# LAND FOR HOUSING THE POOR THROUGH URBAN AGRICULTURE:

# THE CASE OF LUSAKA, ZAMBIA

by

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## ABSTRACT

Zambia, among many other African countries, suffers from austerity. The urban population faces unemployment and a dramatic lack of housing for low-income people. Moreover, rural development policies have failed, and cities have been hit by food shortages. Consequently, urban poor invade vacant urban land to cultivate individual gardens, in order to survive.

Numerous experiences around the world demonstrate the potential benefits of urban agriculture for the poor, and what governments can do to promote this phenomenon. Commonly, the main obstacle is the availability of urban vacant land. Landless, the urban poor can hardly secure a plot for cultivation. There is a need for public interventions that would help the poor to cultivate urban land. Unfortunately, public authorities are reluctant to let the urban poor cultivate urban land, because urban land is considered to be too economically valuable, to be used for gardening. Urban agriculture, like squatter settlements, is an unacceptable practice from a governmental point of view.

First, this thesis argues that urban agriculture is an efficient temporary use for urban vacant land. The program for Lusaka, Zambia, proposes policies that would ease access to land and tenure for the people who most need urban agriculture. Secondly, this thesis argues that urban agriculture can be an efficient tool for the public authorities to structure the growth of the city. Since housing is a prime public priority, the program intends to use urban gardens in the interim, in order to gradually allocate land for housing low-income people. The suggested policies would help the public authorities manage urban development by anticipating and adapting to the growth of squatter settlements. This thesis explores new grounds for public authorities to prepare legal bases for the development of informal housing and urban agriculture in a rational setting which will reduce the future costs of servicing these areas.

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**CONTENTS**

## GLOSSARY

**Africare**: A Non Governmental Organization dealing with aid programs in Africa

**B.U.G.**: Boston Urban Gardeners

**E.I.U.**: Economic Intelligence Unit (London)

**F.N.D.P / S.N.D.P. / F.N.D.P.**: First, Second, and Third National Development Plan for the Republic of Zambia.

**G.N.P.**: Gross National Product

**G.T.Z.**: West-German Agency for Technical Cooperation

**I.M.F.**: International Monetary Fund

**Kwacha**: Zambian Currency (in 1987, 8 Kwachas per U.S. dollar)

**L.U.D.C.**: Lusaka Urban District Council (formerly L.D.C.: Lusaka District Council)

**N.G.O.**: Non Governmental Organization

**OXFAM**: A Non Governmental Organization dealing with food programs in the Third World

**Sub-Saharan Africa**: All countries south of Sahara, excluding South-Africa

**U.N.I.C.E.F.**: United Nations Children Fund

**U.N.I.P.**: United National Independence Party

**U.S.A.I.D.**: United States Agency for International Development

**U.S. $**: United States Dollar

# INTRODUCTION

## THE GRAPES OF WRATH

Urban agriculture is a very controversial subject for urban planners. On the one hand, urban Land is considered too valuable, economically, to be used for cultivation. Yet, on the other hand, this statement is only valid when the urban population can buy food produced in rural areas, in sufficient amounts and of acceptable quality.

For the public authorities, urban land should be used more intensively than private food production. For example, industries, businesses, public institutions, and housing would benefit most from the advantageous location of urban land. Moreover, governments are reluctant to let the urban poor invade idle land and cultivate on an informal basis with no public control on the production. Public authorities regard urban agriculture as an evidence of the failure of their rural development policies, and as an undesirable feature in modern cities. Moreover, they dislike to lose control of urban land use, because they are afraid of uncontrolled growth-urban sprawl. Like slums and squatter settlements, urban agriculture is neither an acceptable nor a respectable achievement for the governments, and should then not be supported publicly.

Unfortunately, many countries suffer from food shortages; also many urban families are so poor that they cannot afford to buy food in sufficient quantity. As a result, millions of urban poor, particularly in Africa, depend on urban agriculture to survive. The demand for urban food production will perpetuate and most certainly expand in the future. The urban population in Africa is growing faster than the local food production can support, and the debt accumulated by the continent makes importation of food unaffordable. Under these circumstances, urban agriculture is often the only alternative to starvation for the urban poor, when cultivable vacant land is available. Urban land is not always too valuable to be used for cultivation.

In the literature, urban agriculture is advocated within the larger realm of self-reliance. Self-reliance proposes alternative strategies for development, where the poor rely on informal processes to feed, employ, and house themselves. Self-reliance is illustrated by the expansion of the informal sector of the economy. The same "philosophy" encouraged the deployment of alternative solutions for housing the poor. Public agencies have decreased their standards of housing down to the level of the informal sector, from complete houses, to sites and services, and more recently to upgrading experiences. In many countries, uncontrolled squatter settlements are tolerated, and governments eventually give, or are forced to give, tenure to the residents in these settlements.

Similarly, urban agriculture which was once destroyed by public authorities, just like squatter settlements were, is now more tolerated in numerous countries. Economic austerity makes urban agriculture necessary for survival in the cities. Therefore, in many countries, like Zambia, where imminent social disruption is threatening the fragile political

establishment, governments see urban agriculture as an escape valve; by showing some tolerance toward informal practices, the authorities make sure that the poor are satisfied -- and fed -- and do not revolt. Just like for squatters, most African governments are willing to give up some control by permitting an informal sector in order to insure the governments political stability. This last issue weakens the concept of urban agriculture as a desirable strategy for development. Adopting the Marxist argument against self-reliance, urban agriculture can be seen as a foe to the people in the long run. Children cultivate instead of going to school, while the entire family is taken away from any political action by the daily hard labor in the gardens. This may explain partly why most governments now accept the concept of urban cultivation.

Urban agriculture is commonly considered highly beneficial for the urban poor who cultivate. Researchers often advocate public policies which would promote urban cultivation on a larger scale (Wade, 1987). Some governments tolerate urban agriculture by adopting a "no policy" policy. This thesis intends to explore the next step: urban agriculture should not be neglected by the public authorities. There is a need for positive policies: governments could promote the informal processes of both urban agriculture and housing, and allow their development on legal bases.

Here, urban agriculture is not considered a panacea for the urban poor. The concept of urban cultivation is only promoted to maximize the benefits for the poor without affecting the overall urban development. The thesis puts forward the idea of urban agriculture as a means to alternative urban policies for land and housing. The project by project approach developed until nowadays, is often considered inefficient to provide housing for the urban poor. Likewise, the international donors are abandoning loans and grants for specific housing projects,

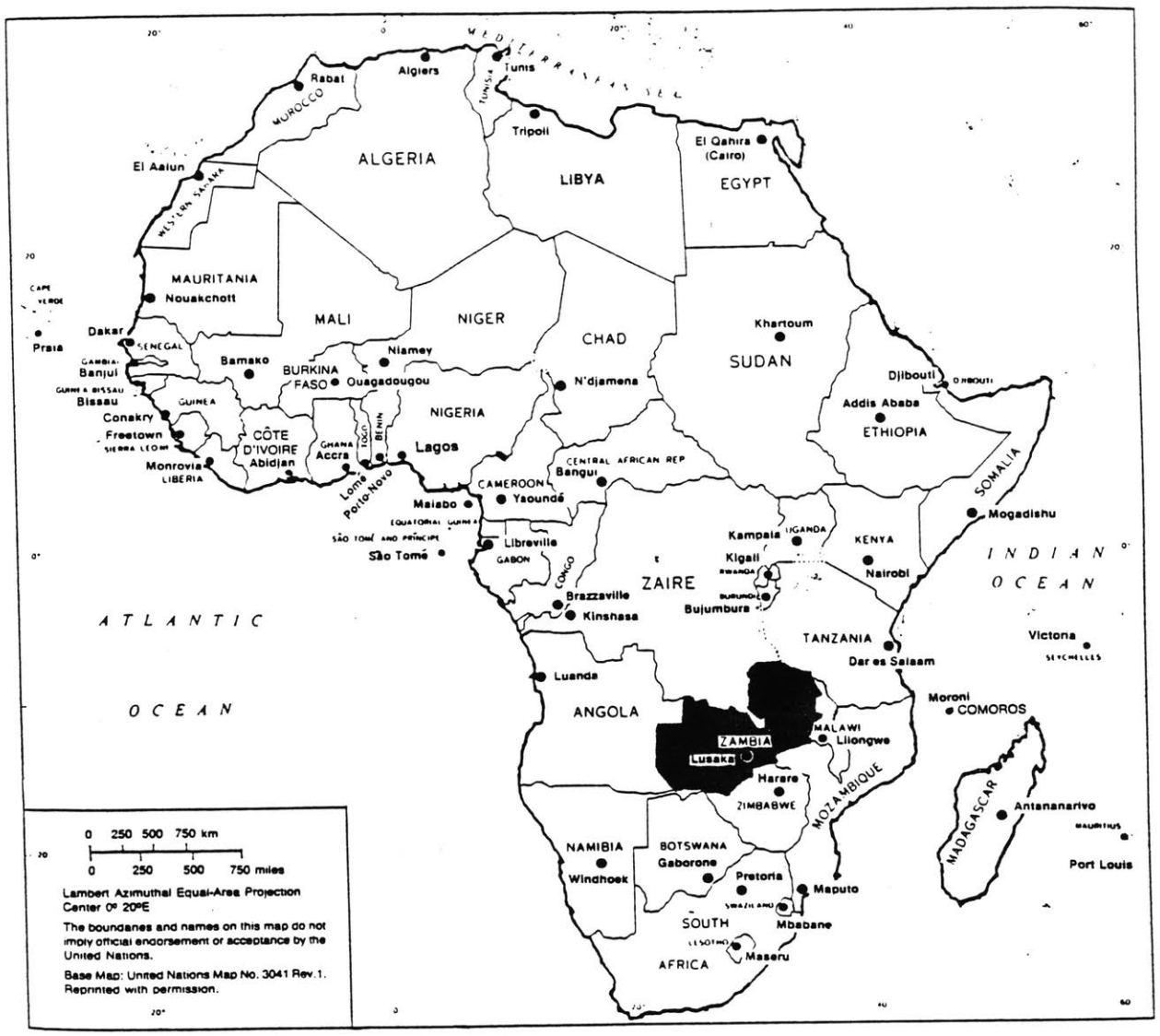
and are now targeting their contributions to policy reforms and more precisely to urban management.

The following work illustrates, in the first chapter, the dramatic austerity in Lusaka, the capital of Zambia. Lusaka was chosen as the setting of this study for four main reasons. First, the poor in Lusaka have cultivated urban land for a long time and in a fairly large scale. Secondly, both the national and the local governments have now accepted and even encouraged urban cultivation. Such an environment makes further suggestions more likely to be considered. Thirdly, more data were available to the author on this subject in Lusaka. Last, the current recession in Zambia needs to receive urgent attention in order to relieve millions of urbanites from poverty and starvation.

In a second chapter, experiences of urban agriculture are analyzed throughout the world. The study of Lusaka reveals a pressing demand for urban cultivation.

The third chapter examines different public interventions which could promote urban agriculture on a larger scale in Lusaka. Within this realm, the issue of providing greater access to the lowest income groups will be the focus of the argument. Access is defined for the purpose of this thesis as the ability to use a plot for gardening.

The last part presents what the author regards as the most appropriate steps to take in the future. The suggestions would combine implications for both urban agriculture and housing, in order to maximize the benefits for the urban poor, while satisfying the public authorities and help them to manage the development of the city.




Map 1: Zambia

(Source: Africa Today, p. 23)

# 1. CHAPTER ONE

## THE POOR, THE STATE AND AUSTERITY

### 1.1 Austerity in Zambia

The economic development of Africa is very precarious. In the years to come, the whole continent needs large sums of financial assistance to balance economic recession and political reality. About half of the twenty nine countries undergoing economic reform, often at the risk of serious political upheaval, are so heavily in debt that the chances of recovery are becoming increasingly remote ( South, January 1988).

Zambia is certainly one of the most desperate nations in Africa. Embarked on the reform exercise imposed by the I.M.F. in 1986, Zambia had to break its commitments in May 1987. Under pressure from the population, the unions, and the management of the powerful public and parastatal sector, President Dr. Kaunda put an end to the austerity program. It is a measure of the catastrophic economic situation that real income per capita measured in U.S. dollars, and adjusted for the terms of trade, had fallen to less than one third of its 1974 level by 1984 (E.I.U., 1987).

The World Bank estimates the real average annual change in G.N.P. per capita at -1.6 % from 1964, date of the independence, to 1985. This brought the G.N.P. per capita to U.S. $ 346 in 1985 (U.S.A.I.D., 1987). U.S. $ 346 is sufficient for Zambia to qualify as a "low-income" country in the World Bank's categorization, instead of Zambia's "Lower Middle Income" classification in the early 1980's with a G.N.P. per capita above U.S. $ 400. The G.N.P. per caput decreased again in 1986 and 1987, as the economy at best stagnated and probably shrank for the last two years, and the population grew at an annual rate of 4 % (see Table 1).

