CHANGES IN AGRICULTURAL LAND USE IN THE PERI-URBAN ZONE OF DAR ES SALAAM, TANZANIA

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ABSTRACT

Recent studies on urbanisation in Africa acknowledge the growing need and importance of urban informal sector, particularly urban and peri-urban agriculture as part of a survival strategy for urban residents. However, there has not been a corresponding thrust to examine the impact of these changes on land use, particularly, in the peri-urban zones. Thus, the main aim of this study is to examine and analyse the nature and changes in agricultural land use in the peri-urban zone of Dar es Salaam since the early 1960s. A review of the literature relating to peri-urban zones shows that the bulk of the work on this theme is based on the experience in advanced capitalist economies of North America and Western Europe. Thus, this study questions the relevance of the conclusions developed in advanced capitalist economies to the African situation.

Developments taking place in the peri-urban zone of Dar es Salaam are viewed in the context of changes in the political economy of Tanzania since Independence in 1961. It is argued that as a colonial city, Dar es Salaam developed stronger links with distant up-country sources of raw materials at the expense of its immediate peri-urban zone which until the mid 1970s was still a neglected area. However, beginning in the mid-1980s the peri-urban zone of Dar es Salaam began to show signs of being directly responsive to the urban demands for land and food. For example, a review of the decision-making factors shows that farmers' choice of crops is influenced by the proximity of the peri-urban zone to the city, as well as the need to ensure household food security for the farmers. Thus, agricultural land use in the peri-urban zone of Dar es Salaam shows a pattern in which extensive forms of farming such as cashewnut and sisal farming are giving way to more intensive land use such as residential and other forms of farming, particularly food crop cultivation. Therefore, as elsewhere in Africa and in advanced capitalist economies, the peri-urban zone of Dar es Salaam is now characterised by a mix of intruding urban land use and retreating rural land use. The study further notes that due to the spatial variability of urban demands and differences in farmers' responses spatial variations in land use are noted within the peri-urban zone.

In conclusion it is noted that in response to urban pressure, the peri-urban zone of Dar es Salaam has been undergoing processes of change in land use. However, given the different socio-economic environment in which these changes are taking place there are marked differences (in magnitude) from what is experience in advanced capitalist economies.

TABLE OF CONTENTS

CHAPTER ELEVEN

List of Tables.[1]

[1] Note: Except where the source is acknowledged, the information in all tables was extracted from a hosehold survey by the author.

List of Figures

List of Maps

List of Plates

CHAPTER ONE

INTRODUCTION

1.1 Urbanisation

Since pre-historic times, agriculture and cities have been inextricably inter-linked (Benevolo, 1980). Not only was agriculture a cornerstone upon which urbanisation first emerged (Bairoch, 1988), but throughout history, agriculture has contributed significantly to the world's economic and urban development. The demand for labour during Britain's Industrial Revolution was, for example, met to a large extent through technological developments in agriculture which released large numbers of people from agricultural labour. In Africa, most pre-colonial or indigenous cities such as Kano, Oyo and Ife grew in rich agricultural areas. These cities have a long history of urban food production, and many of their dwellers depended on farming for their livelihood. Whilst the villages provided food for urban dwellers, the cities, on the other hand, provided markets and employment.

There are, however, significant differences, both in the rates and levels of urbanisation among the world's major regions. Within the Less Developed regions, for example, Africa is the least urbanised continent, but it is also the one which is currently experiencing the most rapid rate of urbanisation. The rapid tempo of urbanisation has been the most visible and dramatic manifestation of changing conditions in Africa, especially in the second half of this century. Rates of urban growth are estimated to have been 6.3 per cent per annum between 1950 and 1970 and 6.9 per cent per annum in the period since 1970, a figure twice as high as the growth rates in Latin America and East Asia (Kuiper, 1992). Even allowing for the smaller base to which they relate, the annual addition of over three million individuals to the urban population of Africa since 1970 is a phenomenon of considerable relative importance. This is because contemporary urbanisation in Africa is taking place in the context of generally stagnant economies and

a relatively negligible growth of the industrial sector. Such an urbanisation process, proceeding with neither industrial job availability nor a secure domestic food supply, can be best termed as 'derived urbanization' (Bryceson, 1993).

In contrast to North America and Western European countries, where the process of urbanisation was spread over a longer period of time, in Africa this process has been pronounced only since 1945. Furthermore, in North America and Western European countries, the process of urbanisation was a result of, and contributed to massive economic and social transformation, with modern techniques being introduced both in agriculture and manufacturing. As a result, alternative and expanded employment opportunities grew up in the urban areas. This led to the development of strong links between agriculture, on the one hand, and industrialisation and urbanisation on the other, with agricultural surpluses feeding the growing cities (Grigg, 1984).

The basis of urbanisation in Africa has not been rooted in industrialisation nor in agricultural development, nor has this process been accompanied by economic transformation from an agrarian to an industrial base. Quite the contrary, most African cities are a product of forces external not only to themselves, but to African society in general. All over the continent, the major investment of the colonial administration to stimulate the colonial economy was in railways and ports. In one territory after another, a skeletal rail line went from the port centre into the interior to facilitate the collection, bulking, and evacuation of various produce, and the complementary distribution of cheap manufactured commodities imported in exchange of the former. It was thus that colonial urbanisation came to develop around the ports and major nodes on the rail lines. In this way, these new urban centres developed stronger links with the interior areas which produced raw materials. Having developed mainly in response to commercial and industrial demands from overseas, many cities in Africa, therefore, remained "divorced" from their immediate countryside.

The pattern of urbanisation in most African countries may be viewed as the backwash effects of policies and programmes which have been pursued in the last three decades. Of particular interest in the post-colonial economy was the attention paid towards industrialisation. For example, beginning in the 1960s, most African countries adopted the Import Substitution Industrialisation strategy, in the hope that investment in the industrial sector and its supporting infrastructure could help to achieve significant economic growth (Kuiper, 1992). Consequently, investment tended to focus on urban areas. The need to provide appropriate infrastructural equipment for the new industries led to a highly exaggerated bias of government expenditures in favour of urban centres and a complementary sharp neglect of rural areas. Road construction, water supply, power production, residential estates, industrial premises and health services, all commanded immediate and substantial attention and led to heavy capital investment in the cities. By the same token, resources available for rural roads, rural water supply and other complementary rural development activities were much reduced.

The focus on industrial development contributed to an increase in income differences both within the cities, and between cities and rural areas. For example, wage earners' incomes in Zambia are estimated to have increased by 40 per cent from 1964 to 1968, compared to a 3 per cent rise in farmers' incomes, and in Tanzania, the real urban minimum wage increased nearly fourfold between 1957 and 1972 (Jamal and Weeks, 1993). Partly stimulated by the promise of new industrial development policies, and partly pushed by the poverty in the rural areas, migration became a survival strategy to gain a cash income and to diversify the sources of income for the household left behind in the village. Therefore, the most striking feature of the post-colonial political economy in many African countries has been the growing inequality between urban and rural areas. It is for this reason that Mabogunje (1986) argues that the current pattern of urbanisation in many African countries can only be understood in the light of a reactive strategy. Mabogunje (1986) further argues that since the state in Africa improved urban areas to the severe detriment of life in the rural areas, one reactive strategy has been for

the people to move ***into*** cities without becoming ***of*** the city. This means that the peasant continues to hang on to his/her rights in the rural areas while participating in the urban economy. It is in this way that urbanisation gained momentum in the 1960s and 1970s. But the fact that this increase in urban population is taking place in some of the world's poorest countries means that the capacity of the formal urban economy to absorb the in-migrants is largely exceeded.

The urbanisation crisis, which most African countries are currently experiencing, is expressed not so much in the speed or short history of city growth, but more in the wide margin by which urban population growth has outstripped employment opportunities in both the service and manufacturing sectors. For example, the drift of people into cities bears little relationship to expanding urban economies and employment opportunities. Thus, in the past decade, the GNP per capita income in African cities fell by 2.2 percent per year, while unemployment quadrupled and real wages fell by 30 percent (UNDP, 1991). In addition to the problems of housing and employment, providing food for the urban population appears to be the most serious contemporary pressing problem, particularly in those cities which are not surrounded by a rich agricultural hinterland.

In more recent years, the economic crisis, which many African countries have been facing, has further compounded the problems of urban food supply. In order to cope with the shortages of foodstuffs, caused by economic hardships, urban residents have devised two major strategies (Potts, 1994). The first involves a great increase in informal sector activity, with previously non-earning household members entering the petty commodity sector, as well as wage-earners taking on supplementary cash earning activities. The second involves the development of food-growing by urban households on any available patch of arable land within and around the urban area. The growth of the informal sector is increasingly being accepted by many African governments as having a dynamic potential for productivity and income generation (Vuorella, 1992). The growth in importance of the urban informal sector of the economy has almost certainly been reinforced by the structural adjustment programmes which almost all African

countries have undergone during the 1980s. Thus, it is hardly surprising that this is the most rapidly growing sector of Africa's urban economies, now employing some 40 percent of the urban labour force (UNDP, 1991). One of these informal activities is the development of urban and peri-urban agriculture (Mlozi, 1991; Memon, 1982). For example, in Kenya, it is reported that 17 per cent of urban households grow crops, while 17 per cent keep livestock in town (Lee-Smith, 1991). In Lilongwe, Malawi, goats are a prevalent feature in town (Mbiba, 1994). Carole Rakodi (1987) noted similar occurrences for cities in Zambia and drew parallels with Indian cities where cows are prevalent in the cities.

The informalisaton of many economic activities in African cities, as a result of the current economic crisis, has not created a completely new situation, but has reinforced important trends that have been gathering momentum for some time (Stren, 1992). These trends have been referred to as the 'ruralisation of African cities' (Bibangambah, 1992; Stren, 1992). Mabogunje denotes such trends as the 'peasantisation of African cities' which reflects the 'peasant' or rural origins of the in-migrants, as well as their use of 'peasant-type' strategies to survive in an urban environment (Mabogunje, 1986). Despite the acknowledgement of the increase in importance of these 'rural or peasant' strategies (like urban and peri-urban farming) among urban residents, there has not been a corresponding thrust to examine their impact on the land use in and around the cities (Guyer, 1987; Drakakis-Smith, 1991; Sporrek, 1985; Briggs, 1992).

1.2 Research problem

The process of urbanisation generates three sets of demands which may elicit a response from and have an impact upon agriculture (Bryant, 1982). First, urbanisation produces a demand for land for urban uses. This demand is a manifestation of both the demographic and economic forces of urbanisation. It results from the continuous growth of the urban population, thus leading to an increase in the demand for land for residential, industrial, commercial and infrastructural development. The effects of this demand on the peri-

urban zone can be clear, because, unlike other demands (for labour and agricultural products), which may be satisfied from other locations, the demand for land must necessarily be satisfied from the immediate surroundings of the city.

Secondly, the expansion of non-farm employment opportunities in urban areas generates a demand for labour. The attractions of urban industrial and other employment, however limited, result in the drift of people into the city. People living in peri-urban zones have the advantage of easy access to the city through daily commuting. In African cities, for example Nairobi, Kano and Dar es Salaam, this has reinforced the incidence of part-time farming in the peri-urban zone, a phenomenon which is less available for people in remote rural locations, who often have to change domicile in order to take advantage of the urban employment opportunities.

Finally, the migration of people into cities in search for non-farm employment leads to the growth of the urban population. However, unlike those cities in advanced industrialised countries, where this drift was associated with higher relative and absolute incomes, in Africa the increase in urban population increases in the city typically bear little relationship to expanding urban economies and opportunities. Moreover, the problem is exacerbated by the urban population, often at rates far in excess of what the city and its immediate hinterland can provide. A consequence has been that, for most the time, food supplies have fallen short of demand, consequently leading to rises in prices. Thus, food shortages and the subsequent rise in consumer prices in general, and for food in particular, have become among the most direct and immediate effects of accelerated urbanisation in most African cities. High food prices have precluded many low-income earners from buying sufficient food to meet even basic household requirements.

The problem of food supply and consumption in the city has been further exacerbated by the continuing decline in real wage income among urban workers. In order to supplement low wage income levels and to obtain sufficient food for the household,

many urban dwellers have sought alternative or additional economic activities in the informal sector. Among such activities, farming in the peri-urban zone has increasingly become an important source of both food and cash income for many urban dwellers in Africa. Individual urban households, with access to land on the edge of the city, have been opening farms, as a reflection of increased demand for food stuffs and their relatively high prices. In particular, this has made the peri-urban zone of the city of Dar es Salaam in Tanzania one of considerable dynamism. From being a highly neglected area during the 1960s, it has developed into a zone offering economic opportunities in the 1980s and 1990s, initially in terms of producing foodstuffs for household consumption and survival, and latterly in terms of cash income for the household.

1.3 Research aims

In the light of the problem stated, this study seeks to analyse the nature and extent of recent land-use changes in the peri-urban zone of an African city, Dar es Salaam, and in particular, to identify and analyse the ways in which peri-urban farmers react and adapt to these changes.

1.4 Research Objectives

i) to trace the spatial and demographic growth of Dar es Salaam city from 1961 to 1992;

ii) to identify the changes in land use in the peri-urban zone of Dar es Salaam from 1966 to the present (1992);

iii) to identify and explain the variations in the changes of agricultural land use in the peri-urban zone of Dar es Salaam;

iv) to examine the nature and changing relationship of Dar es Salaam city and its peri-urban zone;

v) to examine the operation of the land market and its implications on agriculture in the peri-urban zone of Dar es Salaam;

vi) to examine and analyse the farmers' attitudes and reactions to urban demands for land, labour and goods in terms of changing farm sizes, sales of land and changing crop mix;

vii) to examine the key factors which influence farmers' choice of crops in the peri-urban zone of Dar es Salaam;

viii) to test the general theory of the peri-urban zone, particularly the extent to which our understanding of the peri-urban zones in advanced industrial economies inform our understanding of peri-urban zones in African economies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The relationship between peri-urban agriculture and adjacent urban areas has attracted much attention among scholars whose primary objective has been to explain changes in land use in relation to increasing distance from the urban centre to the periphery. Despite this attention, until the 1970s, the literature on the peri-urban zone was characterised by a general absence of explicit reference to the subject outside the advanced capitalist economies of North America and Western Europe (Munton, 1974). Perhaps this is not surprising given the short history of urbanisation in other parts of the world, particularly in Africa. The bulk of what little work has been carried out on peri-urban zones in Africa has been in West Africa, where Mortimore (1975), Mabogunje (1968) and Swindell (1988), for example, have examined the influence of cities on peri-urban agriculture. In East Africa, except for limited research works in Lusaka (Van den Berg, 1984), Nairobi (Memon, 1982) and Dar es Salaam (Briggs, 1992), very little work has been carried out on peri-urban agriculture. Other related research themes in East African cities (Bryceson, 1993; Mlozi, 1991; Mosha, 1991) have tended to focus on the problems of urban food supply, to which peri-urban zones may contribute as a potential source of food.

This chapter reviews the literature on agricultural land use in the peri-urban zone both in developed countries and in Africa. It begins by reviewing the different criteria used in defining peri-urban zones. Particular emphasis is given to the development of peri-urban zones around both colonial and indigenous cities in Africa. Reference is also made to theoretical perspectives on agricultural intensity in peri-urban zones, as presented in the Von Thunen and Sinclair models (Atkins, 1987; Sinclair, 1967).

2.2 Definition of the peri-urban zone

The countryside immediately surrounding cities does not have a simple definition, universally acceptable to all scholars. As a result, various overlapping terminology have been used, such as: fringe, inner fringe, urban shadow, peri-urban zone, and rural-urban fringe (Ilbery, 1985). These sometimes have been used interchangeably, sometimes to identify quite separate areas of the rural-urban continuum, but usually overlapping to some degree (Martin, 1975).

The definitional problem lies partly in the difficulty of delimiting the spatial extent of this dynamic zone (Ilbery, 1985), and partly in the exact interpretation of the notion of transition (Bryant, 1982). The transitional element of this zone, for example, may be measured in a number of ways. It could be according to a set of socio-demographic and/or land-use related attributes that fall between rural and urban forms. Therefore, since each element of the urban influence has a different range of distance beyond which it becomes negligible, confusion in the definition and delineation of this area is inevitable. Furthermore, the confusion in the terminology is compounded by the time-span over which the various studies have been undertaken and the great range in size of the urban centres under investigation. Certainly, urban centres differ both in size and functions, from a small village to a metropolis, each with inherent differences in their respective peri-urban zones, according to the rate of growth, function and hierarchical relationship with the central place. It is further noted, for example, that the peri-urban zones of pre-industrial cities were inhabited by less-advantaged groups, perhaps employed in more noxious occupations (Sjoberg, 1960), but due to improvements in transport technology and increased private car ownership, the peri-urban zones of many twentieth century Western cities have become areas of residence for even wealthier socio-economic groups.

Therefore, whatever definition may be given to this area, it cannot eliminate some degree of arbitrariness. A consensus exists, however, over the broad conceptual notion that a peri-urban zone is an area which is rural in character, but which is influenced by urban factors or processes (Ilbery, 1985). The logic of this broad concept is that the entire countryside surrounding cities is a peri-urban zone. This is because of the way the modern societies are developing; there are very few parts of the rural areas that are not affected, in some way, by the city. It could be in terms of migrants from the villages to the cities, or remittances going back to the villages. It could also be in terms of villages producing food for the urban market and the latter producing consumer items.

One of the earliest definitions of the peri-urban zone was given by Wehrwein (1942:218) who defined this zone as "the area of transition between recognised urban land-use and the area devoted to agriculture". Boal (1970:79) defines this area as "the zone between the edge of continuous urban and the true agricultural margin beyond which there are no signs of anticipation of urban growth". Much as this definition identifies the spatial extent of the area, it does not, however, acknowledge the importance of the dynamics of land-use within it.

Stressing the notion of transition in land-use, Johnson (1974:4) defines the peri-urban zone as "the area in which suburban growth is taking place, and where rural and urban land-uses are mixed together to form a transition zone between town and country". Land use criteria have also been stressed by Golledge (1960), who defines the peri-urban zone as a physical entity with a particular land use mix brought about by the spread of the city, its functions and its population into rural areas. Using the criteria of transition and the mix of land use, Ilbery (1985) defines the peri-urban zone as a zone of intermingling land uses, characterised by irregular transition from farm to non-farm land.

Another definition is given by Pryor (1968:206) who considers the peri-urban area as "a zone of transition in land-use, social and demographic characteristics lying between the continuously built-up urban and suburban areas of the central city and the rural hinterland, characterised by the almost complete absence of urban dwelling, occupations and land-use, and an incomplete range and penetration of urban utility services". In emphasising the influence of the city on the area that surrounds it, the Organisation for Economic Co-operation and Development (OECD, 1978:9) defines a peri-urban zone as "the periphery of urban agglomeration where economic and social activities are directly affected by the presence and expansion of the city".

In conclusion, it can be seen that there are recurring elements in the different definitions. These are: the spatial extent of this zone; the mix of land-uses; the transitional nature of the zone; and the direct influence of the city. Therefore, a more embracing definition considers a peri-urban zone to be the transitional zone of mixed land-uses between the city's continuously built-up area and the rural hinterland, and whose economic and social activities are directly affected (beneficially as well as to their detriment) by the presence and expansion of the city. Nevertheless, it must be further noted that the above definitions are based primarily on North American and Western European examples. This raises an important question of the extent to which the definitions based on Western Europe and North American experiences help to define the peri-urban zone around African cities.

2.3 The peri-urban zones of African cities

Towns and their peri-urban zones are both geographic-specific and historic-specific (Swindell, 1988). For example, the peri-urban zones that developed around the colonial cities of central Africa are in many respects different from those of the Islamic emirate cities of Hausaland in Nigeria. However, before delving into these differences it is

important to understand the differences in the origins and growth processes of African cities themselves.

African cities can be categorized into two main groups (Mabogunje, 1968). There are cities which originated as a result of foreign or colonial activity, and those which are indigenous to the culture concerned. These have been identified as "modern" and "pre-colonial" respectively (Mortimore, 1975). Mabogunje (1968) classifies African cities on the basis of origin and functions. On the basis of these criteria, again, two groups of cities emerge. On the one hand, the 'traditional' or 'indigenous' cities emerged as cultural and administrative centres. These centres constitute the hubs of community affairs for the surrounding countryside and, more so, as among the Yoruba for example, the city was the seat of the religious leader. Religion and ritual revolved around the king. Thus, not only was the king the personification of his city, but also the city had an essentially ceremonial and cultural role. 'Modern' or 'colonial' cities on the other hand, developed during the colonial period, primarily as locations from which the development of natural resources could be directed (Mabogunje, 1968). These cities are, therefore, a product of forces external not only to themselves, but to African society in general. Having developed mainly in response to commercial and industrial demands from overseas, the existence of 'modern' cities serves a variety of functions emanating from a market-economy, whose origin is international rather than local or even national.

An earlier attempt to differentiate towns in Africa was made by Southall (1961). Southall's classification is of great relevance to the present study, as it draws attention to the contrast in the relationships that exist between the city and its surrounding countryside. Southall identified two ideal types, **A** and **B,** i.e. indigenous and colonial towns respectively. Type **A** towns include the Yoruba towns of South West Nigeria. These towns (for example, Ife, Oyo, and Kano) are indigenous in origin, and their populations are composed mostly of people who have been there for many generations. Furthermore, the populations are homogeneous, or at least stable as regards ethnicity and socio-economic status. Indigenous towns typically grew in rich agricultural areas

and became centres of trade and political power. Mabogunje (1968) stresses that in origin indigenous towns were basically centres of political power, and thus of administration. By virtue of both their origin and location, indigenous towns serve the commercial and service needs of the surrounding countryside to which they are closely tied. One remarkable feature among indigenous towns has been the symbiotic development of agricultural activities in the town and the surrounding countryside. They have a long history of urban food production and many town dwellers depend directly on farming for their livelihood (Mortimore, 1975). The Hausa-Fulani towns of Northern Nigeria, for example, have been and continue to be surrounded by areas of intensively cultivated land with high population densities. In Kano and Sokoto, permanent fields with annual cultivation account for 80 per cent of the cultivated area (Swindell, 1988). In villages near Kano, farmers participate widely in non-farm occupations. These farmers have become semi-peasants, reliant on wives and young members of the household to run the family farm, as they themselves become increasingly engaged in non-farm work, principally in Kano. In this way, Kano has developed very much as a market and a centre of employment for its peri-urban population. Therefore, the type of relationship that exists between Kano and its peri-urban zone is that of complementarity, and not of conflict, as commonly assumed in the literature on Western societies.

On the other hand, Type **B** towns are a product of colonial experience and are predominantly, but not exclusively, found in east, central and southern Africa. The majority of Africa's big cities belong to this group, and include, for example, Nairobi, Dar es Salaam, Lusaka, Harare, and Lagos. These cities, and many others in the group, were established during the nineteenth and twentieth centuries, and most were established in areas of relatively low population density, especially along the coast. The site of Nairobi, for example, was located in a 'no man's land' between Kikuyu and Masai territory when the British arrived in 1899 (O'Connor, 1983). Colonial cities generally did not develop primarily through some local dynamic force or for the benefit of local populations. Instead, their establishment, growth and development was largely

externally driven as an integral element of colonial exploitation. Functionally, the importance of colonial cities arose out of their role as the political, military, economic, religious and intellectual entrepot between the colonizers and the colonized (Horvarth, 1969). It is also important to note that most of the population of the colonial cities consists of recent in-migrants from the surrounding countryside, as well as from quite distant parts of their respective countries (Rayfield, 1974). Thus, these cities frequently remain ethnically and culturally distinct from their immediate surrounding areas.

The urban-rural divide in many colonial cities was, and still is, sharper than that of the indigenous towns. This is partly due to the weak development of the agricultural sector in the peri-urban zones, and partly due to deliberate colonial policies to alienate urban areas from the surrounding areas. For example, in Kenya, boundaries of urban areas were carefully defined by the early colonial administrators in order to avoid existing areas of subsistence farming and settlement (Memon and Lee-Smith, 1982). As a result, many colonial towns depend on more distant locations for their food supplies, and hence may explain why the pressures on the peri-urban zones of these cities have for a long time been minimal. It is only in recent years, when demand for land has started to increase, that pressures have been felt in the peri-urban zones of such cities.

Other cities in Africa (for example, Kampala), have been classified as 'dualistic cities' - partly indigenous and partly colonial (O'Connor, 1983). In Kampala, the western zone of the city (Mengo) developed as the capital of the Kingdom of Buganda. As a capital of an African kingdom, Mengo has retained a predominantly African character, while the eastern, southern and central zones have a more colonial character. Eventually, however, the colonial form has become dominant.

Despite diversities in origin among African cities, taken together they share certain characteristics that make them a distinct group from cities in the advanced capitalist economies of North America and Western Europe. First, the basis of urbanisation in Africa has not been industrialisation nor agricultural development. For this reason, it has

been very difficult for many city economies in Africa to cope with their rapidly growing populations. Consequently, with inadequate economic bases, most cities have to depend upon the rural areas within which they are placed (Herbert, 1982). For example, although in most African countries the rural primary sector produces the largest share of the Gross National Product and capital for national development investment, these funds tend to be invested mainly in urban development. Thus, towns and cities have often become islands of privilege, rather than centres of development for their hinterlands. This has led to the development of the populist view that cities are inevitably evil by exploiting the countryside in their own interest.

Second, both pre-colonial and colonial cities have had a transforming influence on agricultural practice and production in their peri-urban zones, and not the other way round. This influence appears to strengthen as urbanisation spreads and intensifies. For example, Lubeck (1977) notes the 'proletarianization' of villages around Kano, whereby the encroachment of the city into the rural fringe forces villagers to seek urban employment or move to into petty trading. Swindell (1988) observes that the accelerating shift towards commodity and capitalist production involves the marginalization of both the urban and rural poor, as significant shifts of land ownership take place.

2.4 Urban demands on the peri-urban zone

Urbanisation has been a key process in the peri-urban zone, with far-reaching effects on agriculture. For many years, the literature on the peri-urban zone has emphasised its negative effects (Ilbery, 1985), as well as the view that metropolitan expansion is intrinsically detrimental to commercial farming. However, this view rested on little empirical support. In principle, the effects of urban expansion can be both beneficial and harmful. Broadly, however, urban expansion has led to changes in the physical structure of the area, especially in terms of the utilisation of land. Furthermore, urban demand for land has, in many places, led to the loss of farmland and a rise in land prices around

many cities. The drift of the labour-force from the peri-urban zone, and the more remote rural areas, into urban centres, is among the many effects of urbanisation. These changes, in general, create both opportunities and problems for peri-urban agriculture.

First, there is the influence of towns as markets for agricultural produce. The spatial concentration of demand in urban areas, and the increased standards of living that have often been linked to urbanisation, encourage farmers to produce for the urban market. Thus, a peri-urban location gives the farmers a locational advantage in marketing their products directly to consumers in urban areas. In Auckland, New Zealand, for example, there is a growing trend for farmers to produce directly for the immediate urban market (Moran, 1979). The increasing number of roadside sales of fruit and vegetables, and the dependence of horticulturists on customers who are prepared to pick their own produce, has become a common feature of the periphery of the Auckland peri-urban area. In Britain, Bowler (1982) noted a similar trend, whereby individual farmers in the peri-urban zone have been increasingly marketing their farm produce directly to the consumers in the cities. This has the advantage of by-passing middlemen, by whose operations so much of the difference between producer and consumer prices for a commodity is generated. Temporary fruit and vegetable stalls at the roadside have been one way of reaching a large number of customers with 'ready picked' produce.

In another form of direct marketing, consumers pick and transport farm produce themselves. By purchasing direct from the farm, customers can usually rely on freshness and can exercise a greater control over the quality of the goods they purchase. The individual producer also has a chance to save on the rising costs of farm labour. Although 'pick your own' farms have a very uneven spatial distribution, they are more widespread in the south east England (Essex, Kent, Sussex) and the west Midlands (Vale of Evesham) located close to the conurbation of London and Birmingham respectively (Bowler, 1982). In the African situation, 'pick your own' farms are less common largely because of the inadequacies of private and public transport facilities among urban consumers to reach the peri-urban farms.

The urban demand for labour can have several effects on peri-urban agriculture. The shift of farm labour into urban centres can lead to shortages of farm labour in peri-urban areas, especially at peak times such as planting. It is worth noting, however, that the decline in the farm labour force and the subsequent substitution of capital for labour, is experienced not only in peri-urban areas, but also in the more distant rural areas. However, the effect of the decline in labour force is more pronounced in peri-urban locations because farmers in these areas are also attracted to non-farm jobs in urban centres. With the advantage of easy access to urban centres through commuting and, if necessary, on a part-time basis, peri-urban farmers are more likely to take these non-farm jobs. This is unlikely to be the case for people in more remote rural locations, as they have to change domicile in order to take advantage of the urban employment opportunities.

In Britain, Boddington (1968) showed that the urban counties of Derbyshire, Hertfordshire and Essex lost 27, 25 and 24 per cent respectively of their agricultural work-force between 1951 and 1961. For the more rural counties of Lincolnshire, Herefordshire and Westmoreland, on the other hand, the figures were 9, 8, and 12 per cent respectively over the same period of time. A similar change was found in Japan, where the total farm labour around Anjo city declined by 35.5 per cent during the period of 1965-1975, as compared with a decline of 13.3 per cent in the national total (OECD, 1978).

Farmers facing the problem of labour shortages are forced to decide on a number of alternative choices. First, in order to maintain the same intensity of production, farm employers have to offer wages comparable to those paid for city jobs. This option, however, tends to undermine the profitability of investments in the enterprise. Alternatively, as the relative cost of labour increases to that of capital, the farmer may substitute the latter for the former, thus leading towards a more capital-intensive type of farm operation.

Failing in any of the above options, and depending on the nature of the agricultural enterprise and its level of profitability, the farmer may have to change to a more extensive form of production. However, given the nature of a peri-urban location, farmers are unlikely to opt for a change to a more extensive farming enterprise such as from dairy to beef production. This is because the monetary returns to the value of land under these forms of farming can hardly compete with the increasing demand for residential and commercial land uses. Moreover, given the general trend (particularly in developed countries) towards increased capitalisation of production, farmers in the peri-urban zone are more likely to opt for capital intensive production. Thus, in a situation of labour shortage, farming in the peri-urban zone has increasingly been characterised by capital-intensive production. Munton (1984) further argues that it is no coincidence that many of the most capital-intensive agricultural regions in Britain are often found within major metropolitan regions. It is important to note however, that all evidence of these processes is from advanced capitalist economies, not Africa.

In parallel with the decreasing availability of farm labour, the demand for labour for urban industrial employment also affects the farmers themselves. To take advantage of urban employment opportunities, many farmers are themselves drawn into dual job tenure. This particularly happens when the previously full-time farmers become part-time farmers, supplementing their farm income with a second off-farm source. Indeed, these farmers may become part-time just because of urban opportunities. The situation of dual job-holding can be explained by various 'push and pull' factors which influence farmers' decisions (Van den Berg, 1984). On the one hand, employment opportunities are greater in towns than in the countryside, and it would be reasonable to expect urban centres to exert a pull on agricultural workers from the farm to supplement meagre farm incomes with an off-farm source of income. On the other hand, the same farmers may feel that they still need the security of owning land, not only as a sound investment, but also as security against monetary inflation. This may reinforce the development of part-time farming. In this respect, part-time farming may be interpreted as a response to a

wide array of farm-income problems on the one hand, and as an adjustment by some farmers to alternative urban employment opportunities on the other.

Most researchers (for example, Munton 1974) agree that part-time farming defies categorical and simple definition, because of variations in the amount of time devoted to farming; the importance of off-farm income; the size and scale of part-time farm operations, and the location of the farm. Further difficulties arise because the work-time and income may refer, in some cases, to the farm operators alone, and, in other cases, to the farmer and his wife, or even to the whole family household.

In Germany, the double criterion of income and work-time is used to identify part-time farmers. The definition of a part-time farmer is where over 50 per cent of total household income is earned in non-farm occupation, and the farmer devotes more than half of his/her work-time to non-farm activities. In Austria, part-time farming is when the farmer and his wife spend 50 per cent or more of their work-time off the farm, whereas in the Netherlands the work-time of the farm operator alone is taken into account. A part-time farmer in the USA is one who works more than 100 days off the farm, in Canada it is more than 126 days, and in Finland more than 150 days (OECD, 1978).

However difficult it is to define the status of part-time farmers, they can be divided into two main groups nevertheless (Grigg, 1984). Firstly, there are those with land who take another job to increase their total household income. These are commonly referred to as part-time farmers, and are typically rural-based. Another distinct group is that of people with a full-time job who buy land as an investment or as a hobby (hence, hobby farmers). To a hobby farmer, the farm or farmland may be bought for a number of reasons which may or may not include a desire to farm. Significantly, the farm may rarely be called upon to supply basic income. More often, a typical part-time farmer has full, or at least regular, off-farm employment bringing in a substantial income. For a farmer with only a small farm-business, this off-farm income will thus be the main source of family income. This total is, at times, comparable with that from a much larger

farm or full-time employment. Part of this income may be used to buy stock or equipment for the farm.

Part-time farming is also practised around many African cities, particularly in the peri-urban zones where farmers are able to commute to the cities for non-farm jobs. However, in stark contrast to North America and Western Europe, part-time farming around the African cities is also frequently carried out by many urban wage earners to supplement declining real wages. Whilst it is tempting to suggest that part-time farming activities around many African cities represent survival strategies in response to the economic hardships, it is important to stress that many of these activities pre-date the introduction of structural adjustment programmes in the 1980s. Considering that the majority of urban dwellers in Africa have rural and farming backgrounds, it is not unreasonable to expect that they are most likely to practice farming as a hobby as well, hence leading to the incidence of hobby farming activities. Indeed, many urban farmers developed a sustained interest in farming, not necessarily for economic rewards alone but also for the satisfaction involved (Gefu, 1992). Such sustained interest has changed with the deterioration of African economies in recent years, and especially with high inflationary pressures on wage incomes. Therefore, the incidence of hobby farming around many African cities is now largely irrelevant.

Another effect of urban pressure on peri-urban agriculture is the conversion of farmland to urban uses. Given the fact that many cities are surrounded by productive farmland, it follows that when cities expand, they frequently take over good quality farmland. Therefore, agriculture in the peri-urban zone faces the relentless challenge of competition for the land it occupies from urban uses such as residential, commercial and industrial uses. Agricultural activities are in a weak competitive position, because land under urban uses gives a far higher economic rent than any agricultural enterprise. In addition to the construction of buildings and infrastructural development, agricultural land is also subject to other types of non-farm use such as gravel pits and quarries. Individually, these uses may not claim large contiguous areas, as urban construction does, but they

are no less important in terms of their total effect as far as the farmland of the best quality is concerned.

Whilst it is generally agreed that there is a persistent loss of agricultural land to urban uses, the severity of the problem and the rate of loss in the recent years in developed countries has attracted divergent views among scholars. For instance, there is concern that not only is land being lost, but also that it is often high quality land (Edward and Wibberley, 1971; Sermonti, 1968). In England, for example, the rate of loss of agricultural land is felt more in the south and east, where better quality land is found (Coleman, 1978). Similarly, Gregor (1963) noted a tendency for urban encroachment to take place on better soils in California, and it has been estimated by Platt (1977) that 21 per cent of the prime agricultural land there has been urbanised.

The seriousness of the problem of agricultural land lost to urban uses depends on the scale at which it is investigated. For example, only 25 per cent of land in the USA is in farm use; even if the area of cities doubled, they would still only occupy about 4 per cent of all land. In the European Union countries, the rate of agricultural land loss was 0.8 per cent per year between 1961 and 1971. This appears to be negligible, however, compared to 1.3 per cent per year for one individual country (Netherlands), and much more serious for a locality, such as the case of Essex, where 2.3 per cent was lost over a period of 13 years (Blair, 1980). In Canada, where there is only a very small area of high quality farmland, it is not surprising that great attention has been devoted to preserving this land. Between 1981 and 1986 prime agricultural land accounted for 59 per cent of all land converted to urban uses in Canada as a whole, illustrating the conflict between urban growth and the retention of the best agricultural land.

In Africa, the loss of farmland to urban encroachment is not of the same order of magnitude as was the case in countries like Britain in the 1930s. In fact, the issue is of little relevance in African cities, largely because most of Africa's big cities, particularly colonial cities, were established in sparsely populated areas. Indeed, most of these cities

are still surrounded by vast areas of under-used land. Even when these cities begin to grow in population size, the pressure for additional housing is largely confined within the existing built-up urban areas, due to the inadequacies of intra-urban transport. In recent years, especially beginning in the 1980s, the decline in wage incomes among most urban dwellers forced many to open up farms in peri-urban areas. Therefore, whilst some farmlands have been converted to urban uses, even more unused land has been brought into cultivation. In addition, some empty patches of land within the city boundaries have been brought into cultivation. This is what Stren (1986) and Bibangambah (1992) call the *ruralisation* of urban areas, whereby areas within African cities and towns are invaded by subsistence agriculture.

Around indigenous cities in Africa, the loss of farmland to urban encroachment can be considerable. This is because most of these cities are surrounded by tracts of permanent field cultivation. The Sokoto close-settled zone comprises large villages with permanent fields under annual cultivation. In 1976 Sokoto became a State capital, and subsequently there was an exponential increase in the city's population from 80,000 in 1961 to approximately 200,000 by 1980. This increase prompted the government to expropriate land around the city for institutional and residential uses (Swindell, 1988). Therefore, except for isolated cases of conversion of farmland into urban uses around indigenous cities, the problem of loss of farmland is largely of little relevance in Africa.

In addition to the physical conversion of farmland for immediate urban uses, land in the peri-urban zone is also purchased for speculative purposes. The key factor in land speculation is the expectation that all such land will command higher prices in the future, mainly due to a continued expansion of the urban agglomeration. Therefore, land in this location is considered as an investment and a hedge against inflation. Much concern has been expressed about land speculation and its relationship to land hoarding and price inflation, as well as its overall effects on agriculture in the peri-urban zone. Speculative land purchases tend to raise land prices beyond the reach of ordinary farmers, something which becomes a particular problem for farmers who wish to expand the size of their

farms. Furthermore, land speculation is considered to be wasteful, leading to scattered and inefficient patterns of urban development (Task Force, 1969). Land speculation has also been condemned because it leads to the creation of idle land (Hushak and Bovard, 1975). This happens when the land that is bought by the speculators is not put into immediate use for agricultural purposes. Strictly speaking, farmers and other land developers can also act as speculators by withholding their land from development, waiting for higher prices. The overall effect is the creation of a 'leapfrog' use of land, whereby the urban fringe becomes characterised by isolated pockets of idle land.

2.5 Intensity of agricultural land use

The effects of urban expansion on the peri-urban zone, and, in particular, on changes on land use are complex. This complexity has led to the development of different theoretical perspectives, each attempting to explain the association between the intensity of agricultural land use and the distance from the city's edge. On the one hand, high prices of land on the fringe are thought to encourage increased output per acre in order to yield sufficient returns on farm capitalization. The resulting land-use pattern will be that of declining intensity of agricultural production with increasing distance from the edge of the city, and this conforms to Von Thunen's model of land use around an urban market (Hall, 1966). On the other hand, it is argued that the confusion regarding the direction and pace of urban expansion creates additional uncertainty that limits medium and long-term investment, and influences management decisions that are necessary to ensure higher yields per acre. On the basis of this, Sinclair (1967) posits a model of land use which shows less intensive utilisation of land by those farmers located nearest to cities than by those farmers at located greater distances.

Two core concepts can be identified in Von Thunen's model: the crop location sub-model; and the intensity sub-model (Atkin, 1987; Griffin, 1973). The intensity sub-model is the most relevant to the present study, as it emphasises the relationship between

the yield of an individual product and the required inputs, such as labour or the application of manure. The main argument is that there is an incentive for those farmers with ready access to a market to intensify their input in order to pay the higher costs of land near the town. They may do so by substituting land, the scarce factor, for other factors of production, and/or by adopting a system of production with a greater potential for intensification. Therefore, the principal concept underlying the Von Thunen model is that the farmer's decisions on the level of farm input are influenced by accessibility to market in which distance is only one aspect, although it may be the key one.

Von Thunen's model has been criticised for the unrealistic assumptions used in delineating land use patterns. Sinclair (1967), for example, argues that transport costs have decreased since Von Thunen's time, and, therefore, they are no longer a decisive factor in agricultural location. However, in a counter-argument, Peet (1967) stresses that while there have been considerable improvements in the transport system, it would be a gross exaggeration to consider that such improvements have affected all agricultural enterprises equally and to such a large extent. This means that in those areas where the transport system is not as developed as that found in many Western countries (Sinclair's point of reference), land use patterns will certainly reflect the effect of transport costs, and conform to Von Thunen's model.

In West Africa, a high intensity of agricultural production is noted around Kano city (Mortimore, 1975). In the Close-Settled Zone around Kano, increasing population densities and the growing demand for land have forced up the values of agricultural land, thus compelling farmers to abandon the fallow system in favour of using more inputs (more than 1.5 tons of manure per acre). This is to compensate for the high price of land that they use. By such means, 85 per cent of the surface area is kept under annual or perennial cultivation in order to satisfy the ready urban market of Kano (Mortimore, 1975).

In a study of horticulture around nineteenth century London, Atkins (1987) has shown the validity of Von Thunen's model. Although there were no complete circles of market gardening, the degree of agricultural intensity close to the city was quite high. Intensification was necessary because of the high cost of land close to the built-up area, which was, of course, often ripe for urban development. Beyond this area, land was devoted to less intensive plough cultivation of more bulky and less perishable vegetables such as peas, beans, onions, and cauliflower. The outermost ring of the London horticultural hinterland at that time produced less valuable vegetables such as cabbage and carrots. Therefore, close to London, the most intensive and highly specialised gardens tended to resist change most successfully, because they were able to match the potential returns from building. In order to achieve this, farmers grew high value crops to compensate for the difficulty of getting enough land, and they were increasingly forced to substitute capital, labour and skill for land - the scarcest factor of production. The two examples of Kano and London show that farmers usually respond to large urban markets by increasing farm inputs in order to get higher yields which in turn pay for the high costs of land.

Sinclair (1967), on the other hand, argues that although the total value of land declines with distance away from the urban edge, the proportion of its value that is attributed to its agricultural use rises away from the city boundary up to the point where its urban speculative value is nil. This will be the point at which the value of land is determined by agricultural considerations alone. The reason for this is that as the urban development potential of the land rises close to the edge, uncertainty over the future of farming increases as well. In Sinclair's view, farmers near cities have problems in acquiring more land, either because it is completely unavailable, or is it too expensive. This may prevent them from expanding their operations to generate enough income in the face of low returns per unit of production, and from taking advantage of newer technologies that require more land to achieve full economies of scale. This also applies to situations where expectations of urban development are high. In this case, planning for farm

investment is shortened, thus discouraging long-term investment and even leading to disinvestment. Sinclair's proposals reflect influences such as the negative effect of proximity to urban centres (e.g. pollution and vandalism), speculative land holding awaiting the next surge in urban expansion, and the farmers' ability to obtain high returns from land without intensive production (e.g. horseyculture).

The decline in intensity of agricultural land use near expanding metropolitan areas has also been explained in terms of the 'impermanence syndrome' (Lockeretz, 1989). This refers to the premature idling of farmland before it is actually sold for urban development. This occurs when farmers see land being developed around them, and consider it inevitable that their land will be developed too, either because it will become more profitable to sell it than to farm it, or because the problems of pollution and vandalism will become so severe that they will not be able to remain in farming (Berry, 1978). Given this expectation, it does not make sense to invest in long-term improvements, or even to maintain existing capital facilities such as fences, irrigation equipment or drainage systems. These are important reasons for expecting a decline in agricultural production near expanding metropolitan areas to be more rapid than the actual loss of farmland. On the other hand, those farmers most likely to intensify their production systems are those further away from the encroaching urban development. These are least threatened by the anticipation of urban growth, and it is on this basis that Sinclair postulated a number of land use rings of increasing farming intensity away from the urban edge.

Sinclair's notions have been supported by Ross (1978), who argues that uncertainty as to when a certain piece of land will be ultimately required for urban development makes medium and long-term planning impossible. Consequently, farmers tend to adopt less efficient farming practices. Therefore, where the urban fringe is expanding, farmers may 'farm to quit' (Ilbery and Barrington, 1986). In this way, farms can seldom be managed in a way which will realise their full potential. In the Niagara Fruit belt in Canada, the findings of Krueger (1978) show an increasing intensity of production with distance

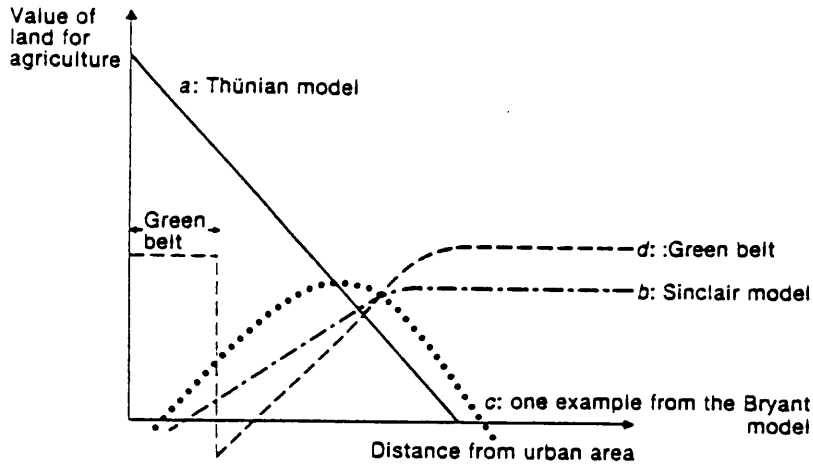
from the edge of the city. Mattingly (1972) also presents empirical evidence from a case study of Illinois, which indicates that the labour input per unit area increases for some distance outwards from the urban edge before then declining. He also finds that part-time farms are twice as common in the inner zone than elsewhere, and that the relative roles of dairying and cash-grain farming change outwards from the city.

Sinclair's model offers only a partial explanation for the low intensity of agricultural production around cities. The presence of other factors (such as trespassing and theft of crops) puts the relationship between the lowering of the intensity of farm investment and the strength of the indicators of potential urban development into an ambiguous position. Thus, this situation presents difficulties of separating out changes induced by the anticipation factor from those induced by other factors such as pollution and trespass. For example, the relatively low level of agricultural intensity immediately around the city may be a result of factors other than the pressure created by urban-rural differentials in land values (Mather, 1986). These include thefts of crops, trespass, and pollution. All these are likely to militate against efficient farming.

The urban fringe also contains a disproportionate number of part-time and hobby farmers who are not especially interested in the full agricultural use of the land (Bryant, 1986). Munton's work (1974) in the London Green Belt shows a similar relationship between hobby farmers and run-down farmland in the area, and further observes that agricultural dereliction is frequently associated with detached or discontinuous fields and especially those next to new roads or housing, and with short-term lets. On the other hand, hobby farming around African cities is rather uncommon, as a result, it is difficult to establish an association between hobby farming and run-down farmland in the peri-urban zone.

The explanatory value of Sinclair's argument, therefore, depends more on the assumption that uncertainty arising from urban development is the exclusive, or, at least, the dominant factor in determining farmer's decisions on investment and the choice of

enterprise. It is further assumed in Sinclair's model that peri-urban farmers react in the a similar manner to urban pressure. While it is difficult to predict farmers' behaviour, and more so in situations of uncertainty, it is important to recognise that some farmers perceive urban development as a threat to their farming livelihood. This may lead to the withdrawal of resources from their farms, as Sinclair postulates. Others may reduce the size of their farms and gradually increase their dependence on non-farm employment. Alternatively, other farmers react dynamically and make additional investment in farm-gate sales in order to maximise new market opportunities.



Source: Bryant, 1992 (after Ilbery, 1985)

Figure 2.1 Hypothetical relationships between distance from urban area and value of land for agriculture.

From another perspective, Bryant (1982) presents a model that seeks a compromise between the Von Thunen and Sinclair models (Ilbery, 1985). Bryant argues that in environments characterised by rapid urban development, only certain types of agricultural investments are negatively affected by urban pressure. This would influence

those types of investments with a high level of fixity and long amortisation periods. These include, for example, new orchard plantations, dairy production and other capital inputs with a long pay-back period. Therefore, this yields value-curves for agricultural land that are similar to Sinclair's (Figure 2.1). On the other hand, however, Bryant (1992) further argues that if we recognise that proximity to the urban market is still an important factor, then some intensively produced enterprises, with a very short pay-back period or which are highly mobile, can still be expected in areas near the urban edge. These are usually those enterprises whose intensity is related to labour or capital inputs. Therefore, some value-curves for the land can still follow the 'classic' pattern (Von Thunian model), whilst others will first rise and then fall as distance increases from the edge of urban expansion (Figure 2.1).

2.6 Summary and Conclusions

The review of the literature on peri-urban zones shows that the bulk of the work on this theme is based very much on the experience of the advanced capitalist economies of North America and Western Europe. These societies are in many respects different from those existing in Africa, in terms of origins of urbanisation, and more significantly, of the land tenure systems. Consequently, there exists a general lack of knowledge of the peri-urban zones around the African cities, despite the considerable efforts made, particularly with regard to West African indigenous towns (Mabogunje, 1968; Mortimore, 1975).

Three key issues are evident. The first concerns the definition of a peri-urban zone. It is evident that different socio-economic environments apply different criteria in defining and delimiting the peri-urban zone. For example, in advanced capitalist economies, commuting to work in the city is an important factor that reflects the spatial extent and the relationship between cities and their peri-urban zones. Commuting to work in African cities may be less relevant in defining and delimiting the spatial extent of peri-

urban zones. Given the fact that many African cities developed in areas surrounded by rich agricultural land, commuting to peri-urban farms may well be an important criterion that sheds light to the spatial extent of the peri-urban zones. Even in colonial cities, established in sparsely populated areas, most residents have an overwhelming rural and farming background. To these residents, commuting to work in the peri-urban farms still remains an important criterion in defining and delimiting the spatial extent of peri-urban zones.

Second, studies of the advanced capitalist economies of Western Europe and North America emphasise the conflicting relationship between cities and their peri-urban zones. These conflicts arise largely from the competition for peri-urban land. However, such conflicts are less relevant around most African cities, particularly those nineteenth century colonial cities surrounded by vast tracts of under-used land. Thus, the pressure on peri-urban land and subsequent loss of farmland is less pronounced. This is further explained by the fact that land around many African cities is, in most cases, held under communal ownership.

Third, despite the growing tendency towards a more process-oriented approach, most studies still assume a homogeneity of response on the part of farmers to urban forces. In actual fact, farmers' responses are likely to be conditioned by their attitudes and perceptions of urban forces, and such perceptions are likely to differ between individuals. Such variations in farmers' perception and attitudes are likely, in turn, to be reflected in the choice of crops. Furthermore, most studies have considered the peri-urban zone of a city as one geographical entity with rather uniform characteristics. However, this is unlikely to be the case, because urban growth does not take place uniformly in all directions: the pace and direction of growth are likely to be different from part of the city to another. In recognition of this fact, significant spatial differences in land use pattern are likely to occur within the peri-urban zone of any one city.

Finally, studies on urban growth in Tanzania, and, in particular, on the problem of food supply to the urban population acknowledge and appreciate the economic necessity of peri-urban agriculture, and further recognise the potential role of peri-urban zones in alleviating this problem (Bryceson, 1987; Sporrek, 1985). For example, in their survey in 1980, Mganza and Bantje (cited in Bryceson, 1987) found that 44 per cent of low income wage earners in Dar es Salaam had farms on the outskirts of the city. None of these studies, however, has paid attention to the effects of these urban developments on land-use in the immediately adjacent areas, the peri-urban zone. Thus, it is the primary concern of this study to analyse the nature and extent of the changes in land use around Dar es Salaam city.

