobilising unemployed people and widows to set up co-operatives. "And so a group of us women got together and decided to begin working together", Sra Leonora recalled. "The mobilisation was for everyone, but what happened was that many people dropped out. That's what happened with the men", she said. Explaining the rapid drop-out rate of people from the co-operatives, Sra Leonora said: "They were not able to survive all those years without pay, because in the beginning the people did not merge into a

The *1º de Maio* co-operative has no trouble selling its vegetables. Some are sold locally and some are sold to vegetable traders who come to the co-operative to buy produce.

Vegetables, however, are not the main source of income today. When the researcher visited the *1º de Maio* co-operative, one of its chicken houses held some two thousand laying hens, and another contained three thousand broilers being fattened for the pot. A third chicken house was empty because the chickens had just been sent for slaughter and it was being left for two weeks to be cleaned and disinfected, ready for the next batch of chicks (Ibid.). The UGC provides transport to take the chickens to its abattoir. The chickens are then sold through the UGC butchery in the Jardim suburb of Maputo. Some eggs are sold locally and the rest through the UGC shop. The UGC also assists with extension and veterinary services. The veterinary technician pays weekly visits to check on the health of the chickens and maintain the poultry vaccination programme up to date. (Ibid.).

This co-operative still functions collectively. When the General Assembly of the UGC decided in 1990 to allow co-operatives to parcel out land to individual co-operative members, the *1º de Maio* co-operative opted to retain its original form of organisation. Since 1984, the co-operative has being paying out a share of profits to its members Today this amounts to a cash income of 350 thousand meticais a month (Ibid.). At current exchange rates that is equivalent to a little over US$30, but it is still ahead of the minimum wage. In addition, the women can buy co-operative produce at special prices.

A creche in the co-operative takes care of 40 children, the sons and daughters of the women farmers, who no longer have to worry about their children's welfare when they are working (Ibid).

more private organisations have begun operating in the sale of inputs and veterinary services, thus reducing the demand for the services of the Benfica Agricultural Centre (Ibid.).

Benfica straddles the main road that leads north from Maputo. It has better developed commercial and urban infrastructure than Laulane. The agricultural centre is about 10 minutes drive from the main road. To reach it, one passes between the neat irrigated fields of the Infulene valley, planted with lettuce, cabbage, green peppers and okra in regimented rows.

8.3 The *1º de Maio* co-operative

The *1º de Maio* co-operative is located in the suburb of Machava, about 10 kilometres to the west of central Maputo. It occupies what used to be a settler's market garden in this mixed industrial and residential area. The president of the co-operative, Leonora Fabiao, is a founder member. She and 32 other women formed the co-operative on May 1st 1982, hence the name (Fabiao 1995). The first two years were hard years. "We worked throughout 1982 and 1983 without receiving a cent because in those two years we accumulated all the income in a bank account," Sra Leonora recalled. During the hardest years women gradually dropped out until only nine members were left (Ibid.). As conditions improved for the co-operative members, some of the original members returned and the *1º de Maio* co-operative now has 20 members aged between 30 and 50 years.

The co-operative has 12.5 hectares of land. A well with an electric pump provides water for irrigation, which allows the co-operative to grow four vegetable crops a year. The co-operative operates in a former settler farm, although the irrigation facilities were installed by the hydraulics workshop of the UGC. Besides irrigated vegetables, maize, beans and pumpkin leaves are also produced in the hot season (Ibid.).

however, Sr Francisco had acquired his farm in 1984 in preparation for his retirement years (Sambo 1995).

Sr Francisco's farm has a row of pig sties built along one side. The only occupants are three pigs, the sole survivors of the 180 pigs he owned before swine fever struck at the beginning of 1995. He has turned to chicken production instead. The farm's chicken house contains about two thousand chicks being fattened as broilers (Ibid.). So far 25 of the chicks had died, and Sr Francisco said that he expected to lose about 30 more before they were ready for sale.

The farms is on higher ground than the Eduardo Mondlane Association, and so has no irrigation. It does have a standpipe for water, however. Plots were planted with the ubiquitous lettuce, but Sr Francisco complained that he had trouble watering the crop because of a shortage of watering cans. In the cool season, Sr Francisco's farm produces tomatoes, cabbage and onions, with seed bought at the Laulane Agricultural Centre (Sambo).