The May 1987 decision to abandon the austerity program of the I.M.F., makes any new foreign loan unavailable for the country. Desperately short of foreign exchange, Zambia will most likely began to backtrack on its decision. Zambia and the international donors will attempt to find a face-saving compromise in 1988, but Zambia's arrears on debt repayments will put enormous obstacles in the way of an accord. By the end of 1985, Zambia's debt totalled U.S. $ 7.2 billion, and it is the highest debt per capita in the world (U.S.A.I.D., 1987).

On top of these economic difficulties, Zambia is the most urbanized country in Sub-Saharan Africa. In 1987, half of the population of 7.41 millions people lived in urban areas of over 10,000 inhabitants (L.U.D.C., 1987). Half of the population is below 15 years old (Mascarenhas, 1986). Forecasts predict a population of 12 millions in 2000, and 16 millions in 2020 with an urban proportion of 75 % (U.N., 1982).

| | 1980 | 1985 | 1986 | 1987 |
|---|---|---|---|---|
| G.N.P. per capita (in 1980 U.S. $) | 600 | 346 | (330) | (320) |
| Inflation (in %) | 8 | 34 | 54 | 80 |
| Kwacha per U.S. $ | 0.80 | 2.71 | 7.30 | 8.00 * |
| Population (in millions) | 5.68 | 6.67 | 6.95 | 7.41 |
| Urban Population (in millions) | 2.44 | (3.1) | 3.30 | (3.5) |
| Urban Proportion (in %) | 43 | (46) | 47 | (48) |

(...) estimates by the author.

* : exchange rate fixed by the Zambian government.

(Compiled from: U.S.A.I.D., 1987, and L.U.D.C, 1987)

Table 1: Zambia, Economy and Population.

## 1.2 Urban Crisis

Since the independence in 1964, one of the prime goal of the governments of Dr. Kaunda has been to reduce the disparities of income between the poor rural areas and the richer urban areas of the Copperbelt and Lusaka, the capital. The average urban income is 3.5 times higher than the average rural income (Fair, 1983). 95 % of the rural households have an income lower than the average income in urban squatters settlements.

The recent reforms with the I.M.F. were also an effort to reduce the urban bias: most governmental subsidies and investments, traditionally directed toward urban areas, were cut down. Unfortunately, the urban population is better organized to influence national policies than the rural population. The announcement in early December 1986 of the removal of maize meal subsidies, in addition of drastic drops in living standards in the early 1980's, caused nine riots to breakout in the Copperbelt. The riots were only suppressed after troops had been sent in and a curfew imposed. The worst internal violence since independence, the riots left 15 people dead, hundreds injured, millions of U.S. dollars worth of property damaged, and the government profoundly shaken (E.I.U., 1987). Those tensions forced the official break with the I.M.F. in May 1987.

1988 is the presidential election year in Zambia, and even the government says life is going to be harder in 1988. Despite the hardships faced by the population, President Dr. Kaunda will be re-elected as the sole candidate put forward by U.N.I.P., the sole political party in Zambia (South, January 1988). With the economy in decline, unemployment on the increase, the plunge of the copper prices (Wall Street Journal, 28th January 1988), Zambia' s stability is threatened. One of the priorities of the government is therefore to control social unrest in urban areas. The urban bias is thus likely to perpetuate in investments, subsidies, and policies.

The urban Copperbelt with 1.4 million people represents nearly 20 % of the total population of the country. With the economic recession in the copper industry, most migrants were attracted in recent years to Lusaka, the capital. In the 1980's, Lusaka grew at an annual rate of 6 or 7 %, while the Copperbelt only grew annually of 3 or 4 %. Lusaka with 741,050 inhabitants in 1987 (L.U.D.C., 1987), represents 10.5 % of the national population.

The aggregate urban population growth in absolute numbers was 3 millions during the previous 35 year period. The net aggregate gain in urban population in the next 35 year period will be 12 millions (Van Huyck, 1988).

## 1.3 Food and Living Standards in Lusaka

The growth of the capital is partly due to the migration of poor rural landless households or single men, expecting higher standards of living in urban areas. In reality, upon arrival, these immigrants face unemployment, shortages of food and housing, crime, and health hazards. Surveys in Lusaka indicate a 5 % average rate of AIDS virus infection among urban adults (New York Times, 22th January, 1988), which is among the highest proportions in the world. With the present economic perspectives, living standards will continue to fall and urbanites will spend more time queuing for basic goods in short supply. So far, the list includes bread, maize meal, beer, cooking oil, soft drinks and toilet paper; petrol and diesel will probably follow (South, January 1988). The government and U.N.I.P. are becoming increasingly unpopular and its activists are likely to bear the brunt of any unrest resulting from food shortages.

The activities of the youthful member of U.N.I.P. who, for example, demand trading licenses from old women selling oranges by the roadside, are particularly unwelcome in the poor city

suburbs. Urban life is becoming increasingly expensive, while income generation and employment even in the informal sector are dramatically scarce. In 1981, 80 % of farmers and 25 % of urbanites did not have enough income to meet their basic needs for food. They lack an average of 300 calories per person / per day, one fifth of the daily recommended allowance (Simson, 1985). Since 1980, urban food prices have risen far more rapidly than urban wages, with lower income groups hit hardest (see Table 2). 30 % of the children in squatter areas suffer from some form of malnutrition (Simson, 1985).

| | between 1975 and 1980 | between march 1979 and march 1980 | between march 1980 and march 1983 | between march 1985 and march 1986 |
|---|---|---|---|---|
| Bread | 128 | 24 | 60 | 100 |
| Milk | 64 | 13 | 90 | 60 |
| Salt | 50 | 0 | 50 | 75 |
| Vegetables | 154 | 40 | 55 | 70 |
| Inflation | N.A. | 8 | 26 | 34 |

(compiled from: Central Statistics Office, Monthly Digest of Statistics, Lusaka, March 1986)

N.A.: Non Available
(Although this information was not given in the source, the inflation is certainly included in the prices shown in this table)

Table 2: Percentage Increase in Retail Prices of Basic Food

| | 1970 | 1975 | 1980 | 1986 |
|---|---|---|---|---|
| Urban Population (in thousands) | 1,272 | 1,762 | 2,440 | 3,625 |
| % change between each period | | + 6.5 | + 6.5 | + 4.9 |
| Total Urban Labor Force (in thousands) | 386 | 549 | 757 | 1,012 |
| % change between each period | | + 7.1 | + 6.4 | + 4.8 |
| Formal Urban Labor (in thousands) | 308 | 357 | 356 | 326 |
| % change between each period | | + 2.9 | - 0.1 | - 1.5 |
| Ratio Formal/Total Urban Labor Force | 80 % | 65 % | 47 % | 32 % |
| Informal Urban Labor (in thousands) | 77 | 191 | 400 | 687 |
| % change between each period | | + 18.1 | + 14.8 | + 9.0 |
| Ratio Informal/Total Urban Labor Force | 20 % | 35 % | 53 % | 68 % |

(source: U.S.A.I.D., 1987, p. 27)

Table 3: Urban Employment in Zambia

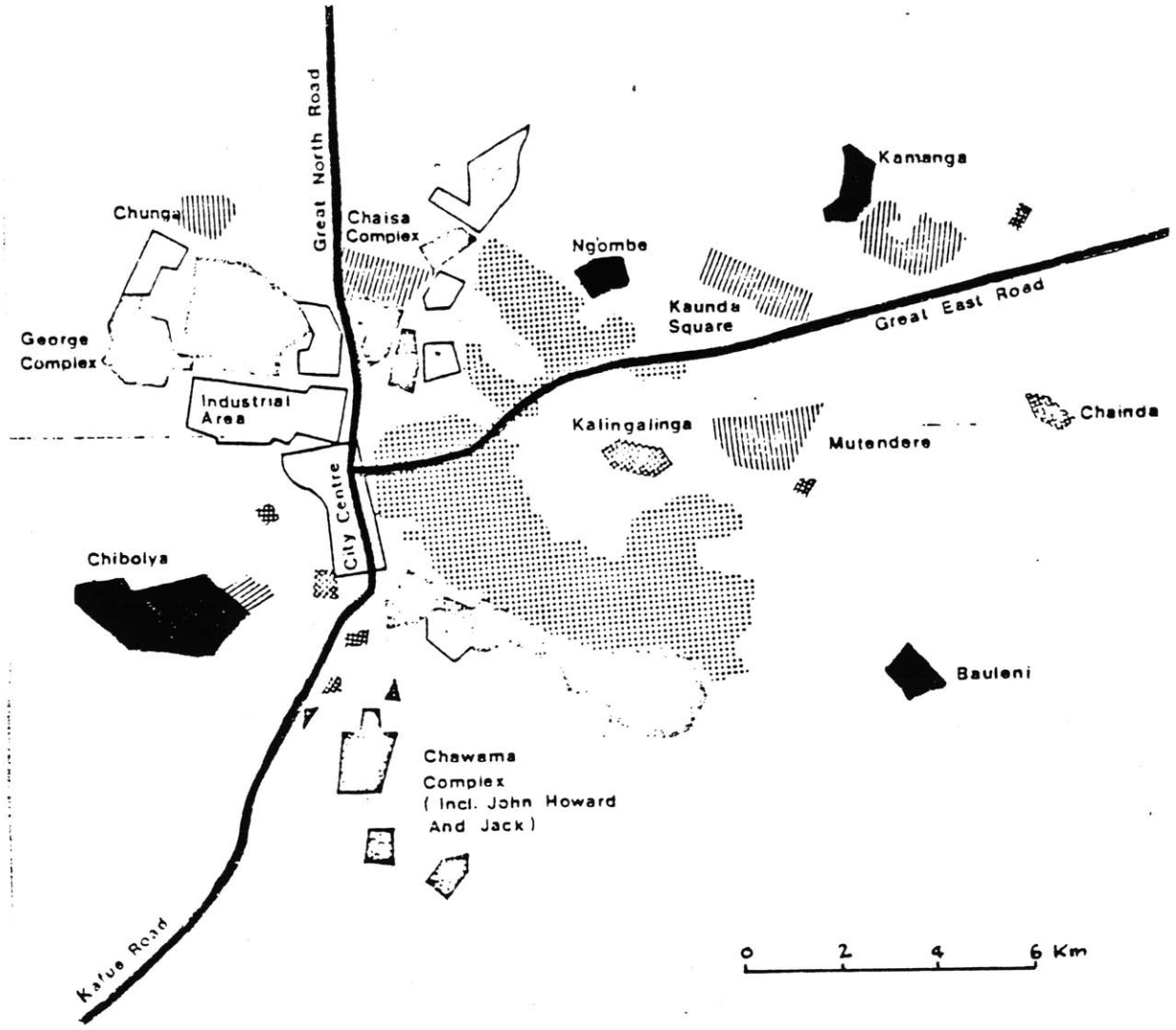
## 1.4 Housing in Lusaka.

Beside the urgent need for food and employment, the people of Lusaka are also facing a shortage of low income housing. For the last two decades, Zambia has been described as a model to other third world countries for its answers to the problem of low income housing. Projects funded by the World Bank housed 40 % of the population of the capital in sites and services projects or upgraded squatters settlements, between 1974 and 1982 (Jere, 1984; Martin, 1982). After the departure of the World Bank in the early 1980's, only one low income housing project has been completed: the upgrading of Kalingalinga, a squatter settlement of 15,000 people, with the collaboration of the West-German technical organization, G.T.Z. (Ostereich, 1987).

Since then, no new action has been started to meet the demand for low income housing. Therefore the housing supply which once appeared sufficient in the early 1980's, is now unable to meet demand again in Lusaka. After two decades of foreign funded projects the now trained administrative staff of the city council has been unable not only to pursue the task in the capital, but neither to replicate the method in the rest of the nation. 65 % of the Zambians live in unimproved squatters settlements (L.U.D.C., 1987). The proportion of unimproved squatter settlements represents only 15 % or 20 % of the population of Lusaka nowadays. The housing shortage is nevertheless affecting at least 100,000 people living in these unimproved settlements. Unimproved settlements have in general, poor access to water through wells often polluted, no electricity, no sewage, no paved roads, and dangerous health conditions.

The location of the unimproved squatter settlements is shown on map 2. Chibolya (or Kayama) has a population of 60,000. Bauleni and Kamanga have 7,000 and 8,000 people respectively (L.U.D.C., 1987).

In Lusaka, the city council estimates that 6670 new dwellings should be built each year to keep up with the pace of urban growth. Moreover, some early sites built by the World Bank already need some upgrading (Goethert, 1987).