CHAPTER THREE

METHODS

3.1 Introduction

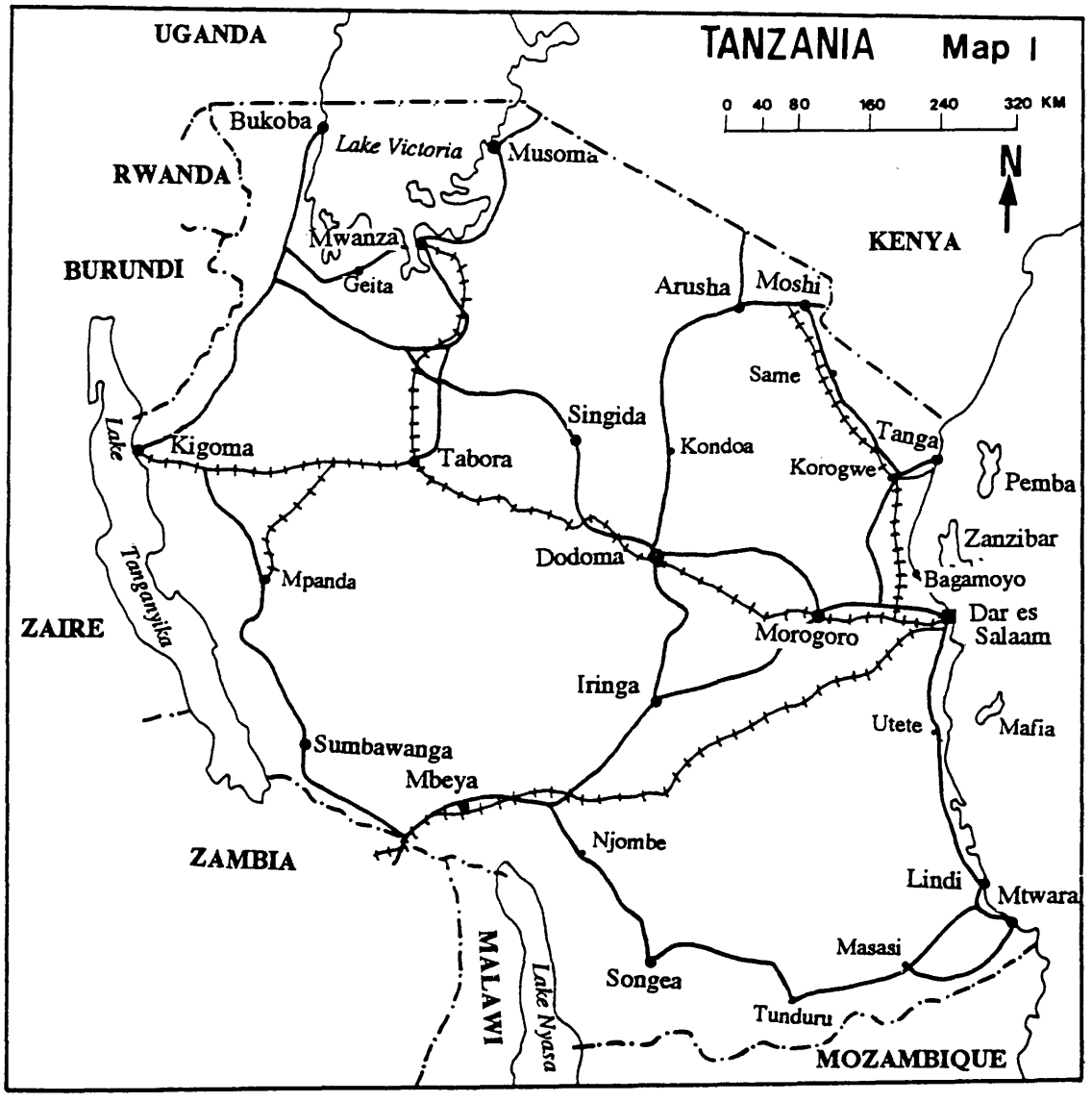
This chapter discusses the various methods applied in collecting and analysing the data for this study. It begins with a brief description of the study area (the Dar es Salaam city-region), and proceeds to discuss the sampling procedures used in the selection of the study villages and households. Primary and secondary sources of data; and the methods of data analysis are also discussed in this chapter.

3.2 The study area

3.2.1 Location

The city-region of Dar es Salaam is located on the coastal plain between longitudes 6^0 34' and 7^0 10' south on the west Indian Ocean coastline. It stretches about 100 kilometres between the Mpiji River to the north and beyond the Mzinga River in the south, enclosing some 1,440 square kilometres of land including 8 off-shore islands (Map 3). Only about 12.5 percent of Dar es Salaam region's land area is densely occupied. Much of the peripheral land comprises of some 50 villages at different stages of being urbanised.

Until 1973, Dar es Salaam was the capital city of Tanzania, but as part of the rural development and decentralisation policies of the early 1970s, the capital was relocated to the city of Dodoma in Central Tanzania (Map 1). However, due to budgetary constraints, it has not yet been possible for the government to move its offices and ministries to the new capital. In spite of a lack of investment in urban renewal and development, Dar es Salaam has continued to grow, primarily due to rural in-migration and port-related economic activities (Potter, 1985). Thus, 20 years after the decision to


TANZANIA
Map I
0 40 80 160 240 320 KM
N
UGANDA
RWANDA
BURUNDI
KENYA
ZAIRE
ZAMBIA
MALAWI
MOZAMBIQUE
Lake Victoria
Lake Tanganyika
Lake Nyasa
Bukoba
Musoma
Mwanza
Geita
Arusha
Moshi
Same
Tanga
Korogwe
Pemba
Zanzibar
Bagamoyo
Dar es Salaam
Singida
Kondoa
Kigoma
Tabora
Dodoma
Mpanda
Morogoro
Iringa
Utete
Mafia
Sumbawanga
Mbeya
Njombe
Lindi
Mtwara
Masasi
Songea
Tunduru

relocate the capital city, Dar es Salaam remains the *de facto* seat of the Tanzania government. It is a primate city, with a population 1,360,850 in 1988, exceeding the total for the next eight ranked urban centres combined. Dar es Salaam is also an important port in the country, handling over 92 percent of the country's cargo between 1986 and 1990 (Kironde, 1993). The port also serves the neighbouring countries of Malawi, Zambia, Zaire, Burundi, Rwanda and Uganda, to which it is connected by a network of railways and roads.

Dar es Salaam city was established in one of the sparsely populated areas of the country (20 people per square kilometre). Due to the poor clay-bound sandy soils and unreliable rainfall, the agricultural potential of the region is generally low. In terms of its physiography, the city-region of Dar es Salaam is characterised by four distinct land forms. There is the shore-land immediately abutting the sea, which comprises sand dunes and tidal swamps, and a limestone to the west of the shore-land extending to the Pugu Hills. There are also the deeply dissected Pugu Hills, which bound the city-region to the west with an average elevation between 100 and 200 metres above mean sea level; and the coastal plain dissected by small rivers to form a series of valleys culminating in creeks. This creek system forms the principal topographical feature of the city-region.

The climate is tropical coastal, with a mean annual temperature of 26 degrees Celsius and an average humidity of 82 percent. The climate is influenced by the south to south-east monsoon from April to October, and by the north-east monsoon between November and March. The annual rainfall averages just over 1000 mm concentrated in two seasons, the "short rains" with storms of limited duration during November and December (providing on average 75 to 100 mm of rainfall per month); and the "long rains" between March and May where monthly rainfall averages of 150 to 300 mm can be expected. Between June and October it is generally dry and the potential evaporation generally higher.

3.3 Sampling methods

3.3.1 Village sampling

In essence, this study aims at examining the influence of urban demands on the peri-urban zone, particularly changes in agricultural land use. However, as in other cities, this influence is not uniform in all geographic directions around the city. The extent to which peri-urban zones are directly influenced by urban demands largely depends not only on proximity to the city, but also their accessibility. The spatial expansion of Dar es Salaam city has tended to follow areas of maximum accessibility from the city-centre, and hence expansion along the arterial roads has been more rapid than in those areas not served by good roads. The most rapid growth corridor of the city has been towards the west along Morogoro Road which extends further inland to link many up-country towns with Dar es Salaam (Map 1). In the north, the city has been expanding along Bagamoyo Road. In the southwest, the city has also been expanding along Pugu Road which links Dar es Salaam with Kisarawe town in Coast region (Map 3). Generally, the expansion of the city towards the south along the Kilwa Road and Kigamboni areas has been quite slow. Therefore, with this pattern of city expansion, the peri-urban consists of rural territory pierced by finger-like projections of urban land use. Between the arms of the star formed, land is still primarily rural in character (Map 4). In essence, this means that within the peri-urban zone of Dar es Salaam, there are marked spatial variations in terms of the pressure for urban expansion.

In order to cover all areas of the city expansion particularly due to the influence of roads, all four road transects were selected (Map 2). These were the Bagamoyo Road to the north, Morogoro Road to the west, Pugu Road in the south-west direction and Kilwa Road to the south. Before selecting the study villages, each of the four main road transects was surveyed in order to establish the spatial extent of peri-urban zone. The inner margin of the peri-urban zone was defined by extent of the urban residential land use. Thus, the point where the city's continuously built-up areas gave way to a mix of

urban and rural land uses, such as farming, marked the beginning of the peri-urban zone. The outer margin was determined by the maximum commuting distance that most urban residents cover to work on their farms on a daily basis.

Along Bagamoyo Road, the inner boundary of the peri-urban zone is marked by Mtongani village. This is where the continuously built-up area of the city gives way to agricultural and scattered residential land uses, and extends northwards to Bunju B village (Map 8). Along Morogoro Road, the city's continuously built-up area gives way to rural land use from Kimara village, whilst Kiluvya village marks the maximum distance covered by most urban dwellers as they commute to work on their farms. In the southwest parts of the city along Pugu Road, the peri-urban zone covers the area between Gongo la Mboto and Buyuni. Therefore, villages such as Pugu Kajiungeni, Pugu Station, Majohe, and Buyuni form part of the peri-urban zone in this area (Map 8). The same criteria were applied in the Kilwa Road and Kigamboni areas. Along Kilwa Road, from Mbagala, urban residential land use gives way to scattered rural land uses such as farming, and this extends to Kongowe and Yasemwayo villages (Map 8). In the Kigamboni area, the furthest point that most people cover as they travel to work on the farms is marked by Kibugumo village. This means that villages such as Mjimwema, Vijibweni, Kisiwani and Mikwambe are all included in this part of the peri-urban zone. It is important to stress at this point that the delimitation of the spatial extent of the peri-urban zone of Dar es Salaam city, as outlined above, provides only a rough guide to the size of the areas. In fact, this study recognises both the theoretical and practical difficulties involved in delimiting the spatial extent of peri-urban zones.

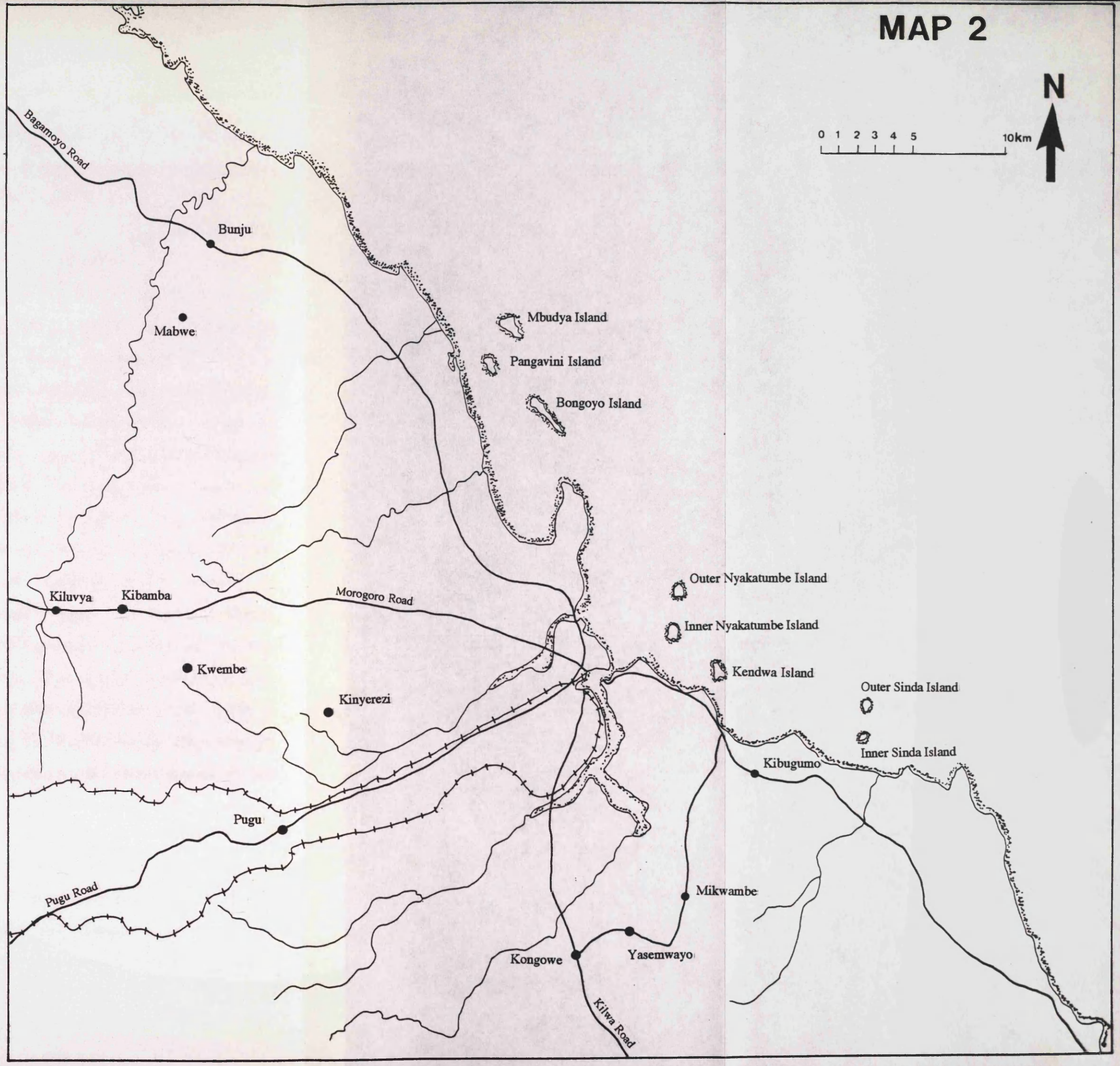
In recognition of the spatial variations within the peri-urban zone, two types of villages were selected: on-road and off-road villages (Table 3.1). This was done in order to examine the influence of accessibility on nature of land use in the peri-urban zone. Two lists of villages from each road transect were prepared. One list had names of all villages located along the road, and another comprised of villages off-the road. These villages were then assigned random numbers, and the required number of villages selected.

From the Morogoro Road zone, three villages were selected, these being Kwembe (off-road); Kiluvya and Kibamba (along the road). Bunju (on-road) and Mabwe Pande (off-road) were selected along Bagamoyo Road. From Pugu Road, Pugu (on-road) and Kinyerezi (off-road) villages were selected. Other villages included were Kongowe (on-road) and Yasemwayo (off-road) along Kilwa Road, and, Mikwambe and Kibugumo in the Kigamboni area. Therefore, a total of 11 villages from all around Dar es Salaam were selected for the study (Map 2). This represents about 21 percent of the 52 villages around Dar es Salaam. This was considered to be a reasonable proportion from which reliable intra-zone differences within the peri-urban zone can be identified.

Zone	Name of village	On-road/ off-road	Distance from city centre kms
Bagamoyo Road	Bagamoyo	on-road	31
	Mabwe Pande	off-road	35
Morogoro Road	Kiluvya	on-road	31
	Kibamba	on-road	27
	Kwembe	off-road	23
Pugu Road	Kinyerezi	off-road	17
	Pugu	on-road	19
Kilwa Road	Kongowe	on-road	16
	Yasemwayo	off-road	21
Kibugumo	Mikwambe	off-road	24
	Kibugumo	on-road	16

Table 3.1 Study villages

MAP 2


N
0 1 2 3 4 5 10km
Bagamoyo Road
Bunju
Mabwe
Mbudya Island
Pangavini Island
Bongoyo Island
Outer Nyakatumbe Island
Inner Nyakatumbe Island
Kendwa Island
Outer Sinda Island
Inner Sinda Island
Kibugumo
Kiluvya
Kibamba
Morogoro Road
Kwembe
Kinyerezi
Pugu
Pugu Road
Mikwambe
Yasemwayo
Kongowe
Kilwa Road

3.3.2 Household sampling

The basic unit of study was the household, and questions were directed to the heads of the households who, in most cases, are the main decision makers at household level. However, the lack of comprehensive lists of household members in each village presented problems of identifying the sampling frame. Additionally, peri-urban agriculture is also practised by people residing in the city, but their names are not always included in the village registers. This presented problems of locating them in the city because some of them work on the farms during the weekends only. The number of households sampled from each village was 50, giving a total sample of 550. This was thought to be sufficiently large sample from which intra-village variations of the households can be identified. In each village, a random sampling method was applied to obtain a sample of 50 households for interview. Lists of all heads of households were prepared from village Development Levy registers. These registers have the names of all village members who are eligible for paying the Development Levy, these being people who are 18 years of age and above. To these lists, names of city-based farmers who have farms in the villages were added to form a household sampling frame for each village. Each head of household was assigned a number from a table of random numbers. Since the total number of heads of households in each village was less than 1000, only the first three column of digits from a table of random numbers were used. Therefore, the first 50 names whose numbers were between 001 and the total number of households in the list were picked for interview. For example, in Bunju village with 445 households, the first 50 names of heads of households with numbers between 001 and 445 were selected for interview.

Name of village	Total number of households	Number of sampled households	Percentage of sample to population
Bunju	445	50	11.2
Mabwe Pande	327	50	15.2
Kiluvya	320	50	15.6
Kibamba	580	50	8.6
Kwembe	507	50	9.8
Kinyerezi	590	50	8.5
Pugu	560	50	8.7
Kongowe	595	50	9.0
Yasemwayo	361	50	13.8
Mikwambe	340	50	14.7
Kibugumo	315	50	15.8
Total	4940	550	11.1

Table 3.2 Sampled Households in each village

3.4 Primary information sources

3.4.1 Village leadership discussion

Village leadership discussions were useful and necessary for obtaining an overall picture of each village before administering the household questionnaire. These discussions centred mainly on aspects such as the changing population of the villages, changes in land use, changes in the farm size over time, proportion of village farms owned by farmers living in the city, the operation of the land market and changing monetary land values in the villages. Other information sought included the provision of social services to the villages (schools and dispensaries), markets and commodities sold, average farm sizes, and the use of farm inputs. Informal interviews with various village elders were also conducted to obtain a historical perspective in the changes taking place in their villages.

3.4.2 Household survey

This was the main source of a more detailed data for the study. The data were collected by administering a structured questionnaire to individual heads of households in the study villages (Appendix 1). This was an open-ended questionnaire designed to enable heads of households an opportunity to give facts and opinions on various aspects of the study. The household questionnaire was divided into 4 sections. Section A covered the socio-economic and personal details of the farmer, especially with regard to age, sex, education, occupation, size and structure of the household, sources of income, the history of settlement in the area and the household characteristics in general. Section B of the questionnaire was designed to gather general information on farm characteristics. In this category, the data collected concerned land ownership, farm sizes and number of plots, types of crops grown, production trends for different crops, changing farm sizes, sales of land, and the application of farm-inputs.

Section C of the questionnaire covered decision-making processes, especially the key factors influencing farmers' choice of crops. In order to assess the importance of the various decision-making factors, the farmers were presented with a pre-selected list of decision-making factors in a random order. If they were believed to be relevant, the respondents were asked to indicate how important they were on a graduated 5-point scale, zero corresponding to 'not really important' and 4 to 'essential', and 1, 2, and corresponding to levels of importance in between. The elicited factors were then put together in standardised grids.

Section D of the questionnaire was designed to solicit information pertaining to farmers' perceptions and attitudes to forces of urbanisation. More emphasis was placed on farmers' attitudes on the future of their agricultural enterprises, and the advantages they have due to their peri-urban location. This information is considered vital because farmers' responses to urban demands are influenced by their attitudes and perceptions of these demands. Such perceptions are likely to differ among individuals, depending

largely on farmers' socio-economic characteristics and the strength of the urban forces themselves (Bryant, 1992).

In administering the questionnaire, a number of problems arose. First, some respondents were reluctant to provide relevant information, especially on sales of land and sources of incomes. Few respondents admitted to having sold or intending to sell land. This reluctance is understandable because in Tanzania, by law, land belongs to the State; therefore, it is not supposed to be commercialised. Most respondents who had sold part of their farmlands were very suspicious about questions which touched on the sale of land. Even when other respondents showed a willingness to provide answers, there were cases where these answers were exaggerated or underestimated. For example, answers on expenditure were exaggerated, while the prices of land were underestimated. Cross-checking of land prices from people who had bought land in peri-urban villages revealed that prices were generally higher than those given by villagers. Therefore, land prices used in this study are based on averages given by different people both in the villages and the city. This is why the village leadership discussion was necessary to give an overall picture on each village.

Data on the levels of cash income among peri-urban residents in Dar es Salaam are notoriously difficult to obtain, largely because people are not willing to divulge such personal information. In most cases, there were tendencies for farmers to give low income figures, especially for those farmers who are engaged in non-farm, informal activities. This is because in the mid-1980s, most of these informal activities were condemned by the Government, and people involved in these unregistered activities were liable to detention and punishment as 'economic saboteurs'. Although later there was a shift of the official position from outright condemnation to acceptance and encouragement, many people are still reluctant to disclose their sources and levels of income.

Some respondents could not readily grasp the concepts of rations or proportions, especially fractions such as 'one-third' or two-thirds'. These were important measures in an attempt to solicit information pertaining to such issues as the proportion of farmer's annual income spent on food, proportion of food obtained from their farms, or the proportion of crop harvests sold in the market. Consequently, this had to be accomplished through lengthy elaboration, which, in the end, meant a lot of time being spent on one questionnaire. Otherwise, with this difficulty most answers were limited to few common proportions such as, one-quarter, half and three-quarters.

3.4.3 Field observation

In addition to village leadership discussion and household surveys, field observations were conducted in each village. These observations were conducted to collect qualitative information which neither the household survey nor the village leadership discussion could adequately capture. Field observations focused particularly on the mix and spatial extent of the different land use types in the peri-urban zone; and the changes in land use intensity with increasing distance from the edge of the city. Other data collected during field observation included for example, crops grown in each village, provision of social services such as schools and health facilities; average farm sizes, farm management practices. During field observations photographs of different land use types (industrial, residential and agricultural land use) were also taken.

Information on farms (sizes, location and values of land) was difficult to obtain. This is mainly because of the lack of up-to-date topographical maps, and only a few farmers were able to tell the sizes of their farms. Related to land information is the fact that, unlike in advanced capitalist economies where land values are more easily defined and monetarized, in most African communities land may not have inherent monetary values, as values are frequently recognised only in terms of crops grown. Because of this

difficulty, it has become very difficult to calculate the differential returns from a particular piece of land (Briggs, 1992).

3.5 Secondary information sources

Secondary data for this study were obtained from various documentary sources, both published and unpublished documents. These included census reports, research reports, maps, aerial photographs and satellite image.

3.5.1 Census reports

Census reports for the years. 1957, 1967, 1978, and 1988 were valuable sources of secondary data, particularly demographic data of both the city of Dar es Salaam and its peri-urban villages. These reports were obtained from the Bureau of Statistics in the Ministry of Finance. Data collected from the census reports included, the changing population size and the ethnic composition of the urban population of Dar es Salaam city. Other data obtained from the census reports included household characteristics of Dar es Salaam region and at national level. There are however, a number of problems in interpreting the census for Tanzania, especially with regard to urban population. For example, it is not clear how the total urban population is defined and enumerated. This is largely because of the changing definition of what constitutes an 'urban population'. Historically, Tanzania's townships were local administrative capitals[1].

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[1] The definition of urban localities in 1948 and 1957 censuses was guided by an interplay of legal status of locality ('gazetted' or 'declared') urban centres and the administrative functions fulfilled by the locality. The 1967 census restricted itself predominantly to a status of the locality in defining an urban area. The 1978 census classified as urban areas, **a**) all regional and district headquarters with boundaries identified by the Village Act 1975 and Urban Ward Act 1976, **b**) areas falling outside the boundaries of regional and district headquarters which bore physical proximity to them and could be treated as urban based on size-density and/or nature of economic activities and pattern of land use. The decision on inclusion of these rested on the local administrative authorities. **c**) other urban localities which are not regional or district headquarters but met the

Due to late publication of final census results it was difficult to have up-to-date data. For example, it was planned (by the Bureau of Statistics) that the 1988 publication programme would cover eight final publications by the end of 1991. However, until the end of 1992 only three publications (geographical work, methodology, and regional profiles) were complete.

3.5.2 Research reports

Various research reports mainly from the University of Dar es Salaam library, Marketing Development Bureau, and the Ministry of Lands and Town Planning were consulted. Reports on urban food supply and demand, changing function of the city and the increasing involvement of city dwellers in agricultural activities were also of great relevance to the study. There were however, difficulties in obtaining reliable data, for example, of the amount of food brought into the city from other regions of the country. Not even the Kariakoo Market Corporation has reliable data because many traders bringing in food-stuffs prefer to use smaller retail markets to evade taxation by the corporation.

3.5.3 Maps and aerial photographs

Maps and aerial photographs of Dar es Salaam city and the surrounding villages were an important source of information on the growth the city, and in particular, the direction of growth. These maps and photographs were also used to trace changes in land-use around the city. Changes in land use were traced using land use maps for 1966, 1978 and 1992. In order to obtain the most up-to-date (1992) land use map, satellite imagery for Dar es Salaam was used in addition to ground checking. The main task was identify and map the extent of agricultural land use in the peri-urban zone. However, in common with other cities in Africa, there is a lack of clear demarcation of what constitutes an

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size-density and /or nature of economic activities and land use pattern criteria (United Republic of Tanzania, 1978).

urban or rural land use. For example, it is common in African cities to find farms within the open spaces of the built-up areas of the cities. Although these are usually small farms, the difficulty of using land use mix as a criterion for the delimitation of the spatial extent of the city is still there.

3.6 Data analysis

3.6.1 Analysis of household data

Household data (such as, age, size and structure of households, education, main occupations, sources of income, history of settlement, land ownership, crops, and labour input) were entered on mainframe computer and analysed using MINITAB statistical analysis package. These data summarised into means, ranges and percentages, and presented in qualitative and quantitative formats such as graphs, frequency tables and charts. For comparison purposes, percentage scores for each variable were calculated and comparison made between villages and zones.

In order to assess the importance attached by farmers to various factors affecting their decision behaviour, particularly the choice of crops, the point score analysis technique was used. This technique was first used by Van der Vliet (1972) and developed in detail by Ilbery (1977). In its basic form the point score method involves an individual (farmer) specifying both the main crop and decision-making factors influencing this choice. However, in order to reduce the time taken to elicit a grid it was necessary to standardise and specify the decision-making factors for all farmers. Second, standardisation of the decision-making factors was necessary in order to compare farmers' choices in different villages. In a point score analysis farmers are asked the degree of importance of each decision factor in a pre-selected and standardised grid, in influencing the choice of crops. For example, if a factor is believed to be important, the farmer was asked to indicate how important it is - on a graduated scale from 0 for not important at all, to 4, for very important in influencing the choice of the most important

crop. The overall importance of each decision factor was measured by totalling the point score for all farmers in the sample, for each factor in turn. The total score was expressed as a percentage of the maximum possible score for all factors. On the basis of these scores, the factors were ranked in order of importance to the decision-making process. The point score analysis has the advantage that further statistical analysis can be undertaken (Ilbery, 1985). Using the chi-square test, the degree of interrelationship between the factors was applied to obtain a greater understanding of the decision-making process.

CHAPTER FOUR

URBANISATION AND CHANGES IN THE POLITICAL ECONOMY OF TANZANIA.

4.1 Introduction: the context of the study

This chapter presents the context of the study by reviewing the process of urbanisation in Tanzania, with particular reference to the growth of Dar es Salaam city. The key changes in the political economy in Tanzania since Independence are also reviewed. The justification for placing this study in the context of urbanisation and changes in the political economy of Tanzania is two-fold. First, the development of the peri-urban zone cannot be considered in isolation from the city around which it is located, and indeed, the major events in the development of the peri-urban zone (particularly, the settlement of people from the city and the opening-up of the area for investments) clearly correspond to major landmarks in the political economy of the country. It has been further argued by Paddison (1988) that, the population growth rate and primacy of Dar es Salaam city are all the more remarkable because of the developmental path which government policies in Tanzania have emphasised since Independence in 1961, particularly those of rural development and regional decentralisation. Paddison goes on to argue that attempts to redress the imbalance of urban primacy of Dar es Salaam have been through policy initiatives. Indeed, the establishment of villages in the surrounding hinterland, for the purpose of diverting migrants from the city, bears testimony to the impact that these policy measures have had on the peri-urban zone.

Second, strong involvement by the State in agricultural planning is a salient feature of most Least Developed Countries. Thus, any consideration of agricultural development needs to appreciate the influence of State policies on such factors of production as land, labour and capital. It is argued throughout this study that the development of peri-urban

agriculture in Dar es Salaam is, to a great extent, influenced by the state through changes in its political economy.

4.2 Urbanisation in Tanzania

Within the context of the colonial space economy the genesis of many of today's main urban centres in Tanzania can be attributed primarily to administrative considerations and/ or associated with the beginning of the railways. Urban patterns in mainland Tanzania, for example, are largely a product of the colonial period and its aftermath (Stren, 1975). Some important towns arose before German colonization as a result of coastal trade with Arabia and India, trade with the Portuguese, and the slave trade. Two significant features that characterise urbanisation in mainland Tanzania are; that the country's population has remained overwhelmingly rural and that Dar es Salaam city has experienced a disproportionate growth rate. In 1948 there were four urban areas with a population in excess of 10,000; in 1957 there were eleven in this category; by 1967 there were still only fourteen. As a proportion of the total population, these urban areas comprised 1.5 percent in 1948, 3.3 percent in 1957, and 5.0 percent in 1967 (Stren, 1975). Between 1948 and 1957, the total urban population increased annually by 7.1 per cent, while the rural population increased annually by 1.5 per cent. From 1957 to 1967, the respective rates of growth were 6.4 per cent and 2.9 percent (Berry, 1978). Therefore, over the period from 1948 to 1967, the mainland rural population grew at an average annual compound rate of 2.3 percent, compared to an urban rate of 6.8 percent (Claeson and Egero, 1972). Thus, in this period, urban areas were growing in population at almost three times the rate of the rural areas. In 1978, 10.1 per cent of the population were living in 20 largest towns of Tanzania, and by 1988 the urban population had increased to 12.7 per cent (Table 4.1) (United Republic of Tanzania, 1989).

Overall rates of urban growth in Tanzania mask considerable differences between towns. For the mainland, Dar es Salaam city, with a population of 272,821 in 1967, was more than 4.5 times as large as the second largest town, Tanga, which had a population of 61,058 (Table 4.1). In 1978 and 1988 Dar es Salaam was about 6.8 times as large as the second largest city, Mwanza.

TOWN	1967	1978	1988	% growth 1978-1988
Dar es Salaam	272,821	757,346	1,360,850	63
Mwanza	34,861	110,611	182,189	65
Zanzibar	67,819	110,669	157,634	42
Tanga	61,058	103,403	138,274	34
Mbeya	12,479	76,606	135,614	77
Morogoro	25,262	61,890	117,760	90
Arusha	32,452	55,281	117,622	113
Moshi	26,864	52,223	96,838	85
Tabora	21,012	67,392	95,506	39
Dodoma	23,559	45,703	88,473	94
Iringa	21,746	57,182	84,860	48
Kigoma	21,369	50,044	77,055	54
Mtwara	20,413	48,510	76,632	58
Musoma	15,412	32,658	63,652	95
Shinyanga	5,101	21,703	63,471	192
Songea	5,380	17,954	54,830	205
Sumbawanga	n.a	28,586	47,878	67
Lindi	13,352	27,308	41,487	52
Singida	9,459	29,252	39,598	35
Bukoba	8,141	20,430	28,702	40

Table 4.1 Tanzania urban population growth 1967-1988.

Source: United Republic of Tanzania, 1967, 1978 and 1988 census.

Rapid urbanisation in Tanzania has been taking place despite efforts by the Tanzanian Government, following the 1967 Arusha Declaration, to give priority to development in the rural areas. In addition, anti-urban campaigns have been launched from time to time to discourage migrants, especially the unemployed, from coming to the urban areas.

However, these have had no significant effect in slowing down the influx of people into urban centres. Indeed, the major contributing factor to the rapid growth of the urban population has been the influx of people from rural to urban areas. For example, during the 1970s, the urban population expanded at 10 percent per year, and out of this, 3.5 percent was by natural increase, while rural-urban migration contributed about 6.5 percent. Given the small size of Tanzania's original urban base, the rapid growth of the urban population has put tremendous pressure on an already hard-pressed government to provide employment services, and amenities for the urban residents.

4.3. The city of Dar es Salaam

4.3.1 Spatial growth of Dar es Salaam city

The narrow section of the coastal plain on which Dar es Salaam city is located is characterised by a complex creek system. This system, together with terrace-like land forms, has significantly contributed to the morphological development of the city. In particular, the creek system has influenced the direction of expansion of the city and brought spatial discontinuity to the built-up areas (Mascarenhas, 1971). For example, the core of the city (Map 4) developed on the northern banks of the harbour creek and is separated from Oyster Bay and Magomeni by the valley of Msimbazi creek. In the southwest, Gerezani creek separates the city centre from the residential areas of Keko and Chang'ombe. Nevertheless, modifications, such as Selander Bridge across the Msimbazi creek and the filling-up of the Gerezani creek, have all made the city centre more accessible to other parts of the city.

The city of Dar es Salaam has seen successive periods of both rapid and slow growth. For example, after the First World War, Dar es Salaam saw little growth because most efforts were put into the repair of what had been destroyed during the war. However, immediately after the Second World War, the city entered a period of rapid growth. The increase in population demanded an expansion of housing facilities, industrial activities,

health facilities, and educational amenities - all of which exerted considerable pressure on urban land, and necessitated an outward expansion of the effectively built-up area. In order to facilitate this, the administrative boundaries of the city changed and new settled areas were incorporated into the existing ones.

After Tanganyika's Independence in 1961, the city continued to grow quickly, especially due to industrial growth. One of such areas of growth was to the southwest along Pugu Road where an Industrial Estate was established (Map 6). Further expansion of the city took place in the late 1970s, with the utilisation of vacant land and undeveloped areas within the city and its outskirts. In most of these areas, city expansion stimulated a leap-frogging pattern. Those areas that were characterised by physical difficulties (e.g. river valleys and swampy areas) were by-passed by developers for cheaper and better land, even though it was located further from the city. This left some of the less attractive land "fallow". For example, the area between Mbezi and Kibamba along the Morogoro Road until the early 1980s was largely unused except for small scattered farms. Similarly, the area between Tegeta and Bunju along the Bagamoyo Road was until the late 1970s left vacant. In the south, along the Kilwa Road, 'fallow' land was found between Mbagala and Kongowe.

Vacant land was also found in areas within the city boundaries. For example, the area between Ubungo and Buguruni along the Nelson Mandela Road (Port Access) was, until the 1980s, left unused because of it being a swampy area. However, beginning in the mid-1980s, when the pressure for additional land became intense, most of these areas were converted into residential and industrial uses. Most parts of the Msimbazi valley, particularly between Vingunguti and the Morogoro Road, are now used for both residential and agricultural activities despite being low-lying and liable to flooding and mosquito infection. Since the early 1980s the spatial growth of the city has tended to take place in areas of maximum accessibility to and from the city centre. Hence, expansion along the arterial roads has been faster than in those areas which are not served by good roads. For example, Map 4 shows that the city's residential area has

expanded to Kiluvya (31 km) along Morogoro road, and to Bunju (32 km) along Pugu road, while the area within 15 kms between these two roads is still largely undeveloped. Thus, wherever the physical features allow, the peri-urban zone has consisted of rural territory pierced by finger-like projections of urban land uses (especially residential use). Between the arms of the star thus formed, land is either left vacant or put under cultivation. Such a growth form has given rise to ribbon rather than circumferential development of the city.

4.3.2 Population Growth in Dar es Salaam

The population of Dar es Salaam has grown from 24,600 people in 1921 to 51,000 people in 1948, and the number increased to 128,742 people by 1957. In the period 1957 - 1967 it grew by some 150,000 people, at an annual growth rate of 7.8 per cent (Table 4.2). In the period 1967 - 1978 the population of Dar es Salaam grew at an annual rate of 9.9 per cent, and by 1978 the population had increased to 757,346 people (United Republic of Tanzania, 1983).

Census years	Dar es Salaam
1988 Population	1,360,850
Population growth rate	4.8
1978 Population	757,346
Population growth rate	9.9
1967 Population	272,821
Population growth rate	7.8
1957 Population	128,877

Table 4.2 Population growth rates for Dar es Salaam.

Source: National population censuses 1957, 1967, 1978 and 1988.

The growth of population in Dar es Salaam has been due to a combination of two main factors. First, the population has been increasing by natural growth. Population figures for the 1970s show that natural growth contributed about 3.5 per cent per annum. Second, rural-urban migration has also played a significant role in the growth of

population in Dar es Salaam. Both in the periods 1957 - 1967 and 1967 - 1978 about two-thirds of the growth in population was attributed to in-migration from rural areas (United Republic of Tanzania, 1983).

Up until the 1950s, migration to Dar es Salaam city involved mainly the Zaramo people, and, to a lesser extent, other neighbouring groups such as the Rufiji, Makonde and Ndengereko. In 1948, for example, more than 50 per cent of the African population in Dar es Salaam were Zaramo. In the mid-1950s the proportion of the Zaramo started to decline. At the same time however, the proportion of other ethnic groups began to rise (Figures 4.1; 4.2; 4.3). By the early 1960s, 70 per cent of the different African tribal groupings in the country were represented in Dar es Salaam.

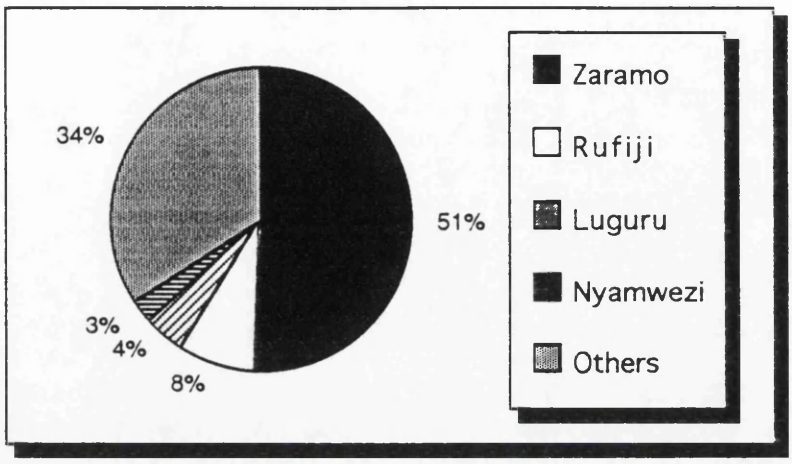

Figure 4.1. Ethnic composition of African population in Dar es Salaam: 1948

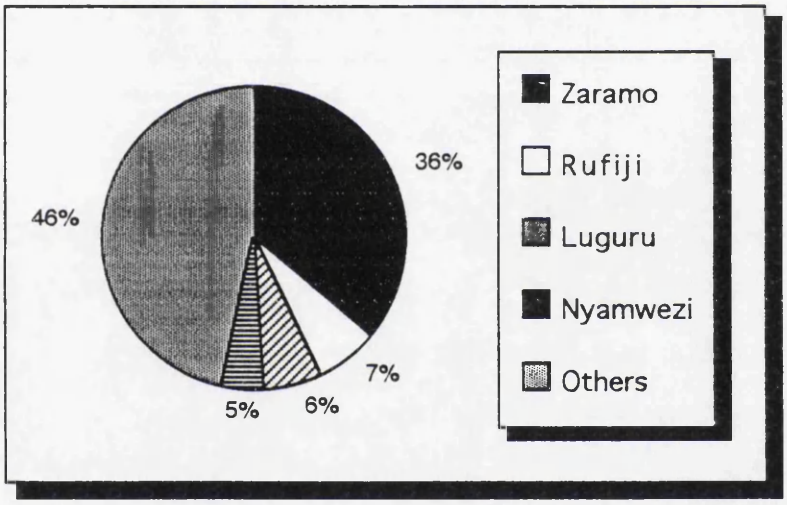

Figure 4. 2. Ethnic composition of African population in Dar es Salaam: 1957

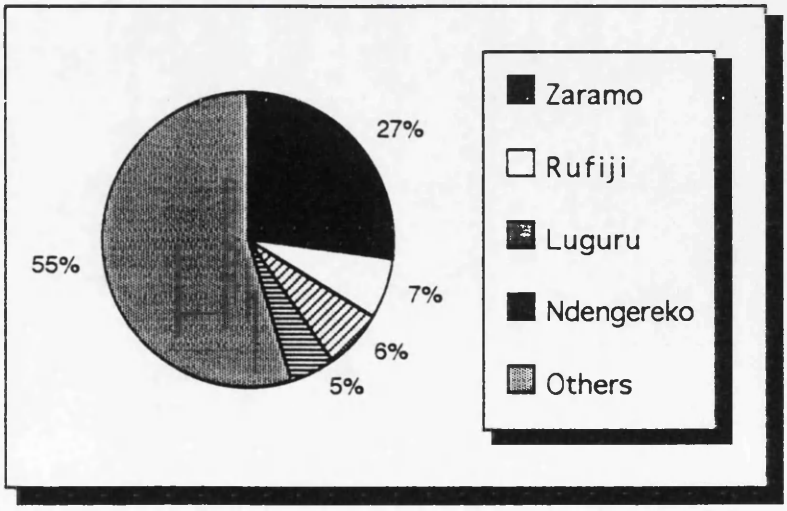

Figure 4.3. Ethnic composition of African population in Dar es Salaam: 1967

From an ethnic point of view, Dar es Salaam's population is very heterogeneous. Consequently, the city is not dominated, either economically or socially, by one ethnic group, as is the case with other East African cities such as Nairobi and Kampala. For example, the Kikuyu made up 33 per cent of the total 1979 Nairobi population, compared with 21 per cent of the Kenyan total (O'Connor, 1983). In West Africa, particularly in Nigeria, many cities are notable for their high degree of ethnic homogeneity. In Dar es Salaam, the Zaramo are clearly the local resident group, but accounted for only 27 per cent of the city's population in 1967[1]. By 1978, 35 per cent of the urban population in Dar es Salaam were born within the region, 60 per cent born in other regions, and another 5 per cent from outside Tanzania (United Republic of Tanzania, 1983). Since then, their proportion has declined further, and to-date the Zaramo do not occupy a position matching that of the Kikuyu in Nairobi.

According to the 1988 census there has been a fall in the rate of growth at least in the major cities in Tanzania. With particular reference to Dar es Salaam, the predicted figure for 1988 was 1,723,000 people, some 362,150 (or 21 per cent) higher than the actual figure of 1,360,850 (United Republic of Tanzania, 1989). In their analysis of the 1978 and 1988 census data, Barke and Sowden (1992) argue that Dar es Salaam was one of the regions which showed a sharp decrease in growth rate dropping from 7.8 per cent per annum in 1978 to 4.8 per cent in 1988. Thus, Barke and Sowden cautiously conclude that while it's too early to claim that Dar es Salaam's primacy is lessening, it is evident that its rate of growth has slowed in the 1980s.

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[1] Up todate figures on ethnic composition of Dar es Salaam population are not available. Beginning the 1978 census, the question on ethnicity was excluded presumably because of the ruling Party's insistence on national integration.

4.3.3 Urban growth controls

Rapid and uncontrolled urban growth, and the deterioration in urban conditions which has accompanied this, has been a problem of concern both during the colonial era and post-independence Tanzania. Therefore, campaigns to control urban growth were launched as early as the 1950s, and they have continued, until very recently. In the early stages, these campaigns tried to persuade the unemployed already in the cities to return to their homes, plant crops, tend livestock and become worthy citizens of Tanganyika (Nyerere, 1967). Initially, these campaigns were concentrated in Dar es Salaam and, to a lesser extent, Tanga, which was then the second largest city to Dar es Salaam.

The first nation-wide urban control campaign took place in 1964. This was directed both at prospective in-migrants moving, or considering moving to the towns, as well as against the urban unemployed. This campaign was not accompanied with the same vigour as those which followed in 1980s. This is because until the 1960s the numbers of unemployed in urban areas appeared manageable. Thus, various positive measures were attempted. For example, a committee on unemployment was set up to examine job creation. In Dar es Salaam, one such positive measure was to establish resettlement schemes in the rural areas surrounding of the city to settle the unemployed. As the limitations of positive job creation became more apparent, the government resorted to stricter measures. For example, from October 1964, it became an offence for the unemployed to remain in the towns. Periodic campaigns, which were particularly vigorous in the city of Dar es Salaam were launched. In order to implement this, street checks of those people without identity cards[1] were initiated. Other parallel measures included the imposition of stricter controls on the licensing of petty traders, such as hawkers and shoe-cleaners (Tanzania Standard, 9 October 1964)

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[1] Identity cards could only be issued by an employer or CCM - Chama Cha Mapinduzi -the sole political party until 1992.

Since the earlier campaigns proved less effective, another control exercise was launched in the mid-1970s. This campaign, under the label of Operation "Kila Mtu Afanye Kazi" (every able-bodied person must work), stressed that there was no rationale for having the unemployed in the cities, whilst there was plenty of vacant land to work in the rural areas. Thus, this campaign involved the enforced rustication of in-migrants declared "illegal" on the basis of having no formal employment. As in the earlier campaigns, pilot programmes to resettle the urban unemployed into villages were planned. Again, as in the earlier moves, Dar es Salaam was the central focus of the campaign. The most recent campaigns are those following the Human Resource Deployment Act (1983). This was enacted to make sure that every able - bodied Tanzanian is engaged in productive or lawful employment. This Act aimed at controlling the rural-urban flow of people. It also involved the repatriation of the unemployed urban dwellers to rural areas, where they could engage themselves in food production.

An assessment of the campaigns shows that although they have been in operation over the last four decades, their effectiveness in altering the rate of urban growth has been minimal. From their inception, these campaigns were bound to fail because measures introduced were temporary, and often half-hearted. These campaigns attacked the problem of unemployment of in-migrants from the receiving end - the urban centres - whilst doing very little to develop, and hence make more attractive, source areas in the rural countryside.

Despite all efforts to emphasise rural development and to decentralise government and industries away from Dar es Salaam, and to move the national capital to Dodoma, Dar es Salaam's population has continued to grow unabated. In particular, even the country's development policy to improve the rural areas has not been successful enough in delivering tangible benefits to keep people in these areas. In general, the urban control campaigns have proved unsuccessful, and there is a growing official awareness of their limited effectiveness, as indicated by the longer time-gaps between successive campaigns.

4.4 Urban food supply in Dar es Salaam city

On average, the Tanzanian dietary intake is based heavily on cereals and starchy roots. The Household Budget Survey of 1976/77 shows that maize is the major source of calories and accounts for about 61 per cent of the total calorie intake. In urban areas the percentage is somewhat lower, but still above half the intake. Rice accounts for 10 per cent of the total calorie intake nation-wide, but it is much more important in urban areas, where it provides almost a quarter of the total calories (Table 4.3).

SOURCE	RURAL AREAS % Calories from Staple Foods	URBAN AREAS % Calories from Staple Foods
Maize	62	53
Paddy	8	24
Wheat	0	2
Sorghum/millet	8	6
Cassava	13	10
Potatoes *	5	3
Bananas	4	2
TOTAL	100	100

Table 4.3 Staple food consumption in 1988/89

* include sweet potatoes, round potatoes and yams.

Source: Bryceson (1993).

Of the total Dar es Salaam city land area (1,440 sq. km), 900 square kilometres are set aside for agriculture. Whilst there would appear to be ample agricultural land in the region, agricultural production, especially of maize and rice, falls far short of demand. Despite the importance of these cereals, as indicated by their contribution to calorie intake, Dar es Salaam produced barely 1.3 per cent and 8.2 per cent of its maize and rice requirements respectively in 1990/1991 (United Republic of Tanzania, 1992a). This is largely attributed to the poor soils found in the region. As a result, most food items are imported from outside the region. This is indicated by Table 4.4 which shows the total food imports recorded at Tandale and Buguruni markets for the period from June 1990

to June 1991. Although a relatively small amount comes in through Mbagala market, this, together with other unrecorded imports, is not considered to be very significant.

CROP	Amount Produced in Dar es Salaam (tons) 1990/91	Amount* Brought in from other regions (tons) 1990/91
Rice	2,410	39,710
Maize	509	29,345

Table 4.4 Amount of food produced in Dar es Salaam region

*Total food imports recorded at Tandale and Buguruni market from June 1990-June 1991).

Source: Ministry of Agriculture and Livestock Development: Marketing Development Bureau (1992a)

In the early stages of Dar es Salaam's growth, food supplies to feed the urban population were obtained from the immediate hinterland of the city (Rufiji, Kisarawe, Kibaha and Bagamoyo). This is despite the fact that the soils and climate along the coastal belt are not optimal for the production of grains such as maize, the most popular staple in the city. Nevertheless, with a small urban population to be fed, the food produced from these areas was adequate to sustain the demand.

As the urban population grew, more food supplies were needed in addition to what was produced from around the city. Food demand by the city's residents became more pronounced, due to the fact that the city itself grew out of commercial interests, and thus the early urban population had not developed strong agro-links with the immediate rural areas. In other words, the city of Dar es Salaam did not grow as a 'farming city,' as did Kampala or the Yoruba cities in West Africa, where larger proportions of their residents depended on farming directly for their livelihoods. With weak agricultural links between the city and its peri-urban villages, urban dwellers in Dar es Salaam had to depend on more distant sources of food. Thus, places such as Arusha (650 kilometres), Mbeya (895 kilometres), Iringa (510 kilometres) and Morogoro (195 kilometres) (Map 1) became important food production areas for Dar es Salaam.

Despite the long distances that food had to be transported, and hence high prices in Dar es Salaam, until the late 1960s, the urban food supply was quite secure. The Household Budget Surveys between 1950 and 1973, for example, consistently indicated that only one half to two-thirds of low-income expenditure was on food. In the higher-income bracket, one-quarter to one-third of household income was spent on food (Bryceson, 1987). For the formally employed urban residents, particularly in the state sector, food adequacy could be taken for granted because cost of living allowances continued to keep pace with the cost of living index. This was also made possible by state intervention in food marketing, an intervention which was closely linked with attempts to protect the urban population from food shortages.

In the 1970s and 1980s, Dar es Salaam residents enjoyed a relatively favoured position as far as the provision of maize was concerned. This was supplied at low prices by the National Milling Corporation (NMC) (Bates, 1981). This was only possible through a high subsidy for maize by the government, the period of greatest subsidy running from 1974 to 1980, as the government attempted to compensate for the relentless decrease in real wages over that time. For example, in 1980, this subsidy provided a real benefit to low-income workers, although in the years which followed, this subsidy only managed to keep the purchasing power of the minimum wage. Gradually, the level of subsidy provided to maize consumers in Dar es Salaam began to fall, and in 1984 it was completely removed. The immediate effect of this removal was a drastic rise in prices of maize in the city.

4.5 Changes in the Political Economy of Tanzania

Since Independence in 1961, there have been four major phases that mark changes in the political economy of Tanzania: the attainment of Independence in 1961; the Arusha Declaration in 1967; the economic crisis of 1980 to 1985; and the start of economic liberalisation in 1985. Each of these changes in the political economy has had a tremendous impact, both in the rural and urban areas in the country (Figure 4.4).

URBAN RESPONSES IN DAR ES SALAAM	PHASES IN THE POLITICAL ECONOMY OF TANZANIA	YEARS
ORIGIN AND FUNCTIONS - external mercantile forces - administrative functions	PRE-INDEPENDENCE - colonial economy	pre -1961
RURAL-URBAN MIGRATION - growth of an ethnic heterogeneous urban population, with an agrarian background	PRE-ARUSHA DECLARATION - growing divergence between social groups	1961 - 1967
URBAN CONTROL CAMPAIGNS - anti-urban policy - resettlement /rustication of urban unemployed	POST-ARUSHA DECLARATION - (villagisation, decentralisation and rural development policies)	1967 - 1980
FOOD SHORTAGES - falling standards of living - growth of the informal sector	ECONOMIC CRISIS - rising inflation	1980 - 1885
- continued growth of the informal sector - development of the peri-urban agriculture	ECONOMIC LIBERALISATION - liberalisation of the economy, - encouragement of the private sector	1985 -

Figure 4.4 Phases in the development of political economy of Tanzania

4.5.1 Post-Independence period 1961 - 1967

At Independence, Tanzania broadly maintained its colonial policies, based on the fact that the country inherited an agricultural-based economy with reliance on a limited range of cash crops for the bulk of export income. The limited amount of industry was mostly restricted to the processing of agricultural goods. Generally, in the first six years after Independence, there were few conscious efforts to alter the structure of the economy, except through some attempts at Import Substitution Industrialisation. In the period from 1961 to 1967 the government tried to establish its main priorities. Politically, it wanted to shift the investment balance towards the rural peasantry, but economically it needed the foreign exchange generated by the economic structure established under colonial rule. By and large, the period from 1961 to 1967 is thereby seen as the legacy of the colonial period (Lundqvist, 1981). Thus, Lynch (1992) correctly argues that this was, in

general, maintaining the status quo. After Independence, a new phase in the development of Dar es Salaam city began. It became the capital of a sovereign state and many of its old functions increased in magnitude. Its main functions were largely administrative, although industries began to grow as well. For example, a new industrial estate was established at Ubungo. Its largest factory (the Friendship Textile Mill), employing some 3,000 people, was completed in 1967. Despite these new developments the basic role of the city did not change much from what it had been during the pre-Independence period, i.e. administrative functions (Figure 4.4).