8.2 Benfica

The agricultural centre at Benfica, on the north-western side of the city, is visually less impressive than the Laulane centre. What could have been demonstration plots were overgrown with long grass. The pump on the well was broken. Nevertheless, the buildings look well maintained. This is where the GZV training centre functions. The GZV was then running a training programme for monitors to do outreach and extension from other centres. The director of the Benfica Agricultural centre had gone to the Boane Agricultural School with the current class of trainees when the researcher visited. However, the livestock technician was able to explain how the centre functions. Apart from hosting training courses, the centre sells seeds, mostly cabbage, lettuce and onion, hoes and machetes. It does not sell chemical inputs because of lack of demand (Cossa 1995). Since the swing towards a market economy in Mozambique,

One of the Eduardo Mondlane farmers, Arrone Matias, described a course he had attended as a representative of the association. The 30-day course was organised jointly by the GZV and the UGC. It covered small farm management, pest control and production techniques for small livestock and included a visit to an agricultural training centre at Boane, about 30 kilometres west of Maputo. The course participants were mostly women. Admission to the course required at least 2nd grade, but many participants had 4th grade or higher. Sr Arrone said he had not yet found enough time to pass on his new-found knowledge to his fellow members of the association (Matias 1995).

The Eduardo Mondlane Farmers' Association was founded in 1984, but the process of applying for title to the land in the name of the association only began in 1990. After much delay, the association received a letter from the Maputo City Council indicating that the application had been processed and was successful Vicente 1995).

Being a private farmer in the Maputo green zones does not necessarily imply having a large spread. Francisco Sambo has a parcel of land not far from the Eduardo Mondlane Farmers' Association. It measures 2.1 thousand square metres (0.21 hectares), smaller than some of the larger parcels in the association. But Sr Francisco employs four workers. Here lies the difference (Sambo 1995). He also has capital to invest in chicken production.

Sr Francisco came to Lourenco Marques in 1952 to work as a domestic servant for two years. He then went to South Africa as a migrant worker in the gold mines for two years. After returning to Mozambique, Sr Francisco was called up for military service. This took him to Macau, the Portuguese enclave in China, where he served three and a half years. Back in Mozambique in 1962, Sr Francisco landed a job with an oil company, where he worked until his retirement in 1988. Looking to the future,

This part of Laulane used to be swampy and was best suited for rice cultivation. In 1987, a drainage project redirected the water into channels which now provide water for irrigation (Vicente 1995). The land of the Eduardo Moudlane Association is criss-crossed by channels. Each farmer is responsible for keeping his own channels clear and free of weeds (Ibid.).

Alfredo Mandlate is a retired railway worker. He took up farming "to keep busy and supplement my pension" (Mandlate 1995). Mandlate's land was bare, but for a few banana trees, as he turned the soil with a hoe. He was behind his colleagues in the farming cycle because he had no one to help him and the work is heavy (Ibid.). Sr Mandlate planned to plant pumpkin for the leaves, until it is time for the cool season vegetables (Ibid.).

Sr Vicente's parcel is 2.7 thousand square metres (0.27 hectares). As well as growing lettuce, cabbage, okra and pumpkin, he was experimenting with coconut palms. We could observe the four trees that had flourished of the 10 planted. Sr Vicente is not a full time farmer. He works as a clerk in a government office during the week, leaving his family to take care of the farm (Vicente 1995).

Walking through the neat fields with vegetables growing in straight rows, we came upon a parcel with irregular patches of pumpkin and maize. The men said this was typical of the women's plots. "They can't learn new techniques", one farmer commented. The owner of the plot was not present to give her opinion. The one woman present was Deolinda Chichava. Her fields were laid out in straight rows. The men said this was because Deolinda is Sr Vicente's niece. She herself refused to comment on the women's capacity to learn, perhaps because she was talking through a male interpreter.

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9.3 Areas for further research

Further research could usefully be carried out into the total investment in the UGC which resulted in the organisation owning assets valued at US$ 8.8 million. It would thus be possible to evaluate and quantify the development which has really taken place in this organisation of Mozambican peasant women.

A reliable estimate of the contribution that the green zone farmers make to meeting the food needs of the Mozambican capital would assist policy makers in deciding on levels of support to the farming zones and for what particular products.

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