Map 2: Location of Unimproved Squatter Settlements in Lusaka (source: U.N.C.H.S., 1980)

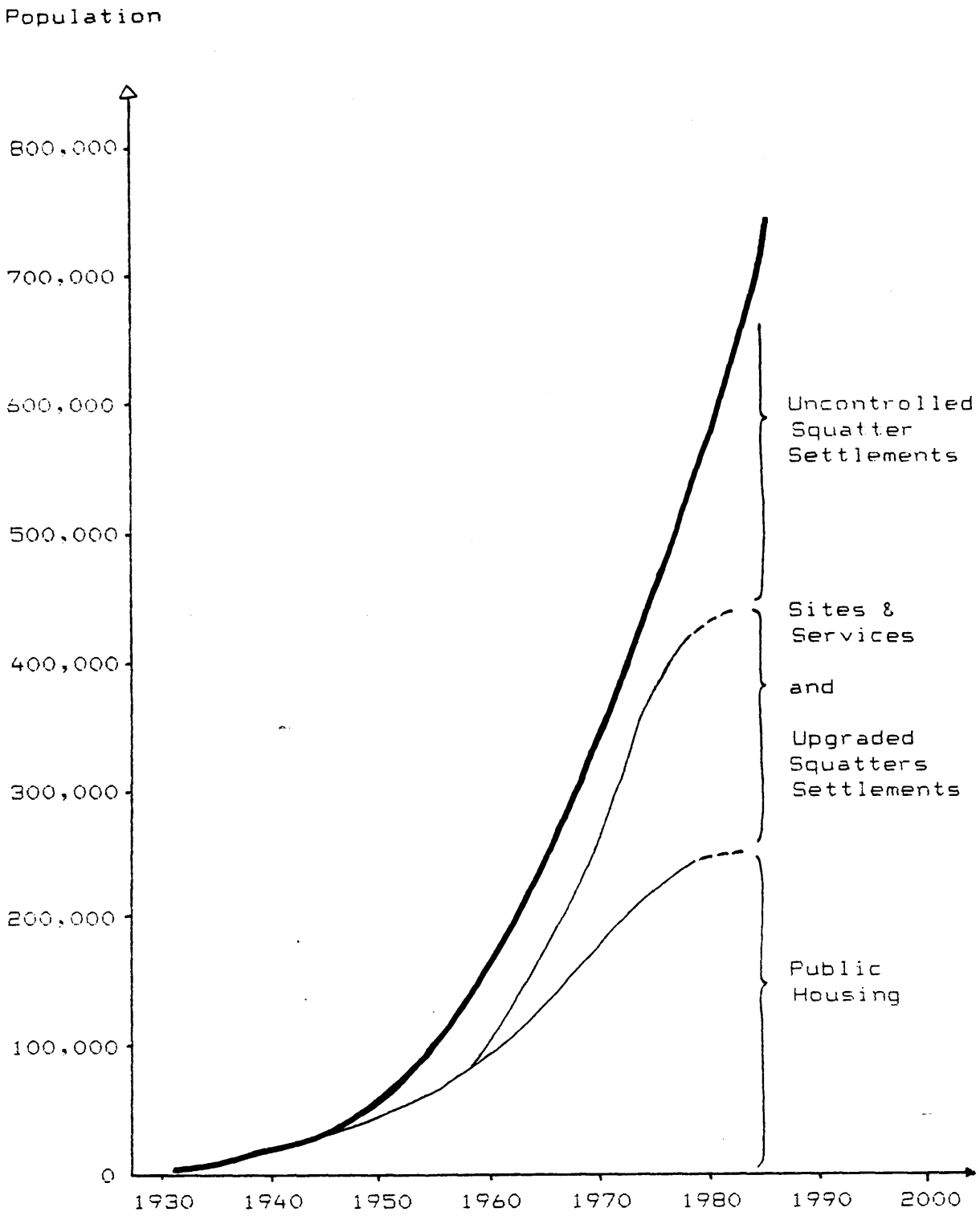



Figure 1: Housing in Lusaka
(compiled from Ostereich, G.T.Z., 1986)

| Location: | Urban Areas | | Rural | Total |
|---|---|---|---|---|
| | Squatter and Low Cost Housing | High Cost Housing | | |
| Income: | | | | |
| Poor | 106 | 0 | 572 (85%) | 628 (60%) |
| Middle | 230 | 2 | 137 | 369 |
| High | 44 | 31 | 11 | 86 |
| Total | 380 | 33 | 720 | 1,133 |

(compiled from Fair, 1983)

Table 4: Distribution of Households, in thousands, in 1980.

## 1.5 Urban Agriculture, a Response from Below

In the crisis described previously, the poorest portion of the population is abandoned, and obliged to rely only on its scarce resources. The local and national governments, highly constrained by limited financial resources, cannot afford any increase in social welfare and subsidies.

The worst times are yet to come. The city will double its population in the next decade, to reach nearly a population of 2 millions inhabitants in 2000, and probably 4 millions in 2020 (Van Huyck, 1988). As population grows, employment, housing and food become even more scarce.

Facing unemployment, the poor rely on the informal sector and their own business initiatives. Facing housing and services shortages, the poor rely on squatting. Facing food shortages and unaffordable commodities, the poor rely on gardening.

Urban agriculture is yet another response from the poor to survive in austerity and hunger, like squatting responds to the need for shelter. Urban agriculture is even more crucial for survival.

Parallel to the study and the acceptance of uncontrolled settlements, urban cultivation need to be understood and reinforced to maximize its potential benefits. At the household level, urban agriculture can bring food in quantity and quality, income from sale, employment and social status. At the scale of the city or the country, urban agriculture can work for political stability, accrue food security, and result in a better environment.

# 2. CHAPTER TWO

# URBAN AGRICULTURE

## 2.1 Definitions

Urban agriculture around the world can be categorized in three ways:
- individual versus communal gardens
- home-plot versus more distant gardens
- subsistence versus market oriented gardens.

In practice, these types of gardens often overlap. Therefore, only the three most frequent types of garden, which are a combination of the criteria, will be considered:
- the individual home-plot gardens, called plot gardens.
- the individual gardens distant from home, called rainy season gardens, as they are cultivated during the rainy season since there is usually no other sources of water in such places.
- the communal gardens, outside home-plots by definition.

Generally, those gardens provide first a source of subsistence for low income people. Later, the gardens can become market oriented if the production generates a surplus.

The choices between the different types of gardens lead to difficult trade-offs. Individual gardens provide more personal incentives whereas communal gardens benefit from the economies of scale. Home-plot gardens require no transportation, and are better protected from theft than distant gardens. Home-plot gardens tend to lower the density of housing settlements, and therefore increase the urban growth sprawl. Also, house plots need to be larger to permit cultivation at home, which make them more expensive for the urban poor. Distant rainy season gardens on vacant land are commonly free of charge, but they allow only one annual crop. Market oriented gardens may intensify the production, but they also stimulate speculation on urban land which cuts off the poorest households from cultivating for their subsistence.

Cultivating a home-plot garden is an individual decision when the house lot offers already enough space for cultivation. In future housing settlements, could urban cultivation be integrated in the design of plots ? On the other hand, individual rainy season gardens, are organized informally in urban areas, outside the individual house plots. Could these gardening areas be integrated in land use policies ? Several examples throughout the world will provide some answers to these questions, before examining the case of Lusaka.

## 2.2 Experiences

Examples of urban agriculture are numerous around the world. We will only draw an incomplete picture of the phenomena, focusing primarily on the issue of land and physical implementation. The selection has been dictated by the future considerations that may apply to the present conditions in Lusaka.

### 2.2.1 Developed World

At the turn of the century, most European countries had urban garden programs. Allotments gardens were provided by the factories to their workers, within or outside their housing (Warner, 1987). During the first and second World Wars, European and North American governments often allowed farming on vacant urban land, for the cultivation of "victory" gardens. More recently, and after long political battles, some American municipalities gave the right of use of urban vacant public land to community organizations (B.U.G., 1987). For example, some parcels in New York City, Boston and Philadelphia, are leased for a short term period of 5 to 15 years, or sometimes sold by the city under advantageous conditions (Wagner, 1980). Urban agriculture is also often advocated by different groups, like environmentalists, anarchists, utopian societies or academics promoting urban self-reliance.

### 2.2.2 Developing World

The urban poverty that characterized the industrializing world in the nineteenth and in the beginning of the twentieth century, is now affecting the third world. Consequently, many third world cities are presently experiencing urban agriculture.

* Home Plot Gardens

Rare are the examples of intentionally planned urban housing schemes with agricultural components. At best, communal gardens are planned at the periphery of settlements, as in the upgrading of the "Jack Extension" squatter area in Lusaka (Sanyal, 1984).

In 1979, an Indian academic proposed a housing scheme with the purpose to "create an universal living environment as self-

sufficient as possible, through agriculture, fishing, animal husbandry, and cycling the wastes" (Prakash, 1979). The cultivation plot used one hectare to feed four hundreds families, the year round.

Also, the first urban upgrading experience in Maputo, Mozambique, included designs for urban agriculture. Vegetables gardens and chicken yards were implemented in the streets corners around the communal water pipe shared by fifty families. Although, plot sizes were kept small because the home production of vegetables in central Maputo was highly questioned, considering the serious shortage of water in town (Saevfors, 1986).

In Panama and Zaire, teachers were made available by public authorities to increase or start vegetable production on house plots (U.N.I.C.E.F., 1984). In Sri Lanka, a national campaign in the press and on the radio for garden promotion, encouraged production in rural and urban backyards or apartments container plantings. The governmental program provided staff, services centers for seeds and transplants, and technical assistance (Ninez, 1986).

* Communal Gardens

Communal gardens has been organized worldwide with the help of foreign N.G.O.s (OXFAM, 1987). Failures often occurred for two main reasons:

- foreign technology was either inadequate or not understood
- the participants rarely had the initiative.

Consequently, programs were abandoned when the foreign staff and money left. The participants were not highly motivated, as the schemes were not centered around individual incentives.

In many cases, after the failure of the communal enterprise, the gardens were cultivated on an individual basis. This shows the most important reasons for non successful communal gardens: human beings prefer to work directly for their individual

benefits (Ninez, 1985; Panwalkar, 1986; CERES # 106, 1985). The issue of replicability of the communal gardens is then highly questionable.

The success of a communal garden depends also on its size and its objectives. A small scale garden organized by some relatives and neighbors would provide more personal incentives than a larger communal garden where the gardeners are only employees sharing the production. Individual and small communal gardens seem more appropriate for subsistence production, whereas larger communal gardens would be more profitable for market production.

* Individual Rainy Season Gardens

As will be described later in the case of Lusaka, this last type of garden is the most accessible to the poorest urban households who are generally landless. These gardens are set up on vacant urban land, and require some tolerance from the authorities.

In 1977, in order to make Lae, the major industrial city of Papua New Guinea, more food self-sufficient, the municipality assigned 1,500 allotment gardens (10 x 20 square meters) to the low income residents on the city lands. Technical assistance for cultivation was also provided for the first three years (Vasey, 1987; U.N.I.C.E.F., 1984).

In Peru, the Pueblo Joven municipalities encouraged the expansion of rainy-season gardens on roadside and land earmarked for parks or other public open lands. Low income residents gained official access to gardens of an average of 200 square meters during a 5-month rainy season. However, the lack of longer tenancy rights diminished the initial enthusiasm (Ninez, 1985).

In Buenos Aires, several N.G.Os and academics are pressing the authorities to grant short-term use -- three to five years --on urban vacant plots owned by the state, for low income

participants. They are also asking for preferential rates for water, light and gas if the land is used for agricultural production (CERES # 106, 1985).

In Freetown (Sierra-Leone) and in Ibadan (Nigeria), permission to cultivate institutionally owned vacant land is given in exchange of an illegal rent asked by some governmental official for the use of this land. This rent however, does not exceed 5 % of the gross income of the gardens (Tricaud, 1987).

Lastly, one should notice the remarkable experience of Mozambique. Dramatically suffering from drought and war, the government has organized since 1980, "green zones" in the periphery of the main cities. These cooperatives, which employ mostly urban females, have been successful in fighting starvation until now (CERES # 118, 1987); although, this type of gardening is more industrial and market oriented. It should be compared to the experiences of small food producers in the suburbs of Rio or Sao Paulo in Brazil (Sachs, 1986), or to the Chinese model of self-sufficient municipalities. For example, Shanghai with fifteen million people, have been self sufficient in vegetables, grains and other commodities since 1950. The outskirts of many Chinese cities are reserved for agricultural uses (U.N.I.C.E.F., 1984).

## 2.3 The Phenomenon in Lusaka

The preceding examples gave a framework of reference for the possible options to implement urban agriculture with and without the help of public authorities. Yet, nowhere in the world, does individual gardening at home and on rainy-season gardens seem as popular as in Lusaka. According to various surveys, the degree of participation among the low income people of Lusaka is estimated between 50 to 75 % (see Table 5).