Although no significant economic and political changes were made during the 1961 - 1967 period, there developed a divergence between the motives of the various groups involved in governing and in administering the country. For example, on the one hand, many middle- and upper-level civil servants had strong nationalist sentiments, but were opposed to changes which would jeopardise their position. On the other hand, the Tanganyika African National Union (TANU) party ideologues led by Julius Nyerere, were beginning to express their socialist sympathies. Indeed, it was this growing divergence between these two groups which laid the grounds for the Arusha Declaration which was adopted in 1967.

4.5.2 Socialist Transformation: 1967-1980

The period between 1967 and 1980 was marked with an attempt at a socialist transformation of Tanzanian society. In 1967, there was a major policy shift known as the Arusha Declaration, which attempted to transform many aspects of the Tanzanian economy and its institutions. The Arusha Declaration's underlying concept was a philosophy of development based on the needs and abilities of the mass of rural producers. Thus, the Declaration set out to transfer to public ownership all major means of production and exchange. In practice, this meant that the state took over the management and control of the main productive sectors of the economy, and, in particular, this led to large-scale state intervention, and in some cases, direct control of

large elements of the rural and agricultural sector. Thus, it became a government policy to own and control large sections of the economy. Direct control and investment allocation by the state were, thus, the main policy instruments used in the overall management of the economy for a period lasting until mid-1980s.

As part of the implementation of the Arusha Declaration, the resettlement of the rural population took effect in the mid-1970s. Initially, the movement of people into new villages was through persuasion, but force was subsequently used. It was anticipated that the villages would gradually progress to collective forms of production, and that their residential proximity would be used to develop economies of scale in production. In establishing the new villages, emphasis was placed on clustering the population to enable the government to provide basic needs and services, and this took place at the expense of production. In addition to this, Briggs (1980) argues that the physical and spatial aspects of villagisation were disregarded. For example, farmers were sometimes moved in locations at considerable distances from their land. This went further with the government dictating the types of crops to be grown in certain areas. The subsequent government failure to provide the promised seeds, inputs, crop prices and credit, as well as in some cases the health, education and consumer goods, produced apathy within the peasantry towards the production of cash crops (Hill, 1975). Many reverted to subsistence production or producing for the black market, resulting in a massive fall in cash crop and food production sold through the formal market channels.

The implications of the programme with respect to Dar es Salaam city and its peri-urban zone were two-fold (Figure 4.4). First, the displacement of some people from their villages created considerable dissatisfaction, and, as a result, many people who had already considered moving to an urban area were now prompted to do so. In addition, other people who had intended to stay on the same piece of land found themselves wrenched from it. Having to decide to make a move, some decided that they might as well move further to towns, especially if they already had kinsfolk there. Second, peri-urban villages around Dar es Salaam formed cluster points for people who moved from

other neighbouring, but more remote villages. Closely related to the villagisation exercise were the urban control campaigns launched to resettle the urban unemployed. This was partly an attempt to curb the ever-growing rural-urban migration to Dar es Salaam, and partly to relieve the city of its burden of providing the necessary amenities to the exploding urban population. Thus, unemployed youths in the city were rounded up and resettled in the peri-urban villages, where they were allocated land for farming.

Critics of the urban control campaigns (Armstrong, 1986; Mlay, 1977) argue that these campaigns were a complete failure. This is true to the extent that the persistent influx of people into Dar es Salaam continued unabated even after these campaigns. However, it is not true that all those who had been resettled in the peri-urban villages around Dar es Salaam went back to the city. Evidence of this study clearly indicates that there were many who decided to remain in the villages, but, of course, with frequent contacts with the city. Indeed, even among those who went back into the city, some maintained 'ownership' of the land that they had been allocated. These are the farmlands to which they returned during the economic crisis of the early 1980s, which had the severest impact on the urban dwellers.

In an attempt to implement effective rural development policies, the Party (Tanganyika African National Union- TANU) launched the decentralisation strategy. According to Julius Nyerere[1] , this was essential to the socialist society he envisaged, in which grass-roots participation would be the catalyst for local development projects. As part of the decentralisation strategy, the entire local government structure was replaced by a network of Regional and District Councils. Following this move, Dar es Salaam City Council was abolished in 1972, and, territorially, the limits of the city were re-defined to include the rural hinterland. However, as Paddison (1988) and Kulaba (1989) both note, the restructuring of Dar es Salaam City Council was the most profound of a number of administrative changes to affect the management of the city. The effect of both the

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[1] President of the United Republic of Tanzania 1961 - 1985

territorial and the management changes were to lead to a visible deterioration in urban public service delivery in the city.

4.5.3 The economic crisis and liberalisation policies

Another major landmark in the changing political economy of Tanzania was the move to a market-economy approach in 1984. Since 1977 the economy had experienced increasingly severe strain from multiple causes, both external and internal. These include the break - up of the East African Community (1977), the cost of the Uganda War (1978/81), oil price increases (1979/80), flood damage (1979), drought (1979/80) and the long-term neglect of the agricultural sector. The cumulative effect of all these developments was felt both in respect of the government's budget and the country's balance of payments position, and consequently, her international monetary reserve position. In the period between 1973 and 1981, export earnings grew at an average annual rate of 7.3 per cent while import bill grew at an average rate of 12.4 per cent over the same period. The necessity to import created a large gap between foreign resources and foreign expenditure. Faced with a balance-of-payment disequilibrium, attempts were made to cut imports to the barest minimum.

Tanzania's export capacity, in both the industrial and agricultural sectors, was adversely affected by stringent import restrictions and the low level of industrial output. Most obviously, the restrictions of imports limited the quantity of inputs that the agricultural sector received (e.g. fertilisers and farm tools). The sector also suffered from major deficiencies in the transport system caused by fuel shortages and vehicle failure as a result of lack of spare parts. Since Tanzania's industrial exports consist mainly of semi-processed agricultural goods, industrial output was bound to be affected due to the poor performance in agriculture. Thus, industrial capacity utilisation fell to low levels between 20 per cent to 30 per cent in the period of the crisis (United Republic of Tanzania, 1991b).

Until the mid-1980s, Tanzania found itself in a vicious circle, in which the acute shortage of foreign reserves made it difficult to raise exports in both the industrial and agricultural sectors, which were essential if the country was to succeed in getting more foreign exchange. One of the most direct effects of the economic crisis was a shortage of consumer goods, as indicated by the widespread escalation of prices throughout the whole country. At the same time, the real incomes of urban consumers were eroded by high rates of inflation, thus causing a dramatic decline in urban purchasing power. In particular, the massive increase in maize consumer prices, in conjunction with general inflation, took a heavy toll on real wages. By 1988, a minimum wage earner's wage was worth only 24 per cent of its 1973 value, or 29 per cent when measured in terms of quantity of maize which could be purchased at the official price. Consequently, as food became scarce, the proportion of household expenditure on food rose. For example, in low-income households in Dar es Salaam, the percentage of expenditure on food went from roughly 50 per cent in 1940 to 85 per cent after 1985 (Bryceson, 1987).

The deepening of the economic crisis and the subsequent removal of the maize subsidy undoubtedly made Dar es Salaam residents more vulnerable to food insecurity than those in any other parts of the country. Given the size of the city, the average Dar es Salaam resident may not have had the same degree of manoeuvrability as residents of more agrarian-based up-country towns. The Dar es Salaam residents' vulnerability was mainly due to their over-dependency on purchased food. About 89 percent of the urban residents of Dar es Salaam depend on purchased food, compared with 62.2 percent in Mbeya, 79.1 percent in Mwanza, and 79.3 percent in Arusha (Bryceson, 1993).

To urban dwellers, the economic crisis manifested itself in a number of ways, the prime one of which was food shortages (Figure 4.4). At the same time as the volume of imported fuel declined to crippling proportions, road, rail and vehicle maintenance deteriorated too. In turn, difficulties in the transport system limited the inter-regional transfer of agricultural inputs and output. This caused food shortages in urban areas, and particularly in Dar es Salaam city, a major centre of food demand in the country.

Therefore, after more than two decades of government monopoly and rigid controls on the economy, the Tanzanian Government recognised the potential importance of private investment, both local and foreign, in the development of the country. Thus, the Government embarked on a series of measures designed to restore economic growth. This culminated in the changes in economic policies of the country, towards market-oriented policies, which also led to the liberalisation of the economy.

4.5.4 Survival strategies

In the early 1980s, the Government of Tanzania adopted a wide range of policy measures to revive the economy. In pursuance of broad policy changes, successive economic programmes were mounted with names that spelt out their particular objectives. First, was the National Economic Survival Programme [NESP] (1981-82), which was launched to increase both national production and export levels using the existing national economic structure. Second, the Structural Adjustment Programme [SAP] (1982-85), was launched and addressed itself to a pruning of the central budget by making parastatal reforms. It was also under this programme that many of the demands of International Monetary Fund (IMF) were addressed. This programme marked the beginning of a change towards more market-oriented economic policies. A further programme (the Economic Recovery Programme) was launched in 1986 with the aim of achieving positive growth in real per capita incomes and a reduction of the rate of inflation. Among the measures adopted in this Programme were changes in the marketing of agricultural produce, price decontrols, and a further liberalization of trade. Perhaps the most spectacular change in policy was the shift towards a more market-oriented economy with the encouragement to allow greater participation of the private sector in the economy.

The limited success of the Structural Adjustment Programme (SAP), coupled with the need to encourage external financial assistance, and the positive results of the liberalization measures enacted during 1984 and 1985, sensitised the Government to

formulate a radical, far-reaching adjustment programme. This led to the launching of the Economic Recovery Programme [ERP] (1986-89), which aimed at achieving a positive growth in real per capita income and a reduction of the rate of inflation[1] . Among the measures that the Programme adopted were changes in the marketing of agricultural produce and price decontrols, devaluation of the local currency and a further liberalization of the import trade.

At the level of individual households, the most immediate effect of the economic crisis were the food shortages. However, urban residents in particular devised strategies to reduce the adverse effects of food shortages, as well as the lack of essential consumer goods and services distributed through the existing state marketing channels, which had a monopoly over such distribution. First, increasing cash incomes by household, to afford the purchase of price-inflated essential goods, was of paramount importance. Consequently, many people took up various trades and other activities as a secondary source of income, which for many later proved to be more lucrative than income from their official employment. Typical strategies involved having one family member involved in the informal sector, whilst other members of the household remained in wage employment, and yet another, usually the wife, was assigned the role of providing food for the household both from within the city's available land and the peri-urban villages. A study of the informal sector in Dar es Salaam during 1987 and 1988 indicated that more than three-quarters of all informal sector enterprises in the city had started between 1980 and 1987, the period of economic crisis and subsequent liberalisation of the economy (Vuorella, 1992).

As far as food strategies are concerned, many households started growing a portion of their own staple foods, either within the city itself or on plots immediately surrounding the city. This is not a surprising move given the overwhelmingly agrarian nature of the national economy and society, and the recent in-migrant status of urban dwellers.

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[1] The rate of inflation in 1986 was 33 per cent

Therefore, the farming background of urban residents has continued to influence livelihood options in the city. Since land proximate to one's residence is not usually readily available, many people resorted to more informal arrangements which include squatting on peri-urban land, or buying land illegally from individuals who claim rights to it. It has to be mentioned, however, that peri-urban farming was quite substantial even before the crisis (Mosha, 1991; Bryceson, 1985). Thus, while it is not simply a crisis phenomenon, it has, nevertheless, increased as a result.

4.6 Summary and Conclusions

Dar es Salaam city, as many others in Africa is experiencing rapid growth both in terms of its population and size. The rapid population growth has been primarily due to in-migration, mainly from the rural areas. This growth has taken place against an active, and at times aggressive, anti-urban policy on the part of the government since the 1960s. Rural-urban migration has not only contributed significantly to the rapid population growth in Dar es Salaam city, it also contributed to the ethnically heterogeneous population in the city.

Changes in the political economy of Tanzania, particularly since independence in 1961 have had direct and indirect impacts on the development of Dar es Salaam city. Directly, the decentralisation policy of the 1970 starved the city of its resources, and in 1972 Dar es Salaam City Council was abolished (although it was reinstated in 1978). Nevertheless, this act contributed to the haphazard growth of the city. Indirectly, policies such as the villagisation campaigns helped to trigger further rural-urban flows of people, particularly as it caused dissatisfaction among the rural farmers. Therefore, both the rural background of the urban dwellers in Dar es Salaam and their ethnic heterogeneity are important in understanding the development of the peri-urban zone of Dar es Salaam.

CHAPTER FIVE

THE PERI-URBAN ZONE OF DAR ES SALAAM

5.1 Introduction.

Towns and their respective peri-urban zones are both geographic- and historic-specific (Swindell, 1988). Within African cities, for example, the relationship which developed between indigenous cities and their peri-urban zones is different from that of the later nineteenth century colonial cities (Southall, 1961). However, as will be discussed below, these relationships change with time, and Dar es Salaam is one example of a colonial city where the relationship between the city and its peri-urban zone has changed markedly over time. The chapter begins by outlining the different criteria used in the delimitation of the peri-urban zone, and proceeds to examine the settlement of people into the area. Reasons for settling in peri-urban villages are also discussed as is the nature of relationship between Dar es Salaam city and its peri-urban zone.

5.2 Delimitation of the peri-urban zone

Despite the widely acknowledged importance of peri-urban zones, there have been few attempts to define them in such a way that boundaries can be drawn in an empirical way. Indeed, much of the discussion on the definition and delimitation of peri-urban zones has been purely theoretical. The difficulty is that peri-urban zones adjoin geographical areas, whose centres (the cities) can be identified quite easily, but where it is hard to delineate where they end and give way to other regions (Van den Berg, 1984). In addition, given other factors, such as topography, population density, and the level and composition of economic activities, the elements taken into account in delimiting the extent of the peri-urban zone may differ from one country to another (OECD, 1979). In such instances, therefore, any boundary drawn for this purpose will

be arbitrary. Nevertheless, for the purposes of planning and management of peri-urban zones it is important to establish their boundaries and spatial extent.

A number of methods have been suggested (for example, Myres and Beegle, 1947; Pryor, 1968) using criteria such as land use, population density, sectoral composition of labour force, distance travelled to work and the catchment area for food staples. Applying these criteria, an attempt to delimit the areal extent of the peri-urban zone was done by Myres and Beegle (1947). They devised a method that can be employed wherever demographic data are available at a low level of geographical scale. For example, based on US - census data, a Non-Village, Rural-Non Farm (NV-RNF) population category was derived. This population category lives in areas within the orbit of cities, but which are classified as rural, although most population members do not engage in farming, nor do they live in organised villages (Myres and Beegle, 1947). Therefore, a true fringe township is any township with 50 per cent or more of its people in the NV-RNF class. Likewise, a partial fringe settlement will have 25 - 50 per cent of its population in this category. However, the application of this method to other metropolitan areas is limited, because it is tied to the administrative boundaries of one specific area, This tends to conceal the real spatial patterns in other locations, and for this reason, this method is specific to the USA.

A different approach was followed by Pryor (1968) to delineate the peri-urban zone of Melbourne. In this approach, census data, land use maps and aerial photographs were used. The main variable was the density of occupied dwellings, which, in the peri-urban zone, is lower than elsewhere in the built-up area, but higher than that in the rural hinterland. This is a useful method in areas where the population density declines in a gradient from the city's built-up areas to the rural areas. The problem, however, is that it not only requires detailed census data, but also assumes a gradient decline of dwelling densities from the urban to the rural areas. Such a gradient may be hard to reconcile with the occurrence of leapfrog developments, as observed in cities with less strict planning controls. In Dar es Salaam, for instance, and elsewhere with less strict

planning controls, a form of leap-frogging peripheral growth is encouraged, as sites some distance beyond the existing urban area are chosen for urban development. Along Morogoro Road in Dar es Salaam, for example, Kiluvya and Kibamba villages are separated from the continuous built-up areas of the city by both unused land and farmlands. The same pattern is found along Bagamoyo Road, to the north of the city where Boko and Bunju villages are separated by areas of open land with sparse settlements and farms (Map 8).

An explanation for this kind of urban development is the preference by people to settle in already established clusters, rather than being pioneers in new and unused land. Such patterns of urban development also result from the lack of planning for areas that lie immediately beyond the edge of cities. Furthermore, the pace and direction of the spatial expansion of Dar es Salaam city have, to a large extent, been conditioned by the terrain of the area. The physically difficult areas are being by-passed by developers in favour of cheaper lands, even though somewhat further from the city.

Furthermore, the settlement pattern in the peri-urban zone may be influenced by the transport network in the area. The existing road network in Dar es Salaam, for example, is a radial system in which Bagamoyo Road, Morogoro Road, Pugu Road and Kilwa Road represent the spokes, but with few circumferential links (apart from Nelson Mandela Road and those close to the city centre). Though this kind of system gives the city centre a special advantage of accessibility, it makes other parts less accessible, such that residential expansion has tended to follow the major road outlets, whilst areas between these roads (the interstitial areas) are developed at a slower pace. Therefore, even where the population density may be decreasing in a gradient from the city boundary (as argued by Myres and Beegle, 1947), this would be confined primarily to those areas along the main roads only.

Land-use mix is another criterion used in attempts to delimit the spatial extent of peri-urban zones. On the basis of this criterion, the peri-urban zone covers areas

immediately beyond the continuously built-up area, where rural and urban land uses are mixed together to form a transition zone between town and country. The applicability of this criterion presupposes that land possesses a market value, as is certainly the case around the industrial cities in Western Europe and North America. Therefore, the resulting land use pattern, in these cases, reflects the current market value of the land. Around many African cities, however, this criterion may be less applicable because of the limited size of the land market, to the extent that the land-use pattern around cities hardly reflects the current value of the land. In addition, it is quite common to find different land tenure systems co-existing side by side. For example, in Dar es Salaam, some land in the peri-urban villages is held under customary tenure arrangements, while other farmers have Granted Rights of Occupancy over the land they use. Holders of land in both cases are under no great compulsion to develop it, partly being a reflection of less strict planning controls.

Furthermore, in recent years, there has emerged, in many African cities a process called 'ruralization of the cities' (Stren, 1986; Potts, 1994). This is where rural land uses (farming and livestock-keeping) are increasingly being practised within the city's boundaries. Frequently, such practices are essentially survival strategies in situations of economic hardship. Nevertheless, whatever the justification for these practices, the delimitation of urban from peri-urban zones, based on land use, thus becomes quite difficult. Therefore, the use of this criterion by itself may lead to the inclusion of some basically rural areas within the peri-urban zone.

The distance travelled to work (commuting distance) is another commonly used criterion in delimiting the peri-urban zone. Accordingly, the peri-urban zone stretches from the edge of the city to the furthest distance travelled to work on a daily basis. This distance differs from one city to another, depending on, among other things, the size and function of the city, together with the level of development of the transport system. Variations in the commuting distance may also occur in different directions of

the same city. Thus, in using this criterion, one must be aware that it may be less applicable in some parts within one city.

In Western Europe and North America, where transport technology has developed to relatively advanced levels, the distance travelled to work is greater (often reaching 50 - 80 kilometres) than in most African cities. However, the extent to which commuting distance may be taken to be an important criterion largely depends on the function of the city, and, more particularly, on what the city means to the people who commute from the peri-urban zone. Around most African cities, the commuting distance is relatively short because of the prevalence of poor transport systems. In Dar es Salaam city, for instance, the furthest point from which people can realistically travel to work is Kibaha, some 45 kilometres to the west of the city along the Morogoro Road. The distances travelled for the same purpose in other directions from the city are rather less, due to transport difficulties. In the south, for example, the farthest distance that people commute along the Kilwa Road is 16 km in Kongowe village.

Generally, it is noted that, in the advanced capitalist economies the pressures for new housing are focused more at the edge of the city, whilst in most African cities, this pressure is at its most intense within the existing built-up areas, and frequently in areas close to the city centre (Briggs, 1992). This largely stems from the inadequacies of intra-urban transport, making those residential locations at greater distances from the city centre less desirable. Therefore, the commuting zone is largely confined to the city's built-up areas, which in the absence of other criteria (particularly land uses in transition) may not qualify as peri-urban zones. Therefore, whilst commuting distances (particularly to work) may be an important measure of the spatial extent of the peri-urban zone around an industrial city, it may not be very useful in the African context. Instead, commuting to work on farms by urban residents may be more relevant in this situation.

Other attempts to delimit the spatial extent of the peri-urban zone have used the notion of a supply area for food staples (Mortimore, 1975). In applying this criterion, the peri-urban zone includes all areas from which the urban population draws its daily supply of fresh food products. Due to advanced technology in transport and refrigeration in North America and Western Europe, food supplies are commonly drawn from distant areas well beyond the cities. Therefore, in this sense, the catchment area for food supplies would be very extensive and would include quite distant areas where other criteria such as the mix of land use and declining population density would not fit at all. Thus, in using the criterion of catchment area for staple food supplies, one must emphasise that it has to be a catchment area for daily supplies.

From the discussion, it is possible to draw three conclusions. First, since peri-urban zones develop differently under different economic, cultural and historical conditions, the use of more than one criterion in delimiting their spatial extent is inevitable and necessary. This means no single criterion can have a universal application, and in terms of building explanatory theory, this raises considerable methodological difficulties (particularly in demarcating the spatial extent of the peri-urban zone). Second, the size of a peri-urban zone cannot be determined without specifying the nature of urban influences. Certainly, such influences range widely from direct physical changes, such as land use, to social or cultural influence of the city. In addition, each element of the urban influence has a different range of distance beyond which it becomes negligible. Under such variable conditions, the spatial extent of peri-urban zones can not be easily delimited through agreed criteria. Thus, a more reliable method must use a combination of criteria, and on the basis of this, the extent to which most of the criteria converge will define the limit of the zone. Third, the degree of importance of any criterion will differ from one situation to another, depending largely on the nature of link that exists between the city and its peri-urban zone. For example, just as the commuting aspect is important in industrial cities, staple food production is perhaps a crucial criterion among cities which developed in rich agricultural regions,

such as the traditional cities of Africa. In colonial cities like Dar es Salaam, the spatial definition of the peri-urban zone will necessarily have to consider it more as a catchment zone for the provision of social and economic services and commuting distance for farming on daily basis by urban residents.

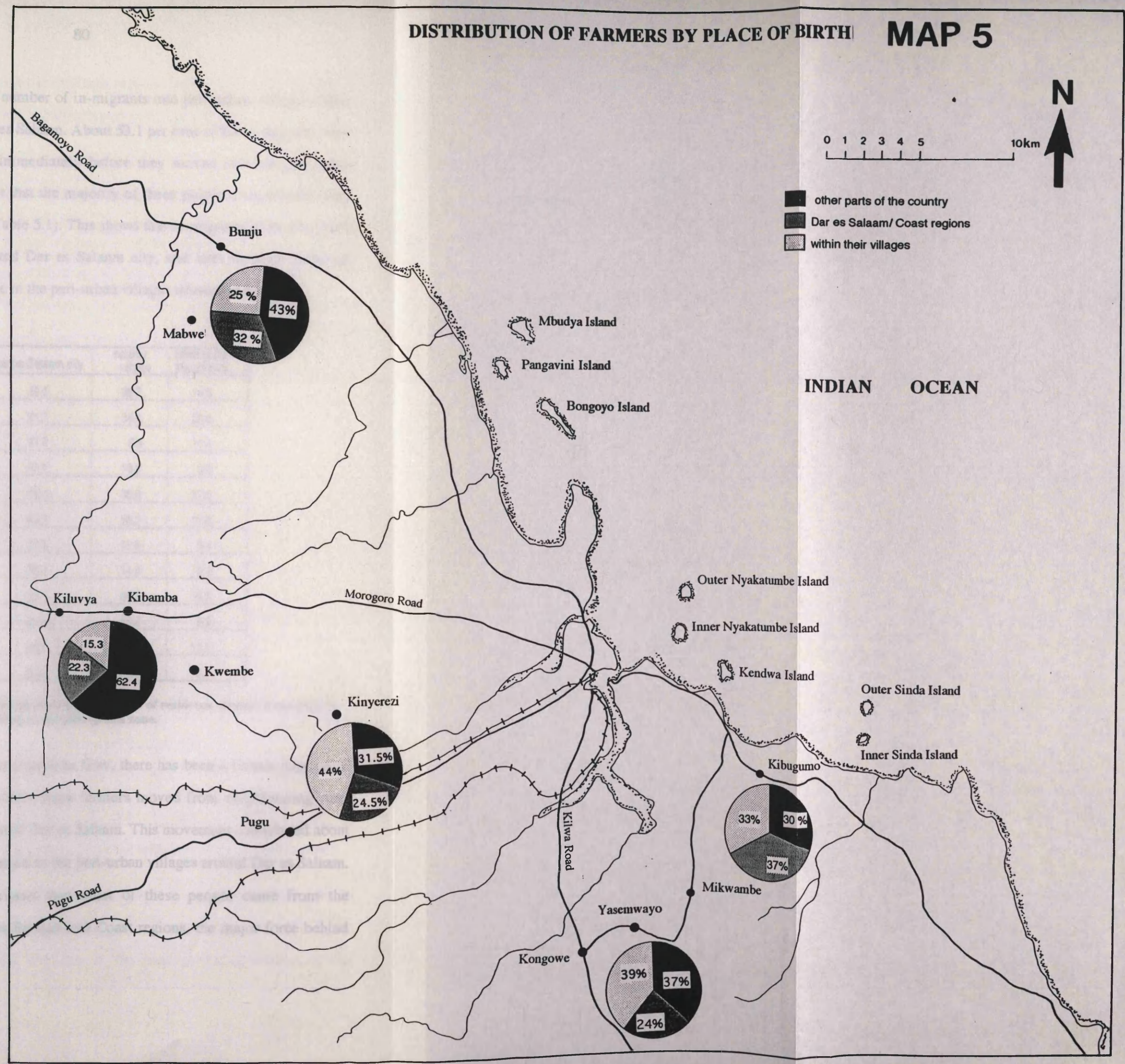
5.3 Settlement of people in the peri-urban zone of Dar es Salaam

The indigenous tribal group around Dar es Salaam city is the Zaramo. This group is found along the whole coastal strip between Bagamoyo in the north and Kisiju to the south of Dar es Salaam. The Zaramo, together with other neighbouring tribes such as the Rufiji and Ndengereko, dominated the early economic history of the area, initially as trading partners with the people of Zanzibar, and later, as middlemen with mainland traders. More recently, however, the dominance of the Zaramo people in Dar es Salaam, both numerically and economically, has declined. This follows the in-migration of other tribal groups into the area from other parts of the country.

Table 5.1 and Map 5 show that ethnically, the population of Dar es Salaam's peri-urban villages is far from homogenous. For example, comparing the proportion of the population born within peri-urban villages and those from other parts of the country, the latter group forms the majority overall. About 31.3 percent of the sampled farmers were born within their villages, another 27.8 percent were born in other villages of Dar es Salaam and Coast regions, whilst nearly 41 percent are in-migrants from other parts of the country.

Name of zone	Within their villages (%)	Dar es Salaam & Coast region (%)	Other parts of the country (%)
Bagamoyo Road	25.0	32.0	43.0
Morogoro Road	15.3	22.3	62.4
Pugu Road	44.0	24.5	31.5
Kilwa Road	39.0	24.0	37.0
Kibugumo	33.0	37.0	30.0
AVERAGE %	31.3	27.8	40.9

Table 5.1 Percentage of farmers by place of birth.


DISTRIBUTION OF FARMERS BY PLACE OF BIRTH
MAP 5
N
0 1 2 3 4 5 10km
other parts of the country
Dar es Salaam/ Coast regions
within their villages
INDIAN OCEAN
Bagamoyo Road
Bunju
25 %
43%
32 %
Mabwe
Mbudya Island
Pangavini Island
Bongoyo Island
Outer Nyakatumbe Island
Inner Nyakatumbe Island
Kendwa Island
Outer Sinda Island
Inner Sinda Island
Kiluvya
Kibamba
Morogoro Road
15.3
22.3
62.4
Kwembe
Kinyerezi
44%
31.5%
24.5%
Pugu
Pugu Road
Kilwa Road
Kibugumo
33%
30 %
37%
Mikwambe
Yasemwayo
Kongowe
39%
37%
24%

It is also important to note the number of in-migrants into peri-urban villages whose last place of residence was Dar es Salaam. About 53.1 per cent of the in-migrants were living in Dar es Salaam city immediately before they moved into the peri-urban villages. This is despite the fact that the majority of these people were actually born outside Dar es Salaam region (Table 5.1). This shows that in-migrants from other parts of the country had first migrated Dar es Salaam city, and later decided (although sometimes under duress) to settle in the peri-urban villages subsequently.

Name of village	Dar es Salaam city	nearby village	other parts of the country
Bunju	50.0	35.7	14.3
Mabwe	21.7	54.4	23.9
Kiluvya	81.8	6.8	11.4
Kibamba	72.1	18.6	9.3
Kwembe	47.5	35.0	17.5
Kinyerezi	50.0	38.2	11.8
Pugu	77.3	13.6	9.1
Kongowe	76.7	14.0	9.3
Yasemwayo	16.7	66.7	16.6
Mikwambe	35.3	55.9	8.8
Kibugumo	55.6	33.3	11.1
AVERAGE	53.1	33.8	13.1

Table 5.2 **Percentage of immigrants by their place of residence immediately prior to settling in the peri-urban zone.**

Apart from the city to peri-urban migration flow, there has been a further process of rural to peri-urban migration, where some farmers moved from neighbouring rural areas into peri-urban villages around Dar es Salaam. This movement contributed about 39 percent to the settlement of people in the peri-urban villages around Dar es Salaam. However, closer inspection reveals that most of these people came from the neighbouring areas within Dar es Salaam and Coast regions, the major force behind

this movement being the government's villagization programme of the 1970s which aimed to resettle the scattered rural population into nucleated villages.

5.4 Periods of settlement in the peri-urban zone in Dar es Salaam

The settlement of people in the peri-urban zone of Dar es Salaam is a relatively recent phenomenon, with more than half of the sampled farmers moving here only during the last two decades. Only about 11.9 percent of the sampled farmers had settled in the peri-urban zone before 1960. Another 54.1 per cent settled between 1961 and 1980 (Table 5.3). However, the period between 1971 and 1980 witnessed a massive settlement of people (38.1 per cent of the sample), this being largely due to the government's villagization programme.

Village name		1920-1950	1951 -1960	1961-1970	1971-1980	1981-1990	1991-1992
Bunju	on-road	12.5	9.0	14.0	38.5	21.0	5.0
Mabwe	off-road	7.0	5.0	28.0	40.5	15.5	4.0
Kiluvya	on-road	-	2.0	12.0	39.0	41.0	4.0
Kibamba	on-road	-	-	10.0	40.0	43.0	7.0
Kwembe	off-road	-	1.0	15.0	36.0	38.0	10.0
Kinyerezi	off-road	4.0	2.0	9.0	36.5	46.5	7.0
Pugu	on-road	13.5	5.0	12.0	36.5	27.5	5.5
Kongowe	on-road	5.0	10.0	20.0	24.5	30.5	6.0
Yasemwayo	off-road	15.0	10.0	20.0	40.0	10.0	5.0
Mikwambe	off-road	5.0	10.0	23.0	40.0	19.0	4.0
Kibugumo	on-road	5.0	9.0	12.0	48.0	17.0	6.0
AVERAGE		6.1	5.8	16.0	38.1	28.1	5.8

Table 5.3 Percentage of sampled farmers by periods of settlement in the peri-urban zone.

The peak periods of settlement differ from one village to another. For example, in Bunju, Pugu and Yasemwayo, together with villages in the Kilwa Road and Kibugumo zones (especially Kibugumo and Mikwambe), the peak period of settlement was

between 1971 and 1980 (Table 5.3). The majority of the people migrated from neighbouring areas during the villagization programme. In other villages, however, such as Kiluvya, Kinyerezi, Kwembe and Kongowe, the peak period of settlement was between 1981 and 1990, with the majority of the people migrating out from the city (Table 5.2). This reflects the social and economic stress of that period.

Until 1970, settlement in the peri-urban villages around Dar es Salaam was entirely voluntary, as shown by the differing percentages of people who settled in a particular village (Table 5.3). However, the years between 1971 and 1980 were marked by the villagization campaign in which people had little or no choice at all, as indicated by the narrow variation in percentages between villages at this time. For example, in 8 out of 11 villages, the percentage of people who settled in these villages between 1971 and 1980 ranges from 36 percent to only 40 percent (Table 5.3). Therefore, it is not surprising that all villages, regardless of their location, received in-migrants from other villages. Yet in the following decade, 1981 - 1990, there emerges a wider disparity in the choice of villages for settlement. Between 38 and 43 per cent of the farmers in villages along the Morogoro Road zone settled there between 1981 and 1990, whilst over the same period only between 10 and 19 per cent settled in villages in the south (Table 5.3). This may well be an indication of particular of choices whereby one village was preferred to another. It is also the case that this period was marked by the economic crisis in Tanzania as a whole. As part of various survival strategies, adopted by urban dwellers in particular, farming, and later settlement in the peri-urban zone, became more pronounced. These survival strategies took place more at an individual or household level, and hence the choice of a place to settle and farm was left to individual decision, rather than being imposed by the State.

Generally, Table 5.3 shows that since the early 1980s, villages along the Morogoro Road have been much preferred for settlement. An average of 41 percent of the sample farmers settled in this zone as compared to an average of 18 per cent for the Bagamoyo Road and Kibugumo zones, and 20 per cent in Kilwa Road zone. During the 1981 -

1990 decade, it is also possible to identify some variations between on-road and off-road villages. Except for the Pugu Road zone, villages along the major arterial roads were much preferred to off-road villages (Table 5.3).

5.5 Reasons for settlement in the peri-urban zone of Dar es Salaam

A range of reasons for settlement in Dar es Salaam's peri-urban villages are evident (Table 5.4). These reasons range from economic factors, such as the availability of farming land, to strategic factors, such as ease of transport to the city. The importance of these reasons, however, differs from one zone to another. Overall, farming or, more accurately, the availability of farming land, was the main reason (ranked number one) for most people's decision to settle in the peri-urban villages of Dar es Salaam. Most in-migrants into the peri-urban zone came from the city itself, primarily because of the need to produce their own food, as prompted by the growing economic crisis of the early and mid-1980s. The proximity of these villages to Dar es Salaam offered city dwellers opportunities to engage in farming and hence secure a household food supply, whilst, at the same time, doing other non-farm jobs in the city. This is hardly surprising in the context of the dual character of African urban society as far as means of livelihood is concerned. Although living and working in the city, the majority are not completely detached from the land or their agricultural heritage. In fact, this is one of the ways in which the rural and agrarian background of the majority of urban dwellers continue to influence their livelihood options. This background has contributed to their multiple occupational base in the economic crisis which the country has been facing.

	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone	Total scores	rank
Farming	42.5	41.0	31.5	36.0	21.0	173.0	1
Villagization	20.0	10.3	12.0	10.5	30.0	82.8	2
Easy transport	8.5	11.0	8.0	10.0	0	37.5	3
Urban campaigns	8.0	1.0	8.0	3.5	12.0	32.5	4
Farm investment	5.5	8.3	5.5	8.0	2.5	29.8	5
Close to the city	4.0	7.3	6.0	4.5	0	21.8	6
Close to work place	3.0	2.3	4.0	3.5	2.0	14.8	7
Business	2.0	1.3	1.0	9.0	0	13.3	8
Close to birth place	2.3	0	1.0	1.5	0.5	5.3	9
Livestock-keeping	0	0.6	2.0	0	0	2.6	10

Table 5.4 Importance of the reasons for settling in the peri-urban zone

While it is tempting to conclude that farming in the peri-urban zone by city dwellers started during the 1980s economic crisis, available evidence suggests that such farming has been practised there since at least the 1960s (Swantz, 1970; Marshall, 1979). However, it remains true that the need to supplement income and to produce more food for household use increased significantly during the economic crisis of the mid-1980s. In order to reduce the adverse effects of food shortages which faced city residents, many households started to grow a proportion of their own staple foods. Further evidence shows that while many of these residents remained in the city, others, especially those with extended families, retained a town house, whilst, at the same time, having one or two members working on the peri-urban farm. Other households decided to change their residence completely and moved out of the city and into peri-urban villages.

The main reason for people wanting to settle in peri-urban villages was the need for a place to farm. Although land was available in almost all villages some had more advantages than others. This could be in terms of accessibility, or closeness of a village to one's birth or even work place. The second main reason contributing to the settlement of people in the peri-urban zone of Dar es Salaam was the villagization

programme. This was part of a national campaign to resettle the scattered rural population of Tanzania into *ujamaa*[1] villages. Dar es Salaam's peri-urban villages were a destination for people who had been resettled during the villagization programme of the mid-1970s. These villages enjoy the strategic advantages of relatively easy transport and proximity to the city. The contribution of the villagization campaign to the settlement of people in the peri-urban zone of Dar es Salaam differs from one village to another. For example, this programme played a more significant role in the Bagamoyo Road and Kibugumo zones, in which the majority of their people migrated from the neighbouring villages; in these zones this factor is ranked number two (Table 5.4).

Villages located along the major arterial roads enjoy easier transport services to and from the city, compared to those which are off-road. Since the majority of the peri-urban population depends to a great extent on services and employment available in the city, easy transport becomes an important factor in the choice of a place to settle. Overall, 'easy transport to the city' is ranked third. The ranking of this factor, however, displays a clear distinction between on-road and off-road villages. In villages such as Kiluvya, Kibamba, Bunju, and Kongowe, which have good access to the city, this factor scores high, and it is ranked either second or third among the ten factors. On the other hand, in the Kibugumo zone which is the least accessible, this factor is ranked fifth, despite the relatively short direct geographical distances of these villages to the city.

The other main reason which contributed to the settlement of people in the peri-urban villages has been the urban control campaigns in Dar es Salaam city. Almost at the same time as the villagization programme, other control campaigns to resettle the urban unemployed in agriculture exerted an impact on the towns' immediate rural periphery (Armstrong, 1987). These campaigns are considered to have been a complete

[1] Ujamaa - Tanzania's version of African socialism, expressed as the policy of socialism and self-reliance. Ujamaa villages are forms of collective villages.

failure (Mlay, 1977), especially as few individuals have since remained in these villages, particularly in the southern parts of the peri-urban zone of Dar es Salaam. The failure of these campaigns to slow down the influx of people into Dar es Salaam is clear, but in terms of resettlement in the peri-urban zone, it would be misleading to argue that all those resettled moved back into the city. Moreover, some of those who went back to the city still maintained the land they were allocated in these villages, to which they could easily return later. More evidence is to be found in Kibugumo and Geza Ulole villages in the south, in which a considerable proportion of the villagers belong to the Simbiti tribe originally from Musoma region in the northern parts of the country.

Farm investment was another important factor influencing the choice of a particular village for settlement. This factor is ranked in fifth position overall, although it does not appear to reveal any marked spatial pattern. This may be explained by the fact that one of the main components of farm investment is the availability of farmland. While land seems to be available in all villages, farmers who have been buying land for future farm investment show a tendency to prefer more remote villages to those located along the major roads. The most obvious reason for this preference is that in the remote villages more land is available for sale and at cheaper prices. Thus, competition for land with small-scale farmers is avoided, especially as this latter group tend to prefer areas along the major arterial roads, usually served by public (mass) transport. By choosing to invest in more remote villages, these investors (usually from the high income bracket) are not restricted by poor accessibility to these areas because most of them use private means of transport, or government vehicles under their control.

It is further noted that despite the high accessibility of villages such as Bunju and Pugu, and especially the close proximity of the latter, 'farm investment' as a factor for choice of settlement does not appear prominently. This is mainly because these villages, together with Yasemwayo in the south, are long-established villages in which

people have been settled for longer periods of time, and, for this reason, land may have not been as easily available as in other villages.

Proximity of the peri-urban villages to the city was another reason for choosing a particular area to settle. This factor is ranked sixth overall, but in those villages located along the major roads, this factor is ranked higher than in the villages further from the roads. Thus, in villages such as Kibugumo, this factor is hardly acknowledged, despite it being only a relatively short distance from the city (16 kilometres). The advantage of the short direct distance from the city to Kibugumo, compared with distances to other villages, has been eclipsed by the sheer physical difficulties in reaching this village. The shortest direct distance from the city centre to Kibugumo village is through the Magogoni ferry. However, ferry services across Kivukoni front are inadequate and very unreliable. In fact, farmers in Bunju village (32 kilometres from the city) have a perception of being closer to the city, although this distance is almost twice that to Kibugumo village. Therefore, the proximity of a village to the city is only appreciated where a particular area has good accessibility to the city.

Some villages in the peri-urban zone offer good locations for business, this factor being ranked in eighth place. This factor is particularly important in Kongowe village, which is located on the junction of Kilwa and Mjimwema roads (Map 3). The choice of a particular village to settle was also influenced by its closeness to a person's birth place, this reason being ranked ninth. Nevertheless, this factor is important in understanding that, much as most farmers would like to move into the city, maintaining links with their rural homelands is a crucial factor. This seems to apply both to people who migrated from the city, and to those who moved from the more distant rural areas into the peri-urban zone. Thus, three villages (Kiluvya, Kibamba and Pugu), out of the four villages in which this factor was found to be important, are actually located along the main arterial roads. Therefore, such highly accessible locations are strategically important to people who want to maintain contact with their birth places, and at the same time enjoy the advantages of being close to the city.

The ease with which people have settled in the peri-urban zone of Dar es Salaam may be seen in the wider context of national integration in Tanzania. Generally speaking, people in Tanzania feel comfortable in moving from one place to another, with much less feeling of alienation from home than in some other parts of Africa. In complete contrast to Nairobi, Kinshasa or Lagos, people from all parts of the country can settle in Dar es Salaam without a constant reminder that they are 'strangers' (O'Connor, 1988). This aspect has significantly contributed to the ethnic diversity of the city's population, and this diversity also extends into the peri-urban zone.

The settlement of people in the peri-urban zone of Dar es Salaam has been made easier by the fact that the indigenous tribe in this area (the Zaramo) offered little resistance to the incoming people. Traditionally, the Zaramo lived in dispersed homesteads and practised agriculture, and there is no evidence that they had any central chief. In addition, the area around Dar es Salaam city was, until the 1970s, one of the most sparsely populated areas in Tanzania. The population density (excluding the city of Dar es Salaam) was still only 20 persons per square kilometre in the 1988 population census, compared to the national figure of 26 persons per square kilometre (United Republic of Tanzania, 1989). Therefore, there have been no pressing problems of land pressure, as found among the Chagga in Kilimanjaro region, for example, or in the Southern Highlands among the Nyakyusa. Thus, with plenty of land onto which the Zaramo could move, their attitude towards land as a major resource is rather different from other people who face land pressure problems. Therefore, although the Zaramo had the benefit of the capital city of the country developing in their area, they have not exerted the same numerical, or even economic dominance, like the Kikuyu or the Yoruba in their respective cities of Nairobi and Lagos. In addition, apart from cashew and coconut trees, grown as traditional cash crops, the Zaramo do not grow any other crop which demands constant and permanent attention (such as tea or coffee). This means that the Zaramo people are not very firmly rooted in one particular location.

Thus, it is relatively easy for them to sell land and move either into the city or to more distant rural areas.

5.6 City/peri-urban relationships

The urban demands placed on land and its resources produce various kinds of relationships between the city and the peri-urban zone. The nature of this relationship varies across both time and space. For example, in Africa, the relationship between the city and its peri-urban zone varies between indigenous cities, on one hand, and the colonial cities on the other. Most urban dwellers in traditional cities, such as Kano in West Africa, have for a very long time owned and worked on farms located in the peri-urban zones of their cities. Most colonial towns and cities in West Africa are linked in some way to their immediate hinterlands, at least to the extent of profiting from the countryside's excess of food production. Therefore, peri-urban zones have become important areas for food production, both for sale and household consumption. Thus, it is the peri-urban villages around these cities which produce food to feed the urban population. The cities, for their parts, important centres for the marketing of agricultural products from the peri-urban areas. Thus, the agricultural links which developed between these cities and their peri-urban zones can be traced back in history, and are substantially stronger than in colonial cities. In this way, complementary relationships have developed between the indigenous cities and their peri-urban villages. Indeed, Hill (1977) argues that urban dwellers in the ethnically homogenous cities such as those of Yorubaland or Benin regarded the countryside as an extension of the town.

In Dar es Salaam, the relationship which has characterised the link between the city and its peri-urban villages strongly reflects the origin and function of the city itself. Like many other nineteenth century cities in Africa, Dar es Salaam grew out of the colonial need for a collection centre for resources extracted from the mainland. In this

way, it developed stronger links with more distant places, both within the country and overseas, than with the local immediately surrounding communities. However, the strong relationship which exists between the city and the distant sources of food developed very much at the expense of the relationship with its immediate areas. Therefore, unlike the Yorubaland towns which practised a symbiotic relationship with their immediate rural areas, the city-states along the Eastern African coast, such as Dar es Salaam, remained isolated from their surrounding areas. Thus, from the point of view of urban dwellers in Dar es Salaam the peri-urban zone has been a neglected area (Swantz, 1970; Briggs, 1992). Indeed, most peri-urban residents actually depend on the city for the supply of important food items, especially maize and rice, rather than the other way round. Therefore, instead of the peri-urban zone feeding the city, it is the latter which feeds the former. Perhaps this is not surprising, because in terms of settlement in the area, about 72 percent of the sampled farmers have settled there only in the last two decades (Table 5.3).

During the early 1980s, important changes have taken place within the city in terms of both spatial and population growth, thus necessitating a demand for more land in and food from the peri-urban zone of Dar es Salaam. In the fulfilment of these demands, the peri-urban zone has been drawn into new relationships with the city. The nature of this relationship can be best understood by examining the importance which the peri-urban farmers attach to the city (Table 5.5). First, peri-urban farmers depend on the city for the purchase of important items ranging from food to clothing. This is because there is a sharp decline in both the quantity and range of goods available in the peri-urban village shops. Only a few items, such as salt, sugar, soap, kerosene, cooking fat, rice and maize flour and other petty consumer items, are available in the shops in peri-urban villages. These items are obtained from the city by local traders, and their prices are usually higher than those in the city. As a result, farmers prefer to buy their goods directly from the city which they visit for other purposes.

Importance of the city	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone	Total	Rank
Shopping	83.5	113.5	120	81	44	442	1
Provision of service	36	49.5	33.5	22	39	180	2
Food supply	32	28	70	26	13	169	3
Place of work	29	53	47	16	2	147	4
Marketing	17	36	57	20	6	136	5
Business	8	13	18	4	4	47	6
Born there	5	8	4	6	2	25	7

Table 5.5 Importance of the city to farmers living in the peri-urban zone.

In addition, Dar es Salaam city and its peri-urban zone also have social links, in which the former provides a range of social services. The inadequacy or complete lack of these facilities in the peri-urban zone compels people to depend on the city where they are available. These include, for example, health services, education and recreation. Overall, the importance of the city as a provider of these services is ranked second. Peri-urban farmers in Dar es Salaam also depend on the city for the supply of major food items. These include rice, maize, beans, potatoes, onions and cabbage. Some of these items, like maize and rice, are also produced in many peri-urban villages, but due to unsuitable climatic conditions, their production levels are low, and may not be enough to satisfy minimum household requirements.

There is also a commuting relationship between the city and its peri-urban zone. Peri-urban locations offer some farmers opportunities to combine farm activities with non-farm work in the city. Therefore, many peri-urban farmers commute to the city as a place of work. Overall, this factor is ranked fourth, although it is more significant in the three zones whose villages have better access to the city. For example, in the Bagamoyo Road, Morogoro Road and Pugu Road zones, the city as a place of work is ranked third, but in the Kilwa Road and Kibugumo zones, where accessibility is poor, this factor is ranked fifth and seventh respectively.

The marketing of agricultural goods is another form of economic link between the city and its peri-urban villages. Agricultural goods produced from these villages, especially fruits such as oranges and pineapples, are sold directly to the city markets. Evidence available from the household survey clearly shows that most farmers prefer to sell their goods directly in the city rather than in the local village markets. The ranking of this factor (fifth out of seven factors) is worthy of comment. Due to their proximity to a concentrated urban demand for food in the city, it might be expected that peri-urban villages would have a strong economic (particularly, marketing) relationship. The weak marketing relationship however, is indicative of the limited degree of commercialisation of crops among peri-urban farmers (Briggs, 1992).

From the point of view of those farmers living in the city, the peri-urban zone is an important area for farming and future settlement, and these two economic factors are ranked first and second respectively (Table 5.6). Other farmers regard the peri-urban zone as an area where they can make future farm investments. Overall, this factor is ranked third out of four, as an indication of its importance. The importance of the peri-urban farm as a place for investment varies from one zone to another. For example, in both the Morogoro Road and Pugu Road zones, this factor is ranked second, in contrast to the Bagamoyo Road, Kilwa Road and Kibugumo zones, where it is ranked third. The preference of Morogoro Road and Pugu Road zones again largely stems from their good accessibility with respect to the city.

Importance of the peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone	Total	Rank
Farming	123.0	89.0	92.0	130.0	111.5	545.5	1
Future settlement	49.0	112.0	104.0	77.0	36.5	378.5	2
Farm investment	29.5	110.0	95.5	57.0	35.0	327.0	3
Buying Food	14.0	10.0	4.0	8.0	18.0	54.0	4
Born there	19.5	0	4.5	6.0	4.0	34.0	5

Table 5.6 Importance of the peri-urban zone to city-based farmers.

The limited degree of commercialisation of crops in peri-urban villages is further reflected by the low score of 'purchase of food' as a form of link between the city and its peri-urban zone. This factor is ranked fourth. This is hardly surprising, because it is the peri-urban villages which depend on the city for various food items, and city residents do not have much to buy from the peri-urban zone.

5.7 Summary and Conclusions

The peri-urban villages of Dar es Salaam are inhabited by a population of which the majority is not indigenous to the area. The majority are recent in-migrants from the city and neighbouring rural villages, and most of these people have settled in last two decades since the early 1970s. Several forces have contributed to the settlement of people in the peri-urban zone of Dar es Salaam. One of such forces was the villagization campaign of the mid-1970s. The strategic location of the peri-urban villages with respect to the city is a prime reason for people deciding to settle there, especially people from the neighbouring rural villages. During the same period, urban control campaigns in the city contributed to the settlement of the unemployed people into peri-urban villages. Although these campaigns are considered to have been a failure, it is not the case that all those people who were resettled into peri-urban villages returned to the city. What is true, however, is that these campaigns failed to halt the influx of rural migrants into the city as anticipated.

Following the recent settlement of people in the villages, especially by those from the city, there has opened up new a relationship between the peri-urban zone and the city. The peri-urban zone of Dar es Salaam, which in the 1960s was a neglected zone, is an important area for farm investment for both people living in the villages and for those from the city. For peri-urban farmers, the city has become an important centre for the provision of services such as education, medical care, and shopping. Thus, it may well be argued that the city and the peri-urban zone in Dar es Salaam have now formed a

mutual relationship. However, judging from the purposes of visits to the city by peri-urban farmers, it would appear that these farmers are more dependent on the city, than urban dwellers are on the peri-urban zone. Furthermore, the continued settlement of people in the peri-urban villages is a further indication that these areas are highly dynamic, unlike previously in the 1960s.

CHAPTER SIX

LAND USE IN THE PERI-URBAN ZONE OF DAR ES SALAAM.

6.1 Introduction.

The city of Dar es Salaam, like many others in Africa, has been expanding rapidly in recent years. The urban population of the city has grown from 272,821 people in 1967 to 757,346 in 1978, and to 1,360,850 people in 1988 (United Republic of Tanzania, 1989). Such an increase has created a demand for both more land and food, among other things. Whereas the demand for food has been met partly by up-country sources, the demand for land has to be necessarily met by those areas adjacent the city itself. Thus, the demand for land is felt most in the peri-urban zone of the city. In fulfilling these demands, the peri-urban zone has undergone significant changes in land use. This chapter sets out to trace and analyse land use changes in the peri-urban zone of Dar es Salaam over the time-period from 1966 to 1992.

6.2 The nature of land uses in the peri-urban zone.

Most definitions of the peri-urban zone emphasise the mix of land uses as an important characteristic feature of the zone (Ilbery1985; Johnson, 1974; Pryor, 1968). This mix may be in terms of the nature of individual land uses, whether urban or rural, or even in terms of their response to urban pressure (whether adjusting or retreating). This is emphasised in Thomas' (1974) definition in which the peri-urban zone is defined as "a zone of mixed land use elements and characteristics *in which rural activities and modes of life are in rapid retreat,*[1] and into which not only residential but also commercial, educational, recreational public services and other largely extensive uses of land are intruding" (Thomas, 1974:17).

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[1] emphasis added

Due to its proximity to the city, the peri-urban zone is an ideal place to locate certain forms of urban land uses. Because of locational convenience, as well as space requirements, many public utilities serving cities are located in the peri-urban zones. These include, typically, sewage disposal plants, recreation land, water reservoirs, airports, military installations and cemeteries. The multiplicity of these uses often leads to competition for land in the peri-urban zone, firstly, between urban uses themselves, and secondly, between urban and rural land uses. The length of time in which rural land uses are able to compete for a space in the peri-urban zone largely depends on the nature of a particular rural land use, and the strength of the urban forces. For example, market gardening is quite resistant to change under urban pressure, but in most cases, it is usually forced to adjust eventually. The adjustment may be in terms of increasing intensity of production so that returns per unit of land match the increasing value of land. Thus, it is common that at any one time the peri-urban zone will retain some land uses as carry-overs from the time that this area was still entirely rural and yet others which are undergoing rapid changes. Nevertheless, in most cases, adjustments in rural land uses are made due to urban pressure.

The zonation of the peri-urban zone into land use belts was described in Sinclair's (1967) model. Based on the experience of mid-west USA, Sinclair postulated the following sequence of agricultural land uses. The first zone consists of urban farming surrounded by urbanised land. The second zone is vacant or temporary grazing land, which is kept ready for sale to urban developers. The third zone is that of transitory agriculture in which field crops and grazing are common. The fourth zone is under dairying and field crops. This zone is considered to be outside the price mechanism of the city, in terms of land uses being influenced by anticipated urbanization. The fifth zone consists of specialised feed-grain livestock whose products are oriented towards national, rather than local, metropolitan markets.

In Africa, Horvarth (1969) and Van den Berg (1984) provide examples of concentric zonations of land uses. In the 1960s, Horvarth identified a zonation of land uses around Addis Ababa in line with Von Thunen's model. Eucalyptus trees for fuel and building materials were found between and around the built-up areas, whereas river valleys were used for the production of vegetables. Surrounding the eucalyptus belt, mixed farming (including dairying) was practised with a certain degree of commercialisation where transport was easier. Van den Berg's (1984) study of the peri-urban zone of Lusaka also identified several concentric elements. In-between and immediately around most built-up areas, a belt of informal, small-scale gardening was found. Within this belt, typical peri-urban zone features, such as quarries, rubbish dumps and sewage works, were found. Beyond the belt of informal, small-scale gardening, there was a belt of subsidiary farming. The outermost zone was made up of large and extensive commercial farming and ranches.

In an attempt to explain the mix of land uses in the peri-urban zone, Van den Berg (1984) suggests that the peri-urban zone is influenced by "centripetal" and "centrifugal" forces. That is, whilst the peri-urban zone attracts a range of urban uses which are not wanted in, or cannot afford, a city location, it does, at the other end, repel other forms of land uses, such as heavy industries. The relevance of centrifugal and centripetal forces can be seen in a number of African cities. Richter(1971) reports the existence of centrifugal forces in agricultural land use in the peri-urban zone of Maputo in which there has been a withdrawal of cattle ranches. Similarly, a withdrawal of commercial farming in parts of Harare has been observed (Mazambani 1982, cited in Van den Berg, 1984). In these parts, commercial farming has been replaced by illegal peri-urban cultivation. On the other hand, the presence of coffee trees in the 1960s around the city of Kampala in Uganda, reflects the degree to which the local farmers had not yet been affected by urban pressure on their land. Yet in other areas around the same city, especially those settled largely by in-migrants working in the city, various forms of part-time farming had been introduced (O'Connor 1968). It was further noted that other

types of urban land uses had been pushed out to the peri-urban zone. For example, training colleges, hospitals, prisons and army barracks were found to be the major consumers of peri-urban zone land around Kampala.

Van den Berg's (1984) study of Lusaka gives further evidence of the centrifugal and centripetal forces operating in the peri-urban zone of an African city. In this study, it was found that several urban land uses were competing for a place in the peri-urban zone. These included quarries, scrap yards, and industries related to transport and building materials. At the same time, however, large-scale dairying and large-scale maize-farming were also retreating, and intensive farming on much smaller holdings was increasing in other parts of the peri-urban zone (Van den Berg, 1984). Despite the risks of farming near the edge of the city, there are examples of both capital- and labour-intensive agricultural activities around Lusaka. But at the same time, there is plenty of unused land around the city.

The nature of land uses found in the peri-urban zone of most African cities shows similar characteristics to those in cities of industrialised countries. In both cases, land uses that are found in the peri-urban zone are those which require extensive areas of land, and others (e.g. sewerage and water reservoirs) which, due to their nature, have to be located away from the urban areas. The peri-urban zone of Dar es Salaam, similarly, is characterised by a mix of urban and rural land uses. For example, urban land uses located in the peri-urban zone include industrial, water works and the airport, the latter of which provide necessary services to the city. The peri-urban zone of Dar es Salaam has also accommodated rural land uses, especially agriculture, although some forms of agricultural land use (sisal and cashew nuts) have been declining in recent years, whilst others (food crop production) have been increasing, perhaps due to urban pressures.

6.3 Land use in Dar es Salaam

6.3.1 The Central Area

The central commercial and administrative area of the city was established around the arc of the bay in the protected harbour. This land use occupied some 380 acres of land. A large part of this area is occupied by the 'Central Business District', and forms a well-defined core of the city. Between the 'Central Business District', and the Indian Ocean to the east, most of the area is dominated by Government offices. To the west, this zone is separated from Kariakoo by a narrow strip of open land (Mnazi Mmoja). The open space at Mnazi Mmoja is a reflection of racial segregation in the zonation of residential land use in Dar es Salaam as instituted by the German colonial rule. This area was left out to act as a buffer zone between the Upanga residential area (dominated by people of the Asian descent) and Kariakoo area largely occupied by African natives. The central area extends north where it is bounded by the Upanga residential area (Map 6). By the 1960s, the western parts of the 'Central Business District' were largely occupied by people of Asian descent, and this area was used both for residential and commercial purposes. By 1978, a larger part of the central area was still occupied by the central area, in which the city's commercial and administrative activities continued to dominate the land use. With the exception of a few new buildings (Government offices), by 1978 the physical structure of the 'Central Business District' had changed very little since 1966 increasing to only 410 acres. In the period between 1978 and 1992 new hotels, such as the Hotel Embassy and Bushtrekker, and government office blocks were among the new structures added to the central area. By 1992, the central area occupied only 440 acres and still maintained its importance as the major commercial and administrative centre in Dar es Salaam city.

6.3.2 Commercial land use.

In the 1960s most commercial activities in Dar es Salaam city were confined to the central area and Kariakoo. These two areas continued to dominate commercial activities well into the 1970s, when other areas, Ilala and Kinondoni and along Morogoro Road, began to grow in importance. Commercial activities have been on the increase especially after the liberalization of the economy in the mid-1980s. Although the central area of the city has continued to attract most commercial activities, other areas have grown in importance too. For example, parts of Kariakoo are rapidly attracting high-quality shops, some of which match the standards of those in the 'Central Business District'.

Apart from the traditionally established commercial areas in Kariakoo and the 'Central Business District', residential areas throughout the city have also attracted many commercial activities. Food markets and retail shops selling basic goods are now found in almost all residential areas of the city. In most of these areas, there is a wide range of specialised shops trading in items such as clothing and household equipment. However, most shops have retained a general store character, the archetypal East African *duka*. In high-income residential areas, such as Oyster Bay, mini-super markets have also been on the increase, particularly since the mid-1980s.

6.3.3 Residential land use.

Two types of residential land use exist in Dar es Salaam city: planned and unplanned residential zones. Among the earliest planned residential areas in the city are those established in the Upanga area, north of the Central area. Initially, these areas were occupied predominantly by people of the Asian community. Further north, other planned residential areas developed (Regent Estate and Oyster Bay). These were low density areas, and until the 1960s, they were almost wholly 'non-African' residential areas. To the west of the central area Kariakoo developed as one of the earliest

residential and commercial areas, with a high concentration of the African population.

By 1966, except for Upanga, all other planned residential areas in the city, whether high, medium or low-density, were fringed by squatter settlements. For example, the settlement of Msasani, developed adjacent to the low-density residential areas of Regent Estate and Oyster Bay, grew and became occupied by domestic servants working in the low-density residential areas nearby (Sutton, 1970). Other unplanned settlements in the city were found in Manzese, Buguruni, Mwananyamala, Mtoni and Chang'ombe areas (Map 6). These areas were occupied predominantly by Zaramo people, the ethnic group indigenous to the Dar es Salaam region, although by the late 1960s other ethnic groups had begun to settle there (Leslie, 1963). Scattered residential settlements were also found in the peri-urban zone of the city. Some unplanned settlements were found between Morogoro Road and Pugu Road, including Luhanga, Tabata, Buguruni, and Kipawa along Pugu Road. In the south, along Kilwa Road, Mbagala settlement was most notable, whilst in Kigamboni much of the land could be considered to have been more rural in character (Map 6).

By 1978 new planned residential areas were established in different parts of the city; for example, at Mwenge along the Bagamoyo Road, and Ubungo along Morogoro Road. Although most of the residential areas of 1966 retained the same use by 1978, there were changes in the categories of people living in some of them. The Regent Estate and Oyster Bay areas, which until the late 1960s were almost wholly "non-African", were no longer racially segregated, and many of the houses were inhabited by Tanzanian civil servants by 1978.

Many of the unplanned settlements which existed in 1966 continued to expand into the neighbouring open spaces. For example, the open space which separated Magomeni from Manzese was, by 1978, occupied by squatter settlements (Map 7). In the period between 1966 and 1978, another unplanned settlement (Vingunguti) had developed (Map 7). This was, in reality, an extension of the Buguruni squatter settlement.

Elsewhere in the city, for example in Keko, similar unplanned settlements grew substantially in the period between 1967 and 1972. The growth extended in a southerly direction and the squatter area increased by 50 per cent during this period (Lindberg, 1981). In the period up to 1978, a narrow strip of unplanned settlements also developed from Ubungo to Kimara along Morogoro Road. Formerly, this area was occupied by scattered Zaramo homes, with small plots of cashew and coconut trees.

By 1978, the pattern of residential land use in the peri-urban zone of Dar es Salaam changed markedly from that of 1960s. Instead of the scattered homesteads of the 1960s, the new pattern showed a concentration of housing in village centres (Map 7). Bunju, Kongowe, Kwembe and Kinyerezi are among the villages to which the rural population moved during the country-wide resettlement programme (villagization). Villages such as Pugu, Kimara, and Mbezi, which are located along the roads, also received people from the rural scattered homesteads, but in addition, they received in-migrants from Dar es Salaam city.

In the period between 1978 and 1992, the unplanned residential areas increased considerably. This expansion took place mostly along the arterial roads, especially Morogoro Road (Kimara), Pugu Road (Kiwalani) and Kilwa Road (Mbagala). It is estimated that in 1992, over two-thirds of the city's population lived in 170,000 units of houses concentrated in more than 40 unplanned settlements scattered throughout the urban area (United Republic of Tanzania, 1992b). Planned residential areas accounted for only 30 per cent of the housing stock (some 50,000 units), covering about 50 per cent of the land area of the city. Most of the areas under this category were established long before the 1980s. However, new areas are now used for planned residence. For example, Sinza, between Morogoro Road and Mwenge on Bagamoyo Road, has developed into a planned residential area (Map 8). The 1992 land use pattern also shows that Oyster Bay has expanded northwards to include the formerly open space towards Ras Kankadya (Map 8). A new planned residential area (low-density area) is also to be found on the eastern side of the Bagamoyo Road between Mbezi River and

the junction to Africana Hotel. This is actually an extension of the Mikocheni low-density residential area. Such growth in this direction shows the persistence of sectoral residential segregation in some parts of the city, as earlier predicted by Van den Berg (1984).

Except for settlement clustering in village centres, the peri-urban zone of Dar es Salaam is generally characterised by linear settlement patterns. Residential areas are found along the major arterial roads which provide easy access to the city. Moreover, the density of houses falls sharply away from the main roads, as housing gives way to farmland. Residential land use in the peri-urban zone of Dar es Salaam displays a pattern reflecting both urban and rural influences. First, peri-urban zone has attracted a number of migrants from the city itself. Most of these have tended to settle in areas which are more accessible, especially along the Morogoro and Pugu Roads. Generally, houses built are of relatively better quality than those which are owned by indigenous people in the areas (Plate 6).

6.3.4 Institutional land use

In 1966 institutional land use category was dominated by educational institutions, administrative buildings, the airport and military camps. As many of these institutions expanded, they were relocated to the peri-urban areas of the city. For example, the airstrip in Chang'ombe was closed and a new one was built along the Pugu Road (Map 8). The Dar es Salaam University campus also shifted from Lumumba Street (near Mnazi Mmoja) to its present location in Ubungo. As in the case of other land use categories, these institutions were fringed by squatter settlements; for example, Kipawa developed adjacent to the Airport, as did Ubungo close to the University, and Kawe to the east of Lugalo military barracks (Map 6).

By 1992, the pattern of institutional land use had not changed significantly from that of 1978. Military camps still covered a large part of the land area, particularly the Lugalo military barracks between Mwenge and Mbezi Beach along the Bagamoyo Road. Further north, a military rifle range ground still occupies a large area near Mtongani village. Along Pugu Road, the military camp at Gongo la Mboto extends further south, nearly bordering the Tanzania-Zambia railway line (Map 8). Therefore, apart from small pockets of land occupied by schools, hospitals and police posts, which are scattered throughout the city, the most significant occupier of institutional land is the military.

6.3.5 Industrial land use.

In 1966, there were about 1198 acres used for industrial purposes, accounting for only 2.5 per cent of the city's total planned area (Dar es Salaam Master Plan, 1979). The industrial establishments in the city were, with few exceptions, concentrated in well-planned zones in Chang'ombe and along Pugu Road in the southwest of the city, both areas adjacent to the main rail arteries. Most of these industrial activities were established in the late 1940s, and most activities undertaken were of light manufacturing; for example, cigarettes, textiles, furniture and shoes. The period between 1966 and 1978 witnessed further expansion of industrial activities in the city. The Pugu Road Industrial Estate continued to develop and, as a result, it gradually expanded westwards along the Central Line railway nearly bridging the gap with Kiwalani residential area. Second, due to an increase in the cargo handled by the port of Dar es Salaam, more dockyards, warehouses and oil storage facilities necessitated the southward expansion of the port along the coast. By 1978, there were only a few industries located in the peri-urban zone of Dar es Salaam. One of these was the Cement Factory at Wazo Hill along the Bagamoyo Road (Plate 1), and another, the Sungura Textile Mill was located along the Pugu Road. In the south, the Kigamboni Oil Refinery was another notable feature.

PLATE 1: Cement factory in the peri-urban zone (Wazo Hill) (1992)

In the period between 1978 and 1992, industrial activities continued to agglomerate in the Chang'ombe and Pugu Road Industrial Estates. In Ubungo, along the Morogoro Road, more warehouses (Tanzania Harbours Authority) were established alongside the existing industrial activities, such as the Friendship Textile Mill, Ubungo Garments and Ubungo Farm Implements. New industrial sites have also been established since 1978. These include the Land Rover Plant and Sheet Glass factory in Mbagala along the Kilwa Road, and other light industrial activities (Coastal Textile and Inter-Chick) along the Bagamoyo Road (Map 8). The construction of the Nelson Mandela Road (formerly Port Access Road), from Ubungo to the port, also attracted many industrial enterprises in the area, especially from Ubungo to Buguruni. Before the early 1980s, these areas were used for cultivation.

6.3.6 Agricultural land use.

Evidence from the 1966 land use map (Map 6) shows a pattern in which the peri-urban zone is dominated by agricultural activities. Small farms existed in many areas within the city, particularly on low-lying lands along the rivers where rice was grown. In addition to the rice fields, a major sisal plantation was located in the northern tip of the Oyster Bay residential area (Map 6). Further vacant land was found between the Magomeni planned residential area and the Manzese squatter settlement. Parts of this land were used for crop cultivation, especially rice. Sinza and Mwenge, north of Manzese between Morogoro Road and Bagamoyo Road, were also used mainly for the cultivation of rice. These farms belonged mainly to Zaramo farmers living on-farm, as well as some others who lived in the city. The Lugalo military barracks and the University of Dar es Salaam were both surrounded by scattered farms on which crops such as cashew, cassava, rice and coconuts were grown. The area between the Pugu and Morogoro Roads, was also used for cashewnut and rice cultivation. In the southern parts of the city, again, agricultural activities dominated the use of the land. Important crops in this area were cassava, cashew, and coconuts and rice.

By 1978, agriculture was still widely practised in open spaces within the city, especially along the river valleys. Agricultural activities were also still being carried out in areas around the Airport, south of the Kigamboni oil refinery, along Mzinga creek, as well as in the area north of Regent Estate between the Old and New Bagamoyo Roads. Further north along the Bagamoyo Road, agricultural activities dominated the use of the land from Mbezi River to Mtongani. In the western parts of the peri-urban zone, especially along the Morogoro Road, cashewnuts cultivated by the Zaramo, were increasingly being replaced by banana, oranges, paw paws and pineapples. These were cultivated by new in-migrants to the city. These areas have a higher proportion of recent in-migrants from different parts of the country, particularly Kilimanjaro, Arusha, Bukoba and Mbeya regions.

The 1978 land use pattern also shows a change where some crops had been squeezed out of the city areas. For example, the sisal plantations north of Oyster Bay and Mbezi Beach area were turned into residential areas (Map 7). In the southern parts of the peri-urban zone, agricultural land use was dominated by crops such as cassava, cashew and coconuts. Therefore, unlike the 1966 agricultural pattern, in which most crops were grown by the indigenous Zaramo, the 1978 pattern showed signs of change, which involved new crops being introduced in the peri-urban villages, especially in the Morogoro Road zone. In addition to the scattered farms in the peri-urban zone, a greater concentration of agricultural activities along the roads was slowly emerging.

By 1992, agriculture still dominated land use in the city's open spaces and river valleys. Urban agriculture is widespread in low density areas such as Oyster Bay and Regent Estate, where many people use gardens and surrounding land for agricultural purposes. Many unkept school-grounds and road reserves are used for market gardening. These spaces were initially reserved as public open spaces. However, in quite a number of cases, Dar es Salaam City Council has failed to utilise or maintain them, and so people have felt justified in using this 'unused' land. As open spaces are increasingly becoming difficult to find, some river valleys, which are considered to be

environmentally hazardous, have also been put under cultivation. For example, SUKITA[2] Project farms in the lower course of Msimbazi valley are located in an area which is thought to be contaminated with industrial waste products. Crops grown in the areas include African spinach (mchicha), okra, eggplant, sweet pepper, cow peas, and tomatoes. Elsewhere in the city, the choice of crops grown in gardens depends mainly on the ease of harvesting and immediacy of their use in the household. Furthermore, by growing these crops in the city particularly spinach, farmers are able to benefit from the lucrative market for their products.

In the peri-urban zone of Dar es Salaam land use has continued to be dominated by agricultural activities. Two main forms of agriculture can be identified in these areas. First, there is farming which is a carry-over from the time when the peri-urban zone was entirely rural. This is exemplified by the types of crops grown, such as coconut and cashew trees found in the southern parts of the peri-urban zone. These trees have been there since the area was entirely rural. However, there are new varieties of coconut trees which have been planted more recently. Second, other forms of agricultural land use reflect an adjustment to the urban forces operating in the area. Crops under this category include bananas and maize whose production has increased following the settlement of relatively recent in-migrants from the city.

In addition to the scattered farms throughout the peri-urban zone, the 1992 land use pattern shows a concentration of small plots along the major roads, particularly the Morogoro and Pugu Roads. In the north along the Bagamoyo Road, farms are particularly dense around villages such as Bunju A, Bunju B, Boko, Mbweni and Mabwe (Map 8). In the south, where city expansion is slower, agriculture is not well-developed and farms are more scattered, leaving many parts of the area with plenty of unused land (Map 8). Generally, the 1992 agricultural land use pattern shows an increase in the importance of both urban and peri-urban farming. However, this change has become more pronounced since the mid-1980s as a result of the adjustment

[2] Shirika la Uchumi na Kilimo Tanzania

strategies following the economic crisis which affected the whole country, but more particularly urban dwellers in Dar es Salaam city.

6.3.7 Public and Private Open spaces.

The land use under this category includes cemeteries and open spaces used for recreation. Cemeteries are mainly found adjacent to the residential areas throughout the city, but by their nature of demand cemeteries occupy only a small portion of the total land. Apart from cemeteries, public open spaces include areas used for recreational purposes. Among the biggest are the Jangwani and Gymkhana playing fields. Along the coast of Oyster Bay, a narrow strip was also reserved for recreational purposes.

By 1978, more open spaces were reserved in the city, and accounted for just over a quarter of the total land area. These were found mainly in Sinza north of Manzese between the Morogoro and Bagamoyo Roads. Another large open space was left between the University and Lugalo military barracks. North of the Oyster Bay residential area was another open space which in 1966 was a sisal plantation. The residential area in Oyster Bay was also separated from the sea by a narrow strip of an public open land presumably to protect and give access to the beach.

6.3.8 Quarries

The area between Mtongani junction and Tegeta along Bagamoyo Road is underlain by limestone, which is extracted for the construction industry in the city, hence quarrying activities dominate the use of the land there (Map 8). Both private and government parastatal quarrying companies operate in the area. Whilst there are no precious minerals in the city-region, sandstone, limestone, sand and clay for building and construction purposes are extracted at a number of sites (Map 8). Sand quarrying sites include Mbagala, Majohe, and Mjimwema. Stone is principally extracted from Kunduchi, Mjimwema and Kigamboni quarries, supplemented by small-scale family

operations in disused quarries scattered throughout the urban area (especially in Msasani, Oyster Bay and Masaki). Limestone is obtained from Wazo/Kunduchi outcrops for the Wazo Hill Cement factory, while clay is extracted from the upper Msimbazi River valley for the manufacture of bricks.

6.3.9 Forest reserves.

This is another peri-urban land use which existed long before the area became a fringe of the city. Until recently, there were two gazetted forest reserves within the city-region boundary: Vikindu Forest and Pande Forest in Temeke and Kinondoni Districts respectively. In addition, Pugu and Kazimzumbwe Forest Reserves fringe the region in the west. A number of planted forests also exist in Kinyerezi, Kitunda, Tegeta and Kimbiji villages. Some 20 square kilometres of mangrove forest swamps are also found along the shorelines of Kibugumo, Mzinga/Kizinga, the Msimbazi River mouth; Jangwani Beach and from Mbweni northwards.

The forest reserves in the peri-urban zone of Dar es Salaam have not escaped the pressure from the city. The large demand for charcoal, firewood and building poles has given rise to considerable pressure on the woodland areas in the peri-urban zone. Therefore, much as forests in the peri-urban zone are seen to be a well-established land use, urban pressure for their products and the demand for more land for agriculture have contributed to the declining areas under forest cover.

6.4 Analysis of land use change, 1966-1992.

The growth of the urban population and the expansion of urban functions have been among the major changes that Dar es Salaam city has undergone since Independence in 1961. The growth of the urban population in particular has led to an increased demand for residential land, both in the city and the peri-urban zone. In turn, this has led to changes in land use almost throughout the city. Changes in land use have taken place in

two main ways. First, with an increased number of functions in the city, more vacant land has been brought into use. Thus, for example, land which was at one time considered to be hazardous, such as creek valleys, has been brought under intensive use, especially for residential purposes. Second, some land use types have replaced and succeeded pre-existing types. This applies more in situations where land spared as open space has often been converted to residential uses.

The 1966 land use pattern, especially with regard to the city reflected a strong sectoral structure (Figure 6.1), a structure which developed during the colonial era.

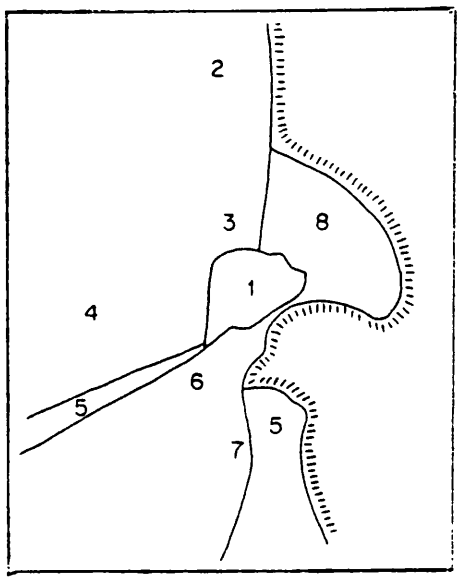

Figure 6.1 Hoyt's sectoral model: Dar es Salaam
1. CBD 2. High-class housing 3. Middle-class housing. 4. Low-class housing.
5. Transportation 6. Industry 7. Government buildings 8. Education.
[Adapted from de Blij, 1963, 29].

The eastern residential quarters in Oyster Bay and Regent Estate, primarily for the European population, spread in a broad belt along the ocean front north of the city centre. The Asian and Arab populations were concentrated within, and immediately northwest of the city centre, in Upanga, whilst the African population was housed in planned and unplanned areas in Kariakoo and Ilala along the main road and railway line leading inland. South of this railway line, a belt of industries developed in Chang'ombe and the Pugu Road area, while the harbour facilities expanded in the southern direction

in Kurasini.

By 1966, the peri-urban zone of Dar es Salaam was not very extensive. The city's continously built-up area had only reached a point of what is today's Magomeni Kagera, and extended only as far as the western tip of the Regent Estate along the Bagamoyo Road (Map 6). Along Pugu and Kilwa Roads, the continously built-up area was bounded by Buguruni and Mtoni settlements respectively. The area beyond these points constituted the peri-urban zone of the city. This is because not only the land use beyond these areas was undergoing changes, but these were the areas to which urban farmers commuted to farm on a daily basis. Due to the low urban population there was less pressure in the peri-urban zone, thus confining it within a range of 2 to 5 kilometres from the continously built-up areas of the city (Leslie, 1963).

In the period between 1966 and 1978, the population, function and size of Dar es Salaam city increased significantly. By 1978, the population in the city had reached 757,346 people (United Republic of Tanzania, 1989). As in the preceding years, this increase was contributed largely by rural-urban migration. Industries grew in number and others expanded in size. These changes created an increased demand for land for urban development. Thus, when in 1974, Dar es Salaam became a region in its own right separate from Coast Region, the administrative boundaries were also changed, and more overtly rural areas were added to the city.

In July 1978, the administrative system of Dar es Salaam was changed from a regional form of government to a city council. Again, new city boundaries were established to encompass surrounding rural areas into which the city was to grow within a period of 10 to 15 years. Thus, Dar es Salaam region occupied an area of approximately 112,000 hectares of which 14,900 hectares were covered by urban uses in 1978 (United Republic of Tanzania, 1992b).

As a result of the expansion of urban functions the peri-urban zone was also pushed further outwards. Most of the areas which in 1966 were classified as constituting the

peri-urban zone, were now part of the wholly urban area. These areas included Sinza, Ubungo, Buguruni and Mtoni. Other areas, which in 1966 were considered as being basically rural in character, were now experiencing direct urban influences. These new areas included the stretch from Kimara to Mbezi along Morogoro Road, and Mbagala along Kilwa Road in the south. Along Pugu Road, the peri-urban zone stretched to include the area between Gongo la Mboto and Pugu (Map 6). Northwards along Bagamoyo Road, the presence of the Lugalo military barracks was an impediment to rapid unplanned residential expansion of the city in this direction.

Land use category	1966	1978	1992	% change 1966-1992
Central area	380	410	440	15.8
Residential	2,199	6,124	41,100	1769.0
Commercial	35	210	320	814.3
Industry and warehouses	485	1,370	1570	223.0
Institutional	2,049	2,842	3,103	51.4
Open spaces	436	12,020	865	98.3
Agriculture	11,622	17,790	92,172	693.0
Quarries	-	326	684	109.8
Forest reserves	-	12,272	20,155	64.2

Table 6.1 Acreage by land use category

Residential land use has perhaps experienced far more change than any other use in the city increasing from 2199 acres in 1966 to 41,100 acres in 1992. This being an increase of over 1700 per cent (Table 6.1). Apart from the well-established planned residential areas, the period between 1966 and 1992 has witnessed the growth of squatter settlements. Although new areas were surveyed for planned residential use, unplanned settlements increased more rapidly. For example, over the 1966 - 1978 period, the squatter population increased at about 13 per cent per annum, while the population on allocated plots increased at only 6 per cent per annum (Marshall, 1979). Thus, whilst in 1967, Dar es Salaam city had 36 per cent of its population living in uncontrolled

settlements, by 1992, unplanned settlements had increased significantly, and accommodated about 70 per cent of the city's inhabitants (United Republic of Tanzania, 1992b).

The expansion of unplanned settlements has been by infill, that is, building houses on small empty parcels of land in the already built-up areas. This has caused an increase in the population density of the squatter areas from 256 people per square kilometre in 1967 to 605 in 1978, and to 977 in 1989 (Programu ya Idadi ya Watu na Elimu ya Familia, 1989). In other instances, unplanned settlements have sprung with the extension of built-up areas into new vacant land.

Institutional land use has also increased in area coverage. For example, by 1966 it occupied only 2049 acres, and increased to 2842 acres in 1978. By 1992 this land use had increased to 3,000 acres, representing an increase of 51.4 per cent since 1966 (Table 6.1). Industrial land use occupied 485 acres in 1966 and increased to 1198 acres in 1978. By 1992, the area under industrial land use had increased to 1570 acres this being an increase of 223 per cent since 1966. A more dramatic change is on open spaces which in 1966 covered some 436 acres. By 1978 the area under this land use increased to 12020 acres. However, by 1992, probably due to encroachment by other land use particularly urban agriculture land spared as public open spaces had decreased to 865 acres. There are, difficulties in interpreting the spatial extent of commercial land use. This is because, except for the central area where there is a well-defined concentration of commercial activities, in other parts of the city, commercial land use is mixed with residential land use. Nevertheless, commercial land use that can be distinctively marked increased from 35 acres in 1966 to 320 acres in 1992. This being an increase of more than 800 per cent.

Another notable change in the city is the new housing structures in Kariakoo. Plates 2 and 3 show residential and housing structures respectively in Kariakoo area in 1962 Basically the area is still dominated by a mixture of residential and commercial use, but

this area is now under pressure for redevelopment. The Government response to this pressure has been to favour the replacement of the existing low-income population by giving long-term Rights of Occupancy, but with new covenants (e.g. the construction of multi-storey buildings- Plate 4). Thus, the dominant single-storey houses are now being replaced by multi-storey structures, owned mostly by people from the Asian and Arab communities. It is estimated that from 1984 to 1987, about one-third of the plots in Kariakoo had changed hands (Kironde, 1992). Apart from the redevelopment of Kariakoo, the construction industry in Dar es Salaam city has generally been growing very rapidly. Residential areas are extending into the peri-urban zone as well, especially along the Morogoro Road zone where traditional and modern housing structures are co-existing side by side (Plates 5 and 6).

After trade liberalisation in the mid-1980s, petty commercial activities have also mushroomed throughout the city in response to the service needs demanded by residential areas. Petty traders have developed optimum commercial locations to maximise entrepreneurial returns, including city centre pavements, road junctions, transportation terminal sites, as well as locations along the roads. Although the central area and Kariakoo still dominate commercial activities in the city, other areas have grown in importance too; these include Manzese, Kinondoni and Tandika.

PLATE 2: A third-class residential street in Kariakoo (1962) (source: Blij, 1963)

PLATE 3: Commercial and residential area in Kariakoo (1962) (source: Blij, 1963)

PLATE 4: Modern housingand redevelopment of Kariakoo area (1992)

PLATE 5: Modern housing and traditional housing structures co-existing side by side in Kiluvya village (1992)

PLATE 6: Modern housing and remains of an old traditional house in Kiluvya village (1992)

The late development of agricultural links between Dar es Salaam city and its peri-urban villages could be explained by the fact that the city originated as a result of external mercantile forces. Thus, it evolved with weak spatial and economic links with its immediate surrounding areas. In addition, the peri-urban zone was, and still is, sparsely populated. This gives further evidence of the sharp rural-urban divide that characterised most colonial cities in Africa (Southall, 1961). Nevertheless, agricultural land use in the peri-urban zone has changed. First, farming in the peri-urban zone is no longer practised solely by the indigenous people (Zaramo) as was the case in the early 1960s, more urban dwellers, many of them in-migrants, are now engaged in farming. Indeed, both the type and number of farmers in the peri-urban zone have changed. Therefore, within the peri-urban zone there are many forms of farming, ranging from traditional, less intensive farms owned by indigenous farmers (Plate 7), to capital intensive farms largely owned by recent in-migrants (Plate 8). Second, as many more migrants moved into the peri-urban zone, the number and types of crops, and the scale of production, have also changed. For example, sisal plantations, which were a common sight in the early 1960s, have completely disappeared from the city-region. Cashew trees are also being pushed further out to more rural areas, whilst a new variety of coconuts has been introduced in most parts of the peri-urban zone. This new variety is a shorter tree which matures within 3 years of planting, compared to 7 years for the old variety.

Third, the scale of production of many crops has increased. For example, maize, which is a relatively recent crop in the peri-urban zone of Dar es Salaam, is being grown by many more people than in the 1960s. The scale of production of many of the fruits, which have traditionally been grown in Dar es Salaam, has also increased. For example, with an expanded urban market, the production of many fruits, such as oranges, pineapples and paw paws, has increased since the mid-1980s (Table 6.2).

Type of seedlings	Quantity sold in 1987	Quantity sold in 1988	Quantity sold in 1989	% increase 1987-1989
Bananas	5,870	36,706	136,786	479
Oranges	185,445	1,124,245	1,253,739	576
Pineapples	30,000	n.a	1,195,000	819

Table 6.2 Selected seedlings sold in Dar es Salaam, 1987-89.

source: Ubungo Coconut and Citrus Nursery Co-operative, Dar es Salaam

In general, therefore, much of the land in the peri-urban zone during the 1960s was unused, either because it was considered hazardous, or because of limited land pressure. In fact, due to a relatively low population in the city, the demand for food was also not as high as it currently is. Moreover, with plenty of open spaces and river valleys within the city it self, food was produced in considerable quantities to sustain the urban food requirements at that time. Urban farming is still important and certain forms of farming (vegetable gardens) are still to be found within the built-up areas of the city (Plates 9 and 10). These are intensive forms of agriculture in which plots are cultivated throughout the year.

PLATE 7: Peri-urban farming: traditional and less intensive farming along Bagamoyo Road (1992)

PLATE 8: Peri-urban farming: capital intensive farming (Kiluvya village) along Morogoro Road (1992)

PLATE 9: Intensive vegetable (spinach) growing in parts of the city's open areas (1992)

PLATE 10: Urban farming (livestock-keeping and coconuts trees) in the city (Mwenge area along Bagamoyo Road) (1992)

6.5 Summary and Conclusions.

A brief review of the literature on African cities shows that their peri-urban zones exhibit a mix of land uses similar to those found in cities of industrialised countries. In the 1960s, the peri-urban zone of Dar es Salaam, as others in Africa, accommodated both urban and rural land uses. The urban land uses found in the peri-urban zone are those which require large areas of land. These include certain forms of industries such as the cement factory and oil refinery, the airport, military installations and water reservoirs.

The changes in the pattern of land use since the 1960s have reflected growing urban pressure on peri-urban zone resources, especially food and land. For example, with a small urban population in the 1960s, food demand was largely satisfied by urban farming, in addition to the food brought in from up-country sources. However, it is also true that parts of the peri-urban zone were under cultivation by some urban residents, but this was not done as an economic necessity, as it subsequently was in the 1980s. Most of the farming activities in the peri-urban zone were performed by people resident in the areas.

In response to urban pressure, the peri-urban zone of Dar es Salaam has experienced considerable land-use change. Due to the growth of the urban population and the expansion of city functions, there has been an increase in demand for both land and food. Changes in land uses have occurred in two ways. First, more vacant land has been brought into use; and second, certain land-use types have been replaced by others. For example, within the city boundary, land reserved for recreation is being encroached upon for residential uses. In the peri-urban zone, some forms of agricultural land uses (cashewnuts) are being replaced by other forms of agricultural land uses (maize and bananas).

As the urban population increased, the demand for more food and land became even more apparent, a demand which could not be satisfied by urban agriculture alone. Moreover, beginning in the mid-1980s, rising inflation made farming in the peri-urban

zone an important activity for those who needed to supplement their declining incomes with some form of secondary activity. Thus, it is only very recently that the peri-urban zone of Dar es Salaam has been brought under intense pressure for development.

CHAPTER SEVEN

SOCIO-ECONOMIC CHARACTERISTICS OF PERI-URBAN FARMERS

7.1 Introduction

To provide a background for understanding peri-urban farmers' decision making processes, this chapter examines the socio-economic characteristics of the farmers in the peri-urban zone of Dar es Salaam, focusing on the differences between villages, as well as differences within each village. The characteristics examined include socio-personal factors, such as age, education, income and main occupations; and farm characteristics, particularly farm sizes and farm labour inputs. Villages are grouped according to location with respect to the city, as well as whether they are on-road or off-road villages. Comparisons are made between on-road and off-road villages, and between villages located in areas under intense urban pressure and those where urban expansion is less intense. On the basis of the farmers' socio-economic characteristics, this chapter attempts to develop a typology of peri-urban farmers in the study area.

7.2 Socio-economic characteristics of Dar es Salaam peri-urban farmers.

Ethnically, Dar es Salaam's population is markedly heterogeneous. The peri-urban zone of Dar es Salaam is populated by farmers with a diversity of backgrounds, motives and periods of settlement in the area. For example, only 29.8 per cent of the farmers were born in the peri-urban zone, while the majority (72 per cent) are recent in-migrants who have settled there in the last two decades. Among the in-migrants, 53.1 per cent came from Dar es Salaam city, and 33.8 per cent from other villages within Dar es Salaam and Coast regions. Only 13.1 per cent moved directly into the peri-urban zone from a location outside Dar es Salaam or Coast regions (Table 5.2).

As Table 7.1 shows, about 37 per cent of the population are under 15 years of age in Dar es Salaam region, whilst 60 per cent of the population are adults aged between 15 and 64. This is a typical pattern of an African urban population which is characterized by mainly adult migrants. The data on age categories for the peri-urban population show that 40 per cent of the population is below 15 years of age (Table 7.1), suggesting that peri-urban villages display a population pattern only slightly different from that of Dar es Salaam city. For example, in the city 42.2 per cent of the population are aged between 15 and 34 years, compared with only 31 per cent in the peri-urban villages (Table 7.1). This means there are fewer youths in peri-urban villages than in the city, as an indication of the process of migration of people into the city .

Age group	Peri-urban zone	Dar es Salaam Region	Tanzania
0 - 4	14.4	13.6	17.6
5 - 9	14.0	12.5	15.2
10 - 14	11.6	11.5	14.0
15 - 24	17.6	24.0	18.6
25 - 34	13.4	18.2	12.0
35 - 44	9.2	10.1	7.6
45 - 54	6.9	5.2	6.3
55 - 64	5.5	2.7	4.7
over 65	7.4	2.2	4.0
Total	100.0	100.0	100.0

Table 7.1 Percentage of peri-urban farmers by age categories

Source: United Republic of Tanzania, 1988 Census.

The average household size in the peri-urban zone is 4.1 persons, not too dissimilar from the average household size for Dar es Salaam Region (4.3 persons) (United Republic of Tanzania, 1989). This, however, masks big variations in size which ranges from 1 to 11 persons per household. In fact, over 52 per cent of the sampled households had between 1 and 4 persons, and another 43 per cent had between 5 and

8 persons per household. Only about 5 per cent of the households had more than 9 persons (Figure 7.1).

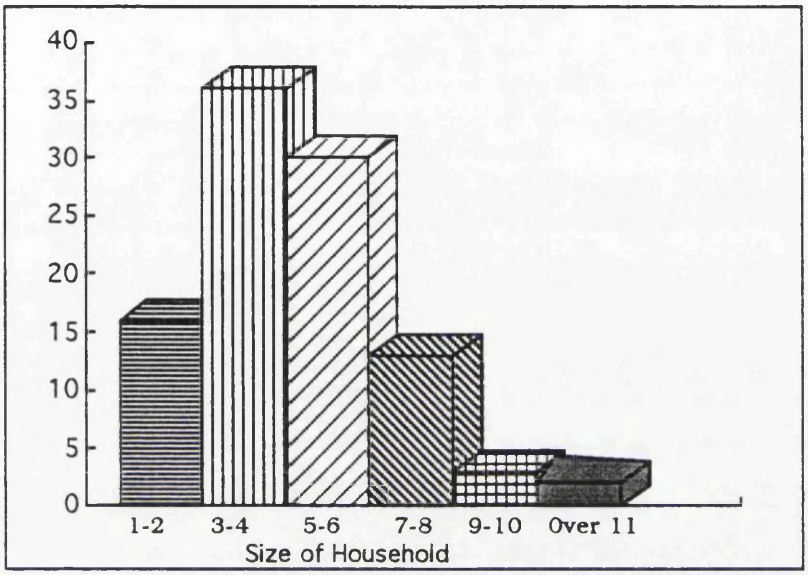

Figure. 7.1 Size of households in the peri-urban zone of Dar es Salaam

Peri-urban farmers display a wide range of educational characteristics. About 42 per cent of the farmers have completed primary school education, and another 23 per cent attended literacy classes (Table 7.2). Almost one quarter (23 per cent) of the people had secondary school education, but only 1 per cent had received University level education. At the other end of the scale, only 11 per cent of the sampled farmers have not attended school at all (Table 7.2). During the latest Population Census (1988), data on literacy were obtained by merely asking individuals if they could read and write in Swahili[1] , the main objective being to measure the effectiveness and progress of the adult education programme in the county. For this reason, it is difficult to obtain comparable figures for the levels of education as it was measured in the peri-urban

[1] Swahili is the national language of Tanzania

zone for the purpose of this study.

Level of formal education	Peri-urban zone
Not attended school	11
Literacy classes	23
Primary school education	42
Secondary school	16
Post-secondary school	7
University	1

Table 7.2 Peri-urban farmers by educational categories

Full-time farming is still the main occupation for the majority of the people (58.3 per cent) in the survey villages. About 17.5 per cent of the people are civil servants (teachers, nurses, social workers and agricultural extension officers), and 16.8 per cent are engaged in business, primarily as petty traders. Another category is that of artisans (including masons, plumbers and carpenters), but these make up only 2.8 per cent of the sample group (Figure 7.2).

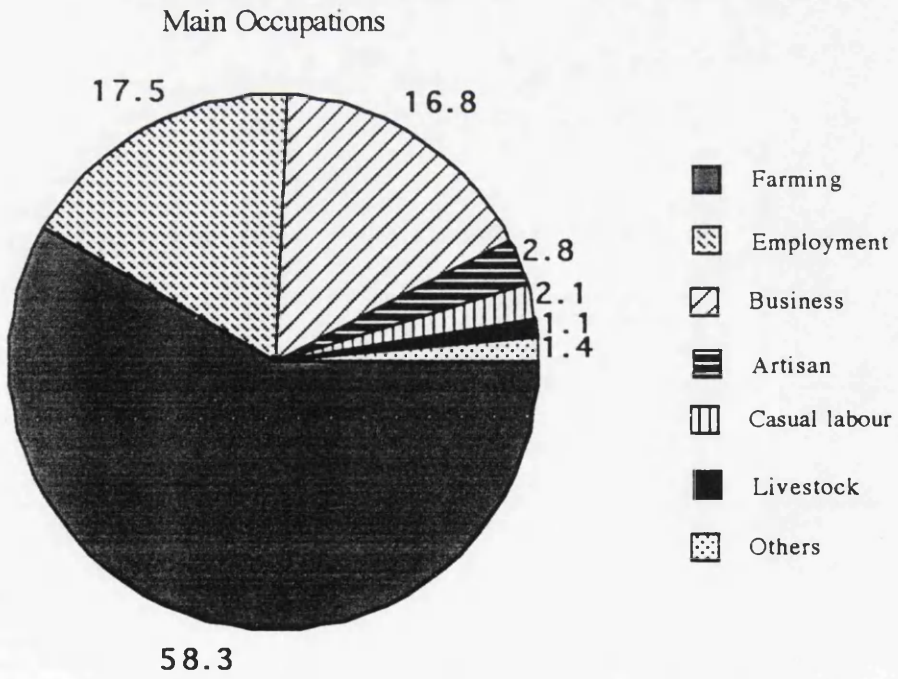

Figure 7.2 Percentage of farmers by main occupations.

The grouping of the people into occupational categories is not mutually exclusive because farming is practised by almost every resident in the peri-urban zone. On the other hand, and despite farming being the main occupation for the majority of the people, the range of other occupational categories clearly reflects the influence of urban proximity on the peri-urban villages. A peri-urban location clearly offers an advantage, as the people can more easily be involved in non-farm activities, due to accessibility and ease of information flows.

A word of caution is needed in interpreting data relating to income levels. As has been discussed in Chapter 3, income figures given by most farmers are probably lower than the actual levels. There are particular fears on the part of farmers about declaring sources of income, especially those sources from the informal sector as this was illegal up until 1988. Nevertheless, the data show that there is a wide disparity in income among peri-urban farmers, ranging from TShs. 12,000 to 960,000 per annum, giving a mean income of about TShs. 67,200 per annum[1] (Table 7.3). However, this masks the fact that the majority of the farmers (65.4 per cent) earn below TShs. 50,000 per annum, a figure lower than the minimum annual salary for government employees (TShs 60,000 per annum). Within the peri-urban zone, however, few farmers (about 2.6 per cent) earn more than TShs. 600,000 per annum, this being ten times the minimum pay for government employees. Most of these farmers are those with high capital investments of their farms, and who at the same time may hold relatively senior positions in the government or civil service.

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[1] TShs. 550 = 1 $ in 1992

Categories TShs 'per annum	Peri-urban zone
12,000 - 24,000	37.8
25,000 - 50,000	27.6
51,000 - 75,000	15.6
76,000 - 120,000	10.6
121,000 - 600,000	6.0
over 600,000	2.4
MEAN (per annum)	TShs 67,200

Table 7.3 Percentage of farmers by income categories:

Cash incomes for farmers in the peri-urban zone are derived from both farm and non-farm sources. However, the majority (61.4 per cent) of sampled farmers depend on farming as their main source of income (Table 7.4), and another 45 per cent of farmers ranked farming as their second most important source of income. It is clear that farming is still the major source of household income for the vast majority of Dar es Salaam's peri-urban population despite proximity to the city. Wage employment is the main source of income for only 17.1 per cent of the people in the sample group (Table 7.4). Petty trading forms a major income source for 13.7 per cent of the people. Masonry, plumbing, carpentry (grouped under artisanship) are ranked as the main source for 1.3 per cent of the sample. Another 3.7 per cent of peri-urban residents depend on the sale of casual labour as their main source of income. Most of these are people who have sold their farms, and now are employed by the new owners to work on the farms that they used to own.

Source of income	Main source
Farming	61.4
Employment	17.1
Business	13.7
Casual Labour	3.7
Artisan	1.3
Livestock	1.3
Others	1.5

Table 7.4 Percentage of farmers by main sources of income

Although climatic conditions in Dar es Salaam are not ideal for livestock-keeping, a few farmers keep cattle (mainly for milk). These, especially improved breeds of cattle, are usually stall-fed, and they are largely found within the built-up areas in the city, often in residential gardens. In the peri-urban zone, few farmers keep these animals, either improved or traditional breeds of cattle. Traditionally, the coastal area of Tanzania (including the peri-urban zone of Dar es Salaam) has long been an area of Moslem settlement, and for this reason pigs are not widely kept in these areas. However, as people move into peri-urban villages, primarily non-Moslems from inland Tanzania, pigs are increasingly becoming a more common sight. Other sources of income include fishing, weaving, house rents and pensions, all of which are ranked as the main income source number first by only 1.5 per cent of the farmers in the sample.

7.3 Spatial variations in farmers' socio-economic characteristics

There are considerable spatial variations in the socio-economic characteristics of farmers in the peri-urban zone, largely due to the different histories of settlement in the area and the different locations of the villages with respect to the city itself. For example, only 15.3 per cent of the farmers in the Morogoro Road zone were actually born in their present villages, and only another 22.3 per cent were born in immediately

neighbouring villages. The majority remainder (62.3 per cent) are in-migrants from other parts of the country. In other zones, for example, Pugu Road, Bagamoyo Road, Kilwa Road and Kibugumo, over 30 per cent of the farmers were born within their villages (Map 5). In these zones in-migrants constitute fewer than 45 per cent of the total population (Table 5.1). Furthermore, over one half (56 per cent) of the farmers in the Morogoro Road zone have moved there from the city itself, compared to only 36 per cent in the Kilwa Road and Kibugumo zones.

Second, spatial variations in farmers' socio-economic characteristics may also be explained by the differences in urban influence on those villages in the Morogoro Road zone on the one hand, and those in the Kilwa Road and Kibugumo zones on the other. The Morogoro Road and Kilwa Road/Kibugumo zones are two areas with very different characteristics, especially with respect to urban expansion. Expansion of the city has taken place far more rapidly in the west along Morogoro Road, where good accessibility and relatively better quality soils attract more migrants from the city itself. On the other hand, those areas to the south (the Kilwa road and Kibugumo zones) are far less accessible to and from the city. In addition, these areas are less favourable because of their low agricultural potential.

Farmers in the Morogoro Road zone generally have better educational qualifications than their counterparts in the Kilwa Road/Kibugumo zone. For example, only about 6 per cent of the people in the Morogoro Road zone, compared to a much larger figure of 20 per cent in the Kilwa Road/Kibugumo zone, did not attend formal school. Conversely, nearly half of the sampled farmers (47 per cent) had primary school education, and another 18 per cent attended literacy classes, in Morogoro Road villages, compared to lower figures of 34 per cent and 25 per cent in the Kilwa Road zone. In the Morogoro road zone, about 29 per cent had post-primary school education (secondary and post-secondary school training), compared to only 17 per cent in the Kilwa Road/Kibugumo zone.

Farming is an important occupation for the majority of people in the peri-urban zone of Dar es Salaam. Only Pugu village has less than half (43 per cent) of its residents engaged in farming as their main occupation. This is understandable, as Pugu village is the most accessible village with respect to the city, being only 19 kms away from the city centre, and being linked by a good road. With its proximity and accessibility to the city, residents in this village have greater opportunities to seek employment or engage themselves informal activities in the city. This is further evidenced by the fact that Pugu village has the highest percentage (28.4 per cent) of its residents whose main occupation is wage employment (Table 7.5). Furthermore, Pugu village also has the highest number (25.7 per cent) of its residents engaged in business. In the rest of the villages, farming is the main occupation for the majority of the residents.

Further spatial differences within the peri-urban zone are noted between the Morogoro Road and Kilwa Road/Kibugumo zones. For example, the majority (62.3 per cent) of residents in the Kilwa Road /Kibugumo zone have full-time farming as their main occupation (Table 7.5). In the Morogoro Road zone there are fewer farmers (54.4 per cent) who depend on full-time farming as their main occupation. This may appear surprising, especially given the fact that the Morogoro Road zone has better quality soils. However, the former zone is highly accessible to the city, thus reinforcing the tendency for farmers there to diversify their activities and to engage in alternative, often parallel, occupations. This is further supported by the fact that villages in the Morogoro Road zone have a higher proportion (39 per cent) of their population working in the city, compared to only 26 per cent in the Kilwa Road and Kibugumo zones. Accessibility may be the main reason for the higher percentage (20.1 per cent) of residents whose main occupation is wage employment in the Morogoro Road zone, compared with 13.2 per cent in the Kilwa Road zone and 14.5 per cent in the Kibugumo zone.