The most complete and recent study on the subject (Sanyal, 1984) explains in detail the phenomena. This study proves that urban agriculture is highly beneficial to the poorest households by increasing both their income and their nutritional level. The cultivation is concentrated in two types of gardening, on plot gardens at home, and rainy-season gardens in the periphery of the city.

Only one communal garden program is to be noted. In "Jack Extension", a local N.G.O, the Human Settlements in Zambia, now coordinates production for 200 families (Sanyal, 1984; Wade, 1987). This number of 200 families has to be compared to a population of grossly 30,000 households gardening at home and 20,000 families cultivating a rainy season garden (L.U.D.C., 1987).

The next step is then to analyze the reasons for this tremendous success, which might serve other experiences in the world. Then, one might ask if this apparent success is not hiding a need for even more participation in the present austerity.

| AREA OF STUDY | GEORGE | GEORGE | CHAWAMA | KALINGALINGA | KALINGALINGA | LUSAKA | JACK EXTEN. | OTHER AREAS | TOTAL SURVEY | AVERAGE |
|---|---|---|---|---|---|---|---|---|---|---|
| AUTHOR YEAR | SCHLYTER 1976 | SCHLYTER 1979 | LEDOGAR 1978 | MWANAMWAMBWA 1979 | G.T.Z 1979 | HOCK-SMIT 1982 | SANYAL 1984 | | | |
| GARDENING PARTICIPATION | | | | | | | | | | |
| TOTAL | | | | 75 % | | 50 % | 85 % | 82 % | 83 % | 57 % |
| HOME GARDEN | <12;66%> | <49;61%> | 43 % | 26 % | 20 % | | 18 % | 44 % | 39 % | 27 % |
| RAINY SEASON | <29;50%> | | 57 % | 49 % | 70 % | | 28 % | 24 % | 25 % | 17 % |
| BOTH | | | | | | | 39 % | 14 % | 19 % | 13 % |
| FEATURES | | | | | | | | | | |
| SELL PRODUCTION | | | | 8 % | | | | | | |
| SIZE HOME GARDEN | 13 m2 | 24/34 m2 | | | | | | MEDIAN: 25 m2 | | |
| SIZE RAINY SEASON | 257 m2 | | | | | | | MEDIAN: 800 m2 | | |
| RAINY SEASON RENTED | 12 % | | | | | | | | 3 % | |
| WALKING TIME RAINY SEASON | walk less 98 % | < 1 hour 70 % | | average: 30/45 mn | | | | MEDIAN: 20 mn (80 % walk less than half an hour) | | |

Table 5: Extent of Urban Agriculture in Lusaka.

## 2.4 The Reasons of the Success of Urban Agriculture in Lusaka.

Before attempting to formulate any suggestions for further action, it is necessary to make explicit the reasons of the success of individual urban cultivation, in order to fully exploit its potentials for the whole population.

### 2.4.1 The Land Pattern in Lusaka

Lusaka is located on flat land with two main types of soils:
- schist is the natural setting of forests, in the North and the East of the city.
- limestone is a good aquifer which, for many years, provided the sole source of water for the city from bore holes, in the West and the South.

The limestone does not provide a suitable terrain for construction. The growth of the city has been preferentially on the schist areas to the East and North (Williams, 1984). Both soils offer acceptable grounds for cultivation as squatters settlements and their related cultivation areas are evenly dispersed on the soils (see maps 3 and 4).

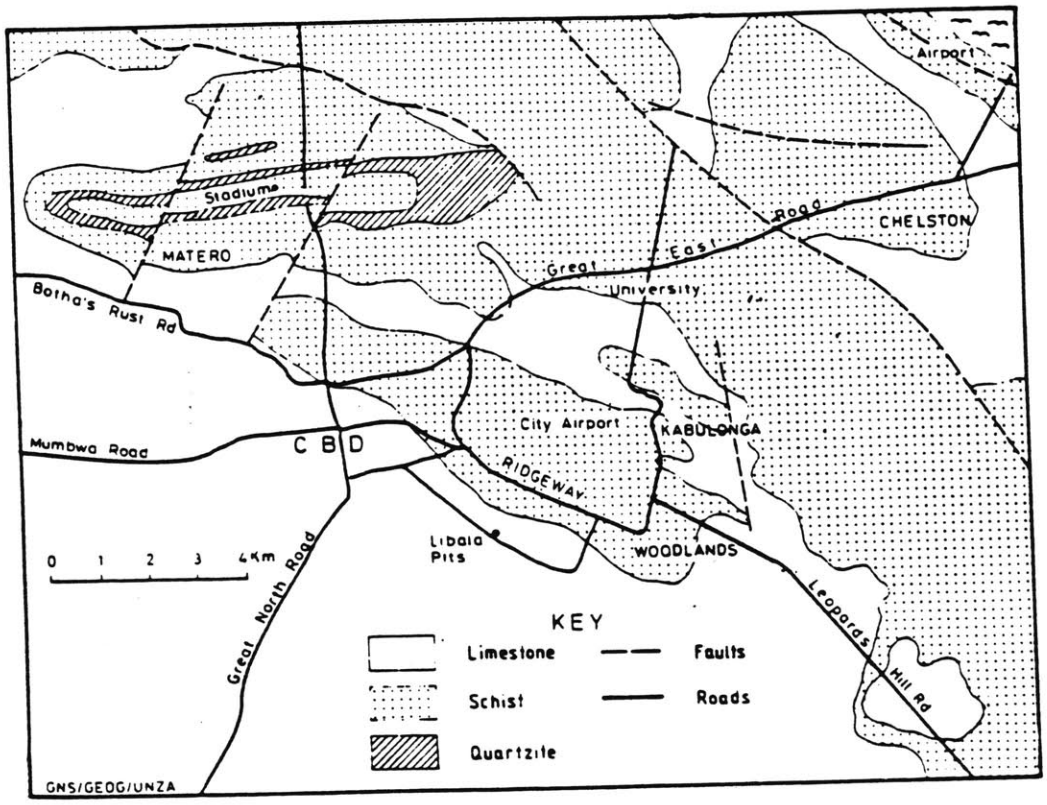
Lusaka was built by the British on the model of a garden city. Therefore, much land is open and the density of the greater Lusaka is relatively low, being around 54 inhabitants per hectare in 1987. Land was nationalized in 1975 and leaseholds for 99 years were given by the National Commissioner of Lands. Low density and nationalized urban land encouraged high levels of free occupancy, or invasion.

### 2.4.2 The Governmental Attitude

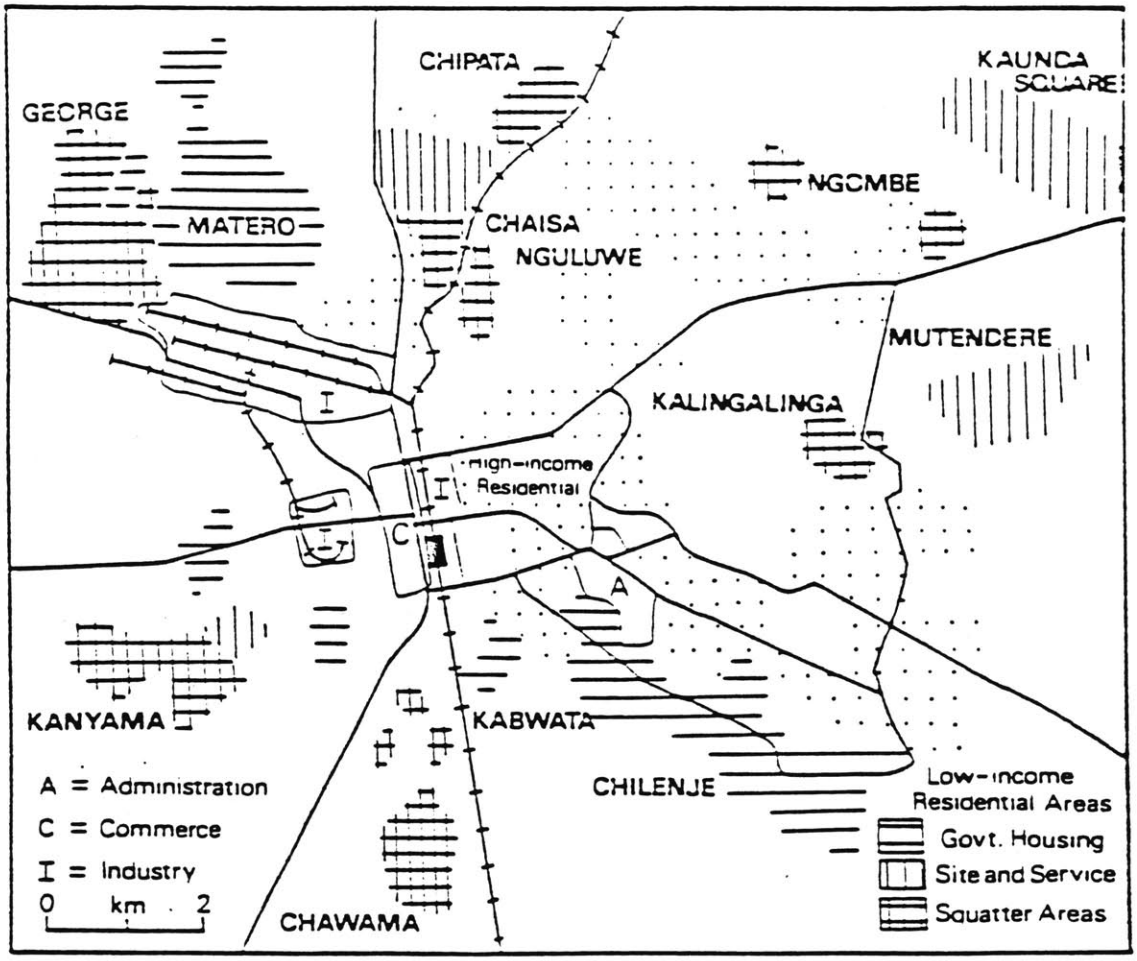
Faced with invasion of public lands by squatters in the late 1960´s, the public authorities enacted legalization in 1974, to give tenure to some squatter settlements. When low-income people started using public vacant land to grow food, the government, after a short period of repression, adopted a "laissez-faire" attitude. In 1977, the president, Dr. Kaunda, even invited the people to grow their own food in urban areas. This tolerance was facilitated, again, by the fact that urban vacant land is mostly public and no private interests were affected by these policies. The political and social agenda also pushed for more tolerance in the poor urban communities. Urban people are threatening the party´s leaders. Urban agriculture can be seen as a very useful social valve, in times of food shortage. Urban social peace is a governmental priority before even considering the possible opposition of the rural producers.

### 2.4.3 The Response from Below

Lusaka represents an unique experience for the level of individual involvement in urban agriculture. Poor households invest time, money and labor in their home plot and more surprisingly to find and clear vacant land for rainy season gardening. Their action is guided by their potential individual benefits. They succeeded in producing food with no help either from foreign technicians nor local politicians. Such an extraordinary enthusiasm reveals a dramatic need for food, and give a measure of the individual benefits of urban gardening for the low income households of Lusaka.




Map 3: Geology of the Lusaka Area
(source: Williams, 1984, p. 13)




Map 4: Low-Income Housing Areas in Lusaka
(source: Williams, 1984, p.42)

## 2.5 Need for Further Intervention

Behind the apparent success of urban agriculture in Lusaka, Sanyal in his study reveals the needs of the poorest households for better accessibility to vacant land for rainy season gardens. The poorest are either renters with no home plot, or owners of the smallest house plot which often does not offer any space for home gardening.

Already in 1980 - 1981, 55 % of the house-owners declared their plot too small for cultivation. One should add to this percentage the proportion of renters. The proportion of renters in squatters settlements is difficult to evaluate. An average of 30 to 35 % is often given in the literature (Doebele, 1985). So at the beginning of the decade, an estimated 65 to 70 % of the low income households had no or not enough space for home gardening.