	Farming	Employment	Business	Artisan	Casual labour	Livestock	Others
Bunju	55.0	22.0	14.0	3.0	3.0	1.0	2.0
Mabwe	68.0	4.3	20.4	2.1	2.2	1.0	2.0
Kibamba	51.4	22.0	17.0	4.2	4.0	1.0	0.4
Kiluvya	50.8	20.3	18.7	3.0	5.0	2.0	0.2
Kwembe	61.0	18.0	12.3	2.0	2.5	1.4	2.8
Kinyerezi	59.6	20.1	15.7	2.1	1.0	1.0	0.5
Pugu	43.0	28.4	25.7	0.4	0.6	1.2	0.7
Kongowe	64.8	14.5	16.2	3.0	1.0	0.2	0.3
Yasemwayo	64.0	12.0	13.0	6.0	2.2	0.8	2.0
Mikwambe	65.4	10.6	14.0	4.8	1.6	1.3	2.3
Kibugumo	59.0	18.5	18.0	0.5	0.5	1.3	2.5
Peri-urban	**58.3**	**17.5**	**16.8**	**2.8**	**2.1**	**1.1**	**1.4**

Table 7.5 Percentage of peri-urban farmers by main occupation

Included in this category of petty traders are shopkeepers, market vendors and other traders whose main activities involve buying goods (mostly consumer items) from the city and selling them in peri-urban villages. With the exception of Pugu village, all the other villages have a similar proportion of peri-urban residents whose main occupation is business (Table 7.5). Bunju, Kibamba and Kiluvya villages have more residents (3.0, 4.0 and 5.0 per cent respectively) whose main occupation is sale of casual labour. This can be explained by the fact that there are more part-time and hobby farmers in these villages, who in addition to family labour depend on hired labour for work on the farms.

In almost all peri-urban villages farming is the main source of income for the majority of the people (Table 7.6). Only Kibamba village has less than half (47.3 per cent) of its residents whose main source of income is farming. In the remaining 10 villages, farming is the main source of income the majority of the people. In the Morogoro Road zone, farming is the main source of income for an average of 57 per cent of the people, whilst in the Kilwa Road and Kibugumo zone this rises to 65.5 per cent and 74 per cent respectively. In other villages, particularly those in off-road locations

(Mabwe, Kwembe, Kinyerezi, Yasemwayo and Mikwambe), farming is the main source of income for over two-thirds of the farmers (Table 7.6). The second source of income is wage employment. Nearly 20 per cent of the sampled group in the Morogoro Road zone derive their income from wage employment, compared with only 11.7 per cent in the Kibugumo zone villages. Again, this can be explained by the differences in accessibility between these two areas. Pugu village also has the highest percentage (28.7 per cent) of its residents whose main source of income is wage employment (Table 7.6), reflecting this village's advantage of a better road and being close to the city.

In addition to farming and wage employment, 13.6 per cent of peri-urban residents depend on business (petty trading) as their main source of income. Again, the influence of accessibility to the city is reflected in the differences in the percentage of the people depending on this source of income; for example, 18 per cent of the farmers in Bunju village, 22.2 per cent in Kibamba village and 17 per cent in Kiluvya and Pugu villages depend on petty trading as their source of income. It will be noted that these villages are located along the main roads, enabling their residents to engage in petty trading activities both in their villages and the city. On the other hand, only 7.7 per cent of the farmers in Kibugumo zone engage themselves in petty trading activities (Table 7.6).

	Farming	Wage Employment	Business	Artisan	Casual labour	Livestock	Others
Bunju	51.0	24.8	18.0	1.0	2.0	1.0	2.2
Mabwe	76.0	8.0	9.0	3.0	1.5	1.3	1.2
Kibamba	47.3	23.5	22.2	0.6	3.1	2.1	1.2
Kiluvya	51.2	24.6	17.0	1.0	2.8	2.8	0.6
Kwembe	72.4	11.0	10.5	1.3	2.8	1.4	0.6
Kinyerezi	68.5	14.0	11.3	1.7	1.6	1.5	1.4
Pugu	51.7	28.7	17.1	0.4	0.5	0.6	1.0
Kongowe	56.0	21.0	19.1	1.0	0.2	0.2	2.5
Yasemwayo	75.0	9.0	10.0	1.2	1.1	2.3	1.4
Mikwambe	81.8	7.4	4.4	1.5	1.6	1.2	2.1
Kibugumo	66.3	16.1	11.0	1.5	1.0	0.3	3.8
Peri-urban	**63.3**	**17.1**	**13.6**	**1.3**	**1.7**	**1.3**	**1.6**

Table 7.6 Percentage of farmers by main source of income

Casual labour is the main source of income for about 3.1 per cent of the people in Kibamba village, and 2.8 per cent in Kiluvya and Kwembe villages in the Morogoro Road zone. On the other hand, only an average of 1.3 per cent and 1.6 per cent of the people in Kibugumo and the Kilwa Road zone ranked this source in number one position. Most casual labourers work on farms owned by farmers who live in the city. Due to both better soils and higher accessibility, areas in the Morogoro Road zone attract greater numbers of absentee city-farmers who hire casual labourers resident in the villages to work for them. This explains why there are more people working of farms in Morogoro Road zone than in the southern parts of the city.

Further contrasts between different parts of the peri-urban zone are seen in the levels of income for peri-urban residents (Table 7.7). Both the number of sources of and the levels of income are considerably influenced by accessibility of the villages with respect to the city. Those villages located in areas with high accessibility to the city, such along the Morogoro Road, reflect, the greater opportunities for people living there to diversify their income sources. This, in turn, leads to relatively higher

incomes, compared with those villages which are less accessible. It is noted that a mean annual incomes in the Morogoro Road and Pugu Road zones are more than twice (TShs 98,000 and TShs 86,000 respectively) those of the residents in Kibugumo zone (TShs 42,000). Furthermore, between one half and three-quarters of Dar es Salaam's peri-urban residents earn between TShs 12,000 and 50,000 per annum, with the Morogoro Road zone being the lowest (56.2 per cent). However, there are remarkable differences in the percentage of peri-urban residents earning more than TShs 121,000 per annum. For example, whilst 68.4 per cent and 73.4 per cent of farmers in the Kilwa Road and Kibugumo zones respectively earn below TShs 50,000 per annum, only 56.2 per cent of the farmers in the Morogoro Road zone earn below this level (Table 7.6). It is further noted that only 6.8 per cent and 2.5 per cent of the farmers in the Kilwa Road and Kibugumo zones respectively earn more than TShs 121,000 per annum, compared with the Morogoro Road zone where 16.5 per cent earn more than TShs 121,000 per annum. Similarly, about 33 per cent of the farmers in the Morogoro Road zone earn between TShs 50,000 and TShs 600,000 per annum, compared to only 24 per cent in the Kilwa Road and Kibugumo zones. Another 5 per cent of the farmers in the Morogoro Road earn more than TShs 600,000 per annum, compared to only 1.6 per cent in the Kilwa/Kibugumo zones (Table 7.7).

Income categories TShs. per annum	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
12,000 - 24,000	39.2	32.6	36.2	39.4	41.4
25,000 - 50,000	28.4	23.6	24.8	29.0	32.0
51,000 - 75,000	13.1	14.8	15.3	16.8	18.0
76,000 - 120,000	12.0	12.5	14.6	8.0	6.1
121,000 - 600,000	5.0	11.5	6.6	5.6	1.5
Over 600,000	2.3	5.0	2.5	1.2	1.0
MEAN (TShs)	62,000	98,000	86,000	48,000	42,000

Table 7.7 Percentage of farmers by income levels

The majority of the people in the peri-urban zone of Dar es Salaam have more than one source of household income (Table 7.8). However, in the Morogoro Road, Pugu Road and Bagamoyo Road zones, an average of 24.3 per cent of the farmers have more than one of source compared with 42.5 per cent for the Kilwa Road and Kibugumo zones. Even more startling is that 43.5 per cent of the farmers in the Morogoro Road zone and 40 per cent in the Bagamoyo Road zone had three or more sources of income, compared to only 27 per cent in the Kilwa Road zone and 16.5 per cent in Kibugumo zone (Table 7.8).

Number of sources of income	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
1	31.6	26.0	22.5	24.5	42.0	43.0
2	35.5	34.0	34.0	38.0	31.0	40.5
3	21.7	30.0	24.0	24.5	18.0	12.0
more than 3	11.2	10.0	19.5	13.0	9.0	4.5

Table 7.8 Percentage of farmers by number of income sources.

It can be concluded that farmers in the Morogoro Road and Bagamoyo Road zones have more diversified sources of income compared to those in the Kilwa Road/ Kibugumo zone. This can be explained by the relatively better accessibility that villages in the Morogoro Road and Bagamoyo Road zones enjoy with respect to the city. It is further noted that nearly one half (48 per cent) of the farmers in the Morogoro Road villages who have non-farm jobs work in the city compared to only 27 per cent in the Kilwa Road/Kibugumo zone. It is, therefore, clear that city proximity, but more precisely, better accessibility has contributed significantly to the wider diversity of sources of income among peri-urban farmers in the Morogoro Road villages.

7.4 A comparison of on-road and off-road villages.

As well as spatial differences between different zones in the peri-urban area occurring, there are also differences between on-road and off-road villages. For example, whilst farming is the main occupation for 62.6 per cent of the people in off-road villages, this occupation accounted for fewer (54 per cent) farmers in villages along the main roads (Table 7.9). In compensation, villages along the main roads have a higher proportion (21 per cent) of wage earners, compared to villages away from the main arterial roads (14 per cent). Thus, the advantage of on-road villages in terms of accessibility to the city is reflected in the proportionally higher percentage of wage earners. A further influence of accessibility on peoples' places of work is reflected in the differing proportions of people working in the city. For example, villages located along the major arterial roads have a higher proportion (35 per cent) of their people working in the city, compared to only 19 per cent from the villages located away from the main roads.

Main occupations	Peri-urban zone	On-road villages	Off-road villages
Farming	58.3	54.0	62.6
Wage employment	17.5	21.0	14.0
Business	16.8	18.2	15.4
Artisans	2.8	2.3	3.3
Casual labour	2.1	2.3	1.9
Livestock	1.1	1.1	1.1
Others	1.4	1.1	1.7

Table 7.9 Percentage of farmers by main occupation.

The same pattern exists for main sources of income with just over half (52.6 per cent) of the farmers in villages along the major arterial roads depending on farming as their main source of income, substantially fewer than in off-road villages, where 73.2 per cent depend on farming as their main source of income (Table 7.10). Similarly,

striking differences are also noted in the proportion of people who depend on wage employment as their main source of income. With easier access to the city, about 23 per cent of the sample in on-road villages depend on wage employment as their main source of income, compared to only 11.1 per cent in off-road villages. On-road villages also have a higher percentage (17.4 per cent) of people earning their income from business, compared to only 10 per cent in off-road villages. Here again, accessibility, enjoyed by on-road villages, is a critical influence on the kind of income sources that people experience. Casual labour is the main source of income for about 3.7 per cent of the people living in villages along the main roads, compared with only 1.5 per cent of people in off-road villages (Table 7.10). Most of these casual labourers work on farms owned by farmers living in the city. Since most of these farms are located in villages along the main roads, it is hardly surprising that there are more casual labourers in on-road villages than off-road villages.

Main sources of income	Peri-urban zone	On-road villages	Off-road villages
Farming	62.9	52.6	73.2
Wage employment	17.1	23.1	11.1
Business	13.7	17.4	10.0
Casual labour	2.6	3.7	1.5
Artisans	1.3	0.9	1.7
Livestock-keeping	1.2	1.1	1.4
Others	1.2	1.2	1.1

Table 7.10 Percentage of farmers by main sources of income: on-road and off-road villages

Differences in income levels are noted between on-road and off-road villages (Table 7.11). First, on average, farmers living in on-road villages have higher mean incomes (TShs 84,000 per annum), compared with those in off-road villages (TShs 60,000 per annum). This difference is even more apparent when it is considered that nearly three-quarters of the farmers in off-road villages earn below TShs 50,000 per annum,

compared with 66 per cent in on-road villages. At the other end of the range of income levels (over TShs 600,000 per annum), there are relatively more people (3.4 per cent) located in on-road villages, compared with only 1.8 per cent in off-road villages (Table 7.11).

Categories	Peri-urban zone	On-road villages	Off-road villages
12,000 - 24,000	38.0	32.7	43.3
25,000 - 50,000	32.1	33.5	30.7
51,000 - 75,000	12.3	15.3	9.3
76,000 - 120,000	8.0	7.6	8.4
121,000 - 600,000	7.0	7.5	6.5
over 600,000	2.6	3.4	1.8
MEAN (per annum)	TShs 72,000	TShs 84,000	TShs 60,000

Table 7.11 Percentage of farmers by income categories: on-road and off-road villages

7.5 Farm Characteristics.

The average farm size in the survey villages is 4.1 acres per household (Table 7.12). This, however, masks great variations in farm size, both between farms within villages, and between one village and another. Farm sizes range from less than one quarter of an acre to over 25 acres. For example, some 11 per cent of the farmers have less than 1 acre of farmland, whilst 6.4 per cent of the farmers had more than 13 acres. It is further noted that between 14 per cent and 18 per cent of the farmers in the Bagamoyo Road, Morogoro Road and Pugu Road zones have less than 1 acre of farmland, compared with less than 5 per cent in the Kilwa Road and Kibugumo zones. Likewise, over one-third of the farmers in the Bagamoyo Road, Morogoro Road and Pugu Road zones have between 1 and 3 acres of farmland, compared with 24 per cent in the Kilwa Road zone, and only 15 per cent in Kibugumo zone (Table 7.12). In addition, there were fewer people (11.5 per cent in the Kilwa Road zone and 16.5 per cent in Kibugumo zone, compared with 31.5 per cent in the Morogoro Road zone and 24 per cent in the Pugu Road zone (Table 7.12). The major explanation for these differences is that the Morogoro Road and Bagamoyo Road zones are under more

intense pressure for urban expansion compared with villages in the Kilwa Road and Kibugumo zones. As a result, the process of subdividing farmland is more pronounced, land being subdivided for both agricultural and residential land uses. Villages in the Kilwa Road and Kibugumo zones are under substantially, less development pressure for their land, because urban expansion in this direction is slower. Consequently, as few as 3 per cent of the farmers have less than 1 acre of farmland.

Farm size category	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
Less than 1 acre	11.0	15.0	18.0	14.0	4.5	3.0
1 - 3	20.2	23.0	26.0	20.0	20.0	12.0
3.5 - 6	26.8	26.0	10.0	24.0	38.0	36.0
6.5 - 9	21.6	18.0	14.0	18.0	26.0	32.5
9.5 - 12	14.0	12.0	20.5	15.0	8.0	14.5
Over 13 acres	6.4	6.0	11.5	9.0	3.5	2.0

Table 7.12 Percentage of peri-urban farmers by farm size.

Whilst there are few variations in the minimum size of farm between villages, remarkable differences are noted in the maximum sizes. For example, in Bunju, Kiluvya, Kibamba and Pugu villages the maximum farm size is less than 15 acres, this being nearly half the maximum sizes of other villages such as Yasemwayo and Mikwambe. In fact, these villages in the south have bigger farms than other places in the peri-urban zone, for example, in the Morogoro Road and Pugu Road zones, these is more pressure for urban expansion.

Bigger farms are generally found in off-road villages, where the pressure to subdivide farmlands into residential plots is less intense. For example, along the Bagamoyo Road zone, the maximum farm size in Mabwe village (off-road) is 19 acres compared with 14 acres in Bunju village (on-road). Likewise, in the Morogoro Road zone, Kwembe (off-road) has 20 acre as the maximum farm size, compared with 15 acres in Kiluvya and 13 in Kibamba village (Table 7.13). The main reason for this difference is that urban demand for land is concentrated along the major road arteries, primarily because of ease of accessibility. Consequently, farmers are increasingly under pressure to sell their land. Because land prices are constantly rising, most farmers find it more profitable to sell land in a piecemeal fashion rather than in one consolidated plot. Thus, farms in on-road villages are subject to constant subdivisions by their owners, and hence become smaller piece by piece. On the other hand, larger farms are mostly found in the southern parts of the peri-urban zone where the demand for urban land is less much intense and city expansion is slower. For example, in the Morogoro Road and Pugu Road zones, the maximum farm size was 16 acres and 17 acres respectively. On the other hand, the maximum farm sizes in villages in the south (Kibugumo zone) was 24 acres (Table 7.13).

Zone	Village	minimum farm size	maximum farm size	mean farm size	mean number of plots	mean number of family labour	mean number of hired labour
Bagamoyo Road	Bunju	0.5	13.5	3.0	1.7	2.6	1.0
	Mabwe	0.5	20	4.1	1.4	2.2	0.9
Morogoro Road	Kiluvya	0.5	15	3.0	1.7	2.3	1.8
	Kibamba	0.25	13	2.2	1.4	2.7	2.2
	Kwembe	0.75	20	4.0	1.3	2.5	0.4
Pugu Road	Kinyerezi	0.5	19	4.0	1.2	2.6	0.4
	Pugu	0.75	14	3.0	1.8	2.6	2.0
Kilwa Road	Kongowe	0.75	18	3.5	1.2	2.6	0.9
	Yasemwayo	0.25	25	5.0	1.4	1.8	0.5
Kibugumo	Mikwambe	0.75	27	7.5	1.4	2.4	0.5
	Kibugumo	0.5	21	6.0	1.8	2.3	0.9
	Peri-urban	0.5	18.7	4.1	1.5	2.4	1.1

Table 7.13 Farm characteristics by villages.

Typically, farm holdings in the peri-urban zone comprise between one and two plots per household. This is a further indication of the high degree of consolidation in the Dar es Salaam peri-urban zone, as found in an earlier study in 1987 (Briggs, 1992). However, it would appear that the proportion of farmers with one plot is increasing, whilst that of farmers with 2 or more plots is decreasing. For example, in the earlier study, 57.7 per cent and 34.0 per cent of the holdings had one and two plots respectively. This has changed to 69 per cent and 22 per cent for one and two plots respectively per holding in this survey.

Farms in the peri-urban zone are operated largely by family labour, although hired labour may play an important role too. On average, in each household there were 2 to 3 members working on the farm daily. Whilst family labour input does not vary much between one village and another, there are some variations in the number of hired labourers (Table 7.13). The most notable difference is between villages along Morogoro Road, on the one hand, and those in the Kilwa Road and Kibugumo area on

the other. In the former, 27 per cent of the farmers hired at least one person, and another 19 per cent hired between 2 and 3 people. The rest (54 per cent) depended solely on household labour for work on the farms. In the Kilwa Road and Kibugumo zones, only 12 per cent and 4 per cent of the farmers hired one or 2 and 3 persons respectively to work on the farms.

7.6 A typology of peri-urban farmers in Dar es Salaam.

In the preceding sections, the farmers' key socio-economic characteristics in different parts of the peri-urban zone have been described. This acknowledges the fact that urban influence is not spatially uniform in all directions within the peri-urban zone. On the basis of farmers' socio-economic characteristics, this section attempts to develop a typology of peri-urban farmers in Dar es Salaam. However, before this is done, other typologies of peri-urban farmers elsewhere are briefly reviewed.

Different authors present different ways of classifying peri-urban farmers. For example, Davidson and Wibberley (1977), following Higbee's (1967) classification, used the following breakdown for Britain: truly commercial farmers; undercapitalised and uneconomic farmers; 'hobby' farmers; and land speculators. The main variable underlying Higbee's classification is that of 'relative importance of farming as a source of income' (Van den Berg, 1984). Another attempt was made by Pahl (1968) who identified at least four categories of farmers: large property owners; the salariat; rural working -class commuters; and, traditional ruralites. On the basis of Higbee (1967), Pahl (1968) and Schultz's (1964) criteria, a tentative typology of farming operations in the peri-urban zone has been developed. In this typology, three main groups of farmers become distinct: 'urban invaders', to whom farming is of little importance; 'rural vacators', who attach some importance to farming; and the 'rural stayers,' who attach considerable importance to farming. More recently, in a study of 102 farmers of Northeast Oxfordshire, Ilbery (1979) produced a typology of eight groups, ranging

from the largest group of 35 full-time, mainly small-scale farmers, who were principally motivated by market demand, income and free time, to 12 full-time, mainly young farmers who had obtained good practical training and considered free time an irrelevant factor. However, Van den Berg (1984) is cautious in applying these typologies to the African situation in Lusaka, for the reason that most of the examples cited come from England or the United States. The only reference made to the African situation is that of urban invaders or the market gardeners in Nairobi, Kenya (Van den Berg, 1984).

On the African scene, a more detailed categorisation of peri-urban farmers is provided by Swindell's study on peri-urban farming in Nigeria. In this study, three major categories of peri-urban farmers are identified. First, farming in the fringe includes marginalized people, both urban and rural, whose household reproduction depends on farming small plots of land. Second, there are numerous small commodity producers and semi-capitalist farmers who use hired labour, together with family labour, to produce surplus grains and vegetables for the urban market. Such farmers usually have customary rights to land and the key to accumulation is often their town jobs or trading ventures. Third, there are conspicuous capitalist farmers who rely almost exclusively on hired labour, and who are buying land in the peri-urban zone to supply the urban food market. Many of these capitalist farmers comprise politicians and officials of the modern state and its agencies, together with urban and rural-based merchants and traditional rulers.

The most rudimentary categorisation of peri-urban farmers in Dar es Salaam produces two general groups: indigenous farmers, and migrant farmers. This kind of generalization, however, is too simplistic and obscures the dynamic processes of change resulting from urban forces and rural responses that are taking place in the peri-urban zone. Nevertheless, broad as it is, this categorization is appropriate in as far as it provides a starting point for a more detailed categorization of farmers. One of the key criteria is residence of the farmer, that is, whether the farmer is based in the village, or

operates farm activities from the city, as well as other activities besides farming. This is an important criterion as it reveals whether farming is a full-time or a part-time occupation.

Land tenure is also an important criterion upon which peri-urban farmers may be grouped, reflecting the security of tenure over the land used. Farmers will also be categorized on the basis of whether they are indigenous to the area or are in-migrant farmers. Urban forces, particularly the demand for food, has a considerable influence on farmers' choice of crops. However, given the differences in farmers' socio-personal characteristics, and more importantly, the unequal influence of urban forces on different parts of the peri-urban zone, it is highly unlikely that all farmers will respond in a similar way in terms of their choice of crops. For this reason, agricultural decision-making, particularly the choice of the main crop, forms yet another important criterion for grouping peri-urban farmers. On the basis of these criteria, it is possible to construct a 5-element typology of Dar es Salaam peri-urban zone farmers (Table 7.14). These are: city-based food producers; hobby farmers; the 'landpoor' farmers; peri-urban food producers; and capitalist farmers.

CRITERIA	City-based food producers	Hobby farmers	peri-urban food producers	The 'Land poor'	Capitalist farmers
Farmer's background	city residents, poor/ middle-income	city residents middle / high income	peri-urban residents, low- income	peri-urban residents, low income	city residents high-income
Land Tenure	rented, customary	purchased, rented	customary tenure	customary , rented	rights of occupancy
Farm size (acres)	small plots (1-3 acres)	medium size (5-10 acres)	medium size (1-5 acres)	small size >1 acre	large farms (20-50 acres)
Importance of farming	food security	hobby	food security	food security	business
Choice of main crops	food for household	food crops	food and cash crops	food crops	market oriented

Table 7.14 A typology of peri-urban farmers in Dar es Salaam.

Typically, city-based food producers live in the city, where they may be primarily engaged in occupations such as civil servants or businessmen. Consequently, farming activities are carried out on a part-time basis. These farmers, considered to be in low and middle-income groups in the city are mainly food producers. Many of these farmers initially began to grow their own food as an adjustment to the economic hardships of the mid-1980s, during which time food in the city was in short supply and expensive. Growing a part of the household's food supply was a cash saving activity. The main crops for the majority of these farmers are cassava, maize and bananas. The farms on which these farmers grow their crops are relatively small in size, ranging from 1 to 3 acres, and hardly any farm inputs such as fertilisers and insecticides are used. Most of the farmers in this group use family labour and very occasionally they may hire labourers in the villages.

Hobby farmers constitute another city-based group of farmers, operating their farms on a 'hobby' basis. These farmers have other occupations in the city (e.g. civil servants, party officials, businessmen, etc.) and the majority are considered to be in middle or high-income groups. The motive for owning land in the peri-urban zone is not principally for food production, but more as an investment for the future. These farmers purchase over 75 per cent of all the food consumed in their households. The majority of these farmers obtained land by purchasing from local farmers, but others have been allocated land by village heads. Farm sizes are considerably bigger than those farms owned by city-based food producers.

Peri-urban food producers are usually indigenous or early in-migrant farmers (those who settled in before 1980) who live in the peri-urban zone. These are full-time farmers who work on the land they inherited from their parents, whilst others were allocated land by their respective village governments under the customary land tenure system. The farms are of medium size, ranging from 2 - 3 acres, often subdivided into smaller plots under different crops, because, in addition to food requirements for their

households, they also produce for the market. These farmers grow a greater range of crops than any other group of farmers in the area. The importance attached to farming is related to food security for their households, and thus food production is the main goal.

The 'Landpoor' is an emerging group of farmers resident in the peri-urban zone. The majority are indigenous people, but others are relatively recent in-migrants from more remote rural villages who have moved to the peri-urban villages, as they perceived them to have the advantage of being close to the city. One of the most distinctive characteristics is small plot size. These are mainly small, single plots on which crops such as cassava, maize, peas and sweet potatoes are grown, almost exclusively for household food consumption. Second, this group of farmers frequently supplements household incomes by working on other peoples' farms as casual labourers. Even more striking is the fact that many of these farms were typically much larger in the past. However, as a result of the demand for land by city-based farmers, many owners have been tempted to sell part, or all, of their farmland. With the need to benefit from the proximity to the city, many of them chose to remain in the villages and became labourers in the very farms they used to own. Since some of these former owners may still have their houses on the farms, and in order to prevent crop thefts, many farm operators based in the city prefer to employ former owners for periods of time until they themselves, or their close relatives, are able to move onto the land. Therefore, in a sense, these are displaced people and are a product of the process of social differentiation of farmers in the peri-urban zone.

Large-scale capitalist farmers comprise a group of farmers which has emerged in recent years, largely as a result of the liberalization of Tanzania's economic policies. Two sub-groups of farmers can be identified in this category. There are those to whom farming is their full-time activity, and others who work on a part-time basis. It must be stressed, however, that these sub-groups have more similarities than differences. For

example, the majority of these are full-time farmers whilst few others are resident in the city, where they are also engaged in other occupations as civil servants or businessmen, and practice farming on a part-time basis. In addition, most of these farmers own large farms (25 - 50 hectares) on which fruits and vegetables for the urban markets in Dar es Salaam, and even for export, are grown. These include mainly pineapples, green pepper and oranges. Another distinct feature of this kind of farming is the high level of capital input on the farms. Fertilisers and pesticides are widely used, and labour is provided mainly by local villagers, although the overall management is undertaken by farm-owners themselves.

7.7 Summary and conclusions.

Peri-urban farmers in Dar es Salaam display a range of different socio-economic characteristics. This diversity could be explained by the farmers' different backgrounds and the different times of their settlement in the area. For example, peri-urban farmers in Dar es Salaam have very varied lengths of residence in the area. With only 29.8 per cent of the farmers being indigenous to the area, the majority (72 per cent) are recent in-migrants. There are those farmers who settled in the peri-urban villages during the urban control campaigns in the city, and others who moved into these villages during the villagisation campaign. Others moved into peri-urban villages as part of the survival strategies during the economic crisis of the early 1980s. Therefore, the motives of owning land in the peri-urban villages are variable, from those whose main aim is to produce food for their households, to those who hold land for investment purposes.

The diversity in farmers' socio-economic characteristics is, in part, a reflection of the influence of urban proximity. For example, peri-urban locations offer opportunities where some farmers are able to derive their living by working in the city, whilst others

benefit from the sale of their goods in the nearby urban markets. The influence of the partially rural character of the peri-urban zone also leaves some imprints on the people. Some farmers still retain rural influences, particularly their continued dependence on agriculture. Thus in line with the definitions of the peri-urban zone, which emphasise the mixture and transitional nature of land uses, it must be added that the people too are characterised by diverse socio-economic characteristics, and that urban expansion transforms the lives of farmers as well.

An attempt has been made to develop a typology of peri-urban farmers in Dar es Salaam. The categorization of peri-urban farmers into groups of indigenous and migrant farmers masks the reality of change, both in terms of land use and the farmers themselves. As a consequence of the urban forces (particularly the demand for land, labour and agricultural goods), and the rural responses, there has emerged five very distinct groups of farmers. These groups include, for example, capitalist farmers based in the city, city-based food producers, hobby farmers, peri-urban food producers, and the 'landpoor'. These groups are not exclusive in the strictest sense, because some characteristics (for example, residence) apply to more than one group.

The process of social differentiation among peri-urban farmers is not unique to Dar es Salaam. In Lusaka (Zambia), around Nigerian cities, as well as around Western European cities, urban processes have led to the social differentiation of farmers in the peri-urban zone. What is unique to Dar es Salaam, however, and probably many other African cities, is the proportionally large numbers of urban dwellers depending on the peri-urban zones for the supply of food for their households. Otherwise, groups of farm operators, like part-time farmers, are also found around Dar es Salaam, though not necessarily having the same levels of capital investment as those found around most West European cities.

Urban expansion and rural responses are not uniform in all directions around the city. Thus, spatial differences among farmers in terms of their occupations, sources of

income, farm characteristics are noted. For example, larger numbers of farmers work in the city from on-road villages than from the off-road villages. Also, farmers living in on-road villages have more diversified sources of income than those in off-road villages. What is evident from these two examples is the key influence of accessibility of a location with respect to the city. The same conclusions can be reached when considering villages in the Morogoro Road zone with those in the Kilwa Road zone. Because city expansion is more rapid in the former, these farmers display rather different socio-economic characteristics from those farmers in the Kilwa Road zone where the whole process of urban expansion and pressure is much slower.

CHAPTER EIGHT

AGRICULTURAL DECISION -MAKING AND LAND USE.

8.1 Introduction.

In Chapter Seven, spatial variations in peri-urban farmers' socio-economic characteristics were examined. This chapter examines how these variations are reflected in farmers' decision-making, and, in particular, their choice of crops. This is important in order to provide an understanding of agricultural land use in the peri-urban zone. This chapter begins with a brief review of the theoretical perspectives on agricultural decision-making, and notes that peri-urban farmers in Dar es Salaam operate in a decision-making environment which, in some respects, is unique to peri-urban areas, and, in others, similar to farmers in more overtly rural areas. In particular, this chapter examines spatial variations in crop choices among farmers, and goes on to investigate the different factors which influence farmers in their choice of crops. In its concluding remarks, this chapter briefly comments on the extent to which both the choice of crops and the decision factors are influenced by farmers' socio-personal factors, and, the proximity of the city of Dar es Salaam.

8.2 Agricultural decision-making: the theoretical perspective.

Studies of agricultural decision-making have evolved through three main approaches: the physical environmental approach; the economic/environmental approach; and the behavioural approach (Tarrant, 1974). The physical environment approach assumes that physical factors act in a deterministic manner and control agricultural decision-making. Thus, before the 1950s, explanations of the spatial variations in agricultural and farming practices were sought essentially in terms of the variations in the physical environment. Whilst this cannot be ignored in interpreting agricultural patterns, Tarrant

(1974) warns that rarely does the physical environment act in such a deterministic manner.

Economic determinism has been another approach used to explain spatial variations in agricultural activities. This approach assumes that economic factors associated with market, production and transport costs operate on a group of homogeneous producers, who, in turn, react to them in a rational manner. Thus, economic theory assumes that farmers are rational profit maximisers, who respond automatically to changes in prices. These principles were applied by Ricardo (1817) and Von Thunen (1826), who both used the concept of economic rent to determine patterns of agricultural production. Unlike Ricardo's ideas, which were based on production advantages, Von Thunen's model rested on location advantages, where economic rent was controlled by distance from the market and related transport costs.

The failure of traditional economic theories, with their assumptions of rational economic behaviour, complete knowledge and profit maximization, to explain adequately spatial variations in agricultural land use patterns led to the development of an alternative behavioural approach. This approach stressed the satisficing behaviour in which farmers seek a 'more- likely- to- be- guaranteed rate of return' rather than optimum returns in a given situation (Ilbery, 1978; Hart, 1980; Cox and Golledge, 1981). Furthermore, this approach recognises that farmers may not always perceive the environment as it is, and differences in perception could be due to farmers' attitudes and their socio-personal characteristics. Therefore, this approach recognises that factors such as age, education, and social as well as economic goals, are all important in understanding why different farmers react differently to the same force.

The extent to which each of these approaches is relevant in explaining spatial variations in agricultural practices largely depends on the geographical scale of analysis. For instance, spatial variations at the global level may be best explained by the integration of physical - environmental and economic factors. In this study, the

peri-urban zone is at a much smaller geographical scale, where farmers are under almost uniform physical environmental and economic conditions. Nevertheless, the fact that there are still remarkable spatial variations within this small area is indicative of the strong influence of farmers' behavioural characteristics. Thus, while not ignoring the other approaches, this study centres its analysis on the farmer as decision-maker. Furthermore, this represents a shift of emphasis from studying forms of agricultural structures to an analysis of the underlying processes producing the spatial differences in agricultural practices and structures.

8.2.1 Decision-making environment.

The decision-making environment of farmers is made up of external and internal factors (Bryant, 1976; Olmstead, 1970). External factors include both metropolitan and non-metropolitan factors. Metropolitan-based factors are those influences related to urbanisation, and, particularly urban expansion. These include the demand for land, labour and agricultural goods. Many metropolitan factors are localised and may display considerable variations from one urban zone to another. For example, the urban demand for land, and the ultimate conversion of farmland into urban land uses, is confined to those areas adjoining cities, and even here, this demand shows considerable spatial variations within the peri-urban zone. In Dar es Salaam, for example, the demand for land is greater along the major arterial roads, particularly along Morogoro Road, where urban expansion is more intense, than, in the southern parts of the city.

Non-metropolitan factors, on the other hand, refer to influences not directly related to urbanisation. These include, for example, changes in commodity prices, production costs, and national or regional level farm policies. Generally, these factors affect all farmers almost equally. For example, in Tanzania, producer prices for major crops are set by the government, and these are pan-territorial. Thus, in effect, they apply to all

farmers throughout the country, regardless of location. Furthermore, many of these factors are shared by the peri-urban zone, as well as by areas beyond. One important macro-scale non-metropolitan factor involves the role of the state through various policies, particularly pricing policies. The level of producer prices offered to farmers can have a tremendous influence on farm-level decisions, for example in changing crop mix and levels of production. The setting of producer prices and the organisation of the marketing system are invariably beyond the control of an individual farmer.

Another set of influences in the decision-making environment of the farmer is that of internal factors, especially the goals of the farmer and the farm-family. Goals are influenced by the broader values of the society being investigated, as well as by the farmer's individually held values. Farmers' age, education, occupation and motives and goals are important considerations in the farmers' choice of agricultural enterprise. For instance, Table 8.1 shows an example of the differences in peri-urban farmers' motives of why they want to remain in farming.

Main reason for farming	Percentage of farmers
Farming provides food for the household	48.8
Farming is a source of income	19.0
To keep land for my children	14.0
I have an interest in farming	10.0
I inherited farming from my parents	8.2

Table 8.1 Main reasons for remaining in farming

Farmers' motives are very varied, ranging from household food security, continuation of cultural values to economic goals (Table 8.1). It is evident that most of these motives are not consistent with economic considerations, as argued by classical economists. Although agriculture as a source of income is ranked second in importance, other considerations are important too. For instance, concern is expressed about the continuation of farming, as indicated by some farmers who practice farming

simply because they inherited the farm from their parents, and others who want to pass it to their next generation.

Of equal importance to the farmer is the whole body of knowledge that he/she has at his/her disposal. Indeed, farmers are frequently faced with taking decisions in an environment of risk and uncertainty, simply because no one, farmers included, knows the future course of events for certain. Information on prices, costs, weather, and yields, for example, are all subject to change. Therefore, in situations where such information may be lacking, farmers often rely on their accumulated experience.

It is also important to understand the different types of decisions in which peri-urban farmers are involved. Bryant (1992) groups these into two categories: long-term policy decisions; and short-term strategic decisions. The former are decisions which affect the essence of an operation and which establishes its broad parameters, including the allocation of capital resources and the choice of enterprise. Land use patterns are, in the main, affected by long-term decisions. Strategic decisions outline the means to implement the policy, and these are daily organisational decisions which ensure the smooth running of the farm system.

8.3 Range of crops in the peri-urban zone of Dar es Salaam

Peri-urban farmers in Dar es Salaam grow a number of crops which are, to some extent, influenced by the soil and climatic conditions of the area. The main crops include cassava, maize, sweet potatoes, coconuts, cashew nuts, bananas, rice, tomatoes, pineapples, oranges, paw paws, mango, beans and peas (Table 8.2).

From the percentage of farmers growing each crop, it is evident that staple food crops (cassava, maize, bananas, rice and sweet potatoes) are the most important (Table 8.2). Among the five most commonly grown crops, four are staple food crops. Nearly three-quarters (73.6 per cent) of all farmers in the peri-urban zone grow cassava, this being a traditional food crop among the coastal people of Tanzania. It has the key advantage of

being drought-tolerant, as well as being capable of doing well in less than ideal soils such as those found around Dar es Salaam. Thus, cassava is most common in those villages which are predominantly settled by indigenous coastal people; for example, in the Kilwa Road and Kibugumo zones in the south, 89.7 per cent and 93.3 per cent respectively, of the farmers grow this crop. In the Bagamoyo Road zone, 84 per cent of the farmers grow cassava (Table 8.2). Villages in this zone, particularly Bunju are dominated by the Zaramo. In fact, 42 per cent were born within the village and 12 per cent born in the neighbouring villages, and to these people cassava is one of their traditional crops. On the other hand, cassava is a far less favoured crop in the Morogoro Road zone, in which most of the inhabitants are from up-country regions, where cassava is not a particularly favoured food crop. Hence, only 42.8 per cent of the farmers grow the crop in this zone.

	Peri-urban	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
STAPLE FOOD CROPS						
Cassava	**73.6**	84.0	42.8	58.4	89.7	93.3
Maize	**60.9**	63.0	67.6	72.0	49.7	52.6
Bananas	**34.1**	33.4	52.4	39.1	27.2	18.6
Rice	**30.2**	36.7	24.6	13.8	36.7	39.0
Sweet potatoes	**25.0**	14.1	25.6	24.1	18.6	42.5
TREE CROPS						
Coconuts	**32.4**	23.4	16.2	21.6	40.5	60.5
Cashew nuts	**12.9**	4.0	1.2	6.0	21.6	31.7
Mangoes	**10.7**	13.6	5.6	14.4	8.0	12.2
OTHER CROPS						
Oranges	**26.1**	29.9	28.4	26.4	26.8	18.9
Paw paws	**11.1**	14.0	10.8	15.1	11.1	4.3
Tomatoes	**17.5**	24.0	12.8	14.4	8.3	4.2
Pineapples	**13.2**	16.2	16.8	18.0	10.6	4.2
Spinach	**11.6**	18.8	22.4	14.7	1.5	0.7
Beans	**8.2**	12.0	8.0	12.4	3.6	4.8
Peas	**1.3**	1.4	0.3	0.6	1.2	3.0

Table 8.2 Percentage of farmers growing each crop.

Maize is another important staple crop grown in the peri-urban zone of Dar es Salaam. Although the soil and climatic conditions in the area are not ideal for the growth of this crop, a considerable proportion (60.9 per cent) of farmers nevertheless do grow it. Interestingly, maize is more popular in the Morogoro Road and Pugu Road zones, areas settled by farmers largely from up-country regions where maize is traditionally an important food crop. Such regions include Kilimanjaro, Mbeya and Iringa. Thus, 67.6 per cent and 72 per cent of the farmers in the Morogoro and Pugu Road zones respectively grow maize, compared to about 51 per cent of the farmers in the Kilwa Road and Kibugumo zones. The volume of maize produced in Dar es Salaam region as a whole is nevertheless still quite low; indeed, estimates suggest that Dar es Salaam region produces barely 1.3 per cent of its total maize requirements (United Republic of Tanzania, 1992a).

Bananas are grown by 34 per cent of the farmers in the peri-urban zone overall, and, like maize, are mostly grown in the Morogoro Road zone. Here, 52.4 per cent of the farmers grow the crop, compared with only 27.2 per cent and 18.6 per cent respectively in the Kilwa Road and Kibugumo zones. As noted above, in these latter zones the majority (66.2 per cent) of the farmers are indigenous to the coast, where bananas constitute a less common element of the diet.

Less than one-third (30.2 per cent) of peri-urban farmers in Dar es Salaam grow rice although it is the fifth most popular crop. Like maize, the production of rice is quite low, with only about 8.2 per cent of rice requirements in Dar es Salaam being produced from within the region (United Republic of Tanzania, 1992a). Unlike the other staple crops, which display a distinct spatial dominance in certain parts of the peri-urban zone, rice is common in all five zones (Table 8.2). Because rainfall is unreliable in this area, rice tends to be grown in the river valleys. However, even in the valleys, production levels are not particularly high because the weather conditions can be such that in the dry season the streams can carry no water at all. Sweet potatoes are another staple crop in the peri-urban zone of Dar es Salaam, and are grown by about 25

per cent of the farmers, being ranked seventh in importance (Table 8.2). In the Kibugumo zone, sweet potatoes are grown by 42.5 per cent of the farmers, and like cassava, sweet potatoes also thrive well in the kinds of soils found around Dar es Salaam.

Another category of crops is that of tree crops. These include mainly coconuts, cashew nuts, and mango. These crops are grown by between 10 per cent and 32 per cent of peri-urban farmers. There are, however, difficulties in assessing the importance of these tree crops for individual households, mainly because some farmers may have four or five trees of each crop which are mainly used for household consumption, while others have more than twenty trees and have excess production for sale. For example, in the Kilwa Road and Kibugumo zones, an average farmer has about 30 to 50 coconut trees, because on average farms in these zones are larger 6.5 acres compared to an average of 3 acres per household in the Morogoro Road zone, where some farmers often have fewer than ten trees. In these areas, where urban expansion is more intense, the smaller number of trees results from the subdivision of farmlands into smaller plots, particularly as it is these farmers who find it more profitable to sell their land in a piecemeal fashion rather than in one consolidated plot.

Of the tree crops, coconuts constitute the major crop, being grown by about one-third of the farmers in the peri-urban zone, and ranked fourth overall (Table 8.2). However, they are more common in the Kilwa Road and Kibugumo zones, where 40.5 per cent and 60.5 per cent respectively of the farmers grow them. In these zones, the crop is so important that it is ranked second and third respectively (Table 8.2). On the other hand, in the Pugu Road and Morogoro Road zones coconuts are ranked sixth and ninth respectively. The major explanation for this variation lies in the fact that coconuts are one of the traditional crops among the coastal people in Tanzania, and, for this reason they are grown in areas where the indigenous tribal groups of the coast form the majority of the population, again mostly in those areas in the south of the peri-urban zone (Kilwa Road and Kibugumo zones). In the Morogoro Road zone, coconuts appear

to be less important, probably because the majority (62 per cent) of the inhabitants there are of up-country origin where the crop is less common. Nevertheless, a few farmers have started growing a new variety of coconuts, this being a shorter tree which bears fruit within only 3 to 5 years of planting, compared with 7 years for the traditional varieties.

Soil and climatic conditions in Dar es Salaam are highly suitable for the growth of oranges and just over one-quarter of the farmers grow this crop, the crop being ranked sixth out of 15 crops. Cashewnuts, once an important export crop for Tanzania, is also grown by peri-urban farmers in Dar es Salaam. However, since in the mid-1970s, the world market price for cashewnuts has fallen, consequently leading to a decline in production of the crop. This was further compounded by difficulties in the marketing system, and many farmers resorted to growing other crops (such as coconuts) which have a more reliable local market (Ellis, 1982). In more recent years, a fungus disease has destroyed many cashewnut trees, and, due to its low price margin compared with high costs of production, farmers are now reluctant to invest in the crop and plant new trees. Furthermore, it would seem that cashewnuts are declining in number more rapidly in those areas where urban expansion is most intense, such as in the Morogoro Road and Pugu Road zones, where fewer than 6 per cent of the farmers grow the crop, and it is ranked fourteenth (in both zones), out of the 15 crops (Table 8.2). For the more recent in-migrants, whose main motive for settling in the peri-urban zone is to produce food, cashew nuts are simply not a priority crop. Nevertheless, in the Kilwa Road and Kibugumo zones, cashewnuts are ranked seventh and sixth, and they are grown by 21.6 and 31.7 per cent of the farmers respectively. Once more, this reflects the fact that the majority of farmers in these two zones are indigenous to the area, and cashewnuts are traditional crops to this area, as well as poor accessibility to these zones resulting in less intense urban pressure for land, particularly by city-based farmers.

fruits every year, and for a farmer to produce an excess for sale needs only four or five trees. Paw paw trees have the major advantage that they can be easily intercropped with other crops, and the fact that they bear fruit within one year makes the crop an easy one to grow.

Other crops grown by peri-urban farmers in Dar es Salaam include tomatoes, pineapples, oranges, paw paws and spinach. Tomatoes are grown by 17.5 per cent of farmers and are ranked eighth. Important areas for tomatoes are villages along the Bagamoyo road, where this crop was ranked sixth, and along the Morogoro Road zone (tenth). This crop is largely grown for the urban market in Dar es Salaam, and hence in those villages to the south of the peri-urban zone (Kilwa and Kibugumo zones), this crop is less important because of poor accessibility to the urban markets in the city. In fact, this crop is grown by only about 6 per cent of the farmers. Pineapples are grown in all villages of the peri-urban zone, being ranked ninth and grown by at least 13.2 per cent of the farmers.

In conclusion, it is noted that although the peri-urban zone of Dar es Salaam is traditionally a zone of cassava, coconut and cashewnut production, the effect of the settlement of other tribal groups from different parts of the country has led to a greater spatial variation in crop preferences in recent times. For example, whilst cassava, coconuts and cashewnuts dominate the villages in the Bagamoyo Road zone and the areas in the south of the peri-urban zone (settled largely by indigenous people in Dar es Salaam), other crops (maize and bananas) are more common in areas (Morogoro Road and Pugu Road zones) settled largely by people from up-country regions. More spatial differences in crop distributions are revealed in the following section.

8.4 The most important crops.

Nine different crops were cited by peri-urban farmers as being their most important, crops. Table 8.3 shows that, apart from cassava being the most important crop in the Kilwa Road and Kibugumo zones, there is a considerable diversity in what is considered to be the most important crop. Cassava is ranked as the most important crop in the Kilwa Road zone by 50 per cent and in the Kibugumo zone by 63 per cent of farmers. But in the Morogoro Road zone, cassava is ranked as the most important crop by only 30.3 per cent of the sampled farmers, whilst in the Pugu Road zone by only 36 per cent.

In the Morogoro Road and Pugu Road zones, maize is rated as the most important crop for 34.3 per cent and 39 per cent of the sampled farmers respectively. In the Bagamoyo Road zone, maize is the second most important crop, after cassava, for 30 per cent of the sampled farmers. Significantly, in the Kilwa Road and Kibugumo zones, maize was not cited as the most important crop by any of the farmers in the sample. In these zone, coconuts constitute the most important crop for 23 per cent and 18 per cent of the farmers respectively. Thus, coconuts are ranked second by degree of importance after cassava in these two areas. In the Morogoro Road zone, coconuts are the most important crop for only 7 per cent, and for only 6 per cent in the Bagamoyo Road zone (Table 8.3).

The proportion of farmers for whom bananas are the most important crop vary considerably from one zone to another. For example, 14 per cent and 16 per cent of the farmers in the Bagamoyo Road and Morogoro Road zones respectively ranked bananas as the most important crop. This crop, however, is less common in the Kilwa Road and Kibugumo zones, where it is ranked as the most important by as few as 3 per cent and 5 per cent of the farmers respectively. Oranges are the most important crop for 6.1 per cent of the farmers in the peri-urban zone, but there is not any distinct spatial variation within the peri-urban zone. Ten per cent of the farmers in the Bagamoyo Road zone

rank oranges as their most important crop, and on average 6.5 per cent of the farmers in the Kilwa Road and Kibugumo zones ranked oranges as their number one crop (Table 8.3).

CROP	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo Road zone
Cassava	43.3	37.0	30.3	36.0	50.0	63.0
Maize	20.7	30.0	34.3	39.0	-	-
Coconuts	12.8	7.0	6.0	10.0	23.0	18.0
Bananas	9.0	14.0	16.0	7.0	3.0	5.0
Oranges	6.1	10.0	4.7	3.0	6.0	7.0
Cashew nuts	2.8	-	-	-	11.0	3.0
Pineapples	2.2	2.0	4.0	5.0	-	-
Sweet potato	1.7	-	2.7	-	5.0	1.0
Rice	1.4	-	2.0	-	2.0	3.0
	100	100	100	100	100	100

Table 8.3 Percentage of farmers by most important crop

Another crop which displays a marked variation in importance between zones is cashewnuts. Since the early 1980s the overall production of cashewnuts in Tanzania has been declining due to falling demand in the world market. In the peri-urban zone of Dar es Salaam only 12.9 of the farmers grow this crop (Table 8.2), and it is ranked as the most important crop by only 2.8 per cent of the farmers. Nevertheless, within the peri-urban zone of Dar es Salaam there are marked spatial variations in the importance of this crop. For example, it is considered to be the most important for 11 per cent and 3 per cent of the farmers in the Kilwa Road and Kibugumo zones respectively. However, in the Morogoro Road, Pugu Road and Bagamoyo Road zones, cashewnuts do not register among the nine crops considered to be most important. Nevertheless, in these three zones, 4 per cent, 5 per cent and 2 per cent (respectively) ranked pineapples as their most important crop, but none in the Kilwa Road and Kibugumo zones.

Sweet potatoes and rice are two of the main staple food crops in the peri-urban zone of Dar es Salaam. However, only 1.7 per cent and 1.4 per cent of the farmers respectively

considered these crops to be most important. In the Bagamoyo Road and Pugu Road zones, sweet potatoes and rice did not register among the crops considered to be most important to farmers. However, in the Morogoro Road zone, sweet potatoes are the most important crop for 2.7 per cent of the farmers, while a further 2 per cent ranked rice to be the most important crop. In the Kilwa Road zone sweet potatoes and rice were the most important crop for 5 per cent and 2 per cent of the farmers respectively, and only 1 per cent and 3 per cent in the Kibugumo zone.

It is clear from Table 8.3 that there is a wide diversity in farmers' choice of most important crop. Given the fact that the farmers operate within an almost uniform physical environment a narrow choice of crops might be expected, particularly when it is considered that this is a relatively small area. However, as cautioned by Tarrant (1974), the physical environment only lays down broad controls over what can and cannot be grown, and over yields which can be expected from a given input of labour and other factors of production. Thus, this diversity in crop choice further suggests that there are other factors apart from the physical environment which may influence farmers' choice of crops.

8.5 Commercialisation of crops.

Peri-urban agriculture has the advantage of being close to a concentration of consumers, giving farmers an opportunity to sell their agricultural products directly to the city markets. However, as noted in an earlier study (Briggs, 1992), despite the opportunity for cash production afforded by the proximity of Dar es Salaam, there has currently developed only a limited degree of crop commercialisation. For example, there is a very clear distinction in importance between crops grown for food and those for sale. Table 8.4 shows that out of the five main food crops, only one (cassava) is listed among the 5 main crops produced for the market. Even in this case, it is still only 19.9 per cent of farmers who sell at least half of this crop. This is despite the fact that cassava is grown by nearly three-quarters of all sampled farmers. Maize is another crop

which is grown almost exclusively for household consumption. Although grown by nearly 61 per cent of farmers (Table 8.2), maize is sold by only 9.3 per cent of the farmers (Table 8.4).

CROPS	**Peri-urban zone**	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
Oranges	**35.2**	24.1	33.8	42.2	43.7	31.8
Pineapples	**32.7**	40.0	30.3	28.8	41.6	23.0
Coconuts	**24.1**	22.2	9.5	20.1	36.6	32.0
Cassava	**19.9**	20.7	15.8	31.0	10.0	22.1
Bananas	**19.0**	9.4	30.4	30.0	13.1	12.4
Tomatoes	**18.8**	26.0	27.4	24.6	6.0	10.3
Spinach	**18.1**	21.7	31.6	28.3	7.1	2.0
Paw paw	**16.0**	12.5	21.8	23.0	11.8	11.3
Cashew nuts	**15.1**	8.8	0.6	17.3	27.3	21.8
Mango	**14.6**	12.8	5.8	17.7	27.1	10.0
Sweet potato	**12.6**	0.5	9.3	21.3	9.3	22.8
Maize	**9.3**	13.0	16.0	6.4	8.8	2.3
Peas	**3.3**	3.6	1.2	10.8	0.7	0.3
Rice	**1.1**	1.0	1.6	0.8	1.2	1.0

Table 8.4 Percentage of farmers selling at least half of each crop.