Since then, the settlements have been increased by 35,000 annual migrants, in addition to the natural demographic growth of the city. Consequently, renters should then be more numerous and new plots, smaller. The open space within the settlements is shrinking. Rainy season gardens are the last option for survival among the poorest (see figure 1)

The same survey indicates already a shortage of adequate land for rainy season gardens in 1980 - 1981. 55 % of the surveyed population could not get a plot close enough to their residence. Inevitably the poorest are walking significantly more to reach their gardens. 20 % walked more than 45 minutes to reach their rainy season garden, one way. Again, all these figures are likely to show increasing competition and decreasing accessibility with the present higher density of the settlements. Although rainy season gardens are the last resources for the poorest, these type of gardens need several

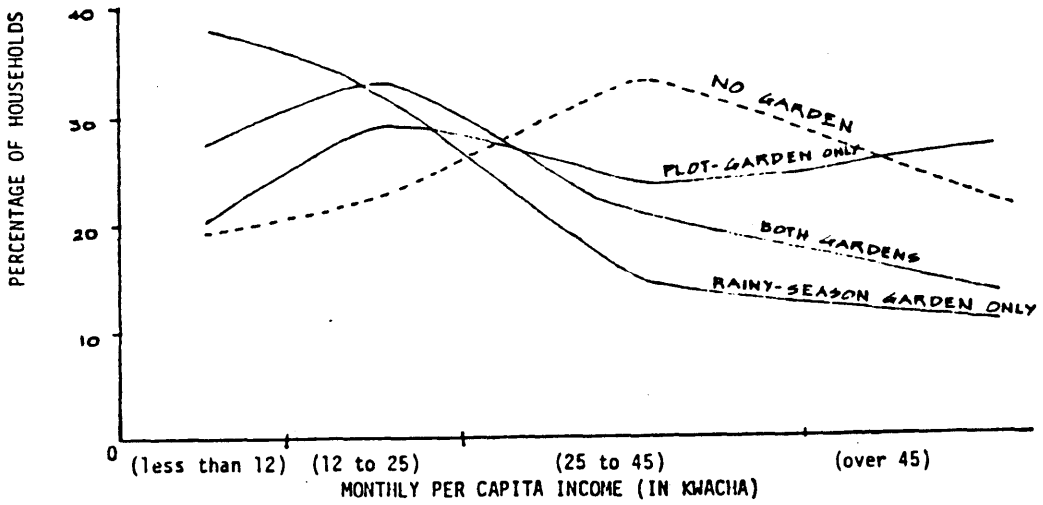
years of residence to be founded, made accessible and secured. Sanyal showed that rainy season gardening is linked to the length of stay in Lusaka (see Table 6). This last correlation has also been observed in Freetown (Sierra Leone) and Ibadan (Nigeria) where most gardeners had to wait between three and five years before they started cultivating a rainy season garden (Tricaud, 1987).

New settlers need integration and relations in the social and political fabric to get access to a vacant lot, for urban agriculture. The most recent migrants have little job security upon which to base such an investment of time, money and labor. Also some of these people have more recent and thus stronger contacts with their native villages in terms of food supply (Tricaud, 1987).

All these statistics show the conditions of the poorest households in Lusaka at the turn of the decade. Since 1980 - 1981, the economic crisis has worsened. In 1987, inflation was 80 %. Shortages of food are now more dramatic than ever, as the national production has been hit by drought reducing severely the maize harvest in 1987. In the fall of 1987, Zambia was declared in state of food emergency by the United Nations, along with fourteen other African nations, including Ethiopia, Angola and Mozambique (New York Times, 17 November 1987).

Moreover no housing has been formally built nor sites serviced, nor settlements upgraded since the early 1980's. The present need for housing can be estimated to affect between 70,000 and 100,000 people, or 12,000 to 17,000 dwellings in Lusaka alone. These new households are mostly very low income migrants with no employment, and rare social links. They are often renters as they cannot afford to built their own shelter even in uncontrolled settlements, as it requires heavy investments, and often cash advance to the local political leaders. However, squatting spreads rapidly.

Landless and often unemployed or irregularly employed, they would be willing to cultivate rainy season gardens if land were more accessible to them. Again, this observation is confirmed by the study of Freetown and Ibadan, where 100 % of the surveyed gardeners answered that the need to feed their family was the first reason to cultivate, and that they were ready to cultivate larger plots if their were accessible (Tricaud, 1987). Informal procurement of land reached its limits and is now unable to response to the need of the poorest part of the population in Lusaka. In such a difficult context of austerity, the question of public intervention is worth examining, and might be necessary to meet the demand of the poor.




NOTE: One Kwacha was equivalent to 0.75 dollars in 1980.

Figure 1: Gardens and Levels of Incomes
(source: Sanyal, 1984, p.53)

| Nature of Cultivation | NUMBER OF YEARS IN LUSAKA | | |
|---|---|---|---|
| | less than 5 | (6 - 10) | (Over 10) |
| Plot Gardens Only | 52 | 47 | 33 |
| Rainy-Season Garden Only | 12 | 20 | 31 |
| Both Gardens | 13 | 14 | 23 |
| None | 23 | 19 | 13 |
| Total | 100% | 100% | 100% |
| | n=42 | n=60 | n=14 |

Table 6: Types of Gardens and Length of Stay in Lusaka
(source: Sanyal, 1984, p.68)

# 3. CHAPTER THREE

## ACCESS TO URBAN LAND FOR CULTIVATION

### 3.1 The Limitation of an Intervention

The small amount of financial resources in times of austerity is limiting the range of possible actions for both the government and the population of Lusaka.

#### 3.1.1 Limited Resources of Public Authorities.

Zambia is bankrupt. Any public intervention is severely restricted financially. Urban Agriculture is not a priority; although the contentment of the urban population is necessary to maintain a fragile social peace. Moreover foreign funds cannot be expected for urban agriculture on a large scale. Only community garden programs might still be organized by foreign N.G.O.s such as OXFAM or Africare. International donors are now targeting their loans and grants to "urban management" and policy reforms. Therefore, any action must involve investments and administrative costs which are as low as possible.

However, the President and the central ministries view urban agriculture as an easy and inexpensive way to reduce poverty, increase self-reliance, reduce unemployment as well as protect the environment. With urban agriculture, these goals can be achieved at practically no capital cost to the state. Zambia, like many country in austerity such as the neighboring Mozambique, already adopted a pro urban agriculture official attitude. At the city level, municipalities face the more difficult practical implementation of these national intentions.

### 3.1.2 Limited Resources of the Population

The crisis is affecting primarily the households who are the newest settlers, the same people who are also looking for urban gardens to ameliorate their living conditions. They can only afford to invest a very small amount of money, and at no risk of expulsion. Rainy season gardeners are threatened by theft and vandalism on one hand, and eviction by the local authorities if the land is planned to be developed on the other hand. The gardeners are asking for some security of tenure in order to feel more confident with investing (Sanyal, 1984). Even if a service like water standpipes would allow a second annual crop, users are so poor that 73 % of them are not willing to pay for this additional service (Sanyal, 1984). Water taps might also bring squatters on their gardens.

Those remarks illustrate the fact that the potential participants are unable to give anything but time and labor, with minimal expenditures for seeds and tools. On the governmental side, the main contribution has been and would remain tolerance for the use of urban land.

### 3.1.3 Focus on Land Access

The access to land is not the only obstacle to cultivation. Once a lot is sufficiently secured, the households of Lusaka have proved that they can overcome the other problem occurring with urban agriculture, such as finding seeds and tools or protecting the crops from theft and vandalism. It is impossible to ask for more protection against theft and vandalism, as the cost of police enforcement would not be reasonable for the public authorities.

Urban cultivation can be intensified using recycled wastes, instead of expensive chemical fertilizers. Compost is very popular in many Asian cities such as Calcutta where one million people generate incomes from the compost of the wastes of the city for local gardens and fish pounds (Tricaud, 1987). In Cairo (Egypt) and Kinshasha (Zaire), compost is also collected by the informal sector and used for farming. The authorities are currently trying to organize the collection themselves and make it more effective (Tricaud, 1987). The benefits of using compost and recycled wastes are possibly not worth the trouble and the costs of collecting them. Anyway, it seems that the population of Lusaka is reluctant to use human wastes to grow food.

Consequently, everything else being quite successfully handled by the gardeners, accessibility to land remains the most delicate issue. And it is in this field of intervention that public authorities might most help the poorest population of Lusaka. The majority of the land is owned and managed by the public sector in Lusaka.

## 3.2 Access to Constructible Land

### 3.2.1 Access to Private Vacant Land.

Private vacant land is rare in Lusaka as all lands have been nationalized in 1975. However, the current leaseholds for 99 years are essentially full ownership, and private transactions often occur in the cities; although, it is theoretically illegal to pay for the use of land (Land Act, 1975). In 1980, 3 % of the users of rainy season gardens were paying rent to public or private owners (Sanyal, 1984). Therefore, in Lusaka, only a stricter application of the law on private urban vacant land would increase the accessibility for potential garden lots, at no cost for the gardeners.

The situation is then not really relevant in Zambia. Although, in order to generalize briefly to most of the third world cities where land is in majority owned privately, tax incentives or land readjustments schemes (Doebele, 1983) might increase accessibility for the poor. However, these approaches imply either indirect subsidies from the government or a cost recovery that is usually not affordable by the potential participants of rainy season gardens.

### 3.2.2 Access to Public Land Reserved for Future Development

This is a very relevant issue in Lusaka, the capital city where numerous public buildings are planned and built. As Smit (1978) points out, land for housing commonly lies vacant for 4 to 8 years, factory sites for 6 to 12 years, and university sites for 10 to 20 years. During times of economic crisis, as now, such "waiting periods" may be even longer (Sanyal, 1987). Flexi-zoning can be advocated (Wade, 1987) for interim use of these parcels on short-term lease, renewable every 3 or 4 years. Such leases will certainly create incentives for urban gardeners to invest, and 3 years is generally considered the

shortest period for a return on investments in urban agriculture. Every 4 years, the L.U.D.C. could produce a plan indicating the location of these flexi-zones where cultivation can abound for at least 4 years there, until construction start on the site (see Chapter 4: Land Use Plan).

### 3.2.3 Efficient Planning

Large users of urban land like public institutions and industries could be planned on poor quality land, as long as it is buildable land. In times of crisis, local urban planners should consider urban agriculture as a main factor when deciding upon the location of the growth of the city. For example, in Kenya, the Athi plains south and east of Nairobi are the natural direction for expansion rather than the good quality land in the highlands (Mascarenhas, 1986). In Lusaka, buildings could be planned first on rocky land rather than land with higher potential for agriculture, if construction costs are not changed. It might also mean that user of large parcels like most public institutions should be encouraged to densify their programs and build more vertically than in the past. This will also limit the sprawl of the city over peripheral farming land.

## 3.3 Access to Unconstructible Land

### 3.3.1 Access to Open Public Land

Urban agriculture can take place on under utilized parcels of public land, such as airports, parks, railroads and roads sideways. Even President Marcos of the Philippines issued a declaration obliging landowners either to cultivate idle, unused land or to give the right to cultivate land with the owner's consent. The same rule was applied for public lands adjoining streets, railroads, etc... (Yen Man Yeung, 1987).

Again this type of cultivation might be encouraged by a simple land use plan valid for 4 years, and renewable. Such a program will give some legacy of tenure, hopefully sufficient to encourage the poorest households to garden (see Chapter 4: Land Use Plan).

Also gardens can be tied to employment areas around schools, universities, hospitals, and factories. There, workers in their spare time, or their wives and children could have access to vacant space for gardening. However, only 30 % of the urban labor force in Zambia is formally employed (U.S.A.I.D., 1987). Therefore, these people are probably not in the most desperate need for food and urban gardens. The success of urban agriculture is driven by the needs of the poorest parts of the population. "Middle class" formal workers are less likely to response so enthusiastically, as they are insure of stable income from wages.

On the other hand, this land around work areas could be distributed to the low income people who ask for it. This option is likely to bring strong opposition from the management and the workers. Gardens would then be subject to vandalism or theft. In any case, this kind of "multi-zoning" operation (Wade, 1986) would only concern a small portion of the actual unused land. Moreover, this intervention can be easily organized at the level of the working place, at very low cost, coordinated by the local management for the local workers, using nearby water taps. The involvement of low-income people who are not employed there, looks definitively too uncertain.

### 3.3.2 Access to Unusable Land

Some land would require improvement through filling or terracing in order for cultivation to take place. The public authorities cannot afford such expenditures.

Often, the land is upgraded directly by the future beneficiaries. No public intervention is then needed. Security

of tenure even if only for a short period of time would encourage this voluntary process. In Lusaka, most land is ready for cultivation after clearance of bushes. This is one reason for the success of rainy season gardens. Again the process could be encouraged by a land use plan giving some security of tenure for even short periods (see Chapter 4: Land Use Plan).

## 3.4 Programs for Communal and Home Gardens

### 3.4.1 Communal Gardens

The study of urban agriculture in Lusaka in 1980-1981, showed that a majority of urban gardeners were unwilling to participate in communal gardening (Sanyal, 1984). The urban society rewards individual enterprise. The economic crisis pushes the poorest to act for strict individual benefits rather than for the well being of the community. Also, the lowest income groups are composed mostly of recent migrants or young households scattered all over town, and rarely grouped into in a community. In the past, community gardens often required foreign money and technical assistance, which make them difficult to replicate on a larger scale (Cooper, 1987).