On the other hand, three fruit crops (oranges, pineapples and coconuts) are considered to be important cash crops. However, considering the fact that oranges are grown by only 26.1 per cent (Table 8.2) of the sampled farmers, and that only 35.2 per cent of these sell at least half of the produce, this actually shows a still limited degree of commercialization of this crop overall. Pineapples are grown by only 13.2 per cent of the farmers (Table 8.2), but only about half of those who grow it sell at least half of the produce. Among those farmers who grow coconuts (32.4 per cent), only 24.1 per cent of these sell at least half of the crop. As expected, more of these farmers are in the Kilwa Road and Kibugumo zones, where the crop is ranked third and first respectively,

as their commercial crop, and sold by an average of 34.3 per cent of the sampled farmers in the two zones (Table 8.4).

Despite the proximity to Dar es Salaam city, a large number of farmers sell only a little or nothing of their crops. A closer inspection of Table 8.4 shows that none of the 15 crops is sold by even as many as 50 per cent of the farmers growing it. A number of factors may explain this. First, the areas immediately around Dar es Salaam are among those areas with the lowest agricultural potential in Tanzania. The clay-bound sandy soils, found in most parts of the area, together with unreliable rainfall, are not conducive to high crop yields. For example, maize yields in Dar es Salaam are only 960 kgs per hectare, compared with 2350 kgs in Arusha Region and 2410 kgs in Mbeya Region. Likewise, rice yields per hectare in Dar es Salaam are 1000 kgs, compared with 2700 kgs in Kilimanjaro Region, and 2280 kgs in Mbeya Region (United Republic of Tanzania, 1990b). Thus, it is hardly surprising that Dar es Salaam region, as a whole, produced barely 1.3 per cent and 8.2 per cent of its maize and rice requirements in 1990/91 (United Republic of Tanzania, 1992b). In addition, it would seem that what little is produced is primarily consumed mainly within the household.

Second, there may also be a hidden urban market in Dar es Salaam for food crops, in the sense that the limited degree of commercialization, as indicated in Table 8.4, does not in any way suggest that there is no demand for these products in the city. Quite the contrary, urban demand for food in Dar es Salaam is growing rapidly. However, unlike urban residents in Western Europe and North America, who depend largely on foods purchased from suppliers within the cities, residents in African cities typically have multiple sources of food supply. In Dar es Salaam, for instance, it is estimated that between 10 and 15 per cent of urban dwellers derive their food directly from their own farms located in the peri-urban zone (Bryceson, 1993). This has been largely necessitated by the declining purchasing power for most urban people (especially during the economic crisis which began in the 1980s). Therefore, producing a portion of a household's own food supply is a major cash saving activity. With a rural

background, peri-urban farming (particularly food production) is an option that is close at hand when it comes to supplementing wage income.

Thirdly, a considerable proportion of peri-urban farmers (21 per cent) have other non-farm jobs in the city. These non-farm jobs provides cash income used to purchase other consumer and some food items not available in the villages. On the other hand, farming remains an important activity for the production of food for household consumption. This dual character of peri-urban farmers helps to explain why most of them sell only a small amount to sell of their farm production. Thus, although agriculture is the main occupation among the majority of peri-urban farmers, it is frequently not the only economic activity. Indeed to some farmers, it is not even the main source of income.

8.6 Farmers' choice of crops.

In the preceding sections of this chapter, it has been noted that within the peri-urban zone of Dar es Salaam, there are marked variations in the importance of crops. For example, cassava is the most important crop in the Bagamoyo Road, Kilwa Road and Kibugumo zones, whilst in the Morogoro Road and Pugu Road zones maize is the most important crop (Table 8.3). It is important, therefore, to explore the key factors responsible for spatial variations in the types and importance of crops. Found (1974) provides a starting-point, as he notes that one of the reasons for differences in the spatial structure of agriculture is that agricultural patterns result from a multitude of individual decisions taken by farmers who are operating within a wide range of circumstances.

In the peri-urban zone of Dar es Salaam, three sets of factors influencing farmers' choice of crops can be identified. These include physical environmental factors; economic factors; and factors related to household consumption, food security and household survival. All are important to farmers, although their degree of relative

importance varies. In other words, none of these factors acts in a deterministic manner; instead, economic and physical factors interact with each other in a complex manner, and, together with certain characteristics of the farmer himself/herself, establish a range of possible forms of production, one or more of which may be chosen. At a small scale of geographical analysis, spatial variations may be attributed to the behaviour of farmers, which, according to Gasson (1973), can be viewed as a reflection of a wide range goals from family security to a satisfactory income.

Among the physical environmental factors, soils and water-supply are considered to be important in influencing farmers' choice of crops. Of these two, soils stand out as an important factor in the choice of crops, ranked third overall (Table 8.5). Much of the area around Dar es Salaam is an outwash plain covered with silty and sandy soils. Soils of this type are usually characterised by poor water-retention capacity and low humus content. For this reason, these soils are suitable only for a few crops, these being primarily root crops. Thus, it is hardly surprising that cassava and sweet potatoes are, indeed, the most common tuber crops grown in the area. In addition to tuber crops, coconuts are also tolerant of the salty conditions of the coastal soils.

The mean annual rainfall figure for Dar es Salaam averages just over 1000 mm, and is concentrated in two seasons, November-December and March-May with very high evaporation rates in the periods between these two seasons. Despite this, the main types of crops grown in the area are drought-tolerant, and the water requirements for tree crops (coconuts, mango and cashew nuts) are spread over the whole year. This partly explains why this factor (water-supply) is ranked sixteenth indicating that it is less important in farmers' choice of crops. However, there has to be a reliable supply of water for vegetables, but, as Table 8.1 shows, only a small number of farmers are currently growing vegetables.

Except for the very recent past (1987 to 1990), when a cassava disease (mealy bug) affected crops in the coastal areas of Tanzania, crops in this area are generally free

from diseases which affect farmers in up-country regions. Hence, the factor 'the crop does not become easily diseased' is relatively unimportant, as far as farmers' choice of crops is concerned, being ranked fifteenth out of 16 (Table 8.5).

Decision making- factors for the choice of a particular crop	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone	average point score	rank
It provides the family with reliable food security	85.0	81.0	46.0	70.0	65.5	**69.5**	1
I have experience with the crop	69.0	62.5	54.5	62.5	65.0	**62.7**	2
Soils are suitable for the crop	62.5	57.0	55.5	51.5	61.5	**57.6**	3
It is an easy crop to grow	65.0	57.5	49.0	52.0	48.5	**54.4**	4
It gives me a reliable income	52.0	47.0	37.0	65.5	63.5	**53.0**	5
It doesn't require expensive inputs	70.0	57.5	38.5	50.0	46.0	**52.4**	6
It does not require much labour	58.0	53.5	51.5	48.0	45.5	**51.3**	7
It is grown in my home area	55.5	62.5	34.0	46.0	39.5	**47.5**	8
The crop has a reliable market	58.5	50.0	47.0	42.5	37.5	**47.1**	9
It has a short growing cycle	45.0	44.0	37.0	45.5	43.0	**42.9**	10
My neighbours grow this crop	50.0	40.0	43.5	38.0	35.5	**41.4**	11
Good returns to investment	37.0	35.5	28.0	49.0	40.0	**37.8**	12
The crop has a good taste	38.5	49.0	31.5	33.5	30.5	**36.6**	13
It is a government policy	46.0	39.5	31.5	34.0	28.0	**35.8**	14
Does not get easily diseased	37.5	33.5	32.5	35.5	36.0	**35.0**	15
There is reliable water supply	30.5	36.0	31.5	31.0	26.0	**31.0**	16

Table 8.5 Importance of elicited factors in the choice of crops.

In a peri-urban location, a strong influence by the city on agriculture might be expected, and one of the key influences may be expected to be in terms of a high degree of commercialization of crops. In such situations, the availability of city markets, and the relative ease with which farmers can sell their crops (compared to their counterparts in more rural areas), would be expected to feature as an important decision factor. However, as shown in Table 8.4, there is only a limited degree of commercial agriculture in the peri-urban of Dar es Salaam, with just over one-third of the farmers selling at least half of their produce. Hence, factors such as 'reliable market' in Dar es Salaam, appear less important (ranked ninth). However, 'provision of a reliable income' is the most important economic factor (ranked fifth) in farmers'

choice of crops. Despite the limited degree of commercialization, some crops (particularly coconuts) can be sold throughout the year, thus providing the farmer with a reliable and steady income. As shown in Table 8.5, it is hardly surprising that the factor of 'reliable income' is ranked second and third in the Kilwa Road and Kibugumo zones respectively. These are the two zones where coconuts are an important crop (ranked number two- Table 8.3). It is further noted that with low investment in agriculture among many peri-urban farmers, the factor of 'good return to investment' is relatively unimportant (ranked twelfth) in influencing farmers' choice of crops.

Another set of factors influencing farmers' choice of crops is related to household consumption, food security and survival for the farmers. Judging both from Table 8.2 (percentage of farmers growing each crop) and Table 8.3 (most important crops), it is clear that food crops are considered to be the most important crops among farmers. It is hardly surprising, therefore, that decision factors relating to the provision of food for household consumption are ranked high in Table 8.5. For example, the factor that 'the crop provides reliable food-supply for the family' is ranked first. This was also noted in an earlier study (Briggs, 1992). Perhaps this is not surprising, when it is considered that the majority of peri-urban farmers are recent in-migrants, particularly from Dar es Salaam city itself, and one of their main motives for moving into the peri-urban zone was to produce as much of their own food as possible. In recent years (beginning in the early 1980s) this move has been strengthened by economic hardships (but particularly, food shortages) when many urban residents in Dar es Salaam began to engage themselves in the production of at least part of their food requirements.

Crop choices are made on the basis of knowledge, but as the farmer rarely has all the information relevant to a decision at his/her disposal, he/she will prefer to follow a well-established pattern and avoid the risk of making bad decisions. In such situations, therefore, the experience that farmers have in growing certain crops has an influence on subsequent crop choice. This factor is ranked second (Table 8.5). As pointed out above, the majority (71 per cent) of peri-urban farmers are recent in-migrants, mainly

from the city. Nevertheless, they have a farming background, because either themselves had been farmers before moving into the city and finally into the peri-urban zone, or their parents are farmers elsewhere. In the cities most of these people have maintained their rural culture. When it comes to crop choice, each individual will typically grow crops of which he/she has experience. Relying on experience is a way of evading risks in farming, and ensuring household security and survival.

In addition to the influence of 'experience' on farmers' choice of crop is another factor - 'the crop is grown in my home area' and it is ranked eighth. It has been widely acknowledged that African urban dwellers tend to maintain traditional rural values in the cities (O'Connor, 1983; Peil, 1985). In Dar es Salaam, Mosha (1991) notes that in-migrants from farming regions like Bukoba, Kilimanjaro, Mbeya or Morogoro tend to prefer mixed farming, whereas people from grazing areas like Dodoma and Arusha tend to prefer animal husbandry. In the peri-urban zone of Dar es Salaam, people from Bukoba, Kilimanjaro, Mbeya and Morogoro are mostly found in the Morogoro Road zone. Thus, it is hardly surprising that the factor 'the crop is grown in my home area' is ranked second in the Morogoro Road zone (Table 8.5).

Another set of factors related to household consumption and food security is the whole question of household survival. It follows that factors relating to the minimization of production costs emerge as among the most important factors influencing farmers' choice of crops. For example, factors much as 'the crop is easy to grow', 'the crop does not require expensive inputs' and 'the crop does not need much labour' are ranked fourth, sixth and seventh out of 16 factors.

Furthermore, it has been already noted (Chapter Seven) that in addition to agriculture, other non-farm activities are important sources of household income. For example, 17.5 per cent of the farmers engage themselves in non-agricultural/non farm jobs. Therefore, the allocation of production resources (particularly labour) becomes an important decision factor. For example, the decision factor 'the crop does not require

much labour' is ranked seventh out of 16 factors. It is, however, interesting to note that this factor is more important in zones where there is a proportionally higher percentage of farmers working in non-farm jobs in the city. In the Pugu Road and Morogoro Road zones, this factor is ranked third and seventh respectively. Thus, farmers' preferences for crops which do not require much labour, and those which are 'easy to grow', has to be understood in terms of the farmers' social goals of feeling confident and comfortable in their farming activities.

8.7 The influence of socio-personal factors in the choice of crops.

Farmers' choice of crops in the peri-urban zone of Dar es Salaam is also influenced by socio-personal factors. One of these socio-personal factors is age of a farmer. Table 8.6 cross-tabulates most important crop category by age groups, and a significant chi square value demonstrates a statistical relationship between the two variables. It is revealed in Table 8.6 that the importance of staple crops increases with age of the farmer. For example, staple crops are most important to only 26.2 per cent of young farmers, and to 35.5 per cent of middle-aged farmers, and to 43.8 per cent of old farmers. It may be speculated that the preference of staple crops by older farmers is largely to ensure food security for their families. This is because older farmers are likely to have bigger size of households than farmers below the age of 35 years, thus nearly 44 per cent of farmers over 51 years chose staple crops, whilst only 26.2 per cent of the young farmers chose this category of crops (Table 8.6).

The importance of specialised crops also tends to fall as the age of the farmers increases. More than half (55.6 per cent) of farmers below 35 years of age chose specialised crops such as spinach, tomatoes, green pepper, oranges, paw paws and pineapples as their most important crops, compared with 32.2 per cent in the middle-age group, and only 18.2 per cent of the older farmers (Table 8.6). Since most of the specialised crops are largely grown for sale in the city markets it may be concluded

that young farmers prefer cash crops to other types of crops. Middle-aged farmers (36 - 50 years) appear to have no specific attachment to a particular type of crop.

Age of a farmer may also be an indication of accumulated knowledge and experience in growing certain crops. Crops such as coconuts and cashewnuts which are traditional in the peri-urban zone of Dar es Salaam are likely to be more favourable to indigenous and older farmers than to young farmers. Thus, it is hardly surprising that 38 per cent of older farmers (of over 51 years) prefer trees crops compared with only 18.2 per cent of young farmers who chose tree crops.

AGE CATEGORY	Counts (per cent)	STAPLE CROPS	TREE CROPS	SPECIALISED CROPS	ROW TOTAL (Per cent)
< 35 years	counts	49	34	104	187
	(per cent)	(26.2)	(18.2)	(55.6)	(34.0)
36 - 50 years	counts	86	78	78	242
	(per cent)	(35.6)	(32.2)	(32.2)	(44.0)
over 51 years	counts	53	46	22	121
	(per cent)	(43.8)	(38.0)	(18.2)	(22.0)
	Column Total	188	158	204	550
	Per cent	(34.2)	(28.7)	(37.1)	(100%)

Chi square = 49.27, significant at 0.001 level

Table 8.6 Cross-tabulation of most important crop category by age groups.

It has also been discussed in the preceding sections that peri-urban farmers strive to ensure a secure food supply for their households. Therefore, food security goals are likely to be reflected in the choice of crops. For example farmers with bigger households are likely to put more emphasis on staple crops, especially food crops, than those with smaller households. Table 8.7 shows a cross-tabulation of crop categories against size of households, and a chi square test proves a significant statistical relationship between the two variables. Generally, the importance of staple crops increases with the number of members in the households. For example, 41 per

cent of farmers with more than 10 members chose staple crops as their most important crops, compared with 38 per cent of those households with five to nine members, and 36 per cent among young farmers (those below 35 years of age). About 44.1 per cent of farmers with smaller households (less than 4 members) chose specialised crops as their most important crops, and only 19.9 per cent chose tree crops. Understandably, these are usually young farmers who possibly due to smaller size of their households may have less demand for food crops. Nevertheless, a general picture suggests that over one-third of the farmers in all categories regard staple crops as their most important crops (Table 8.7).

SIZE OF HOUSEHOLD	Counts (per cent)	STAPLE CROPS	TREE CROPS	SPECIALISED CROPS	ROW TOTAL (Per cent)
0 - 4 members	Counts	103	57	126	286
	(per cent)	(36.0)	(19.9)	(44.1)	52.0
5 - 9 members	Counts	92	73	77	242
	(per cent)	(38.0)	(30.1)	(31.8)	44.0
over 10 members	Counts	9	7	6	22
	(per cent)	(41.0)	(31.8)	(27.2)	4.0
	Column Total	204	137	209	550
	(Per cent)	(37.1)	24.9	(38.0)	(100%)

chi square = 23.29 (significant at 0.001 level)

Table 8.7 Cross-tabulation of most important crop category by size of household.

Length of residence in the peri-urban zone is another factor that influences farmers' choice of crops. A cross-tabulation of most important crop categories by length of residence of a farmer reveals a significant statistical relationship between these two variables. For example, recent in-migrants tend to prefer staple crops to tree and specialised crops. About 50.4 per cent of farmers with less than 5 years of residence in the peri-urban zone chose staple crops as their most important crops, compared with 37 per cent of the farmers who have been there for over 10 years (Table 8.8).

The major reason for recent in-migrants preferring staple crops lies in the fact that usually many of these farmers start growing crops on rented land, on which most of them are allowed to grow annual crops only. Even for some who plant the tree crops within the first two years of settling, cannot harvest immediately because crops such as coconuts bear fruits after three years of planting. Until these crops are ready to bear fruits, they remain relatively less important. However, as these farmers settle down and purchase their own land, they start growing tree crops as a form of long-term investment. Thus, it is hardly surprising that the percentage of farmers to whom tree crops are the most important increases with length of residence of the farmers in the peri-urban zone. For example, only 20.5 per cent of farmers with less than 5 years of residence chose tree crops, compared with 39.3 per cent for those with 6 to 10 years, and 40 per cent for those with over 10 years of residence (Table 8.8).

LENGTH OF RESIDENCE	Counts (per cent)	STAPLE CROPS	TREE CROPS	SPECIALISED CROPS	ROW TOTAL (Per cent)
less than 5 years	counts	64	26	37	127
	(per cent)	(50.4)	(20.5)	(29.1)	(23.1)
6 - 10 years	counts	14	24	23	61
	(per cent)	(23.0)	(39.3)	(37.7)	(11.1)
over 10 years	counts	134	145	83	362
	(per cent)	(37.0)	(40.0)	(23.0)	(65.8)
	Column total	212	195	143	550
	(Per cent)	(38.5)	(35.5)	(26.0)	(100%)

Chi square = 45.58 (significant at 0.001 level)

Table 8.8 Cross-tabulation of most important crop category by farmers' length of residence in the peri-urban zone

Peri-urban farmers in Dar es Salaam also display varied education backgrounds, 11 per cent of farmers have not attended school at all, and 65 per cent attended primary school and literacy classes, whilst 24 per cent have post-primary education (Table 8.9). As argued by Wolpert (1964) that more educated farmers seek and use

innovations, to a greater degree than the less educated, and thus tend to be early adopters, it would be expected that these variations would be reflected in the choice of crops. However, a cross-tabulation of most important crop category by education of farmers in Dar es Salaam (Table 8.9) does not show any significant statistical relationship between farmer's education and choice of crops. For example, about 39.4 per cent of both categories of farmers (those who never attended school and those with post primary education) chose staple crops as their most important crops. On the other hand, 26.2 per cent of the farmers who have not attended school prefer specialised crops to other types. However, there is only a slight difference with (30.3 per cent) farmers who have post-primary education who chose specialised crops as their most important crops. It may be argued that the importance of education of a farmers in influencing crop choice seem to have been overshadowed by other socio-personal factors such as age, length of residence and size of household. Therefore, unlike the commonly held view (Jones, 1964; Wolpert, 1964) that farmer's education influences the choice of crops evidence from peri-urban farmers in Dar es Salaam, does not show any significant relationship between farmer's education and choice of crops.

EDUCATION CATEGORY	Counts (per cent)	STAPLE CROPS	TREE CROPS	SPECIALISED CROPS	ROW TOTAL (Per cent)
Never attended school	counts (per cent)	24 (39.4)	21 (34.4)	16 (26.2)	61 (11.1)
primary school education	counts (per cent)	107 (30.0)	161 (45.1)	89 (24.9)	357 (64.9)
post-primary school	counts (per cent)	52 (39.4)	40 (30.3)	40 (30.3)	121 (24.0)
	Column Total	183 (33.3)	222 (40.3)	145 (26.4)	550 (100%)

chi square =10.17 significant at 0.10 level [indicating that there is no statistical significant relationship between education of a farmer and the choice of crops]

Table 8.9 cross-tabulation of most important crop category by education of farmers.

8.8 Farmer categories and choice of crops.

On the basis of a five-fold typology of peri-urban farmers in Dar es Salaam (see Chapter Seven) it is worthy examining how these categories of farmers differ in their choice of crops. These categories were identified as; city-based food producers, capitalist farmers, hobby farmers, peri-urban based food producers and the 'landpoor'. City-based food producers live in the city but commute to work in their peri-urban farms on a daily or weekly basis. The majority of these farmers operate on peri-urban farms on a part-time basis to supplement their wage incomes by producing a part of their food requirement. The majority (64.3 per cent) of these farmers prefer staple crops whilst 25.7 per cent prefer specialised crops, and only 10 per cent prefer tree crops (Table 8.10). Some of these farmers operate on rented land which makes it difficult to grow permanent crops such as coconuts. Moreover, since they are based in the city specialised crops like spinach which need constant attention are not most favoured.

Hobby farmers is another category of peri-urban farmers being only 4.4 per cent of the sample. Like the city-based food producers, hobby farmers live in the city where they are also engaged in other occupations (as civil servants, businessmen etc.). Therefore, farming in the peri-urban zone is carried on, on a part-time basis. A closer look at their choice of crops suggests that hobby farmers are not particularly concern with food production. In fact, only 16.7 per cent of these farmers chose staple crops, and another 33.3 per cent chose specialised crops. On the other hand, 50 per cent of these farmers chose tree crops, particularly coconuts, as their most important crops. Thus, it appears that most hobby farmers are more concerned with hoarding land for future investment.

Farmer category	Counts (per cent)	STAPLE CROPS	TREE CROPS	SPECIALISED CROPS	ROW TOTAL (Per cent)
City-based food producers	Counts (per cent)	45 (64.3)	7 (10.0)	18 (25.7)	70 (12.7)
Hobby farmers	Counts (per cent)	4 (16.7)	12 (50.0)	8 (33.3)	24 (4.4)
Capitalist farmers	Counts (per cent)	7 (12.5)	10 (17.9)	39 (69.6)	56 (10.2)
peri-urban based food producers	Counts (per cent)	180 (64.3)	44 (15.7)	56 (20.0)	280 (50.9)
The 'landpoor'	Counts (per cent)	83 (69.2)	12 (10)	25 (20.8)	120 (21.8)
	Column total (percentage)	319 (58.0)	85 (15.5)	146 (26.5)	550 (100%)

Table 8.10 Cross-tabulation of most important crop category by farmer type.

Capitalist farmers who constitute 10.2 per cent of the sample is another category of peri-urban farmers. The majority of these farmers live in the city and a few others live in peri-urban villages. The main motive of capitalist farmers is to produce for the market, both local and export. Therefore, these farmers operate on a relatively larger scale, in terms of level of capital investment and area under cultivation (farms ranging from 20 - 50 acres). Nearly 70 per cent of the capitalist farmers chose specialised crops as their most important crops, and 17.9 per cent chose tree crops whilst only 12.5 per cent chose staple crops. The preference of specialised crops (pineapples, paw paws, oranges, and green pepper) may be explained by the fact that since production for the market has to be at a relatively larger scale, it important to specialise in these crops which are most suited to the soil and climatic conditions of the area. On the other hand, however, these conditions (soils and climate), are not the most ideal for most of staple crops such as maize and rice.

Peri-urban based food producers and the 'landpoor' all consider staple crops as their most important crop category. About 64.3 per cent of peri-urban based food producers prefer staple crops, whilst 20 per cent chose specialised crops, and only 15.7 per cent prefer tree crops (Table 8.10). The majority (69.2 per cent) the 'landpoor' prefer staple crops, whilst 20 per cent chose specialised crops, and the remaining 10 per cent prefer tree crops. This may be explained by the fact that the 'landpoor' have small sizes of land (averaging less than one acre) leaving them with little option except to concentrate on staple food crops for their household survival.

The fact that peri-urban farmers in Dar es Salaam have different crop preferences suggests that there are indeed variations in the importance of the decision factors. Thus, it is important to examine how agricultural decision factors vary between each of the five categories of farmers. As already noted, farmers' choice of crops is influenced by a number of decision factors ranging from physical environmental factors, economic factors, socio-personal factors, to those related to household survival. However, the degree of importance of the decision factors vary between the different categories of farmers. For example, for city-based food producers, ensuring family food security is the most important decision factor (Table 8.11). Thus, it is hardly surprising that the majority (64.3 per cent) of these farmers prefer staple crops (Table 8.10). The second most important decision factor is 'experience'. Although these farmers live in the city, they have an overwhelmingly rural background, therefore, the choice of their most important crop is also influenced by the experience they have in growing them. This is further revealed by another related decision factor that 'the crop is grown in my home area' (which is ranked sixth). Since these farmers live in the city where they have other occupations, allocation of labour becomes a crucial decision factor. Therefore, these people tend concentrate on crops which are easy to grow and which are not labour intensive, these factors are ranked third and eighth respectively (Table 8.11).

Decision -making factors for the choice of a particular crop	City-based food producers	Hobby farmers	Capitalist farmers	peri-urban food producers	The landpoor	avera-ge point score	rank
It provides the family with reliable food security	83.0	55.5	52.0	75.5	82.0	69.5	1
I have experience with the crop	79.5	56.0	56.0	57.5	64.0	62.6	2
Soils are suitable for the crop	68.0	60.0	67.5	45.5	47.0	57.6	3
It is an easy crop to grow	68.0	64.0	46.0	50.0	44.0	54.4	4
It gives me a reliable income	60.5	40.5	70.0	68.0	26.0	53.0	5
It doesn't require expensive inputs	67.5	47.0	51.5	49.0	47.0	52.4	6
It does not require much labour	59.5	47.5	50.0	45.0	54.0	51.3	7
It is grown in my home area	66.5	40.0	41.0	45.0	45.0	47.5	8
The crop has a reliable market	46.5	43.0	72.0	49.0	25.0	47.1	9
It has a short growing cycle	59.5	36.0	40.0	39.0	40.0	42.9	10
My neighbours grow this crop	49.0	42.0	32.5	41.5	42.0	41.4	11
Good returns to investment	33.0	36.0	63.0	35.0	22.0	37.8	12
The crop has a good taste	60.0	29.0	28.0	30.0	36.0	36.6	13
It is government policy to grow it	32.0	32.0	36.0	38.0	41.0	35.8	14
Does not get easily diseased	28.0	40.0	57.0	30.0	20.0	35.0	15
There is reliable water supply	28.0	34.0	43.0	30.0	20.0	31.0	16

Table 8.11 Importance of elicited factors in the choice of crops. by farmer categories

The choice of crops by hobby farmers is largely influenced by the ease with which a particular crop can be grown. Thus, the decision factor 'the crop is easy to grow' is ranked first. This may be an indication of the little attention that hobby farmers attach to farming in general. The main crop grown by hobby farmers are coconuts which is one of the most suitable crops for the soil and climatic conditions in the coastal areas of Tanzania. This crop is less labour demanding. Thus, it is not surprising that decision factors such as 'suitability of soils' and 'the crop does not require much labour' are ranked second and fifth respectively. It is more interesting to note that hobby farmers in the peri-urban zone of Dar es Salaam display almost similar characteristics to those in advanced capitalist countries. For example, economic motives of farming seem to be less important as revealed by low ranking of the decision factors such as, 'returns to investment' (ranked twelfth), 'reliable income' (ranked ninth) and 'reliable market'

(ranked seventh). Even food production does not seem to be their main goal. In fact the factor on household food security is ranked fourth (Table 8.11).

In contrast with city-based food producers and hobby farmers, capitalist farmers are more influenced by economic factors in their choice of crops. Since these farmers produce for commercial purposes it is important that they choose crops which have a reliable market. Thus, the decision factor 'the crop has a reliable market' is the most important (ranked first). The production of crops both for the local and export markets is at a relatively larger scale than other forms of farming in the peri-urban zone. For this reason, capitalist farmers have to chose crops which give a reliable income and good returns to investment. Thus, economic factors such as 'reliability of income' and 'level of returns to investment' are ranked second and fourth respectively (Table 8.11). Apart from factors related to income, other factors concerning general farm management are considered to be important as well. For example, the decision factor 'the crop does not get easily diseased' is ranked fifth, whilst factors related to farm inputs and labour are ranked eighth and ninth (Table 8.11).

Another category of farmers is that of peri-urban based food producers. The majority of these are full-time farmers, nevertheless, they display a wide range of goals as reflected by their ranking of the decision factors (from food security to obtaining an income). For example ensuring a secure food supply for their households is their most important decision factor (ranked first). However, in addition, these farmers produce for the urban market in Dar es Salaam, and the decision factor on 'reliable income' is ranked second. This means that farming is looked upon not only as a source of food but also as a source of income.

The 'landpoor' is another category of farmers resident in the peri-urban zone, the majority (69.2 per cent) of these farmers prefer staple food crops (Table 8.10). The choice of their most important crop is influenced by the need to provide food for their households, thus 'providing the family with a reliable food security' is ranked as the

most important decision factor. As with other categories of peri-urban farmers, the experience in growing a certain crop is an important decision factor among the 'landpoor', and this is ranked second (Table 8.11). However, in contrast with other categories of farmers the choice of crops by the 'landpoor' is strongly influenced by availability of labour, and this is the third most important decision factor (Table 8.11). This may be explained by the fact that many of these farmers spend most of their time working in other peoples' (capitalist) farmers as casual labourers. Therefore, they are likely to chose crops such as cassava and others which are less labour demanding.

From the preceding discussion it may be concluded that farmers' choice is influenced by a wide range of decision factors. However, the relative importance of each decision factor varies between categories of farmers. For example, whilst food security is the overall most important decision factor, it is less important to hobby and capitalist farmers who ranked it fifth and seventh respectively (Table 8.11). Second, the role of physical environmental factors, particularly soils is quite significant as acknowledged by all five categories of farmers. Economic factors such as income, market, returns to investment are more relevant to categories of farmers whose major concern is commercial farming. Thus, whilst the capitalist farmers rank economic factors among four most important decision factors, hobby farmers rank them in the ninth, tenth and eleventh positions respectively, out of the 16 factors.

8.9 Summary and Conclusions

As a result of the limitations placed by physical environmental factors (particularly soil quality and water supply conditions), the areas around Dar es Salaam have, for a long time, been dominated by crops such as cassava, coconuts and cashewnuts. However, as more people have been moving into the peri-urban zone, there have been noticeable changes in crop preferences. The settlement of other groups from up-country regions has significantly changed the distribution of important crops in the area. For example,

in areas along the Morogoro Road, where the majority of farmers are recent in-migrants largely from Kilimanjaro, Arusha, Bukoba, Iringa and Mbeya regions, the preferred crops are those which are grown in their home areas. Nevertheless, traditional crops around Dar es Salaam are still important in the peri-urban zone, but more particularly in those areas dominated by the indigenous people of the coastal areas.

The spatial variations in the importance of crops within the peri-urban zone of Dar es Salaam is a further proof that this area, however small, is not a unitary zone where all farmers react in similar ways to the forces of urbanisation. This variation is largely attributed to the changing nature of the area, particularly with regard to migration into the peri-urban zone, of people with different motives and goals, but more in particular, the choice of crops.

Furthermore, it is important to note that despite the limited degree of commercial agriculture, the influence of urban proximity on crop choice is still evident, particularly when it is considered that some farmers are able to combine farm with non-farm work. The dual character of these farmers affects the ways in which labour is allocated to different activities, and hence the preference for crops which do not require much labour. Although a limited degree of commercialisation of crops has been noted in the peri-urban zone, it should not obscure the reality that agriculture in these areas is, all the same, undergoing processes of change. The fact that some farmers have other non-farm jobs in the city, the cash obtained from these sources is used for purchasing non-farm goods, and on the other hand, farms remain important for the provision of food requirement.

It has also been noted that there are a number of decision-making factors which influence choice of crops and these range from physical environmental factors to socio-personal factors. Whilst the physical environmental factors have a very broad influence, the spatial variations in crop choice are largely attributed to factors related to

farmers' food security and survival. In the ranking of these factors, household security and survival far outweigh the commonly assumed strong influence of economic factors. The provision of food for the household remains the most important factor which influence farmers' choice of crops. Related to this goal, it has been found out that farmers in the peri-urban zone of Dar es Salaam place more importance upon growing the crops they like and being independent than on the income aspect of farming.

CHAPTER NINE

FARMERS' ATTITUDES TO URBAN EXPANSION.

9.1 Introduction.

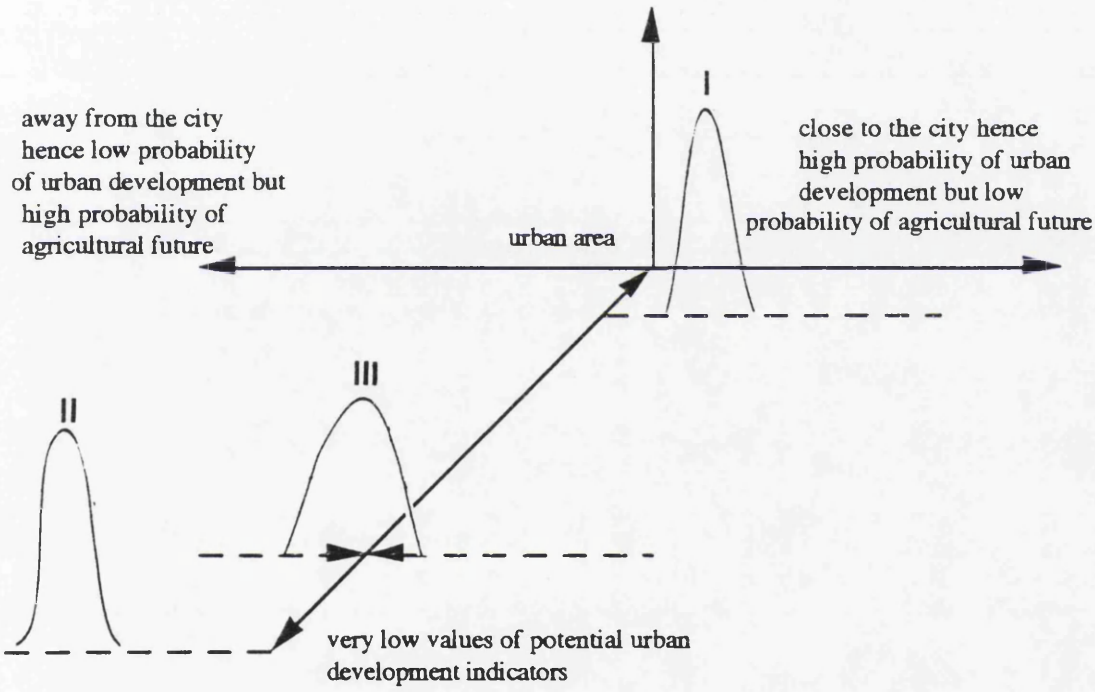
In Chapter Seven, the socio-economic characteristics of farmers were examined, based upon which a typology of peri-urban farmers in Dar es Salaam was developed. This provides a background to understanding the key decision making process affecting agricultural land use. This chapter goes further to examine the farmers' attitudes to urban expansion, another important element in the understanding of the decision making process and the resulting land use changes. Farmers' attitudes to urban demand for land and labour, as well as their attitudes to urban market opportunities, are examined. The peri-urban villages are grouped into zones (road transects) in order to tease out variations in farmers' attitudes. In addition, an attempt is made to see how these attitudes differ with the farmers' socio-economic characteristics.

9.2 Farmers' attitudes to urban expansion

Urban expansion produces a set of demands on the peri-urban zone, including the demand for land for various urban and urban-related functions (e.g. residential, commercial and industrial, infrastructural and recreational development). The demand for farmland is associated with the processes of land conversion, land speculation, farm fragmentation and abandonment of farmland (Bryant, 1982). There are, however, other influences associated with the developing urban area. These include the demand for agricultural produce and labour by non-farm sectors of the economy (Lockeretz, 1987). It is important to note, however, that there are variations in the concentrations of these demands in certain parts of the peri-urban zone, depending on differences in terrain, soil conditions and accessibility, among other things.

Whilst it is reasonable to assume that there is indeed some relationship between the level of urban development and the constraints felt by farmers, and, hence their attitudes, it is not true that they will all respond in the same way nor develop similar attitudes to these urban forces in any particular location within the peri-urban zone. Instead, there are likely to be variations depending on the differences in farmers' socio-personal factors, as well as the differences in the intensity of the urban forces. Therefore, this should caution us not to expect farmers to react in the same way to a particular set of stimuli.

Figure 9.1 shows the possible range of variations in farmers' evaluations (Bryant 1981).



Source: Adapted from Bryant (1981, 29)

Figure 9.1 Farmers' evaluations of an agricultural future for their land and potential urban development.

In Situation **I** (Figure 9.1) there is little possibility of an agricultural future, as farming is close to, or has already experienced, non-farm development; consequently, the variation in farmers' evaluations is likely to be small. Similarly in Situation **II** (urban

shadow), there is little variation in farmers' responses, but this time the evaluation of the probability of an agricultural future is high, as there is little experience of urban development. However, in the outer fringe (Situation **III**) there is greater uncertainty than in the two other zones, and, due to differences in optimism and awareness of potential urban development, this could lead to a variation in the evaluation of an agricultural future. Thus, in this model, the 'average' expectation of a non-agricultural future for the farmer's land is potentially directly related to the various indicators of potential urban development, for example, proximity to urban development zones and prior experience with selling off land for development.

In Bryant's model, it is also hypothesised that the range of variations of farmers' evaluations are related to the actual strength of these indicators, being relatively narrow in areas where the strength of urban development indicators is very strong (e.g. the inner urban fringe), or very weak (e.g. the outer parts of the urban shadow zone). Only in the intermediate situation, where there was greater uncertainty, is a significant range of variation in farmers' evaluations expected. The model is valuable in so far as it attempts to incorporate behavioural considerations into the understanding of rural-urban fringe agriculture (Ilbery, 1985). The hypothesis in this model is used to examine the situation as it prevails between the rapidly expanding areas of the Dar es Salaam peri-urban zone primarily, along Morogoro Road, and the slowly expanding areas of the Kilwa and Kibugumo zones.

9.3 Farmers' attitudes to the demand for agricultural products.

The process of urban expansion creates both opportunities and constraints for the farm and farm-family in the peri-urban zone. Whereas some farmers react dynamically, seizing the opportunities and transforming their farms into modern and more efficient units, others are compelled to reduce the sizes of their farms and gradually increase their dependence on non-farm employment. All these responses contribute to the formation of particular characteristics of peri-urban agriculture, in

contrast to those of agriculture in purely rural areas. For example, the proximity to a concentration of consumers in the city offers peri-urban farmers a ready market for their agricultural products. For these farmers, therefore, farming in the peri-urban zone can be advantageous.

On the other hand, peri-urban agriculture may be subjected to problems such as trespassing, vandalism, land losses and the fragmentation of plots due to the creation and extension of transport infrastructures. Therefore, it is important to bear in mind that peri-urban agriculture is by no means uniform in its character. Its production mix, average farm sizes and the degree of dependence of farm-family living on non-farm incomes all differ from one place to another within the area surrounding one city, as well as between different peri-urban zones. This diversity takes place primarily because the impacts of urbanisation on agriculture vary depending on the distance of agricultural land from the urban core area. Indeed, the intensity of urban forces, either in terms of markets for agricultural products and services, or in terms of the supply of labour, appear greater in the inner parts of the peri-urban zone than elsewhere. Consequently, it should not be surprising to see farmers in some parts of the peri-urban zone developing different attitudes to urban forces (Bryant, 1992).

The manner in which urban expansion in Dar es Salaam takes place bears testimony to Bryant's observations. The intensity of urban expansion in Dar es Salaam has not been the same in all directions within the peri-urban zone. Instead, this process has been spatially developing in particular directions. For example, the city has been growing faster towards the west along Morogoro Road, whilst in the south in the Kilwa Road and Kibugumo zones, this process is significantly limited by poor accessibility. For this reason, farmers' evaluations of the urban forces show spatial variations within the peri-urban zone, and especially so, between the Morogoro Road and Kibugumo zones, and between on-road and off-road villages.

Furthermore, spatial differences in farmers' attitudes may be explained by the fact that different urban forces have different ranges of distance beyond which they may become negligible. For example, the demand for land is strongest in those areas adjacent to the city's built-up areas. However, this demand decreases in its intensity away from the city's built-up areas. This is largely because urban expansion and its subsequent demand for land is usually by accretion. On the other hand, the demand for agricultural goods can extend further into rural areas. Farmers in such locations are more likely to be influenced by the urban demands for agricultural products than the demand for land. Indeed, the manner in which urban demands develop has some influence on the way in which farmers perceive them. Thus, these forces are likely to be perceived differently within the same location, depending not solely on distance or accessibility, but also on the variability of the urban demands themselves.

9.3.1 Farmers' perceptions of the advantages and future of peri-urban agriculture.

Farmers' perceptions of the advantages and the future of agriculture in the peri-urban zone of Dar es Salaam are varied. For example, 58.7 per cent of the farmers have the view that farming in the peri-urban zone is an advantage, whilst only 14.3 per cent found no advantages at all (Table 9.1). Despite the potential threat of the loss of farmland and the rising prices of land, only 29.2 per cent of farmers were pessimistic about the viability of agricultural activities in their areas. About 45 per cent of the farmers were optimistic, and others (26 per cent) were neither optimistic nor pessimistic. Just below half (46.6 per cent) of the farmers were optimistic that their farms' economic situation was likely to improve, compared to the 22.1 per cent who were pessimistic about the situation (Table 9.1).

	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
Advantages of farming						
not advantageous at all	3.3	0	3.0	1.0	3.0	9.0
no advantageous	11.0	5.0	8.0	3.0	18.0	21.0
neither an advantage nor a disadvantage	27.0	25.0	18.3	28.0	29.0	35.0
advantageous	37.0	51.0	36.7	38.0	38.0	22.0
very advantageous	21.7	19.0	34.0	30.0	12.0	13.0
Agriculture will remain viable						
very unlikely	8.2	5.0	4.0	18.0	7.0	7.0
unlikely	21.0	26.0	23.3	25.0	10.0	21.0
neither likely nor unlikely	26.0	48.0	23.7	15.0	31.0	12.0
likely	27.6	20.0	28.0	25.0	29.0	36.0
very likely	17.2	1.0	21.0	17.0	23.0	24.0
Farms' economic situation will improve						
very unlikely	5.8	1.0	2.0	8.0	11.0	7.0
unlikely	16.3	8.0	11.7	23.0	25.0	14.0
neither likely nor unlikely	31.3	30.0	39.3	27.0	26.0	34.0
likely	28.6	44.0	28.0	20.0	24.0	27.0
very likely	18.0	17.0	19.0	22.0	14.0	18.0

Table 9.1 Farmers' perception of the advantages and future of peri-urban agriculture

Within the peri-urban zone of Dar es Salaam, there are important spatial variations in farmers' perceptions of the advantages and future of peri-urban agriculture. For example, 70 per cent and 70.7 per cent of the farmers in the Bagamoyo Road and Morogoro Road zones respectively, acknowledged the advantages of farming close to an expanding city, because they are able to sell their crops to the city markets in Dar es Salaam. In the Pugu Road zone there is also a high evaluation of the advantages of farming close to the city as indicated by the majority (68 per cent) against only 4 per cent who saw no advantages at all. In contrast to these three zones, in the Kilwa Road and Kibugumo zones, there are relatively few farmers who acknowledge the advantages of peri-urban agriculture; indeed, there were only 50 per cent and 35 per cent of farmers in Kilwa Road and Kibugumo zones respectively

who thought farming in the peri-urban zone was an advantage. Indeed, in the Kibugumo zone, 30 per cent of the farmers saw no advantage at all. This is a clear indication of the isolation that the villages in this zone face. Despite being close to the city, it is difficult for the residents of these villages to combine farming with non-farm jobs in the city.

Despite the perceived advantage of peri-urban farming, its viability within the next five to ten years is seen by many farmers as being somewhat uncertain. In the Bagamoyo Road zone, only 21 per cent of the farmers were optimistic about the viability of agriculture in their areas, and nearly one-third of the farmers (31 per cent) were pessimistic. Nearly half (48 per cent) of the farmers could not tell whether or not agriculture was going to remain viable (Table 9.1). In the Morogoro Road zone, there is also a wide variation in farmers' evaluations of the viability of agriculture in the area. For example, 49 per cent of the farmers were optimistic, whilst 27.3 per cent were pessimistic about the viability of agriculture. Forty three per cent of the farmers in the Pugu Road zone were pessimistic and almost an equal proportion (42 per cent) were optimistic. This is a very clear indication of the uncertainty experienced by most farmers over the future of agriculture in those areas where urban expansion is at its most rapid. However, due to the low demand for land in the Kilwa Road and Kibugumo zones, 52 per cent and 60 per cent of farmers respectively were optimistic that agriculture would remain viable in their zones for the next five to ten years.

Farmers' assessments of the future economic situation of the farms does not show a wide variation between the different zones (Table 9.1). In the Bagamoyo Road zone, for example, 61 per cent of farmers were optimistic whilst 13.7 per cent were pessimistic about the economic situation of their farms. In the Morogoro Road and Pugu Road zones 47 per cent and 42 per cent respectively were optimistic about the economic situation of the farms improving, whilst in the Kilwa Road and Kibugumo

zones, 38 per cent and 45 per cent respectively of the farmers were optimistic that the economic situation of the farms is going to improve (Table 9.1).

In conclusion, it can be seen that farmers' perceptions of the advantages and the future of peri-urban agriculture in Dar es Salaam are varied. It is postulated that these variations are largely a result of the differences in accessibility between the different zones. For example, farmers in the Morogoro Road and Pugu Road zones, where accessibility to the city is relatively easy, suggested that farming in the peri-urban zone is an advantage because besides farming activities, they can commute to the city for non-farm jobs. On the other hand, farmers in the Kilwa Road and Kibugumo zones, which are least accessible, found little advantage in farming close to the city and were more pessimistic about the future of their farms' economic situations than their counterparts in the Morogoro Road and Pugu Road zones.

9.3.2 Farmers' attitudes to urban market demands.

Urban markets represent a significant concentration of demand, both in terms of the number of consumers and their generally higher incomes (in relation to rural incomes). These market opportunities are greater in peri-urban locations where, due to the proximity of urban markets, farmers are able to sell their products with greater ease compared to those in more distant rural areas. Over half (55 per cent) of the farmers wanted to increase overall production of their crops, and only 23.5 per cent did not want to do so (Table 9.2). However, a more positive response is noted with regard to food crops. In all zones, nearly three-quarters (72.6 per cent) of farmers wanted to increase food production, while only 12 per cent did not want to do so. On the other hand, 57.1 per cent of the farmers wanted to increase the production of cash crops, whilst only 7.6 per cent did not, and 35.1 per cent were undecided.

The preference of food crops over cash crops is understandable, and this can be explained by two factors. First, the fact that the soil and climatic conditions in Dar es Salaam region are not the optimum for the production of most staple crops means only relatively small amounts are produced. Therefore, by concentrating more on food crops, these farmers are indeed seeking to ensure food security for their households. Second, with an average farm size of only 1.2 hectares, suggests a rationale for farmers to concentrate more on food crops to ensure food security for their households. In addition, the division between food crops and cash crops is very marked, in the sense that none of the most important food crops is among the highly ranked cash crops. For example, the three most important crops in the peri-urban zone are cassava, maize and coconuts. However, only 19.9 per cent of the farmers sell at least half of their cassava produce, and only 24.1 per cent sell at least half of their coconuts. Only 9.3 per cent of the farmers sold at least half of their maize produce (Table 8.4).

	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
Increase overall production						
very unlikely	7.9	5.0	11.3	4.0	7.0	12.0
unlikely	15.6	20.0	17.0	15.0	11.0	15.0
neither likely nor unlikely	21.5	27.0	15.7	29.0	14.0	22.0
likely	35.1	30.0	36.3	32.0	39.0	38.0
very likely	19.9	18.0	19.7	20.0	29.0	13.0
Increase cash crop production						
very unlikely	2.7	3.0	3.8	3.0	2.0	2.0
unlikely	4.9	6.0	4.7	5.0	4.0	5.0
neither likely nor unlikely	35.3	43.0	36.9	27.0	35.0	34.0
likely	44.5	39.0	41.3	51.0	47.0	44.0
very likely	12.6	9.0	13.3	14.0	12.0	15.0
Increase food crop production						
very unlikely	4.2	0	3.0	5.0	7.0	6.0
unlikely	7.8	8.0	9.0	5.0	5.0	12.0
neither likely nor unlikely	15.4	21.0	18.0	10.0	13.0	15.0
likely	55.0	59.0	52.0	65.0	51.0	48.0
very likely	17.6	12.0	18.0	15.0	24.0	19.0
Change most important crop						
very unlikely	5.5	1.0	9.7	5.0	8.0	4.0
unlikely	36.1	16.0	11.3	39.0	62.0	52.0
neither likely nor unlikely	22.0	41.0	23.0	17.0	10.0	19.0
likely	25.4	42.0	33.0	20.0	19.0	13.0
very likely	11.0	0	23.0	19.0	1.0	12.0

Table 9.2 Farmers attitudes to urban markets

Farmers' decision whether, or not to change their most important crop lies in the fact that most of them have settled in the peri-urban zone only very recently (72 per cent since 1970s) whilst others are indigenous to the area. Indigenous farmers are more resistant to change because crops such as cassava and coconuts, which the majority of indigenous farmers grow, are traditional crops in the area, and are well suited to

the types of soil there. Consequently, there is a reservoir of experience among these farmers. For coconuts, a change is even more difficult given the length of time and amount of investment required. In those villages in which the majority of farmers are indigenous, such as those in the Kilwa Road and Kibugumo zones, 70 per cent and 56 per cent respectively of the farmers were unwilling to change their most important crops. These are the two zones in which the majority of farmers (51 per cent and 70 per cent respectively) grow cassava, coconuts and cashewnuts as their most important crops.

On the other hand, the ethnic heterogeneity of the recent in-migrants into the peri-urban zone of Dar es Salaam has had a considerable influence on crop preferences. For example, in the Morogoro Road zone, where many of the farmers were born in Kilimanjaro, Arusha Bukoba and Mbeya regions, crops such as bananas and maize are generally perceived to be the most important, these being traditional crops from their home regions. As most farms purchased by these in-migrants have crops already growing on them (usually cassava or cashewnuts), new owners generally replace them with other crops of their choice. This explains why in the Morogoro Road zone, 56 per cent of the farmers wanted to change their most important crop, whilst only 21 per cent were reluctant.

9.3.3 Farmers' attitudes to non-farm job opportunities.

Peri-urban locations also offer farmers opportunities to combine farm with non-farm employment. Residents in these areas are in a position to commute to the city for non-farm jobs, whilst at the same time engaging themselves in farm work. In the peri-urban zone of Dar es Salaam, nearly 46 per cent of farmers wanted non-farm jobs in addition to farming, whilst 31.1 per cent did not express such a wish (Table 9.3). Despite the attraction of non-farm jobs in the city, 44.7 per cent of the farmers are still unlikely to give up farming. This very much confirms the dual-economy

household strategy of the peri-urban residents of Dar es Salaam, as well as underscoring the crucial importance of farming for the majority of people in the peri-urban zone. This may perhaps be further explained by the fact that the majority of farmers in the peri-urban zone of Dar es Salaam have limited skills for non-farm jobs, especially as 42 per cent are primary school -leavers and another 23 per cent attended literacy classes.