### 3.4.2 Home Plot Gardens

Home gardening is naturally the ultimate objective of each low income household. This should be a major consideration in the design of future sites and services projects. Unfortunately, sites and services are unlikely to be implemented in the next few years in Lusaka, the city being paralysed financially. Yet, it is unrealistic to ask for housing with sufficient backyard space for gardening, when public agencies are already unable to provide just housing. Although, some simple planning measures could secure enough

space for home gardening in the future, for the new sites and services or during the upgrading of squatter settlements (see Chapter 4: Structured Growth).

### 3.5 Access to Public Vacant Land.

Most rainy season gardening in Lusaka takes place on public vacant land. Unfortunately, the informal procurement is reaching its limits for two main reasons: it does neither provide sufficient security of tenure, nor enough protection against theft and vandalism in remote areas.

The most immediate action for the government would be to give short term security of tenure to the new candidates for rainy season gardening. It would be very expensive in terms of administrative costs to give registration titles lot by lot. Moreover, it is likely to bring up tensions between new gardeners and older rainy season gardeners who would not benefit from such titles. The goal of the intervention is not to formalize an apparently successful informal process, but rather help it to develop and reach poorer households in a larger number.

The L.U.D.C. might then choose to declare all rainy season gardens secure of tenure for a limited time. The development of the capital would be slowed, as new constructions might require expulsions of gardeners.

A simple plan could be produced for the entire city, showing two different zones:

- zone 1: cultivation permitted for 4 years at no risk of expulsion
- zone 2: projected growth in the next 4 years. Gardeners are likely to be evicted during this period.

By renewing this plan every 4 years, the city council would create a confident climate by revealing information that is crucial for the gardeners who either desire to invest in a

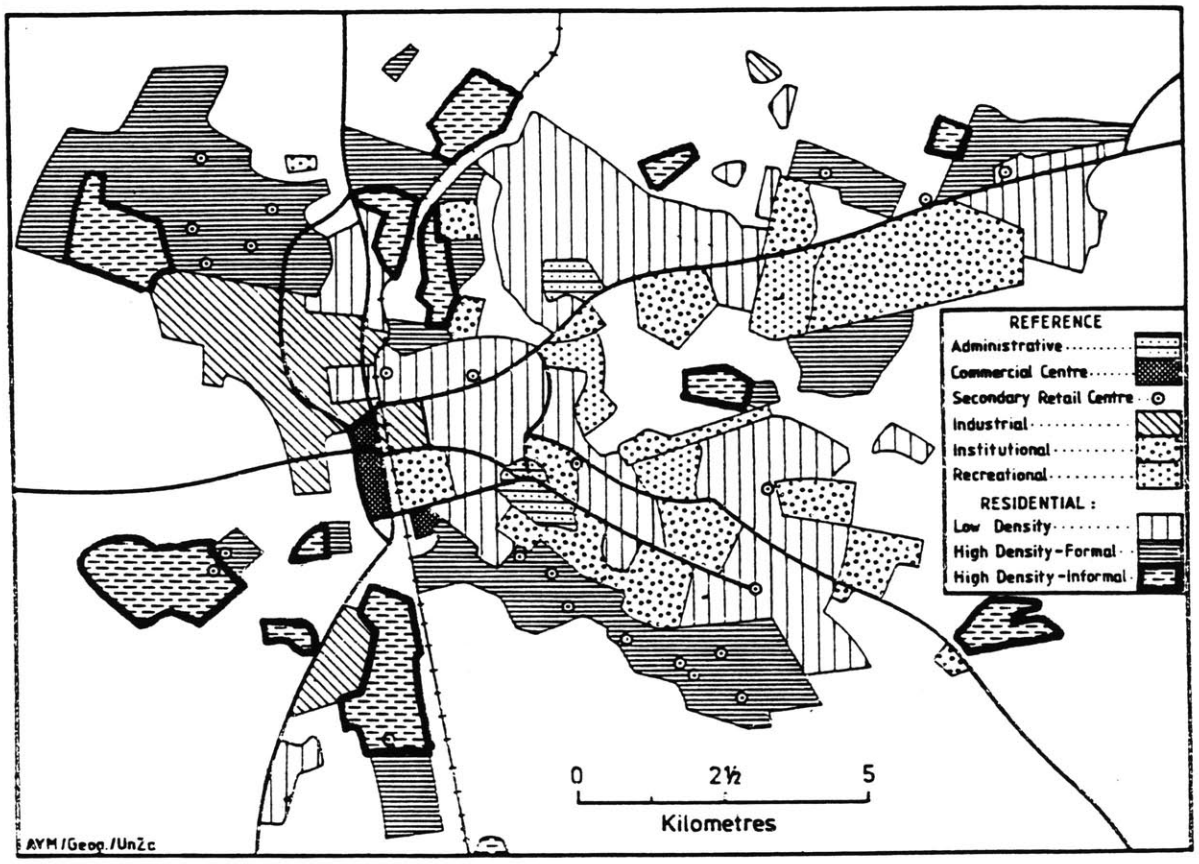
vacant lot, or need to move to another lot to avoid sudden expulsion. Such a plan would give security of tenure for at least 4 years, and therefore respond to the most pressing need of the poorest population for gardening. Older settlers often cultivate the best lots with the best location and soils, already. Therefore, the allocation of the lots could be a natural process on a first-come, first-serve basis. The supply of new land for cultivation would meet the demand of the "landless" population.

In conclusion, no solution offers a complete and immediate answer to the problems faced by the poorest households of the city. However, a comprehensive program will be presented in the next chapter combining the several interventions that have been analyzed here.

Special attention will be given to the two last options: home plot gardens, and rainy season gardens.

Home plot gardens offer the most enviable solution as it intensifies production, limit transportation and provide full security of tenure. Ultimately, it is also the best protection against theft and vandalism. None of the other options can really avoid this last threat. Crime levels are dramatically high in urban Zambia, and municipalities cannot afford more police.

In parallel, the use of public vacant land for rainy season gardens is the cheapest, and the most rapid way to cultivate. It is reaching the poorest households. This practice is already quite successful in Lusaka. The public authorities which are already tolerating rainy season gardening, could be further interested to participate in the process, in order to control the growth of the city.




Map 5: Urban Land Use in Lusaka, in 1983.
(source: Williams, 1984, p.39)

# 4. CHAPTER FOUR

## IMPLICATIONS FOR URBAN DEVELOPMENT AND HOUSING

This last Chapter presents a governmental program, which would provide greater accessibility to urban vacant land for the cultivation of rainy season gardens. The suggestions would combine implications for both urban agriculture and housing. The objectives of these policies are to maximize the benefits for the urban poor, and help the public authorities to manage the development of the city by rationalizing the growth of the squatter settlements. A summary of the program is presented in figure 5 at the end of Chapter Four.

### 4.1 Action in Austerity

The preceding Chapters illustrated the dramatic gap between the demand from the poorest population and the supply for two basic needs, food and shelter. Greater accessibility to land for rainy season gardens and serviced housing lots would reduce this gap at the lowest costs for the authorities. The new very low income households, either migrants or young families, both being usually renters, need these two commodities in priority. They are inflating uncontrolled settlements in Kayama or Ngome (see map 4) for example.

These squatters settlements are growing rapidly with no community facilities, no basic infrastructure, and often dangerous health conditions.In order to be attractive for the L.U.D.C., any suggestion should then propose to contribute to the provision of housing. It seems realistic to elaborate on a proposal combining solutions for both housing and gardening to serve the interests of the poorest community, while seducing the authorities.

Beside the tragic lack of financial resources, the L.U.D.C. has access to unique opportunities for a third world city. Two decades of foreign funded housing projects of sites and services or upgrading, developed within the Council a large number of highly trained and experienced staff. This staff knows how to manage low income housing. Although, they have been paralysed by the lack of dynamic housing policies at the city scale. These last years, the authorities have been waiting for foreign funds to finance operations project by project. Unfortunately, a project by project approach cannot keep up with the pace of urbanization. Moreover, because of Zambia's break with the I.M.F., in May 1987, most bilateral and multilateral loans or grants will not be awarded to Zambia in the near future. Therefore, it is ideal time for the Council to develop large scale policies relying solely on the resources of their city, using its competent staff efficiently.

The second major opportunity of Lusaka is the large amount of public vacant land, and the low density of population.

Third, it is not too late to start effective new housing policies. The World-Bank and G.T.Z. projects reduced considerably the number of unimproved squatters settlements: at the present, "only" 15 to 20 % of the population of the capital live in uncontrolled settlements. This is still a manageable level, in comparison to many third world cities where uncontrolled squatters represent often more than half of the population.

The city council is then urged to act soon, even if financially limited, while Lusaka is growing at 6 or 7 % a year.

## 4.2 Land Bank

In order to reduce the cost of future after-the-fact "repairing" or "upgrading", the Council ought to plan its growth. With the enacted laws for decentralization, Lusaka should control more efficiently its own growth.

Acquiring land from the National Commissioner of Land has always delayed the housing projects in Lusaka (World-Bank, 1982; G.T.Z., 1986). The Council should establish for it-self a land bank for housing. Here, a land bank is defined as the transfer of land management from the central Ministry to the Council of Lusaka. Presently, the L.U.D.C. has to ask for the land owned by the National Commissioner of Land who then, grants parcels for specific uses such as housing for example.It would hardly cost anything to constitute such a reserve of land. The Council would then efficiently direct future investments both in housing and in infrastructure networks, according to its reserves of land. Even with no funds to serve these parcels with either water or infrastructure, the Council would dispose of large tracks of lands zoned for housing for example, but with permitted interim use for agriculture. The Council could allow cultivation for a limited period, and still master the future use of these parcels.

The National Commissioner of Land, eager to keep its power, would certainly be opposed to the creation of a land bank. The Ministry should then enforce the spirit of decentralization. Land management is still held by the central ministries, and should be transfer to the municipalities.

The public authorities might fear that this transfer of land from the state to the city, will encourage squatter invasions. Uncontrolled invasions can be expected when the land is

transfered from a private owner to a public owner, because the private owners are usually prompter to evict illegal squatters on their land. In our case, the land will remain in the hands of public agencies: the risks of invasions are not greater when the land is managed by the city, as opposed to the state.

With a land bank, the L.U.D.C. will know where to direct its investments, street and infrastructure networks, instead of working on a project by project basis, which appears to have been expensive as well as ineffective. Land banking is commonly advised by international bodies, to prevent outrageous development cost for future public housing programs in the Third World (Doebele, 1983). Moreover, the land bank would constitute a financial reserve if private transactions are becoming more popular and tolerated in the future.

## 4.3 Land Use Plan

Still at practically no cost, the city of Lusaka can produce a simple land use plan as mentioned earlier, in Chapter Three. Valid for 4 years, this plan would enable the poorest families to gain access to rainy season gardens for at least 4 years. Some zones could be declared for cultivation for longer periods of 8 or 12 years where development is not projected within the next decade. As mentioned earlier, this plan should also include multi-zoning areas, giving the right and therefore some kind of tacit tenure to garden on public open land -- parks, airports, university, roads and rail sides --, and on sites with projected development as an interim use during food shortage seasons, until construction starts.

This plan would not require the heavy and slow administrative task of lot by lot registration. Meanwhile, it would provide enough security of tenure to attract rainy season gardeners on new sites, at no cost for the city council.

This plan would be partly modified every 4 years, and publicly presented in the press, and in buildings like schools,

shops, factories or police stations. It would inform the participants about the risk of expulsion after 4 years on certain sites. The plan would be the illustration of a social contract between the council and the population: the Council is offering tolerance and information in exchange for some discipline from the population in the case of development on their rainy season garden lot. The plan should promote the expansion of rainy season gardening for the poorest, while decreasing the risk of dramatic destruction of cultivated areas.

Speculation is unlikely to happen between the new participants if the supply of potential agricultural land is sufficient. As it is illustrate in the next paragraphs, this can be achieve by zoning enough land for interim agricultural uses to meet all the demand or by restricting the size of the parcel that one household can cultivate to 800 square meters or less, for example. 800 square meters is the median size of the rainy season gardens (Sanyal,1984). Older residents already cultivate the best lots in terms of location and soils.

This plan would also be a very useful land use tool for the City Council. Areas might be zoned as "urban agriculture" when construction is not desired by the municipality. The city could thus prevent either construction on dangerous locations ,like flooding lands for example, or squatters in undesirable location. In Brazil, an electric company wanted to prevent squatters from erecting houses under its powerlines, and thus encouraged the development of gardens on its right-of-ways. Instead of having to hire people to control such areas, this is now done for them by the gardeners and in addition the company derives a benefit from the areas (La Rovere, 1986).

If the authorities are willing to enforce a strict use of the land for cultivation only, then urban agriculture can be used as a tool to prevent undesirable location of squatters. Such a tool will seduce the local authorities, and encourage them to work in favor of urban agriculture.