	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
Want to quit farming						
very unlikely	13.2	6.0	23.0	19.0	6.0	12.0
unlikely	31.5	39.0	41.3	43.0	17.0	17.0
neither likely nor unlikely	22.5	42.0	16.7	12.0	18.0	24.0
likely	22.0	13.0	11.0	17.0	38.0	31.0
very likely	10.8	0	8.0	9.0	21.0	16.0
Want non-farm job in the city						
very unlikely	8.5	1.0	14.3	3.0	12.0	9.0
unlikely	22.8	23.0	22.3	19.0	29.0	20.0
neither likely nor unlikely	22.9	34.0	13.0	14.0	32.0	28.0
likely	31.4	29.0	36.7	50.0	14.0	24.0
very likely	14.4	13.0	13.7	14.0	13.0	19.0
Likelihood of getting non-farm job						
very unlikely	12.6	3.0	9.0	16.0	17.0	18.0
unlikely	16.4	12.0	12.0	13.0	20.0	25.0
neither likely nor unlikely	25.3	28.0	14.3	28.0	31.0	25.0
likely	29.7	46.0	41.7	22.0	19.0	20.0
very likely	16.0	11.0	23.0	21.0	13.0	12.0

Table 9.3 Farmers' attitude to non-farm job opportunities:

The extent to which peri-urban residents can benefit from non-farm job opportunities largely depends on distance from, and particularly, accessibility to the city. For example, despite the pessimism over the future of agriculture in the Morogoro Road zone, only a few farmers (19 per cent) wanted to quit farming (Table 9.3). The majority (64.3 per cent) wanted to continue with farming. Even when it is considered

that farmers in the Morogoro Road zone typically have alternative sources of income, agriculture still remains important. It is relied upon at the very least as a fall-back activity for those times when food shortages occur in the city. On the other hand, there were relatively fewer farmers wanting non-farm jobs, partly because these villages have a higher proportion of people already engaged in some form of non-farm activity. Nearly 65 per cent of the farmers in the Morogoro Road zone were optimistic of getting non-farm jobs in the city, compared to 21 per cent who considered the chances to be very narrow indeed.

Although the chances of getting non-farm jobs were considered to be slim, as expressed by 43 per cent of the farmers in the Pugu Road zone, 64 per cent wanted non-farm jobs in addition to their farming activities. Less than one-quarter of the farmers did not want non-farm jobs. However, farming was still considered to be an important activity, as 52 per cent of the farmers wanted to continue with it, whilst only 26 per cent wanted to quit farming altogether.

In the Kibugumo zone, as in other zones, agriculture remains the most important economic activity for the majority of farmers. However, this zone, as with the neighbouring Kilwa Road zone, has relatively more farmers contemplating quitting farming than the other three zones (Bagamoyo Road, Morogoro Road and Pugu Road zones). For example, nearly one-half of the farmers (47 per cent) in the Kibugumo zone wanted to quit farming altogether, and only 29 per cent did not want to do so, leaving another 24 per cent undecided. Some 43 per cent of the farmers in Kibugumo zone were in favour of non-farm jobs (43 per cent). Another 29 per cent of farmers did not want non-farm jobs, whilst 24 per cent could not tell either way.

9.3.4 Farmers' attitudes to the demand for land.

Unlike other urban demands, for labour and agricultural products, for example, which can be satisfied from more distant locations, the demand for land is by local spatial accretion. Therefore, this demand has to be necessarily met from the peri-urban zone. As urban expansion takes place, it often leads to a loss of farmland in peri-urban areas. It has already been noted, however, that urban expansion does not exert equal pressure in all directions from the city. In Dar es Salaam city, this process has been more intense in those areas along the major arterial roads. Thus, farmers' evaluations of the threats posed by urban encroachment are likely to vary depending on their locations. For example, since urban expansion in Dar es Salaam is faster along the major arterial roads peri-urban residents living in these areas are more likely to face the threat of possible losses of their farmland than those living in off-road villages.

Generally, 36 per cent of peri-urban farmers were pessimistic, and another 39 per cent were optimistic, about the possible loss of farmland to urban land uses. However, there are variations in farmers' evaluations of the possible loss of farmland in different parts of the peri-urban zone of Dar es Salaam. For example, in the Morogoro Road zone, more than half (55 per cent) of farmers fear they will probably lose part of their farmland to urban land uses, but 29 per cent believed they were secure with their land.

The competition for peri-urban land, and the subsequent rise in land prices adversely affects those farmers who might wish to expand their farm size. Land prices have now been forced up to levels that the majority of the farmers cannot afford. These prices, however, vary from one area to another depending on among other things, the distance from the city and accessibility. For example, in 1992 the average land price in Kiluvya village in the Morogoro Road zone was TShs 250,000 per acre. In Kibugumo village, in the south of the peri-urban zone, the price was only TShs

20,000 per acre. Thus, it is hardly surprising that more than three-quarters (78 per cent) of the farmers in the Morogoro Road zone felt that land prices were a limiting factor to farm expansion. On the other hand, in Kibugumo village only 14 per cent of the farmers believed that high land prices were likely to limit their efforts to expand farms.

	Peri-urban zone	Bagamoyo Road zone	Morogoro Road zone	Pugu Road zone	Kilwa Road zone	Kibugumo zone
Possible loss of farmland						
very unlikely	15.8	0	9.7	2.0	28.0	28.0
unlikely	23.7	4.0	20.3	10.0	32.0	42.0
neither likely nor unlikely	24.9	33.0	14.7	28.0	28.0	24.0
likely	24.3	47.0	33.3	37.0	9.0	4.0
very likely	11.3	16.0	22.0	23.0	3.0	2.0
High prices of land limit farm expansion						
very unlikely	5.0	0	0	0	9.0	19.0
unlikely	12.5	4.0	3.3	2.0	24.0	29.0
neither likely nor unlikely	30.0	38.0	18.7	22.0	37.0	38.0
likely	29.0	27.0	44.0	46.0	16.0	8.0
very likely	23.5	31.0	34.0	30.0	14.0	6.0

Table 9.4 Farmers' attitude to the demand for land

In the Bagamoyo Road zone, 63 per cent of the farmers feared that they were likely to lose part of their farmland to urban land uses. Another 33 per cent were not sure, while only 4 per cent considered themselves secure with their farmland. More than half of the farmers (58 per cent) in the Bagamoyo Road zone believed that the high prices of land in their areas was a limiting factor to farm expansion. Another 38 per cent did not see this impact on farm expansion, whilst only 4 per cent thought the high prices had no effect at all.

Unlike most other villages, Pugu and Kinyerezi villages in the Pugu Road zone are surrounded by land areas which have already been subdivided into urban residential plots. Urban pressure for land is growing rapidly, and farmers in these two villages

are likely to lose part of their farmlands in the near future. Farmers' evaluations of the possible loss of farmland gives further evidence of this threat, as shown by 60 per cent of farmers who feared the loss of land. Only 12 per cent of the farmers did not think they will lose land. Furthermore, 76 per cent of the farmers had the view that high land prices are a limiting factor to farm expansion.

Unlike in other zones, where rapid city growth threatens loss of farmland, the problem seems to be less severe in the Kilwa Road and Kibugumo zones. Urban expansion towards these zones is less intense, and hence the demand for land is not as high as in the case of the Morogoro Road and Pugu Road zones. For this reason, farmers' fear of losing farmland in this part of the fringe is less pronounced. For example, only 12 per cent of the farmers in the Kilwa Road zone feared they would lose part of their farmland, whilst 28 per cent were not certain and 60 per cent considered their farmland secure. This is in sharp contrast to the situation as experienced in the Morogoro Road and Pugu Road zones where, for example, 55 per cent and 60 per cent respectively felt insecure about the future of their farmland.

The high demand for land in the peri-urban zone of Dar es Salaam has had an effect on the land prices. This has, in turn, limited farmers' efforts to expand their farms. However, in the Kilwa Road zone, prices of land are relatively low, thus only 30 per cent of the farmers (compared to 78 per cent in the Morogoro Road zone and 76 per cent in Pugu Road villages) mentioned the effect of high land prices on farm expansion. Another 33 per cent of the farmers in the Kilwa Road zone felt that high prices of land had no effect on farm expansion. The majority of these were those living in Kongowe village which is located on the main road.

Because of poor accessibility to the city, urban pressure on land in the Kibugumo zone is relatively light, resulting in most farmers here feeling more secure. For example, only 6 per cent of the farmers feared losing part of their farmland, and the majority (70 per cent) were optimistic about land security (Table 9.4). This is in

marked contrast to the situation experienced in the Morogoro Road, Pugu Road and Bagamoyo Road zones, where over one-half of the farmers feared they would lose part of their farmland to urban land uses. Likewise, villages in the Kibugumo zone have the lowest land prices in the whole peri-urban zone of Dar es Salaam. As such, only 14 per cent of farmers held the opinion that high prices of land limited their efforts towards farm expansion, and another 48 per cent thought that prices of land had no effect on farm expansion at all.

9.5 A comparison between on-road and off-road villages.

It has been noted that the urban expansion of Dar es Salaam city has been primarily concentrated along major arterial roads, leading to intense urban pressure in these areas in particular. Also noted has been the difference in accessibility between on-road and off-road villages, and particularly the influence such as location has on farmers' ability to commute to and market their goods in the city. For these reasons, farmers attitudes may also vary between on-road and off-road locations (Table 9.5).

	Peri-urban zone	On-road villages	Off-road villages
Farming here is an advantage			
not advantageous at all	3.3	3.0	3.6
not advantageous	11.0	10.0	12.0
neither an advantage nor a disadvantage	27.0	20.5	33.5
advantageous	37.0	39.5	34.5
very advantageous	21.7	27.2	16.2
Agriculture will remain viable			
very unlikely	8.2	10.8	5.6
unlikely	21.0	24.4	17.6
neither likely nor unlikely	26.0	32.0	20.0
likely	27.6	20.4	34.8
very likely	17.2	12.4	22.0
Farms' economic situation improving			
very unlikely	5.8	4.0	7.6
unlikely	16.3	19.4	13.2
neither likely nor unlikely	31.3	32.6	30.0
likely	28.6	26.2	31.0
very likely	18.0	19.0	17.0

Table 9.5 Farmers' attitudes on future of farming

The majority of farmers both in on- and off-road villages (66.7 and 50.7 per cent respectively), acknowledged the advantages of farming in the peri-urban zone, compared to only 20 per cent who did not see this advantage (Table 9.5). However, due to greater demands for land along the major arterial roads, fewer farmers (32.8 per cent) in on-road villages were optimistic about the future viability of agriculture in their areas, compared with 56.8 per cent in off-road villages. In addition, the fact that nearly one-third (32 per cent) of the farmers in on-road villages were uncertain of the viability of their agriculture in the next five to ten years is yet another indication of the environment of uncertainty surrounding farmers created by urban expansion, and the subsequent demand for land.

Given a relatively better accessibility of on-road villages to the city it is expected that these villages will be under more intense demand for their agricultural goods, hence a more positive attitude towards increasing crop production. Whilst Table 9.6 shows this to be the case, there are no major differences with off-road villages. Indeed, farmers both in on-road and off-road villages display similar attitudes to the demand for agricultural goods (Table 9.6). For example, in both cases, over half of the farmers wanted to increase the overall production of their crops, although nearly one-quarter were reluctant. As far as food crops are concerned, again, farmers in both village categories display similar attitudes towards increasing their production. For example, about 71.8 per cent of farmers in on-road villages and 73.2 per cent of those in off-road villages wanted to increase production of food crops. On the other hand, only 14.4 per cent and 9 per cent of farmers in on-road and off-road villages respectively did not want to increase production of their food crops.

A considerable proportion (just over one-third) of farmers in both categories of villages were contemplating changing their most important crops. Such an attitude may be explained by two reasons. First, since the peri-urban zone of Dar es Salaam has only recently been opened-up to commercial farming it is likely that some farmers will respond by changing their crop preferences to those demanded by the city markets. Second, quite often city-based farmers buy land (in the peri-urban zone) with crops growing on them. However, as they settle down they change to crops of their own preferences. Nevertheless, 45 per cent and 36.4 per cent of farmers in on-road and off-road villages respectively did not want to change their most important crops. In conclusion, it is observed that the attitudes of peri-urban farmers to urban markets do not show any spatial variations between on-road and off-road villages. This may be largely due to the fact that unlike the demand for land which grows by accretion, and hence being felt strongly along on-road villages, the demand for agricultural may be spread further into typically rural areas.

	PERI-URBAN ZONE	ON-ROAD VILLAGES	OFF-ROAD VILLAGES
Increase overall production			
very unlikely	7.9	4.5	11.3
unlikely	15.6	19.2	12.0
neither likely nor unlikely	21.5	18.5	24.5
likely	35.1	30.6	39.6
very likely	19.9	27.2	12.6
Increase food crop production			
very unlikely	4.0	4.6	3.4
unlikely	7.7	9.8	5.6
neither likely nor unlikely	15.7	13.6	17.8
likely	54.7	55.3	54.2
very likely	17.7	16.5	19.0
Change most important crop			
very unlikely	5.5	6.8	4.2
unlikely	36.1	38.2	34.0
neither likely nor unlikely	22.0	19.6	24.4
likely	25.4	24.4	26.4
very likely	11.0	11.0	11.0

Table 9.6 **Farmers' attitude to urban markets: a comparison between on-road and off-road villages.**

Whilst urban demands for agricultural goods have prompted similar attitudes among peri-urban farmers living in on-road and off-road villages, there are some variations in their evaluations of the demand for land (Table 9.7). For example, 47.5 per cent of farmers living in on-road villages feared they would lose their farmland to urban uses, compared to only 23.6 per cent in off-road villages. This once more highlights the greater pressures experienced in the more accessible areas, in this case on-road villages. Farmers' assessments of the possible loss of farm land in off-road villages show that they feel substantially more secure with their land tenure than their counterparts living in on-road villages.

	PERI-URBAN ZONE	ON-ROAD VILLAGES	OFF-ROAD VILLAGES
Likelihood of losing land			
very unlikely	15.8	11.5	20.2
unlikely	23.7	20.0	27.4
neither likely nor unlikely	24.9	21.0	28.8
likely	24.3	31.5	17.0
very likely	11.3	16.0	6.6
Farm expansion limited by high prices of land			
very unlikely	5.0	4.8	5.2
unlikely	12.5	12.2	12.8
neither likely nor unlikely	30.0	21.2	38.8
likely	29.0	35.2	22.8
very likely	23.5	27.0	20.0

Table 9.7 Farmers' attitudes to the urban demand for land: a comparison between on-road and off-road villages.

With a higher demand for land in villages along the major arterial roads, land prices are also higher there. This explains the differences in farmers' attitudes on the effect of land prices on farm expansion (Table 9.7). Nearly two-thirds (62.2 per cent) of farmers living in on-road villages expressed the view that the high prices of land had limited their efforts to expand their farms. On the other hand, in off-road villages, fewer farmers (42.8 per cent) saw high land prices as being a major brake on farm expansion. It may appear surprising that only 23.6 per cent of farmers in off-road villages felt threatened by possible loss of farmland, while there were more (42.8 per cent) who felt the impact of land prices on farm expansion. The major explanation for this anomaly is that due to speculative activities and the anticipation of urban expansion, land prices rise much earlier than the actual conversion of peri-urban land into urban uses. For this reason, the effects of high prices of land are likely to by felt much earlier than the effects of land conversion.

Despite the attractions of non-farm jobs in the city, it has been already been shown that farmers in the peri-urban zone of Dar es Salaam still consider farming to be an important activity. About 48 per cent of farmers living in on-road villages did not want to quit farming at all, while 37.6 per cent were considering finishing. On the other hand, 41.3 per cent farmers living in off-road villages did not want to stop farming, compared to 28 per cent who wanted to quit (Table 9.8).

	PERI-URBAN ZONE	ON-ROAD VILLAGES	OFF-ROAD VILLAGES
Want to quit farming			
very unlikely	13.2	15.0	11.4
unlikely	31.5	33.1	29.9
neither likely nor unlikely	22.5	14.3	30.7
likely	22.0	32.4	11.6
very likely	10.8	5.2	16.4
Want non-farm job			
very unlikely	8.5	8.6	8.4
unlikely	22.8	21.0	24.6
neither likely nor unlikely	22.9	26.0	19.8
likely	31.4	29.6	33.2
very likely	14.4	14.8	14.0
Likelihood of getting non- farm job			
very unlikely	12.6	8.4	16.8
unlikely	16.4	13.6	19.2
neither likely nor unlikely	25.3	21.0	29.6
likely	29.7	37.0	22.4
very likely	16.0	20.0	12.0

Table 9.8 Farmers' attitudes to the urban demand for labour: a comparison between on-road and off-road villages.

A considerable proportion of farmers in both groups wanted non-farm jobs in addition to farming. For example, 44.4 per cent of farmers living in on-road villages wanted non-farm jobs, compared to 47.2 per cent in off-road villages. However, farmers in on-

road villages are more optimistic than those in off-road villages about getting non-farm job in the city (Table 9.8). Yet again, this may support the accessibility arguments.

9.6 Farmers' attitudes by socio-economic characteristics.

In the preceding sections of this chapter, spatial variations in farmers' attitudes have been largely attributed to the variability in intensity of the urban forces themselves, and the inherent spatial differences between the zones. However, there are also important sub-regional differences which result from the fact that farmers do not react in the same way to the same urban development pressures (Moran, 1979; Munton, 1984). In reality, in addition to the differences in strength of potential urban development indicators, farmers' responses to the threat of urban forces are likely to vary according to various socio-economic factors such as socio-personal factors and farm characteristics. It was noted by McKay (1976) that the movement of some city people back into farming, to create part-time farms and hobby farms, may be significant if it means that people with different motivations for owning farmland are introduced into the area. Thus, their responses to potential land demand for urban uses may be quite different from those of the previous farmland owners. Olmstead (1970) adds that there are variations between farm entrepreneurs because of the importance of the individual farm entrepreneur, in evaluating the opportunities and constraints facing the farm and in the subsequent choice of strategies leading to farm change. In this survey, the age of a farmer was found to be an important factor influencing the attitudes to urban forces.

ATTITUDES	Age of Farmer			Residence		Length of residence		
	below 35 years	36-50 years	over 51 years	peri-urban	city	1-5 years	6 - 10 years	over 10 years
Peri-urban farming is advantageous	67.3	31.1	21.0	78.0	67.0	54.0	58.5	47.0
Urban markets are important	51.0	41.0	40.0	80.2	18.0	31.1	30.0	28.8
Change most important crop	66.6	38.0	30.6	30.0	42.2	68.8	31.0	18.0
Possible loss of farmland	32.0	41.5	36.0	71.6	33.0	22.6	29.0	73.3
Intending to sell land	62.5	26.0	55.0	74.0	20.1	26.8	21.3	67.3
Quit farming for non-farm job	68.0	21.8	12.4	31.0	17.0	37.0	21.6	13.0

Table 9.9 Attitudes to urban development by farmer characteristics.

ATTITUDES	Land Tenure				Crop category		Farm size			
	rented	custo mary	bough t	right of Occ.	food crop	cash crop	<1 acre	1- 4 acres	5 - 10 acres	over 10 acres
Peri-urban farming is advantageous	48.9	47.0	51.0	45.0	67.5	55.0	34.0	32.0	49.0	53.0
Urban markets are important	10.6	33.8	45.0	44.5	44.0	56.5	6.8	21.8	58.5	28.8
Change most important crop	1.4	45.0	62.1	22.4	30.2	53.3	8.8	23.0	31.0	48.0
Possible loss of farmland	83.5	72.5	56.5	32.8	32.1	33.0	13.0	22.0	57.9	68.6
Intending to sell land	1.5	62.5	16.0	3.0	44.0	20.8	11.0	6.8	31.3	69.4
Quit farming for non-farm job	1.2	24.0	11.2	23.0	31.0	13.0	28.0	26.0	32.0	12.0

Table 9.10 Attitudes to urban development by farm characteristics.

Farming in a peri-urban location is thought to be important because it enables farmers to sell their farm produce directly in the city markets with ease. This is likely to be the case to farmers who grow crops for sale, thus, about 52.5 per cent of farmers who grow cash crops acknowledged the advantages of peri-urban farming (Table 9.9). Even to farmers who may not produce for the urban markets, peri-urban location offers them opportunities to combine farm work with non-farm activities in the city. This explains why even farmers who concentrate on food crops (44.0 per cent) believed that farming in the peri-urban zone is an advantage. Both city-based farmers and those living in the peri-urban villages, consider farming in this location to be an advantage (Table 9.9). The perception of the advantages of peri-urban agriculture is particularly, influenced

by the age of the farmer. For example, about 67.3 per cent of young farmers (below 35 years of age) acknowledged the advantages of peri-urban farming compared with 31.1 per cent of middle-aged farmers, and 21 per cent of old farmers (Table 9.9). This variation in attitude, significant at 0.001 level can be explained by the fact that young farmers are in a better position to commute to the city for various non-farm jobs. Many of these engage themselves in petty trading activities both in the city and their villages. In addition to consumer items, some traders sell agricultural products as well, particularly fruits, which are bought in the villages and sold in the city markets.

ATTITUDES	Age of farmer	Residence	Length of residence	Land tenure	Major crop category	Farm size
Peri-urban farming is advantageous	0.001	-	-	0.01	0.01	-
Urban markets are important	-	-	-	-	0.01	-
Change most important crop	0.001	0.01	0.001	-	0.001	0.001
Possible loss of farmland	-	0.01	0.001	0.001	-	0.001
Intending to sell land	0.01	-	0.01	0.001	-	0.001
Quit farming for non-farm job	0.001	-	-	-	-	-

Table 9.11 Significance levels of attitudes to urban development and farm-farmer characteristics.

Cities present peri-urban farmers with opportunities to sell their goods with much ease compared with farmers living in typically rural areas. In the peri-urban zone of Dar es Salaam, the importance of urban markets was widely acknowledged by farmers of different age groups (Table 9.9). Furthermore, the recent in-migrants and indigenous farmers in the peri-urban zone believed that city markets were important, and a chi square test does show that there is no significant statistical difference between length of residence of a farmer and attitude to urban markets (Table 9.11). However, about 80.2 per cent of farmers living in the peri-urban zone acknowledged the importance of these markets, compared with only 18 per cent of those farmers living in the city (Table 9.9). This may be explained by the fact that most peri-urban farmers who live in

the city are more concerned with production of food crops for their household consumption than for sale.

With an ever growing demand for food in the city, some peri-urban farmers are likely (within the physical environmental limits) to change their crop preferences to those which are in high demand. However, the decision whether, or not to change the most important crop depends on, among other things, the age of a farmer and the types of crops grown. For example, young farmers are more likely to change their crop preferences than older farmers. In the peri-urban zone of Dar es Salaam 66.6 per cent of young farmers (below 35 years of age) were contemplating changing their most important crop, compared with only 30.6 per cent of old farmers (Table 9.9). The reason for this is that in the absence of clear information about the future, any change in farm enterprises involves some risks, and farmers are known to vary in their aversion of risks. While young farmers are known to be risk takers, older farmers are likely to resist change that involve risks (Gasson, 1973). Also more likely to change their most important crops are recent in-migrant farmers. About 68.8 per cent of farmers of the recent in-migrants (with 1 to 5 years of residence) wanted to change their most important crop, compared with only 18 per cent of those who have been living in the peri-urban zone for over 10 years. The relationship between the length of residence of a farmer in the peri-urban zone and the decision to change the most important crop is significant at 0.001 level (Table 9.11). The major explanation for recent in-migrants wanting to change their crop preferences lie in the fact that most farms bought had crops already growing on them, and these are being replaced with other crops as preferred by the new owners.

As cities expand they cause uncertainty among farmers over the possible loss of their farmland. It has been discussed that because city expansion is not uniform in all directions of the peri-urban zone, there are likely to be spatial variations in the perception of the loss of farmland. In addition however, the perception of a possible loss of farmland is also influenced by farm-farmer characteristics. For example, about

71.6 per cent of farmers living in the peri-urban zone feared a possible loss of farmland, compared with only 33 per cent of those farmers living in the city. This is possibly because farmers living in the peri-urban zone have witnessed the process of urban expansion into their villages. This is further supported by the finding that 73.3 per cent of farmers who have been living in the peri-urban zone for over 10 years feared they would lose part of their farmland, compared with only 22.6 per cent of the recent in-migrants (Table 9.9). Also fearing a possible loss of farmland are those farmers who farm on rented land (83.5 per cent).

Even more striking is the difference between farmers who hold land under the customary tenure system and those with Rights of Occupancy certificates. About 72.5 per cent of farmers with customary rights feared they would loose part of their farmland, compared with only 32.8 per cent of holders of Rights of Occupancy certificates. This may be explained by the fact that despite the recognition by the government, of the customary land tenure it is regarded as inferior to the statutory system. For example, on the declaration of an urban planning area, customary rights are invariably over-ruled and occupants are entitled only to compensation at the official rate for unexhausted improvements. It is further noted that there are more farmers (68.6 per cent) with bigger farms (over 10 acres) who fear a possible loss of farmland, than those with smaller farms (Table 9.10). A chi square test between the fear of a possible loss of land and size of farm shows a significant relationship between these two variables (Table 9.11).

The intention of farmers to sell or retain farmland is influenced by several factors, among which size of farm and security of ownership are the most important. Both young and old farmers were contemplating selling part of their farmlands (Table 9.10). However, more important is the fact that as farmers feel less secure with their land they decide to sell it. For example, 62.5 per cent of farmers who hold land under the customary tenure system were contemplating selling part of their farmland compared with only 3 per cent of those with Rights of Occupancy certificates. Also less secure

with their land are those farmers owning bigger farm sizes, thus 69.4 per cent of these farmers were contemplating to sell their land, compared with only 11.4 per cent of farmers with less than 1 acre of land. The relationship between farm size and the decision to sell land is significant at 0.001 (Table 9.11). Therefore, more likely to sell their land are those farmers who feel less secure with their land, particularly those with large farms held under the customary tenure system. Less likely to sell their land are holders of Rights of Occupancy certificates and recent in-migrants with smaller farms.

Non-farm employment opportunities in the city may attract peri-urban farmers out of agriculture. However, not all farmers are likely to quit farming for non-farm jobs. Evidence from the peri-urban zone of Dar es Salaam reveal that young farmers are more likely to quit farming and seek non-farm jobs than old farmers. For example, 52 per cent of farmers below 35 years of age were contemplating quitting farming compared with 12.4 per cent of farmers over 51 years (Table 9.10). This may be because younger farmers have more non-farm job opportunities (such as petty trading) at their disposal than older farmers. The relationship between age of farmer and the decision to quit farming is significant at 0.001 (Table 9.11).

The evaluation of the advantages of peri-urban farming is also influenced by farmer's main occupation. The majority (72 per cent) of farmers who perceive the advantages of peri-urban farming are those with other occupations besides farming. The remaining 28 per cent were full-time farmers. This relationship is significant at 0.01 (Table 9.10). This may be explained by the fact that the majority of those farmers with non-farm jobs work in the city. For these farmers, farming in the peri-urban zone is an advantage because they are able to combine farm activities with non-farm jobs in the city.

9.7 Summary and conclusions

Urban expansion generates a set of demands that elicit responses from the peri-urban zone. These demands are for land for various urban and urban-related functions, the demand for agricultural goods, especially food for the expanding urban population, and the demand for labour for non-farm sectors of the economy. These demands are not felt with equal intensity among the farmers in the peri-urban zone because of a number of factors. First, there is a variability of urban demands themselves, in the sense that each demand has a spatial extent beyond which it becomes negligible. For example, while the demand for agricultural goods and labour can be supplied from distant places, that of land has to be met by those areas closest to the city. Thus, for example, farmers in less accessible zones were also influenced by such demands as labour and goods, but, at the same time, they were less affected by the demand for land which was to be a big problem to those farmers where urban expansion is more intense. This may also vary according to the accessibility of the zones under investigation. Areas which are easily accessible are likely to experience more intense urban influences than the inaccessible ones. For example, urban expansion in Dar es Salaam is concentrated along certain routes (tarred roads), hence making these areas come under more intense pressure for urban development than those which are less accessible.

In the peri-urban zone of Dar es Salaam, it has been noted that there are spatial differences in farmers' attitudes to the various urban forces, depending on accessibility and distance from the city. For example, differences have been noted between the various zones, as well as between villages located along the roads and those away from them. These differences result essentially from the fact that urban expansion in Dar es Salaam is more intense along the roads. For this reason, farmers living in villages along the roads have adopted different attitudes from their counterparts in off-road villages. Second, not all farmers react in a similar manner to the same urban force. Evidence clearly shows that, due to differences in farmers' socio-economic

characteristics, their evaluation of the urban forces will also vary. This explains why different farmers have developed different attitudes towards the same urban demands in their villages, and hence, the observed mosaic of agricultural land use patterns in the area.

In the present study, further evidence is given to support the idea that in order to understand the decision making process (upon which changes in agricultural land uses are based), it is important to know the variations in farmers' responses which as this study shows, are not the same, even at a smaller geographical scale of analysis. Thus, further evidence is given to the fact that the peri-urban zone in not a uniform zone.

CHAPTER TEN

LAND TENURE AND THE LAND MARKET IN THE PERI-URBAN ZONE OF DAR ES SALAAM

10.1 Introduction.

The system under which people get access to, and own land is crucial to understanding the way land is used. The expansion of Dar es Salaam city into the peri-urban zone has led to changes not only in land use, but also in the tenure system. The majority of peri-urban farmers in Dar es Salaam own land under the customary land tenure system. However, the inclusion of peri-urban villages in the urban jurisdictional area has meant that two land tenure systems are brought into conflict. On the one hand, there is the customary tenure system, under which the majority of farmers hold their land; and on the other, is the Rights of Occupancy system which both in law and administrative practice has, since the colonial period, been considered superior as it offers greater security than the customary system. The ambiguities in the law governing customary land tenure, together with the manner in which the informal land market operates, have all led to growing land insecurity among peri-urban farmers. In considering these developments, this chapter examines the changing system of land tenure and its implications for peri-urban agriculture around Dar es Salaam.

10.2 History of land tenure in Tanzania

Traditionally, ownership rights of land in Tanzania, as in other parts of Africa, have resided in a communal system, whether of an extended family lineage, or held in trust for the community by local chiefs (now village governments), who allocate it to families for their use. As a rule, clearing and cultivating land established rights to it, rights that were then held collectively by descendants of the original land-clearer.

Although certain activities might be done communally, the farming unit was often the individual household. Among most groups, inheritance is patrilineal, and land passes from father to his sons. The Zaramo, Luguru, Mwera and Makonde in the southeast of Tanzania are exceptions and the inheritance line is matrilineal. Land has been relatively plentiful in most areas of the country, and when holdings had become sub-divided beyond an economical size, or when productivity had began to fall, new lands could be cleared and brought under cultivation. In a few areas of the country, notably Bukoba (west of Lake Victoria), land tenure relations were more hierarchical. Here, powerful chiefs allocated large estates of land to officers who in turn allowed tenants to work the land in exchange for services and tribute (e.g. a portion of the crop). This system of land holding and use was known as *Nyarubanja.*

Under German and British colonial rule, customary land tenure systems survived with only slight modifications. Unlike in Kenya, in Tanzania large tracts of land were not alienated for European settlement, and as long as the supply of land was adequate, customary practices continued to be followed much as they had been earlier. There were, however, innovations in tenure systems introduced in a few areas where permanent crops were planted. Among the Chagga around Mount Kilimanjaro, and Nyakyusa in Mbeya Region, for example, the introduction of coffee meant that land with coffee trees on it remained under permanent cultivation and because of the commercial value of the crop, rights to land became increasingly individualised.

The statutory concept of land tenure began with the colonial state declaring that all 'public lands' were to be vested in the Governor. Thus, when Tanganyika became a colony under German administration, a number of German and other European settlers established freehold titles to relatively large tracts of land, most often along the coast. When Tanganyika became a Trust Territory in 1919, under British administration, the colonial government realised the disadvantage of a freehold tenure system, primarily because the owners were under no great compulsion to develop their land. Thus, in 1923 the Land Ordinance was enacted by the British

colonial administration, the purpose of which was to allow the Governor a free hand to allocate land. Under Section 3 of the Ordinance "the whole of the land of Tanganyika[1] whether occupied or unoccupied on the commencement of this Ordinance are hereby declared to be public land". Thus, public lands, and all rights over the same, were placed under the control of the Government of the territory to be held and disposed of as Rights of Occupancy .

In urban areas, colonial land policy changed all freehold titles and sought to create through land allocation and urban layouts, a market for urban land in which ownership rights in land could be alienated. The tenure system (freeholds), the requirement of title (full plot survey by a registered surveyor) and the development control systems (permission for development tied to zoning in a city development plan) were all modelled on those which had been developed in the United Kingdom (Rakodi, 1991).

At Independence in 1961, Tanzania inherited a system of land tenure that was alien as a concept. Except for the abolition of the freehold tenure, which covered less than one per cent of the land area, the conceptual framework of the colonial land tenure system continued virtually unaltered after Independence. What the legislation did at Independence was to substitute the word "President" for the word "Governor" whenever it appeared in the Land Ordinance. Therefore, the power of granting land on Rights of Occupancy became vested in the President. The aftermath of Independence witnessed the need for a reform of the laws that governed the land holding system. For example, freehold tenure and all titles granted by the British were abolished and converted to leaseholds in July 1963. These were subsequently turned into Rights of Occupancy from April 1970. Thus, instead of the old absolute ownership, the new regulation allowed for a lease term of 99 years from July 1963, under regulations that required the new occupiers to develop the land or maintain existing development. The

[1] The name of Tanzania before the political unity with the Islands of Zanzibar and Pemba.

enactment which was made to convert all freehold titles was known as the Freehold Titles (Conversion) and Government Leases Act 1963, Cap 523.

The reasons for changing the tenure system were more political than legal, and indeed, equity concerns were more important than efficiency considerations. James (1971) observes that the Government recognised that it was both a traditional and socialist concept that land should not be owned by individuals, but by the wider society. Nyerere's view was that once land was given to a person to use, there was no control over how that land could then be used. It was further argued that if individuals were allowed to dispose of land as they pleased, it would not have been long before the indigenous African population, being the poorest of the four East African ethnic groups, would sell the land to the privileged minority (Nyerere, 1969).

In 1965, another Act (the Land Acquisition Ordinance Act, caps. 118) was passed to enable the government to acquire undeveloped land for public purposes in the major urban centres such as Dar es Salaam, Tanga, Mwanza, Musoma and Mtwara. In 1967 this Act was repealed and a new Land Acquisition Act was put into force. This Act did not introduce any drastic changes in the law relating to land acquisition, but merely consolidated the existing law with a few more amendments. Since land ownership as such, and as understood under capitalist law, did not exist in Tanzania, the Act provided that no compensation would be payable for any unused land in any urban or rural area. Therefore, in effect, the 1967 Land Acquisition Act nationalised land in Tanzania. All land became state property, with the purchase, sale, and rental of land forbidden. An individual's right in land was limited to his/her right to use it and the right to sell was prohibited. The Urban Leasehold Act 22 of 1968 was enacted to enable the Government to acquire land in urban areas, where such land had been developed by the tenant instead of the owner, and to grant the tenant the Right of Occupancy in respect of the land so acquired.

Almost in parallel to the Land Acquisition Ordinance Act, the Customary Leaseholds Act was passed in 1968 to 'free' the mass of people who lived under feudalistic systems of customary land tenure, by which a landlord owned the land but did not necessarily develop it. However, this Act applied more in areas such as Kilimanjaro, Bukoba and Tukuyu, because these were the areas in which feudalistic relations had developed, and where, due to high population density, the demand for land was more acute.

In 1969, the Government Leases were changed into Rights of Occupancy by the Government Leaseholds Act, 44/1969. It was argued that the freehold type of land holding and allocation created land shortages because only a few individuals owned large tracts of land, whilst the majority had none. The conversion of these freeholds into Government Leases, and later Rights of Occupancy, increased land supply, as more land became available under the direct control of the government and the tenants became holders of Rights of Occupancy certificates.

Until 1992, the Ordinance recognised two systems: Granted Right of Occupancy; and Customary Tenure. According to the Ordinance, Granted Right of Occupancy means a title to the use and occupation of land, and this system provides the mechanism for the alienation of public land and urban uses on Granted Rights of Occupancy. In effect, under the Right of Occupancy system, land was allocated and leased to developers by the central government, normally for 33 or 99 years. On the other hand, the Customary Tenure system applied to the large majority of producers on rural land (peasants and pastoralists). The status of customary land rights was always ambiguous in law. The status varied along a spectrum, at one end of which was the status of 'licensees' (permissive rights) or tenants-at-will, and at the other was that of 'squatter' (Fimbo, 1988). The customary system was regulated more by administrative policy than by legal provisions, and hence its security of tenure was precarious.

In 1992, there was a further land reform Act in Tanzania. Under the new system (Regulation of Land Tenure Act, 1992), all lands in Mainland Tanzania are divided

into National Lands and Village Lands. National lands broadly cover alienated lands under the Granted Rights of Occupancy, urban lands, statutory allocations and other unoccupied lands. Village lands, on the other hand, include all land that had been under the Customary Tenure system, and these are to be vested and administered by village assemblies. In this new system, the right of customary ownership is intended to be safeguarded and these interests are to be registered in the village land registry. These are radical changes in the land system in the country, however, the exact demarcation of what is National Land or Village Land will certainly take a long time to be fully resolved. Without this demarcation, land tenure conflicts are likely to persist, especially in peri-urban villages, which although part of the urban jurisdictional area of the city, are dominated by ownership under the customary tenure system.

10.3 Land tenure in the peri-urban zone of Dar es Salaam

The peri-urban zone of Dar es Salaam, as elsewhere in many parts of Africa, has evolved from a basically rural character, in which land was held under a customary tenure system, to an interface where rural and urban systems of land tenure co-exist. Those farmers who lived in peri-urban villages, before these villages were incorporated into the city boundaries, were allocated land by their local leaders under customary laws. On the other hand, as peri-urban land has increasingly come under pressure for urban use, another system of land tenure (Granted Right of Occupancy) is slowly infiltrating the peri-urban zone. New in-migrants into peri-urban villages acquired land through purchase, and most of these then hold the land under the Granted Right of Occupancy system. Therefore, a situation has arisen where the majority of farmers in the peri-urban zone 'own' their land under customary law, whilst others, especially the new in-migrants have Granted Rights of Occupancy over the land they use or occupy, thus generating areas of tension.

Zone	> 20 years	15 - 20 years	10 - 15 years	5 - 10 years	0 - 5 years
Bagamoyo Road	45.0	10.0	26.0	14.0	5.0
Morogoro Road	21.3	16.0	26.7	23.3	12.7
Pugu Road	40.0	14.0	19.0	19.0	8.0
Kilwa Road	49.0	13.0	22.0	12.0	4.0
Kibugumo	51.0	16.0	25.0	6.0	2.0
Peri-urban	41.2	13.8	23.7	14.8	6.3

Table 10.1 Per cent of sampled farmers by length of tenure.

Farmers in the peri-urban villages of Dar es Salaam have experienced varying lengths of tenure of their land ranging from a few months to over 20 years (Table 10.1). From Table 10.1, three points are worthy of comment. First, less than half (41.2 per cent) of the sampled farmers have owned their land for more than 20 years. However, there are inter-zonal variations in the lengths of tenure. For example, only 21.3 per cent of farmers in the Morogoro Road zone have been on their land for more than 20 years, compared with about 50 per cent in the southern parts of the peri-urban zone (the Kilwa Road and Kibugumo zones). In the Bagamoyo Road and Pugu Road zones, 45 and 40 per cent of the farmers respectively have owned their land for more than 20 years. Second, by 1992 nearly one-quarter (23.7 per cent) of the farmers had been on their land for 10 to 15 years. This means they obtained their land between 1977 and 1982, that is, at the height of the villagisation campaign of the mid-1970s in which scattered rural homesteads were resettled in *ujamaa* villages. Third, 21.1 per cent of the farmers have obtained their land only very recently (0 - 10 years of tenure), indicating the dynamic processes of change in land tenure in the peri-urban zone. However, just as the pressure for expansion of the city is not equal in all directions of the peri-urban zone, neither are the changes in ownership of land. For example, beginning in the mid-1980s, the city has been expanding most rapidly towards the west (along the Morogoro Road), rather than in other directions. In addition, nearly another one-quarter (23.3 per cent) of the farmers in the Morogoro Road zone obtained their land between 1982 and 1987. This means that over one-third (36 per

cent) of the farmers in the Morogoro road zone have obtained their land since 1982, compared with only 16 per cent in the Kilwa Road zone, and only 8 per cent in the Kibugumo zone.

Land in the peri-urban zone of Dar es Salaam has been subjected to changes in ownership through inheritance, purchase, or allocation by the various village governments, depending on, among other things, the period of settlement of the individual and reasons for settling in the area. Thus, there are intra-, as well as inter-, village variations in the methods of acquiring land (Table 10.2).

Zones	Village	Allocated by Village government (%)	Inherited (%)	Bought (%)
Bagamoyo Road	Bunju	40	46	14
	Mabwe	52	32	16
Morogoro Road	Kiluvya	34	8	58
	Kibamba	36	24	40
	Kwembe	48	16	36
Pugu Road	Kinyerezi	40	52	8
	Pugu	14	40	46
Kilwa Road	Kongowe	32	28	40
	Yasemwayo	40	46	14
Kibugumo	Mikwambe	48	40	12
	Kibugumo	50	40	10
	Peri-urban zone	39.5	33.8	26.7

Table 10.2 Per cent of farmers by method of acquiring land.

The settlement of people in the peri-urban zone of Dar es Salaam has been as a result of several processes, such as the nation-wide resettlement programmes for example, villagization and urban control campaigns. On the other hand, some farmers decided to find places where they could combine farming activities and wage employment. Acting on the directive from the central government, village governments allocated land to the new in-migrants into their villages. Since these resettlement programmes

were in operation during the early 1970s, the majority of the farmers who settled in the peri-urban zone during this period were allocated land through the respective village governments. For example, nearly 40 per cent of the present owners in the peri-urban zone acquired their land through allocation by the village governments (Table 10.2). Another 33.8 per cent of the sampled farmers acquired land through inheritance from family members. In almost all villages, except those along Morogoro Road, inheritance of land has been an important method by which farmers acquired their land. This was most common in Yasemwayo, Kinyerezi, Mikwambe and Bunju villages, which have had a longer history of settlement than many of the other villages. In these villages, between 46 and 52 percent of the farmers had inherited their land from their parents. On the other hand, villages such as Kiluvya, Kibamba and Kwembe in the Morogoro Road zone, which are inhabited by people who may be considered to be first generation farmers, have a relatively low percentage of farmers who acquired their land by inheritance.

Other farmers in the peri-urban zone acquired their land through purchase from those who had settled there earlier, with the proportion of farmers obtaining land through this method varying markedly from one village to another. However, the most distinct variation is between villages in the western area, between Morogoro and Pugu Roads, and those in the south and north of the peri-urban zone. Villages in the west (Kibamba, Kiluvya, Kwembe and Pugu) had the highest proportion of farmers who had acquired their land by purchase. This perhaps reflects the fact that these are the zones where the city has expanded at its most rapid and most recent, thus leading to an increased demand and commercialization of land in the area.

The expansion of the city towards the southern parts of the peri-urban zone has been somewhat slower, and, as a result, the demand for land has been comparatively less intense. Thus, only between 10 and 14 percent of the farmers acquired their land through purchase (Table 10.2); most got their land through inheritance and allocation by village governments.

10.4 The land market in the peri-urban zone of Dar es Salaam

A land market is defined as a framework through which seekers of land for various uses can acquire it for its development into required uses (Dowall, 1991:1). In Dar es Salaam, like elsewhere in urban Tanzania, access to land is achieved in two main ways: the informal land market, and the formal land market. The formal land market comprises a situation where the land in question is effectively controlled by government, and is passed on to land seekers by public authorities, or by third parties who may be in position to control this government land. In most circumstances, claims to such land can be evidenced by documents issued by some public authority. The key factor here is that it is government land that is acquired, with the expressed consent of government. On the other hand, the informal land market comprises a situation where the land that is acquired is in 'private ownership', or control not emanating from government allocation. Significantly, the transactions do not directly involve the public sector. Thus, the key factor here is that the land is not effectively controlled by government, and transactions do not involve express government consent.

Because of the philosophical and real importance of land, especially in African societies, many governments are prepared to intervene in the workings of the land market. The justification for intervention has been to rectify its imperfections, and to secure an equitable distribution of land resources. The degree of intervention, however, differs from one country to another, depending on the political system and its socio-economic structure. In free market economies, for example, there is less direct intervention by the State in land dealings and the market mechanism has been relied upon to balance supply and demand for land. On the other hand, in centrally-planned economies, government intervenes in all sectors of the economy, including land. In Tanzania, the State is theoretically the sole owner of all land, and individual citizens have only rights to occupy and use it.

Until the mid-1970s, the procedure for allocating land in urban areas was one where the central government, through the Ministry of Land, Housing and Urban Development, would acquire land, plan and service it, and then return it to local authorities for subsequent allocation. Applications were made to the District Land Officer, who forwarded them with recommendations to the Plot Allocation Committee. On being selected for allocation, the applicant would be given a letter of offer which would set out the conditions (including fees, land rent and development covenants) on which the land was being allocated.

Unfortunately the system of allocating land in urban Tanzania has fallen short of expectations. This has led to the emergence of unplanned settlements in many parts of Tanzania's cities and their respective peri-urban zones. In Dar es Salaam, there is currently a power struggle between the Dar es Salaam City Council and the Ministry of Lands, all vying for powers to control the allocation of land. Some dishonest officials have taken advantage of such a confusion to allocate land contrary to the Master plans. Furthermore, the failure of the Government to survey land rapidly enough to keep up with demand has worked to the advantage of a few speculators who buy unsurveyed land far ahead of the city planners. In the absence of any taxation system that compels speculators to develop their land, there are large tracts of peri-urban land in Dar es Salaam that remain unused. By limiting the supply of land, speculative activities have tended to force the prices of land to rise to levels which only a few people can afford. Thus, new demands for land have to be satisfied at greater distances from the urban edge.

The manner of urban expansion of Dar es Salaam city into the peri-urban zone is associated with the operation of an informal and illegal land market. This market is illegal because, by law, all land in the country is held under the trust of the State, and it is not supposed to be commercialised. In practice, however, land is bought and sold under the umbrella of those developments made on it. Improvements (such as houses and unexhausted crops) made to the land are sold at highly inflated prices. In Kiluvya

village along the Morogoro Road, for example, 25 coconut trees planted on one acre (about 3.5 km away from the main road) were being sold at TShs 120,000 in 1992, implying that each tree had a value of TShs. 4,800. In the same village, 15 other coconut trees on a farm of 1 acre along the road were selling at TShs. 200,000 or, TShs. 12,500 for each tree. In this case, the difference in the price of each tree does not in any way reflect differences in quality. The differences can only be explained by the relative geographic location of the two plots of land. The former is located very close to the road, and hence attracts a premium price, while the latter obtains a lower price, because it is located away from the main road. Consequently, what is actually being sold is the land on which these trees stand. Compensation for developments on land compulsorily purchased by the State is only TShs. 564 for each tree (coconut, cashew). This is considerably lower than the rate noted in the above case. However, this may be the true value of each tree, and applies throughout the city-region, regardless of whether these trees are on a farm located in a highly accessible area or in a more remote location. Such a fact sheds some light on the manner in which the illegal land market operates. Thus, suffice to conclude that although the law prohibits the commercialisation of land, what is observed in practice is a commercial land market, albeit under the cover of crop and others forms of developments made.

Since the informal land market is operating illegally, the real land price is not controlled, and is invariably high. This gives high-income earners the power to dominate the land market. Individuals have taken the initiative through land speculation to survey land privately, and to seek Rights of Occupancy from the City Council and the Ministry of Lands, Housing and Urban Development. In this way, the typical sequence of settlement in peri-urban villages is as follows: building, occupation, servicing and (sometimes) planning. This is against the conventional planning sequence based on industrialised countries which follows the order of: planning, servicing, building and subsequently, occupation. Apart from the practice

being contrary to town planning regulations, it is difficult to maintain planning control of the agricultural zone, in view of such piecemeal land development.

10.4.1 The Demand and Supply of land

The existence of any market emanates from there being a potential or actual demand or supply of a good or service. Likewise, urban development entails the demand for land for various urban-related functions and uses. The demand for land in the peri-urban zone of Dar es Salaam has evolved as a result of the demographic and economic needs of the city; for example, the growth of the urban population, primarily due to rural-urban migration, has led to a clear increase in the demand for residential land.

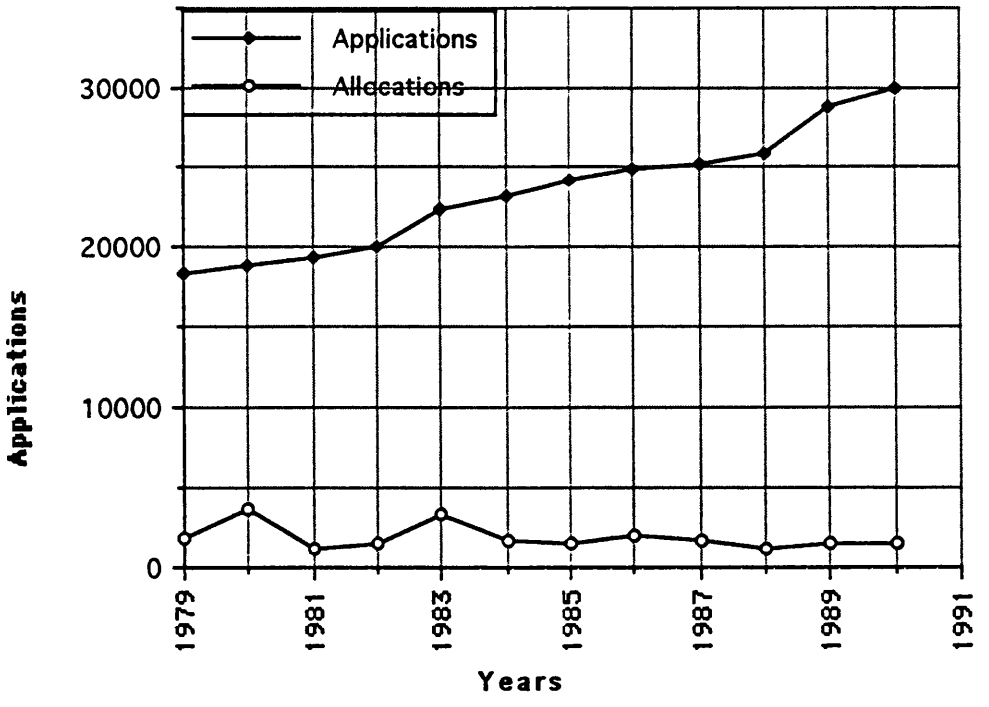


Figure 10.1 Trends of Applications and Allocations of Plots in Dar es Salaam 1985/86 -1989/90.
Source: Dar es Salaam City Council, 1991.

Figure 10.1 clearly shows that whilst there has been an increase in number of applications for building plots between 1979 and 1991, the number of surveyed and allocated plots has actually been declining, causing the amount of unsatisfied demand to increase. This is a direct result of the highly bureaucratic procedures involved in the acquisition of surveyed building plots in the city. As a consequence, many urban residents have been forced to shift their demand for land into the peri-urban zone.

In addition to the demand for residential land, the harsh economic conditions, which confronted Tanzanians in the early 1980s, contributed significantly to the need for urban households to produce more of their own food. Thus, farming in the peri-urban zone has become an important activity for urban residents. First, due to persistent food shortages in the city, many urban residents were increasingly forced to engage in the production of a portion of household food requirements. Second, due to decreasing real incomes in Dar es Salaam more people engaged in agricultural activities as a cash-saving, and, indeed, cash-generating strategy for their households. The necessity to supplement household income and food requirements among urban residents has contributed to the increasing demand for agricultural land in the peri-urban zone (Mlozi, 1992; Briggs, 1992).

Land in the peri-urban zone is in demand both for immediate and future uses. First, the demand for land (both for residential and agricultural uses) is concentrated in only a few locations of the peri-urban zone, especially those along the major arterial roads. The demand for land is also strongly influenced by prevailing expectations concerning the future use of this land. This means that the price that land purchasers are willing to pay is made in the light of expected profits when land is put to some use. In situations with relatively stable land uses and a relatively open land market, the expected price of the land is likely to be fairly similar to its price under current use. In areas with unstable land uses (for example, those undergoing rapid urbanisation), there is a big difference between its current value under agriculture and its future value under urban

use. This big discrepancy in prices has had the effect of encouraging land speculation in the peri-urban zone.

As in other markets, the functioning of the land market is influenced by demand and supply factors. Considering the spatial size of the Dar es Salaam city-region (1400 sq. km), only 12.5 percent of this area is densely built upon. Even when allowance is made for hazardous land, vacant land has always been, and still is, plentiful around Dar es Salaam. However, the supply of land cannot be discussed in isolation from the installation of infrastructure, including road access and provision of services (water and electricity). The government has failed to provide adequate services to all settlement areas. This inadequacy makes some parts of this zone difficult to settle, hence limiting the actual supply of land. As a result, the few areas where these services are provided are in high demand by many people.