## 4.4 Structured Growth

This plan should be produced in close collaboration with the Housing Department and the Public Works Department of the Council. Infrastructure and street networks should dictate housing efforts, rather than the other way around, often a consequence of a the project by project approach. The sprawl of the city would then be controlled and it would thus reduce the costs of future investments in infrastructure and transportation. In the long run, Lusaka would have a higher density, even if land is cultivated in the interim. Such a program would reduce the take over of farm land in the outskirts of the city.

Urban uncontrolled squatter settlements are growing rapidly. There is an urgent need for better services and housing in these specific locations, especially for the most recent settlers. Thus, a policy of small incremental growth around existing upgraded settlements appears feasible (Goethert, 1987) as well as around the current uncontrolled settlements. The main goal of such an action is to control and prepare the housing sites for future services at lower costs for the city council. Like in the present uncontrolled squatter settlements, the land without services would be free of charge.It is the least the council could do, while waiting to expand its networks. No capital investments would be needed at the beginning other than administrative costs.

Moreover, if new settlers are given incentives like security of tenure to settle around already upgraded settlements rather than inflating uncontrolled settlements, they will be able to use nearby communities facilities and services at no added capital cost to the municipality. This would absorb part of the present demand until the city can afford to expand the different networks. The following figure explains this process.

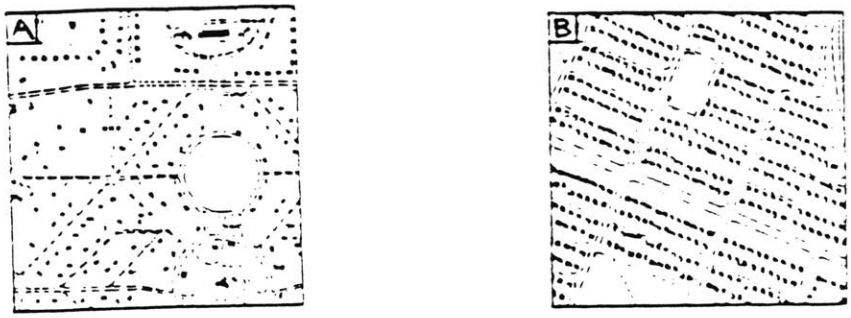
Such provisions would avoid the after-the-fact upgrading programs which are more expensive, and not affordable without foreign funds. Networks expansion would thus be coordinated with the population growth.

The subdivision require very small amount of work from the municipal staff. For example, local party leaders or the on-site representative of the council can organize the lay-out of strings in the fields. These subdivision should ensure enough space for home gardening. Reserving space for home gardening is difficult to achieve during upgrading projects because of the existing high density of the settlements.

The program proposes to structure growth both for urban agriculture and housing on the vacant land within the limits of the Lusaka Urban District. Large amounts of land are still available inside the city limits, as Lusaka developed along the three main access road (see map 5). The suggested interventions would limit the uncontrolled urban sprawl on the surrounding farm lands.

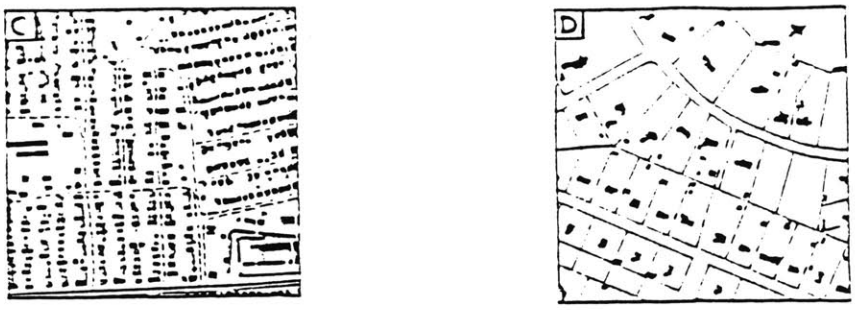
The next figures illustrate the possible extensions of existing settlements.

A. Colonial African housing at Old Chilenje (4-10 housing units per ha.);



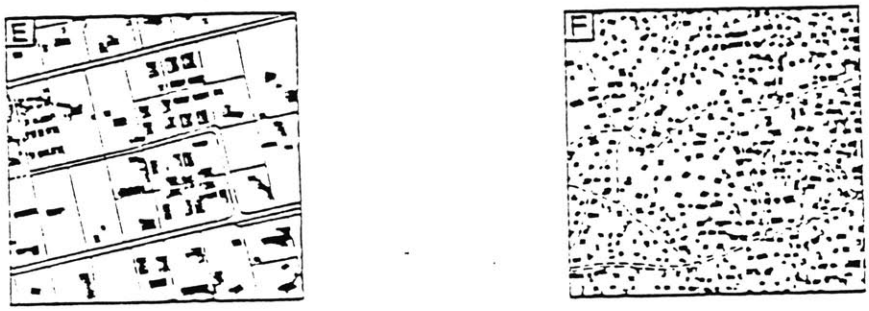

B. Post-Independence low-cost housing at Libala (11-24 units/ha.);

C. Site and Service Scheme, Mtendere (18-28 units/ha.);




D. Colonial low-density European housing, Ridgeway (1-4 units/ha. including servants' quarters);

E. Post-Independence subdivision and maisonette development on earlier low-density European housing area: Kabulonga (3-20+ units/ha.; some units multiple);




F. Squatter settlement, Kanyama (17-29 units/ha.).

Source: 1:5 000 cadastral sheets and orthophotomaps of the city. The scale in all extracts is identical.

0 0.5 km

Figure 2: Housing Patterns in Lusaka.
(source: Williams, 1984, pp. 48-49)

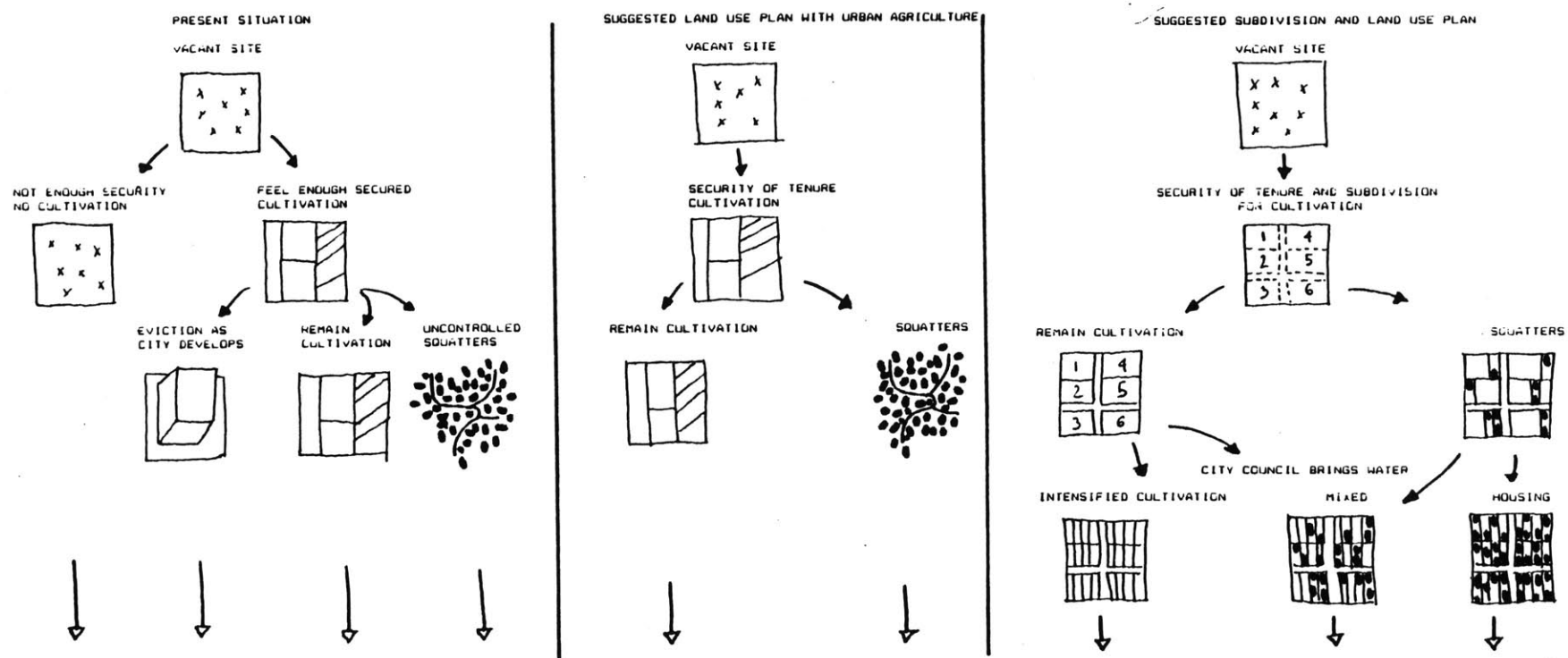



Figure 3: Proposed Structured Growth

## 4.5 Distribution of Lots

Our goal is to reach the lowest income groups who are most in need of land for garden and housing. Two cases should be examined.

### 4.5.1 Rainy Season Gardens / Green Sites and Services

Away from present settlements, subdivided lots with no water will attract the households in search of rainy season gardens. They will be attracted by the security of tenure assured by the land use plan. The main reason for subdividing the lots, other then ensuring equitable access to land, is to prepare an efficient lay-out for future provision of water and infrastructure. These services would then allow housing to develop in a more rational environment than the present uncontrolled squatter settlements. All lots could be the same size, in order to minimize speculation and illegal transaction. The location of the parcels made available by the program would be less attractive the parcels already cultivated by older residents. The rainy season gardens were first started in the best location. Inevitably, the new parcels would be located further from the existing settlements. This relatively poor location would reduce speculation and therefore attract the urban poor who need rainy season gardens the most.

The median for a rainy season garden is 800 square meters (Sanyal, 1984). Therefore, plots of 20 x 40 square meters, for example, could be organized around a grid iron pattern, and then allocated to who reclaims it for cultivation.

If water is brought to the site, or if wells are dug out, cultivation can be intensified and even housing could start to flourish. At this stage, the 40 x 20 square meters can then be divided into 4 lots of 10 x 20 square meters.

The original user of the 800 square meters rainy season garden, would trade the loss of land with the access to water and possibly other services, on the same principles of land readjustment schemes (Doebele, 1983). Moreover, with time, a community would have taken shape among the gardeners, who were once new and isolated settlers in need of garden lots. With water and infrastructure, this community is likely to settle on this site in majority. Mutual help programs can then be organized to build houses and other communal facilities. After, some years of gardening, each individual gardener would have saved enough to start building a house, which was impossible financially in the early years of their arrival in the capital.

This amount of new land for rainy season gardens will be supplied simply by providing greater information through the land use plan. The older residents cultivate in the best locations. The new and poorer settlers will be attracted to the newly subdivided lots because of the security of tenure and the future prospects for housing there. This balance between legacy of tenure and a less advantageous location would allow the market to allocate naturally the lots to the landless families. Later, during the densification of these sites for housing, speculation and corruption might occur, just like in the uncontrolled squatter settlements at the present time. Older residents might build rental units on lots that should be reserved for recent migrants. At least, by increasing the supply of residential areas, the Council would help more urban poor to settle at cheaper prices. In the end, such interventions would probably benefit the low-income groups, and reduce the demand for both food and housing.

### 4.5.2 Incremental Growth around Existing Settlements.

Lots around existing settlements have a better location originally than the rainy season gardens described previously. These areas are under the pressure of squatters. They are receiving the informal overspill of the neighboring community. As mentioned before, the most recent settlers are unlikely to be able to afford the acquisition of a lot and the construction of a house. In the numerous upgrading experiences in Lusaka, many renters could not afford to move to the overspill areas (Radoki, 1979). These poorest households, our target group, would then be allowed to use the plot for agricultural purposes in the interim, before building their new house. With the control of local political leaders or representative of the council, lots would only be allocated to renters, to prevent house owners from using these neighboring lots for agricultural purposes in addition to their home plot gardens. The poorest households would then be offered a chance to produce their food as well as build on an incremental basis their future shelter, with no imposed schedule. If one household is not using his plot for gardening, waiting for the city to install standpipes for example, the local leaders would be in charge of transferring his title to another household in need. This has been experienced quite successfully in rural Tanzania (Fernandes, 1985).

Again, the process could fail to allocate the lots to the poorest households. Older residents in the area could buy the new lots from corrupted officials, and build rental units. Then, the market would allocate these rental units to the migrants. Rents would certainly decrease as the supply of rental units will increase. The public intervention would positively result in an increase of housing supply for the low-income people. Moreover, the rationalization of the settlements growth would significantly reduce the costs of the future upgrading and the expansion of infrastructure networks.

This process is shown in the figure 4. The grid iron pattern has been generally well accepted by local residents during the participatory design phase of the overspill areas of upgraded settlements (G.T.Z., 1986). Such design scheme would ensure enough backyard space for home gardening, unlike the majority of the present squatter settlements. Local officials would have to make sure that nobody is building on the projected roads and right of ways. This could be easily enforced by weekly jeep rides in the area.

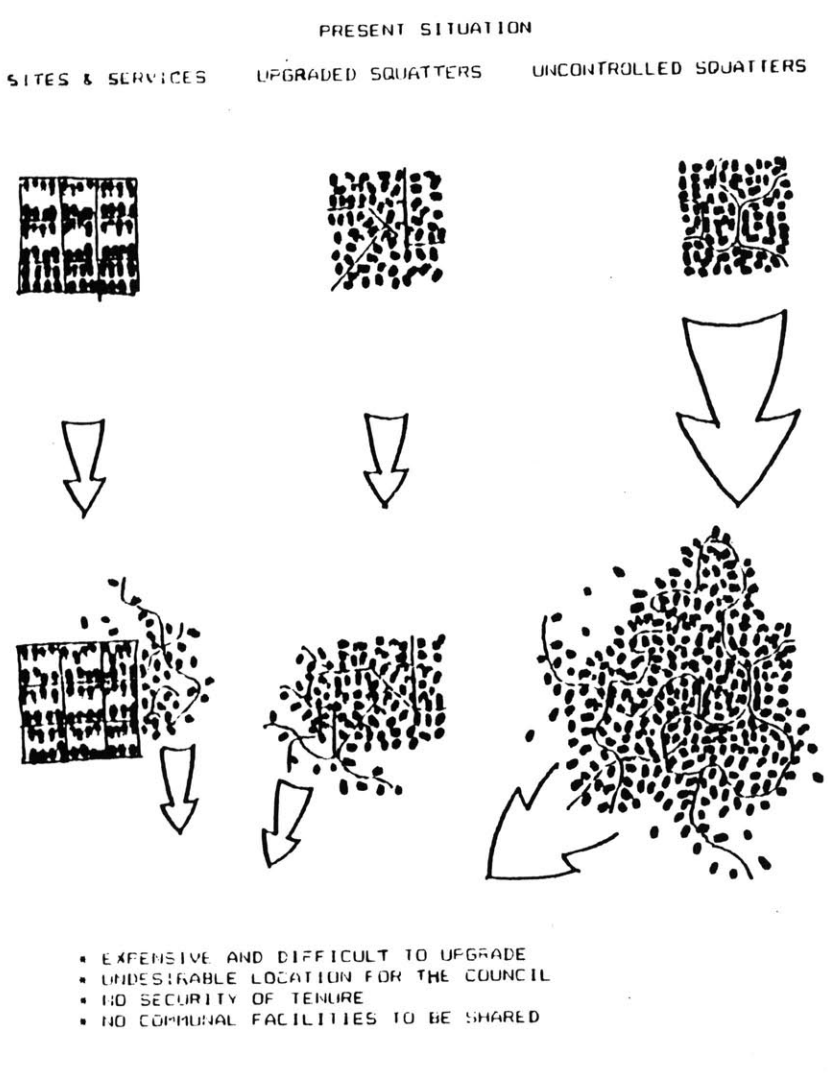
### 4.5.3 Mixing Gardening and Housing

The two implementation processes described previously (in 4.5.1 and 4.5.2), have the advantage of using efficiently land for future housing development as gardens before further investments from either the public authorities or the individual participants. In both cases, the programs can be started at practically no cost for the Council. Free and legal subdivisions would encourage investments, and generate income for the poorest population. These schemes combine some advantages of both sites and services and upgrading projects with the low infrastructure costs provided in an efficient lay-out, incremental growth, and possible mutual help among the participants. The proposed schemes would create a community, while rationalizing the housing pattern for a cheaper upgrading. Both the Council and the residents will have to pay less for services that are unaffordable in the present time. Moreover, vacant land wuold be efficiently used as rainy season gardens in the interim, while the planned housing pattern would also allow home gardening.

The overall comprehensive program links different governmental actions. Each step can be taken independently, in accordance to the priority and the resources of the city

council. The flexibility of these suggestions would help the L.U.D.C. to respond to the demand of its poorest households.

In the end, this program, by combining the needs for housing and urban agriculture, is fighting the first enemies of urban agriculture: theft and vandalism (Vasey, 1985). Mixing incremental gardens in a growing residential community is a certain guarantee for safety, the ultimate step being home plot gardening which offers the safest and thus the most desirable solution.



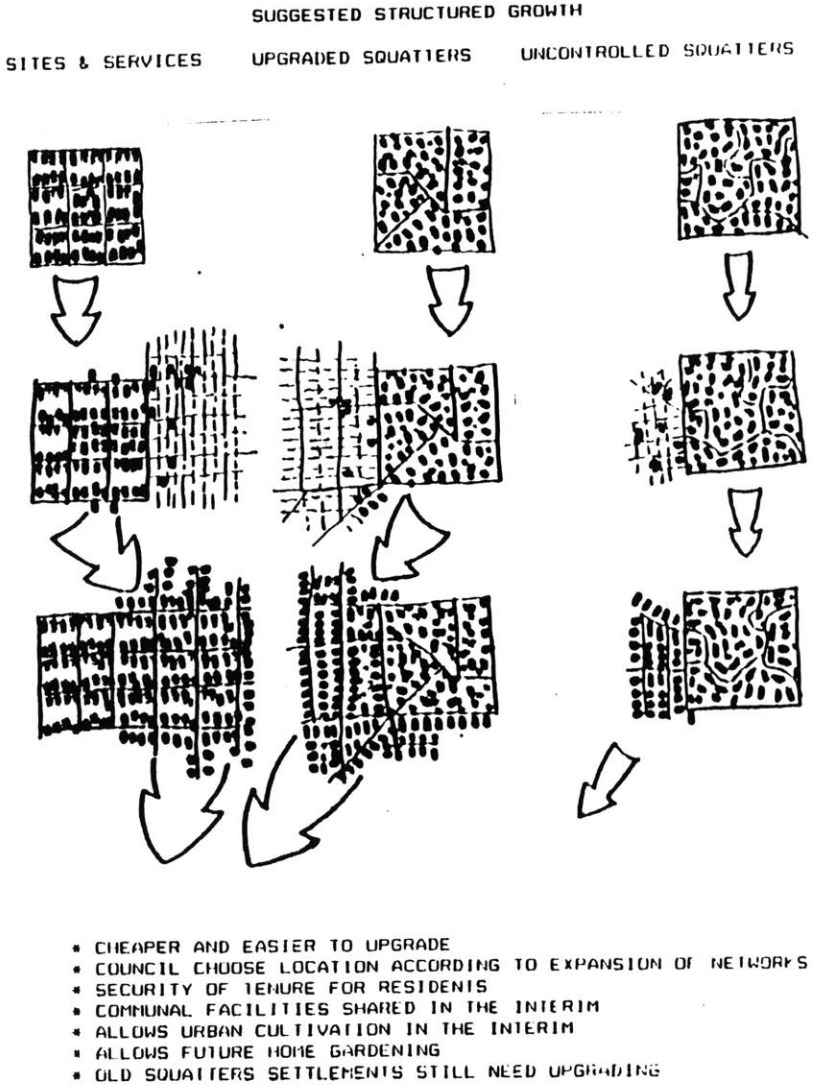




Figure 4: Proposed Subdivisions

| SUGGESTED GOVERNMENTAL PROGRAM | | NO GOVERNMENTAL PROGRAM |
|---|---|---|
| 1 COUNCIL STARTS COLLECTING funds to finance water and infrastructure. | YEAR 1 | 1 COUNCIL STARTS COLLECTING funds to finance water and infrastructure. |
| 2 COUNCIL ESTABLISHES LAND BANK for urban agriculture and future housing to reduce waiting time. | | 2 COUNCIL ASKS FOR LAND for first project |
| 3 COUNCIL PRODUCES LAND USE PLAN to encourage urban agriculture with limited security of tenure, and control growth (valid for 4 years). | | MEANWHILE... |
| 4 COUNCIL STRUCTURES GROWTH Council subdivides overspill areas around settlements and allocates lots to new households. | | ... poorest households have no access to rainy season gardens |
| 5 COUNCIL DISTRIBUTES GARDENS Council subdivides rainy season lots for new households, with option for housing in appropriate location. | | ... they cannot invest in gardening and/or housing by lack of security of tenure or by lack of land |
| [FIRST HARVEST BY SETTLERS and incremental growth of houses on subdivided (non-serviced) lots.] | YEAR 2 | ... squatter settlements grow uncontrolled |
| [SECOND HARVEST BY SETTLERS and incremental growth of houses on subdivided (non-serviced) lots.] | YEAR 3 | ... land with other potential use is invaded by squatters |
| 6 COUNCIL EXTENDS SERVICES (WATER and infrastructure) made cheaper by early subdivisions | YEAR 4 | ... poorest households suffer from shortage of food |
| 7 HOUSING IS COMPLETED WITH ADEQUATE SERVICES INTENSIFIED CULTIVATION THIRD HARVEST BY SETTLERS | | 3 COUNCIL EXTENDS SERVICES (WATER and infrastructure) made expensive by uncontrolled growth of settlements. |
| 8 COUNCIL INCREASES LAND BANK COUNCIL PRODUCES NEW PLAN to maintain rainy season gardening. | YEAR 5 | 4 COUNCIL ALLOCATES LOTS housing can start with heavy investments from the poor |
| | | 5 COUNCIL ASKS FOR LAND for second project. |

Figure 5: Proposed Program

## CONCLUSION

### THE GARDEN OF EDEN ?

The main objective of the present exercise was to illustrate alternative policies that could contribute to alleviation of urban poverty.

What is the situation ?

The poorest households are suffering from food shortage, and cannot gain access to vacant land for urban cultivation. They represent a threat to the social order.

Squatters settlements grow, uncontrolled, frequently in undesirable location for the city Council. And, the public authorities are often forced later to grant them some legacy of tenure.

What has been the public answers to these problems ?

The government subsidies food commodities in urban areas. Also, the public agencies supply housing with constantly decreasing standards, from complete houses, to serviced lots, to upgraded settlements. No solution has enabled the municipality to keep up with the pace of urbanization.

What is suggested ?

To avoid after the fact repairing, and increasing subsidies, public agencies should prepare legal bases for informal urban agriculture and housing. The municipality could then choose the most appropriate location, and promote informal development in these locations. The housing pattern could be controlled to facilitate future connections to the infrastructure networks. Also, land could be reserved to reduce future public expenditures.

Even if all these considerations are as realistic and rigorous as the availability of data allows it, their practical implementation would still be difficult: public authorities are reluctant to promote the development of the informal sector.

The present work tried to show that the policies previously described would benefit the community at large. By encouraging rather than trying to formalize the informal processes of both urban agriculture and housing, the government would help the poorest population to invest its time and money in cultivation and shelter.

Besides the fact that governments dislike giving up control over land use or housing standards, the proposals would find other form of opposition. Urban agriculture is accused of:
-a- competing with rural production,
-b- encouraging urban migration,
and -c- accelerating the sprawl of cities by reducing the urban density.

Let us examine each point in more detail:

-a- In the present study, urban agriculture is advocated during austerity, especially during seasons of food shortages. In the long term if rural production expands, then urban cultivation on a large scale would disappear naturally. Urban food production could also help exportation of rural production or at least decrease importation of food for urban areas. In

the interim, urban agriculture produces better quality food with higher nutritional levels. It might then reduce the expenditures of the Ministry of health.

-b- The "liberal" policies exposed here, might create a more favorable environment for the urban poor, and therefore tend to increase urban migration. After all, most people are poorer in rural areas than in cities. Migration is not to be feared if it really increases the wealth of the poorest. In any case, the suggested policies promoting urban agriculture and housing, would not change radically the urban situation from austerity to prosperity. Therfore, migration is unlikely to be affected by the suggested policies.

-c- Here, urban agriculture is not perceived as a panacea for the urban poor. It is only the best use for vacant urban land. The program promotes intensive, although temporary use, of vacant land prior to development. For example, land for housing the poor is cultivated first. Then, the house is built incrementally, and the rainy season garden gradually transform into a smaller but more productive home garden. In the long term the density remains the same. Only, poor households would have enough space for home garden production. Urban agriculture would not accelerate the sprawl of the city. Moreover, the suggested measures would help structuring the growth around existing settlements and in accordance with the existing infrastructure networks. Controlling the location of squatter invasions would certainly limit the sprawl of the city.

Lusaka like many other third world cities, could benefit from urban agriculture. Urban vacant land can be fruitfully used.

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