The Dar es Salaam City Council has been empowered to survey and allocate land to urban residents, but the activities of the Council have been severely handicapped by insufficient funds. For example, between 1981 and 1988, only an average of 8.6 percent of the money requested from the central government was in fact allocated, and only an average of 9.7 percent of this was set aside for town planning activities which include the surveying of plots (Table 10.3).

Year	Amount requested (TShs'000)	Amount allocated (TShs'000)	Amount set aside for Town Planning (TShs'000)	% of allocated to requested	% of set aside for Town planning /allocated
1981/82	100,500	32,642	1,618	32.8	5.6
1982/83	104,950	10,120	2,000	10.3	18.5
1983/84	125,865	36,629	4,000	29.0	10.9
1984/85	189,800	36,629	5,000	n.a	13.7
1985/86	373,863	21,088	1,850	5.6	8.8
1986/87	464,092	58,266	1,532	12.6	6.1
1987/88	1,354,003	83,750	3,661	6.2	5.6
1988/89	2,165,200	161,970	4,600	7.5	2.8
1989/90	3,550,000	122,267	n.a	n.a	n.a
1990/91	4,265,500	515,776	3,000	3.4	0.6
1991/92	5,159,900	750,226	18,750	14.5	2.5

Table 10..3 Funds allocated for town planning

Source: Dar es Salaam City Council 1992

In addition, financial constraints and the shortage of both land surveying equipment and land surveyors, together with the lack of adequate funds to pay compensation to owners of property and crops in areas to be surveyed, are among the reasons for the failure of the City Council to supply land according to demands. Furthermore, the state-controlled land delivery process is so bureaucratic that it lends itself to corruption and speculation. Evidence available in Dar es Salaam clearly shows that individuals are selling land by inflating the value of their unexhausted improvements. Thus, in denying the existence of a land market, the government is depriving itself of resources which are solely missed, and which could be used for surveying and servicing new plots. For example, the typical costs of acquiring a surveyed plot range from TShs 2,375 to TShs 5,105 in high density and low density areas respectively (Table 10.4). This amount bears little relation to the land's current market value. The total fees paid do not cover government costs. For example, while it costs the government between TShs 6,000 and TShs 10,000 to survey a high density plot, the government recovers only TShs 25 (Kironde, 1992). Once the holding right has been obtained, the plots are

resold (even without any development on them) at prices ranging from TShs 200,000 in high density areas to TShs 3 million in low density areas in urban areas adjacent to the peri-urban zone (Mwasumbi 1991).

Type of Fee	High density area (TShs)	Medium density area (TShs)	Low density area (TShs)
Fees for certificate of occupancy	300	500	1,500
Registration fee	70	180	180
Survey fee	25	125	225
Deed Plan fee	600	600	600
Stamp duty	600	600	600
Land rent and service charge	780	1,900	2000
TOTAL	2,375	3,905	5,105

Table 10.4 Typical cost structure of acquiring a surveyed plot.

Source: Dar es Salaam City Council, 1990

The failure in the formal procedures of land supply has led to the development of an informal supply of land. This operates by people acquiring land from either an individual already holding large tracts of land, or by laying claim to vacant land, for which no one else claims interest. This is usually without legal authority, but is commonly practised in unplanned areas. The problem of land supply in the peri-urban zone of Dar es Salaam, therefore, is two dimensional. On the one hand, the inability of the Dar es Salaam City Council to service the land needed for settlement means that only a small proportion of the fringe land is available for use. On the other hand, the insufficient supply of land results from the lack of an open land market which, in turn, has led to a growth of land speculation. As rural land is being incorporated into the city boundaries, speculators buy land and retain it so as to sell at higher rates in future. The speculative hoarding of land limits the land on the market, because the owners of such land (usually vacant land) are not compelled by any taxation system to use it or to sell it.

10.4.2 Land Values

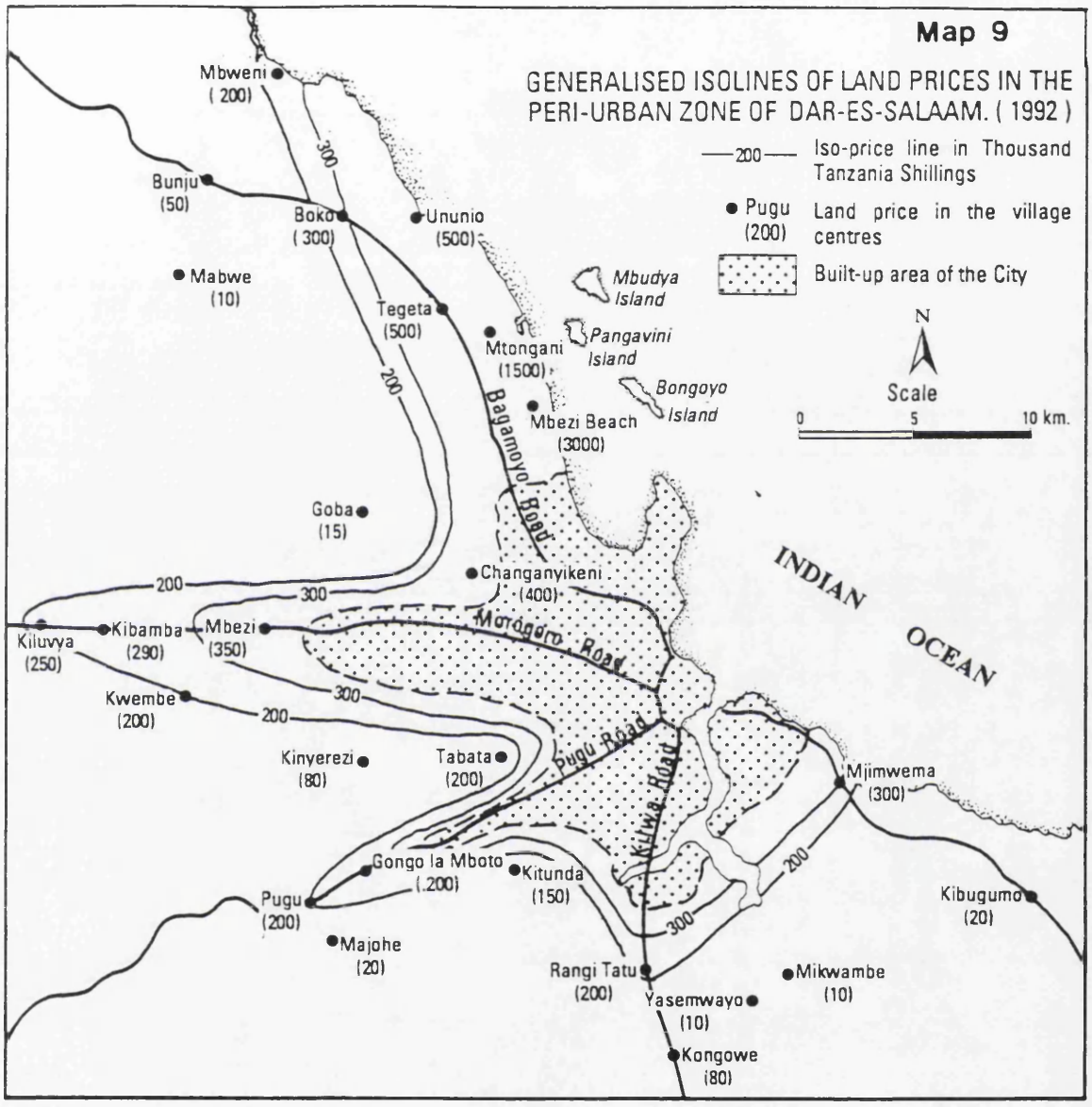
One of the distinguishing features of the land market is the heterogeneity of the product (land), in the sense that there are no two pieces of land which are alike in all aspects. This is essentially because land is immobile, and, as a result, it has a strategic value associated with a particular location. Because of this, purchasers of land demonstrate preferences for one particular piece of land over another, for example, in terms of location, size, accessibility and neighbourhood. Therefore, at any given point in time and geographical area, the value of land may vary with locational and physical attributes, as well as with who purchases the land for a particular function.

In analysing the factors which determine peri-urban land prices, the nature of the land market should be kept in mind. In a perfect market the price of land would reflect the capitalisation of the anticipated future flow of rents, and rents would themselves adjust so as to equate the demand and supply of each quantity of land. Land prices are, however, determined in an imperfect market, characterised by a lack of information, extreme product differentiation (i.e. no two parcels of land are exactly alike), high transaction costs, and time lags in the perception by one, or both, parties of a change in market conditions, all of which cannot be included in the capitalisation process (OECD, 1979). In African cities, studies of the operation of the land markets are beset with a number of problems, of which the determination of land values is among the most difficult. These difficulties arise from the fact that the system of ownership and valuation of land are different from those in North-west Europe or North America. First, unlike in advanced capitalist economies, where land values are more easily defined and monetarized, land around many African cities may have no inherent monetary value. Instead, the values of land are frequently recognised only in terms of crops produced, with differing values ascribed to annual crops as opposed to tree crops (Briggs, 1991). Second, in Tanzania, although the law prohibits the sale of land, an illegal market operates both in the cities and their peri-urban zones. Since these transactions are done in secrecy, there is a general lack of the knowledge of exact

prices. Sometimes land is sold with inadequately developed or rundown properties, so that it becomes difficult to separate the value of the property from that of bare land.

Furthermore, although land transactions are done through individual negotiations, there is always the lack of proper information on market conditions. Therefore, prices paid in the illegal market include some element of risk in case of future compulsory land acquisition by the State. This not only disadvantages those selling the land, but is also a factor in determining the market value of the land. Sometimes land is sold under undue pressure, for example, when an owner is in urgent need of cash. Others may be forced to sell the land in order to resolve family conflicts of inheritance. Sales made under such circumstances, although constituting, and often influencing market prices, may not be indicative of a reasonable or stable market value of land.

Price formation in the peri-urban land market is a function of many variables, each of which may not easily be expressed in a precise quantitative form, thus only descriptive analysis can be presented. First, a major element in the determination of the price of land is its distance from the urban agglomeration. Thus, in general, land prices decrease with greater distance from the edge of the city, and Dar es Salaam is not different (Map 9). For example, an acre of land in Changanyikeni village on the edge of the city had a market value of TShs 400,000 per acre in 1992, whilst in Goba village further away the price was only TShs 15,000 per acre. This difference arises because areas lying immediately beyond the edge of the city are under the influence of the urban land markets. Due to their proximity, these areas have a greater anticipation of change into urban uses. Therefore, land in these areas is purchased in anticipation of conversion to urban use, and, the high prices reflect the growing urban demand.


Map 9
GENERALISED ISOLINES OF LAND PRICES IN THE PERI-URBAN ZONE OF DAR-ES-SALAAM. (1992)
200 Iso-price line in Thousand Tanzania Shillings
Pugu (200) Land price in the village centres
Built-up area of the City
N
Scale
0 5 10 km.
Mbweni (200)
Bunju (50)
Boko (300)
Ununio (500)
Mabwe (10)
Tegeta (500)
Mtongani (1500)
Mbudya Island
Pangavini Island
Bongoyo Island
Mbezi Beach (3000)
Bagamoyo Road
Goba (15)
Changanyikeni (400)
INDIAN OCEAN
Kiluvya (250)
Kibamba (290)
Mbezi (350)
Morogoro Road
Kwembe (200)
Kinyerezi (80)
Tabata (200)
Pugu Road
Kilwa Road
Mjimwema (300)
Gongo la Mboto (.200)
Kitunda (150)
Pugu (200)
Majohe (20)
Kibugumo (20)
Rangi Tatu (200)
Yasemwayo (10)
Mikwambe (10)
Kongowe (80)
300
200

More than distance alone, however, the value of land is also influenced by accessibility. Prices of land in villages along the arterial roads are considerably higher than those in off-road villages. For example, although Goba and Mbezi villages are the same distance from the edge of the city (Map 9), the prices of land in the latter are twenty times higher than those in the former. The main reason is that Mbezi village is located along a major road, whilst Goba is away from the road. In fact, price levels in villages such as Mbezi are comparable to those near the edge of the city, but with no road access. Therefore, an area with high accessibility has higher land values than those in less accessible areas, even when the two places are the same distance from the edge of the city. Consequently, land sales are concentrated along the major road axes, whilst land away from these axes seems to retain its rural agricultural value. Taken as a group, areas along the major arterial roads, and those away from them, display different rates of change in the prices of land from one location to another. The land-price gradient is more elongated along major road arteries. Away from these roads the prices of land drop sharply to rural levels where they reflect more of rural (agriculture) than peri-urban values (Map 9).

In the peri-urban zone of Dar es Salaam, land values are also influenced by the location of a place relative to the sea. In some instances, proximity to the sea may have a negative effect due to the fear of erosion problems and pollution (Asabere, 1981). In contrast, some areas (for example Mbezi Beach) along the coastal strip of Dar es Salaam are pleasant and attractive because they are not swampy. In these areas, land values are generally higher than those in an inland location. For example, in Ununio and Tegeta villages in the north of the peri-urban zone, an acre of land had a market value of TShs. 500,000, compared with TShs. 15,000 in Goba village (Map 9).

Land values in the peri-urban zone are also influenced by the type of the adjacent urban land use. For example, urban areas create an effect known as an "urban shadow" (Bell, 1989) on the peri-urban land that lies adjacent to it. Thus, a high-class residential area has the effect of pushing up the prices of land in the areas immediately adjacent to

it (Map 9). Therefore, the high prices of land in locations such as Ununio and Tegeta are based on the assumption by purchasers that land use in these villages will eventually develop into high-class residential areas. Certainly, there is the likelihood that these villages will be an extension of the Mbezi Beach residential area, where a high-density plot close to the sea had a market value of more than TShs 3 million in 1991 (Mwasumbi, 1991). This partly explains why land values in the neighbourhoods of Mbezi Beach (e.g. Mtongani and Kunduchi) range from TShs 1 million to 2.5 million for a low density building plot. Peri-urban land that is adjacent to an urban low-class residential area is also likely to develop into another low-class area as well. Thus, land priced beyond TShs 100,000 per acre reflects a value much greater than its agricultural productivity and may be assumed to be under the influence of the urban land market.

Within the peri-urban zone of Dar es Salaam, there are spatial variations in the values of land from one broad zone to another (Map 9). The most remarkable difference is between the western sides of the peri-urban zone comprising areas along Morogoro and Pugu roads, and the southern parts, along Kilwa road and Kigamboni area on the other. Land values in villages in the southern parts of the peri-urban zone are generally lower and drop sharply to rural levels. For example, in 1992 the average market value of one acre of land in Kongowe village (4 kilometres away from the edge of the city) was TShs 80,000, while in Mbezi village (5 kilometres from the edge of the city) along Morogoro road, the average value was TShs 300,000.

In the southern parts of the peri-urban zone, especially in villages located away from Kilwa Road, the price of land reflects more of its agricultural value than that of the peri-urban land market. The average market value of land in these areas ranged from TShs 10,000 per acre in Mikwambe village, this being one of the lowest land prices in the fringe. The major explanation for such low market values is that city expansion towards the southern parts of the peri-urban zone is very slow. This part of the peri-urban may be considered to be lying on the 'leeward side' of the city. This area is the

least accessible to the rest of the city-region, the shortest possible link between Kigamboni area with the city being by ferry across Magogoni, but this is unreliable both in terms of operation and safety. Therefore, despite direct geographic proximity, the most reliable road connection to the city is through Kongowe on Kilwa road. From Kongowe, the road that goes through the area is of poor quality, which goes some way to explaining the lack of public transport serving the area. The place therefore, remains even more isolated from the city.

10.5 Implication of the changes of land tenure and land market on peri-urban agriculture

As in many other parts of the country, the peri-urban zone of Dar es Salaam is experiencing many changes in the land tenure systems. Some of these changes are country-wide, while others are specific to Dar es Salaam as an urban area. Under these changes and pressure, the security of tenure among the majority of farmers who own land by customary tenure system is increasingly being threatened. Despite the recognition of the customary tenure system by the Government, both in law and administrative practice, the statutory system is considered to be superior, while the former has been less well-defined and is regarded as substantially inferior. In fact, the customary tenure system has been regulated more by administrative policies than by legal provisions (Fimbo, 1988; United Republic of Tanzania, 1992c).

As early as the 1970s, the Government began to demarcate and register all villages in the country. This move received a major impetus during the villagization operation when the demarcation of villages' boundaries and registration of titles became mandatory under the Village and Ujamaa Village Act of 1975. However, until 1983, when the new Agricultural Policy of Tanzania was adopted, the justification for the demarcation and titling of villages was to provide a framework for a socialist society in the villages, and not to improve the security of tenure for individual farmers. As of December 1990, only 1,200 of Tanzania's more than 8,500 villages had been

demarcated and surveyed. Only 803 of these were issued Certificates of Occupancy, and fewer than 200 had been registered (Hoben, 1992). Thus, while villages were relocated during villagisation, there was no clarification of the new land tenure systems in the new villages. Whatever the new land tenure system was supposed to be, this was not provided for in law.

Although the new tenure system (Regulation of Land tenure Act, 1992) stipulates that the Customary Tenure system and the Right of Occupancy are given equal security of tenure, the length of time which farmers have to wait for their villages to be demarcated raises questions over farm investment decisions that they have to make. The uncertainty so created is likely to lead to short-term farm investment decisions. This is because, unlike in more rural areas, peri-urban villages are at the same time threatened by growing urban demands for their land. This places farmers in a yet more insecure position; consequently, this is likely to encourage only short-term farm investments.

Peri-urban land is also threatened by urban demands for land. Since the Customary Tenure system has been treated as inferior, whenever there are conflicts between customary rights and statutory rights, legal resolutions have always been found in favour of the latter. For example, on the declaration of planning areas around cities, customary rights are invariably over-ruled and the occupants are entitled only to compensation at the official rate for unexhausted improvements. There has also emerged a conflict between the Dar es Salaam City Council and the villages in the peri-urban zone. According to the plans of the City Council, all land within two kilometres of either side of the village roads has been designated for urban development. This contradicts the villages' autonomy, whose by-laws require each household to have a minimum of 1.5 acres for food crops and 1.5 acres for cash crops. Since many of these farms are found along these roads, it means farmers are going to lose their farms.

In addition, the manner in which the land market operates also threatens farmers' security. The informal land market operates illegally, and as a result land prices are not controlled; very often, they are so high that only a few individuals (land speculators) can participate in the land market. From the point of view of customary land holders (most of them having low incomes), the prices are high enough to lure them to sell their land. As a result, these farmers are easily bought-off by other richer farmers, for some of whom, farming is not their immediate priority. In this way, not only food production may suffer, but the original farmers are increasingly being displaced and made landless. Eventually, this has led to a process of social differentiation of peri-urban farmers. On one hand, there are those farmers who own large tracts of land, and on the other, those who have been displaced and finally become labourers on the farms they used to own.

10. 6 Summary and Conclusions

The system under which land is held whether by the State or individuals, has a strong influence on its use and management. In Tanzania, land reforms and the state control over the ownership of land in the country is aimed at an equitable distribution of the land among people and attaining an orderly use of the land for the benefit of the whole community. Hence, all formal procedures of land surveying and allocation of plots are in the hands of the government. This is in line with the country's traditional and the socialist conceptions. However, the State has not intervened decisively to facilitate the release of land to an evolving urban land market and to all social classes. This is despite the socialist ideological position of the country, where one would expect ideas, such as those of an urban land bank, co-operative land bank, or even community land trust to be more easily acceptable (Kaitila, 1987). Instead, for a number of reasons, which include the lack of funds for surveying and servicing the land and the highly bureaucratic land delivery mechanism, the supply of land has always fallen short of demand. The manner in which both the formal and informal land markets operate is

also to the disadvantage of smallholder farmers, who, due to their low incomes, are easily bought off by land speculators who dominate the land market.

Although it is too early to assess the impact of the new land tenure structure on peri-urban agriculture, some aspects of the changes are quite significant, particularly the status of peri-urban land. Indeed the recent (1992) changes in the land tenure system in the country are likely to cause further insecurity for those farmers who hold land under the customary tenure system. Under the new land tenure system, all land in the country is divided into National Lands and Village Lands. While this distinction is clearer in most rural areas of the country, around cities, the demarcation could be difficult, precisely because many peri-urban villages operate under customary tenure system, but administratively they are part of the city, which means their lands will fall under National Lands. On the other hand, the length of time that it may take to demarcate and register all land in the country is likely to be an issue of concern to peri-urban farmers, as to the type of investment that they have to make in this situation of uncertainty.

CHAPTER ELEVEN

DISCUSSION AND CONCLUSIONS

11.1 Discussion

This chapter presents the main conclusions of the study and, in particular, the nature and extent of changes of agricultural land use in the peri-urban zone of Dar es Salaam since the 1960s. An attempt is also made to relate the findings of this study to the objectives and key questions raised in this study, and to the general theory of peri-urban zones.

The development of the peri-urban zone of Dar es Salaam may be seen in the light of urban expansion and changes in the political economy of Tanzania (Figure 11.1). As a colonial city, Dar es Salaam's main functions were largely administrative, and as a collection point of raw materials destined for export. An important characteristic of Dar es Salaam as a colonial city was the development of strong links with distant areas (sources of raw materials) in the interior. However, these links developed at the expense of links with the immediate surrounding areas from which, until recently, the city of Dar es Salaam remained largely divorced. Thus, unlike indigenous cities in West Africa, which developed as hubs of agricultural development for the surrounding areas, Dar es Salaam had weak agricultural links with its immediate peri-urban zone. The bulk of the food consumed in the city was, and still is, obtained from distant up-country places such as Mbeya, Iringa, Morogoro, Arusha and Kilimanjaro regions. Thus, the rural-urban divide in Dar es Salaam region has until recently remained sharp.

URBAN RESPONSES IN DAR ES SALAAM	PERI-URBAN ZONE	PHASES IN THE POLITICAL ECONOMY OF TANZANIA	YEARS
ORIGIN AND FUNCTIONS - external mercantile forces - administrative functions	- subsistence agriculture - weak agro-links with the city - sharp rural-urban divide	PRE-INDEPENDENCE - colonial economy	pre -1961
RURAL-URBAN MIGRATION - growth of an ethnic heterogeneous urban population, with an agrarian background	- heterogeneous population - farming as a hobby	PRE-ARUSHA DECLARATION - growing divergence between social groups	1961 - 1967
URBAN CONTROL CAMPAIGNS - anti-urban policy - resettlement /rustication of urban unemployed	- settlement in peri-urban villages - heterogeneous population	POST-ARUSHA DECLARATION - (villagisation, decentralisation and rural development policies)	1967 - 1980
FOOD SHORTAGES - falling standards of living - growth of the informal sector	- peri-urban zone 'opened -up' - changing crop priorities	ECONOMIC CRISIS - rising inflation	1980 - 1885
- continued growth of the informal sector - development of the peri-urban zone	- commercial farming - competition for land - land speculation	ECONOMIC LIBERALISATION - liberalisation of the economy, - encouragement of the private sector	1985 -

Figure 11.1 Agricultural development in the peri-urban zone of Dar es Salaam.

When Tanganyika achieved Independence in 1961, the role of Dar es Salaam city remained unchanged, apart from it becoming an administrative capital for a sovereign state and witnessing the emergence of a limited range of new industrial activities. In terms of the growth of population, urban development in Dar es Salaam was marked by growing rural-urban migration. This migration was significant in two major ways. First, it contributed to significant population growth in the city (contributing more than 60 per cent of population growth in the city between 1961 and 1970). Second, rural-urban migration has made a significant contribution to the ethnic heterogeneity of the urban population in Dar es Salaam. For example, by the early 1960s, 70 per cent of the different ethnic groupings in the country were represented in Dar es Salaam city. As far as the development of the peri-urban zone is concerned, the agrarian background of migrant urban dwellers in the city became an important factor in the early development of peri-urban farming in Dar es Salaam. Swantz (1970), for example, argues that during the 1960s urban dwellers in Dar es Salaam practised farming in the peri-urban zone as a kind of 'hobby'. Nevertheless, given the fact that the Zaramo practised farming largely for subsistence needs, and that early in-migrants into the city took up farming as a hobby, it can be concluded that the peri-urban zone of Dar es Salaam was under no great pressure at that time, as it subsequently turned out to be the case in the 1980s.

A major phase in the development of the political economy of Tanzania took place between 1967 and the early 1980s. This was the post-Arusha Declaration period which was marked by the villagisation campaigns. These rural resettlement programmes had a remarkable impact in both the rural and urban areas in Tanzania, as well as in the peri-urban zone of Dar es Salaam. For example, the displacement of some people from their villages created considerable dissatisfaction, and, as a result, many people who had already considered moving to towns were now prompted to do so. Therefore, the villagisation campaign triggered an increased flow of rural-urban migrants into Dar es Salaam city. Within Dar es Salaam and Coast regions themselves, villagisation

campaigns contributed to the settlement of people in the peri-urban villages of Dar es Salaam.

As urban population growth outstripped the employment opportunities and the provision of services by municipal and city councils, it became apparent that something had to be done by the Government. In urban areas, particularly Dar es Salaam, urban control campaigns were launched to discourage the unemployed people moving into the city. As part of these campaigns, some unemployed people in Dar es Salaam were resettled in peri-urban villages surrounding the city, whilst others were rusticated to their home regions. Although most of those who had been resettled in peri-urban villages later went back to the city, some remained in these villages. In fact, to some people, remaining in peri-urban villages around Dar es Salaam was certainly far preferable to being rusticated to a home area which may have been not only several hundred kilometres from Dar es Salaam, but also with no employment prospects. Therefore, the peri-urban villages of Dar es Salaam remained strategic points from which these people continued to seek non-farm jobs in the city. The resettlement of the urban unemployed people contributed to the ethnic diversity of the peri-urban population, and this is an important factor in explaining the differences in crop priorities within the peri-urban zone.

The period beginning in the early 1980s was marked by the national economic crisis as the economy continued to decline. With depressed producer prices, rural farmers produced less and less for the market, as an increasing number of farmers withdrew from commercial production. To most urban dwellers, this meant a shortage of consumer goods and of food, because most people did not have direct access to land. Furthermore, as transport problems became severe (through a combination of lack of fuel and spare parts, and poor standards of roads) the flow of foods from up-country family-farms was almost brought to a halt. Consequently, in response to food shortages in the city an increasing number of urban dwellers began to engage themselves in sideline activities, particularly farming around the city.

Further developments in the peri-urban zone of Dar es Salaam were prompted by liberalization policies of the mid-1980s. In essence, these policies represent a shift from Tanzania's policy of building socialism since 1967, to more market-oriented economic policies. The subsequent impact of the liberalization policies on Dar es Salaam's food supply has been seen in two ways. First, there has been a relaxation of state control over the marketing of both consumer goods and food. The result has been to eliminate shortages in Dar es Salaam's food supply. Thus, although food production for household requirements remains a paramount goal for the majority of peri-urban farmers, some producers have been able to divert more resources towards commercial production. Second, the withdrawal of the state from its monopoly position in the marketing and investment systems has encouraged individuals to invest in all sectors of the economy, including agriculture. As a result, land in the peri-urban zone of Dar es Salaam is now purchased not only for food production but also as a capital investment. Thus, land speculation in the peri-urban zone of Dar es Salaam has become rife. This further explains the rise in land prices from an average of TShs 17,000 per hectare in 1986 to TShs 75,000 per hectare in 1988 (Briggs, 1992) to TShs 200,000 per hectare in 1992.

The period beginning in the early 1980s can be considered to have been a major watershed in the development of the peri-urban zone of Dar es Salaam, as changes in land use began to emerge. First, due to an increased demand for land, both for food production and investment, land in the peri-urban zone of Dar es Salaam has now acquired an investment status. This has also led to significant changes in land ownership as small farmers are increasingly being squeezed out of the area, consequently leading to an increasingly marked social differentiation among land operators in the peri-urban zone. The changing ownership of land in the peri-urban zone of Dar es Salaam has been largely facilitated through an illegal land market. This has led to the emergence of two very distinct groups of farmers. On the one hand are indigenous farmers who are under pressure to sell their land, thus being turned into

labourers on the very farms that they used to own. On the other hand, there is an emerging group of capitalist farmers who buy land in the villages for future investments.

In summary, it is noted that recent developments in the peri-urban zone can be attributed not only to the growth of the city of Dar es Salaam, but also to the changing political economy of Tanzania as a whole. Initially, the changes in the political economy (socialist transformation and villagisation campaigns) contributed to early settlement in peri-urban villages by those people who were living in isolated villages around Dar es Salaam. Urban control campaigns in Dar es Salaam city have also contributed to the settlement of people in the peri-urban zone, thus extending the ethnic diversity of the urban population in the city into the peri-urban zone. Beginning in the early 1980s, the peri-urban zone of Dar es Salaam has been opened up to urban pressure for more land and food. These late developments have been prompted by the relaxation of state control over the economy in the country. As a result, it has been possible for people to invest in food production in the peri-urban villages of Dar es Salaam.

11.2 CONCLUSIONS

In view of the objectives of the study the following conclusions are drawn. These relate to the changes and spatial variations in land use in the peri-urban zone of Dar es Salaam; the nature of relationship between the city and its peri-urban zone; the operation of the land market; spatial variations of farmers' attitudes to urban expansion; farmers' choice of crops; and the contribution of this study to the peri-urban theory.

In contrast to North America and Western European countries, urbanisation in Africa has not been accompanied by economic transformation from an agrarian to an industrial base. Quite the contrary, in Africa urbanisation is taking place in the context of generally stagnant economies and a relatively negligible growth of the

industrial sector. Indeed, most African cities are a product of forces external not only to themselves but to African society in general. Having developed mainly in response to commercial and industrial demands from overseas, many cities in Africa, therefore, remained "divorced" from their immediate countryside. Within the African context, however, there are indigenous cities as well as colonial cities. Indigenous or traditional cities developed in rich agricultural areas to provide the service needs for their surrounding communities. On the other hand, colonial cities were established in isolated areas to serve as collection points of raw materials for export. Thus, the nature of relationship between colonial cities and their peri-urban zones is very different from the equivalent relationships in indigenous cities. Therefore, cities and their peri-urban zones have to be seen in their geographical and historical setting. It is for this reason that Swindell (1988) argues that cities and their peri-urban zones are geographic- and historic- specific entities.

The geographical and historical specificity of peri-urban zones is also evident in the Dar es Salaam city-region. Findings of this study reveal that the peri-urban zone of Dar es Salaam has some land use characteristics that are unique to Dar es Salaam as an African city, and others which are similar to those found elsewhere in Africa and the advanced capitalist economies. Also true is the fact that the nature and development of the peri-urban zone of Dar es Salaam can be attributed to its historical legacy as a colonial city. For example, Dar es Salaam grew as a response to the mercantile forces of the nineteenth century, as a collection point for raw materials ready for export. The key consequence was that it developed stronger links with up-country areas at the expense of its immediate peri-urban zone. The stronger links with the mainland interior in turn have contributed to the ethnic diversity of both the urban and peri-urban population in Dar es Salaam, whilst, at the same time, the relationship between Dar es Salaam city and its peri-urban zone has until very recently remained relatively weak. In fact, it is only in the past two decades that this peri-urban zone has showed signs of being directly responsive to the urban demands of Dar es Salaam city.

The peri-urban zone of Dar es Salaam is a dynamic zone; thus, for example, in response to urban pressure, particularly population growth and the expansion of the city's functions, the peri-urban zone has experienced considerable changes in land-use. These changes have taken place in two major ways. First, as the demands for land and food have intensified, more vacant land has been brought into use, both for agricultural and residential uses. The second change is where certain types of typically coastal land-use systems are being replaced by land-use systems typical of in-migrants from up-country Tanzania; for example, forms of agricultural land use, such as cashewnut and sisal farming, are being replaced by maize, banana and vegetable gardening. Thus, the pattern of land use today is different from what it was in the 1960s, extensive forms of farming were practised around the city, and, with a small urban population in Dar es Salaam during the 1960s, food demand was largely satisfied from up-country sources. Most of the farming activities in the peri-urban zone were performed by the Zaramo, a tribe indigenous to the area, on a subsistence basis. Parts of the peri-urban zone were also under cultivation by some urban residents, but this was not done as an economic necessity, as it subsequently was in the 1980s. Beginning in the early 1980s, the pattern of agricultural land use began to change, reflecting growing urban pressures on peri-urban resources especially food and land. In particular, rising inflation made the purchase of food-stuffs in the city a difficult task for urban residents. Furthermore, as real wages continued to fall, it became necessary for people with access to land in the peri-urban zone to engage themselves in farming to supplement income and to obtain food for household consumption. Thus, it is only very recently that the peri-urban zone of Dar es Salaam has been brought under intense development pressure.

Based on the findings of this study, it is noted that there are certain characteristics of the peri-urban zone of Dar es Salaam that conform to the general theory of peri-urban zones as they exist elsewhere, both in Africa and in advanced capitalist economies. For example, land uses that are found in the peri-urban zone are those which require extensive areas of land, and others which, due to their nature, have to be located away

from the urban areas. These include urban land uses such as industrial, water works and the airport, which provide necessary services for the city, but are located in the peri-urban zone. The peri-urban zone of Dar es Salaam also accommodates rural land uses. These include some forms of agriculture, forest reserves and quarries, all of which are in retreat as a result of growing urban pressures. However, other forms of land uses, particularly certain forms of agriculture (vegetable production), have adjusted to urban pressures, whilst sisal and cashewnut cultivation are in rapid retreat.

Within the peri-urban zone of Dar es Salaam there are spatial variations in agricultural land use. This is partly a reflection of the variability of urban forces, and partly a result of the differences in the socio-economic characteristics of peri-urban farmers themselves. For example, urban expansion of the city is not uniform in all directions; rather it has tended to follow major access routes (arterial roads). As a consequence, the demand for land for urban uses is more intense in areas which are more accessible to the city. Thus, it is hardly surprising that in the Morogoro Road zone, forms of agriculture, particularly cashewnut growing, are retreating and giving way to residential expansion and other forms of agricultural land use such as banana and maize production. On the other hand, the southern parts of the peri-urban zone in the Kilwa Road and Kibugumo zones, where there is less demand, for land cashewnuts are still an important crop. Furthermore, crops grown for the urban market in Dar es Salaam city are more common in villages which are more accessible to the city. For example, the Morogoro Road, Bagamoyo Road and Pugu Road zones have higher percentages of farmers who grow spinach and tomatoes for the urban market than in the Kilwa Road and Kibugumo zones, where accessibility to the city is poor.

Spatial variations in agricultural land use may also be explained by the ethnic diversity of the peri-urban population. Unlike in many other cities, whose surrounding areas are inhabited by a single large ethnic group, there is no single tribe that dominates the peri-urban zone of Dar es Salaam, not even the Zaramo who are the indigenous people of the area. The ethnic diversity of the peri-urban population of Dar es Salaam has a

significant influence on the spatial variation of crop choice. This is because of the neighbourhood aspect where farmers from certain parts of the country tend to cluster in specific areas of the peri-urban zone. For example, people from Kilimanjaro, Mbeya and Bukoba regions have tended to settle more in villages along the Morogoro Road, and it is in these villages that crops such as bananas are most common because this crop is grown in their home area. On the other, hand people from the southern parts of Tanzania (Kilwa and Mtwara areas) tend to settle in the southern parts of the peri-urban zone along Kilwa Road. In these areas, crops such as coconuts, cashew nuts and cassava are the most common, these crops being widely grown in the southern parts of Tanzania by these groups.

It is important to emphasise at this point that given the variability of urban forces, and consequently variations in the farmers' attitudes and responses, it is a misconception to talk of the peri-urban zone of any city as a unitary zone without recognition of the spatial variations within it. Likewise, peri-urban agriculture should not be treated as a homogeneous structure which is a product of uniform responses by farmers. Evidence from Dar es Salaam suggests that whilst agriculture has responded, and continues to respond, to urban-based forces, there are inter- as well as intra-peri-urban differences in agricultural land use. Variations in the choices of the most important crop, decisions to sell or not to sell land, or to produce for the urban market or for household consumption, are all products of variations in farmers' responses to urban forces, as well as spatial variations of physical environmental factors, all of which are important in the understanding of land-use patterns.

Peri-urban farmers in Dar es Salaam are not a homogenous group; there are important variations in their socio-economic backgrounds, especially with regard to their birth places, periods of settling in the peri-urban zone and motives for owning land. Thus, on the basis of goals of farming, main crops, land tenure and residential base, peri-urban farmers can be categorised into five main types. There are city-based food producers; capitalist farmers; hobby farmers; peri-urban food producers; and the

'landpoor'. It has been shown that these farmers differ sometimes markedly in their choice of crops and attitudes to urban expansion. This further confirms the fact that the peri-urban zone of Dar es Salaam, as with others, is not a uniform entity. Thus, the choice of crops is influenced by a multitude of factors reflecting the different goals of these various farmers. Evidence from this study shows that farmers' choices of crops in the peri-urban zone of Dar es Salaam are influenced by many factors ranging from socio-personal characteristics (e.g. age, household food security and the length of residence) to economic factors (urban demands for food) to physical-environmental factors (particularly soil types and the availability and reliability of rainfall). Given the poor soils and unreliable rainfall, a key crop grown in the area is cassava, which is both drought-resistant and tolerant of the sandy and clay soils found in most parts of Dar es Salaam city-region. Nevertheless, the fact that there are spatial variations in crop preferences within the peri-urban zone suggests that physical environmental factors only lay down broad limitations of what can, or cannot, be grown in the area. The findings of this study provide yet further evidence that farmers' choices of crops are not influenced by physical environmental factors alone.

In a peri-urban location it is expected that the choice of crops will also reflect the influence of urban markets in the city. Findings from this study show that not all farmers have taken the opportunity to produce for the urban markets. Thus, despite the attractions of the large and easily accessible urban market in Dar es Salaam, evidence from the peri-urban zone shows that socio-personal factors, such as ensuring the family of food security, frequently outweigh economic considerations in the choice of crops. This may appear irrational, especially for farmers whose proximity to urban demand for food seems to present strong market opportunities. However, considering that areas around Dar es Salaam have only a relatively limited agricultural potential, the concentration more on food crops for household consumption is to ensure direct security. Nevertheless, a few farmers (particularly capitalist farmers) have responded positively to market attractions by establishing commercial farms. The choice of crops

by peri-urban farmers in Dar es Salaam is further proof that farmers may respond differently to the same stimuli.

In addressing the findings of this study to the general theoretical perspectives of peri-urban zones, two points are worthy of comment. First, the origins of African cities are different from those of North American and Western European cities. In the latter, the process of urbanisation was accompanied by the transformation of the economy from an agrarian to an industrial base. On the other hand, most cities in Africa, particularly colonial cities, grew as administrative centres, and were not accompanied by industrial growth. This distinction is important in understanding the relationship between cities and their peri-urban zones. Whereas peri-urban residents in Western Europe view cities as working places (largely due to well-established industrial bases), their counterparts in Africa view their cities more as markets for their agricultural goods. Likewise, for urban residents in African cities, peri-urban zones are places they depend on for food supplies. Thus, it is important to note that in common with other peri-urban zones in Africa, the peri-urban zone of Dar es Salaam is not as spatially extensive as commuting zones in advanced capitalist economies. Due to the small size of the city, its peri-urban zone is also proportionally small. More important, however, is the fact that, like others elsewhere in Africa, the peri-urban zone of Dar es Salaam is largely defined by the commuting distance that urban dwellers cover as they travel to work in their farms. In that sense, the commuting process around African cities, and especially Dar es Salaam, may be seen as working in the opposite direction to that surrounding cities in advanced capitalist economies.

Second, theorising that the peri-urban zones in advanced capitalist economies share the same characteristics as those in African cities can be misleading and unhelpful. Within Africa, there are remarkable differences between those peri-urban zones which have developed around traditional cities like Kano in West Africa, and those which are found around colonial cities, such as Dar es Salaam and Nairobi in East Africa. Many indigenous cities in Africa grew in rich agricultural areas, and are still surrounded by

well-developed agricultural lands. Many of their residents depend on farming in the peri-urban zone, and indeed, these cities can be considered as 'farming cities', signifying the importance of farming for the livelihood patterns of many of the urban population. On the other hand, colonial cities have for long a time been divorced from their immediate surrounding areas. With weak agricultural links, the rural-urban divide has until recently remained sharp. Thus, Swindell's (1988) argument that cities and their peri-urban zones are both historic-and geographic-specific applies both at global and regional levels. Nevertheless, having said that, it remains true that peri-urban zones around African cities share some common characteristics that are distinct from those found in the advanced capitalist economies of West Europe and North America.

The theoretical perspectives of peri-urban zones revolve around two major issues. The first concerns the competition by various urban land uses for peri-urban land. It is thought that as a result of this competition, agriculture in the peri-urban zone is declining due to the loss of farmland to urban expansion (Coleman, 1978; Best, 1981), as well as to the uncertainty caused by urban expansion. On the basis of this, the peri-urban zone is perceived and conceptualised as a zone of conflict between different interest groups. The second theoretical perspective is concerned with changes in land use intensity in areas surrounding the cities. Two schools of thought have attempted to explain the land use intensity. On the one hand are the basic ideas of Von Thunen (Hall, 1966), where land-use intensity is seen as a function of distance, or more accurately, accessibility to the central market; and on the other hand, factors such as land speculation and urban encroachment are suggested as the key factors in understanding changes in land-use intensity in the peri-urban zone (Sinclair, 1967; Moran, 1979). Both of these arguments are based on studies conducted in advanced capitalist economies and have little relevance in African cities. For example, Sinclair's argument that land speculation and urban encroachment lead to short-term farm investments does not have a universal applicability. For example, within the peri-urban zone of Dar es Salaam, there are variations in the intensity of agricultural land use

which may be explained by spatial variations in urban expansion. Farms in villages along the major roads, particularly along Morogoro Road and Pugu Road, where the demand for land is more intense, have experienced greater intensification than those farms in the more remote villages. In the former case, land is under great pressure from other land uses, and as a result, farmers are forced to compete by intensifying production. However, this intensity falls sharply away from these road arteries. Marked variations in land use intensity are also noted between those villages along the Morogoro Road with those in the Kilwa Road and Kibugumo zones. Due to the higher demand for land in the Morogoro Road zone, extensive forms of land use, such as cashewnut farming, are retreating rapidly into the more distant peri-urban areas. On the other hand, in the Kilwa Road zone, where the demand for land is low, cashewnut farming is still being practised. Hence, accessibility, rather than geographic distance, is the key factor explaining variations in land-use intensity. Clearly, the intensity of agricultural land use along the Morogoro Road zone can be explained by the fact that these areas are highly accessible to the urban market. Consequently, accessibility to the urban markets has had a significant influence on the location of some vegetables crops such as spinach and tomatoes. Nearly one quarter of the farmers who sell these crops are found in the Morogoro Road, Bagamoyo Road and Pugu Road zones where accessibility to the city market is high, compared with only less than 10 per cent of the farmers in the Kilwa Road zone. Indeed, distance alone does not adequately explain the pattern of land use around Dar es Salaam city, because although villages in Kibugumo areas in the south are closest to the urban market, there is a limited degree of commercial agriculture there due to poor accessibility. This suggests the working of Von Thunian ideas which suggest that accessibility to the urban markets provides part of the explanation to land use around the city.

The argument that uncertainty surrounding the pace and direction of urban expansion contributes to the decline of land intensity around the city is largely focused on the situations in advanced capitalist economies, where processes such as land speculation

are more pronounced. As suggested in Sinclair's model (1967), distance to the market is less important in explaining the intensity of land use. Instead, uncertainty of urban expansion is viewed as the most important factor. This may be true as far as the situations in advanced capitalist economies are concerned, where due to improved transport technology, distance alone is less important. It must be mentioned, however, that around most African cities, Dar es Salaam included, transport to the markets is still a crucial factor in the understanding of agricultural land use patterns. Although processes like land speculation are emerging in Dar es Salaam, they have not developed to the extent that 'farming to quit' has become a key issue, as experienced around many cities in advanced capitalist economies. Even in some situations, for example along Morogoro Road where the demand for land is intense, not all farmers have reacted in the same way, that is by reducing farm intensity, as implied in Sinclair's' model. In fact, there have been situations where some farmers have reacted positively to this urban pressure by intensifying agricultural production. For example, market gardening is quite resistant to change under urban pressure, but in most cases, it is also forced to adjust. Usually, the adjustment has been in terms of increasing the intensity of production so that returns per unit of land match the value of land. Again, this provides further evidence that farmers' responses to urban forces are likely to vary according to socio-personal factors and variations in urban demands

It has often been further argued that the interaction between urban development and agriculture results only in negative consequences for agriculture. Admittedly, non-farm development and its associated pressures (such as loss of farmland and land speculation) can, under some circumstances, undermine the viability of continued agricultural production. However, this general thrust ignores the potential for positive interaction between urban development and agriculture. The findings of this study suggest that whilst some forms of agriculture (such as sisal and cashewnut farming) have declined due to urban pressure, other forms of agricultural land use have adjusted

successfully. In fact, the cultivation of such crops as oranges, pineapples and spinach have all been stimulated by the expanding urban market in Dar es Salaam city.

Finally, it is noted that over the last decade the peri-urban zone of Dar es Salaam has undergone significant land-use change. For example, farming in the peri-urban zone is no longer practised solely for subsistence needs, and commercial farming is beginning to emerge. Although processes like land speculation are still in their infancy, growing urban pressure has led to land assuming a monetary value; land is now bought both for farming and for capital investment. These recent developments in the peri-urban zone of Dar es Salaam can be attributed not only to the growth of the city itself, but also to the changing political economy of Tanzania. Furthermore, recent developments in the land tenure system are likely to have a considerable impact on the security of tenure in peri-urban villages. Under the new system, which came into effect in 1992 (Land Tenure Act, 1992), all lands in Mainland Tanzania are divided into National Lands and Village Lands. National Lands cover alienated lands under the Granted Rights of Occupancy, urban lands and other unoccupied lands. Village lands, on the other hand, include all land that has been under the customary tenure system. However, the demarcation between National Lands and Villages Lands, especially in peri-urban villages, may prove to be difficult because, on the one hand, these villages will be given autonomy over their lands, but on the other hand these are the very villages into which the cities will expand. Therefore, there are likely to be problems of ensuring the security of tenure among farmers in these villages. Thus, future research may be important in order to examine the impact of the new tenure system on peri-urban agriculture.

Appendix 1. Household questionnaire

Household Questionnaire for peri-urban farmers of Dar es Salaam.

Farmer number: _____ **Date:** _____
Location: (village) _____ **Name of interviewer:** _____

SECTION A: The farmer :

1. Age of the farmer_____ years.
2. Sex: Male ___ Female ___
3. How many years of school education have you completed ? _____ years.
4. What is the size of your household?____(___adults, ____ children under 12 years).
5. Where were you born ? _____ (District).
6. When did you come to this village? _____
7. Where were you living immediately before you came to this village ? _____
8. Why did you choose to settle in this location ? i. _____ ii. _____
9. What and where is the main employment of the head of the household ?

   _____, place _____

   Other members of the household;

	employment	Place of employment.
1.	_____	_____
2.	_____	_____

10. What is the main source of income for the household ? _____

    Other sources of income are :_____, _____, _____

11. If your main source of income is farming, what are the reasons for taking on other job ? i. _____.

    ii. _____.

12. If your main income is not from the farm, what are the reasons for remaining in farming ? i. _____.

    ii. _____.

13. How long do you spend (per day)

    a) working on the farm? _____ hours.

    b) working off-farm ? _____ hours.

14. What is the monthly expenditure for the household ? TShs _____.
15. What proportion of your annual income come from the farm ? _____
16. What proportion of your household food supply come from the farm? _____
17. On average, what proportion of your monthly income is spent on food? _____

18. How frequently does your household visit the city centre?

who goes?	purpose?	how frequent?
_____	_____	_____
_____	_____	_____
_____	_____	_____

19. Why do you think the city is important to you in your present location?

(Rank) i. _____

ii. _____

iii. _____

iv. _____

SECTION B : Farm characteristics.

20. What is the total size of your farm ? _____ acres.

21. How did you get this land ?

a) bought _____ b) Inherited ___ c) squatting _____

d) rented _____ e) allocated by village government _____

22 Do you own all the land you grow crops on ? Yes / No .

If Not all, how many acres have you rented ? _____ acres.

23 How many members of the household regularly work on the farm ? _____

24. Do you hire any labourers to work in your farm? Yes / No, How many? ____

25. Rank the 3 most important crops (in order of importance) that you grow.

1. _____
2. _____
3. _____

26. Is your farm in ONE consolidated block ? Yes / No.

If Not, how many separate plots do you have ? _____ plots.

Plot	Size (acres)	Distance	Crops grown
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

27. What farm inputs do you use ?

	Farm input	on which crop ?	amount (Kgs)	using more, same or less than 5 to 10 years ago?
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____

28. For each crop you sell;

crop	proportion sold	where sold *	selling more, same or less than 5-10 years ago ?
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____

*** 1. city market 2. roadside market, 3. village market, 4. sold on the farm**

29. For each crop that you sell, how important are the following buyers.

crop	consumers in the village.	resident traders in the village	traders from the city.
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

5 = very important, 4 = important, 3 = so-so,

2 = unimportant, 1 = very unimportant, 0 = irrelevant.

SECTION C: Land sales.

30. How many acres of farmland did you have when you first came to this village ?

_____ acres.

31. Has the size of your farmland increased, decreased or remained the same over the past 10 years ? _____

32 If the size of your farmland has decreased,

I. how was the land lost? a) freely sold ? ___

b) end of lease ? ___

c) compulsory purchase ? ___

d) other reasons ? (specify? ___

33. If you have ever sold part of your farmland,

a) why did you sell it ? _____ _____ _____

b) where did the buyer come from ?

within the village ____ or from the city _____.

c) did you sell it - as one block ___ or - in pieces in different years ____

34. Do you intend to sell part of your farmland in the next 5 years ? Yes /No

Why ? _____.

35. Would you use this money to buy other farmland ? Yes / No.
    If so, where ? _____ .
36. Have you bought any farmland in the past 10 years ? Yes / No.
    If Yes, how many acres ? _____ acres.
    how much did you pay ? TShs _____
    In which year ? _____
37. Do you intend to buy any more land ? Yes / No.
    If Yes, a) what do you want to use it for ? _____.
    b) how much would you pay for: 1 acre? TShs _____
    5 acres ? TShs _____
    10 acres ? TShs _____
    20 acres? TShs _____

SECTION D: Decision-making factors:

38. To what extent are these factors important in your choice of crops?

1. The soils are suitable for the crop	4	3	2	1	0
2. My neighbours grow the crop	4	3	2	1	0
3. The crop helps to prevent soil erosion	4	3	2	1	0
4. It is a reliable food-supply for the family.	4	3	2	1	0
5. The crop gives good returns on investment	4	3	2	1	0
6. My family like the taste of the crop	4	3	2	1	0
7. There is a reliable water- supply	4	3	2	1	0
8. It does not need much labour.	4	3	2	1	0
9. I have a lot of experience with the crop.	4	3	2	1	0
10. The crop does not require much capital.	4	3	2	1	0
11. The crop does not easily become diseased.	4	3	2	1	0
12. It provides me with a reliable income.	4	3	2	1	0
13. The crop has a short growing-cycle.	4	3	2	1	0
14. The crop is easy to sell.	4	3	2	1	0
15. It does not require expensive inputs.	4	3	2	1	0
16. The crop has a reliable market in the city.	4	3	2	1	0

4 = very important, 3 = important, 2= neither important nor unimportant, 1 = unimportant, 0 = very unimportant.

39. **SECTION E: Attitudes to urban development.**

1. I intend to increase overall production on my farm	4	3	2	1	0
2. I would prefer to grow more crops for sale than for food	4	3	2	1	0
3. I would prefer to grow more crops for food than for sale	4	3	2	1	0
4. More capital is needed to increase farm output	4	3	2	1	0
5. I plan to change my most important crop	4	3	2	1	0
6. My farm takes up too much of my time	4	3	2	1	0
7. I would prefer to have a job outside agriculture	4	3	2	1	0
8. I would like to give up farming altogether	4	3	2	1	0
9. Farming close to the city is an advantage.	4	3	2	1	0
10. The city provides market for crops.	4	3	2	1	0
11. The city provides non-farm jobs	4	3	2	1	0
12. High price of land limit farm expansion	4	3	2	1	0

4 = very important, 3 = important, 2= neither important nor unimportant, 1 = unimportant, 0 = very unimportant.

40. To what extent do you think agriculture will remain viable in your present location in the next 5 years ?	4	3	2	1	0
41. To what extent do you think there is a guaranteed future to farm in the next 5 years ?	4	3	2	1	0
42. What is the likelihood that your farm's economic situation will improve in the next 5 years ?	4	3	2	1	0
43. What is the likelihood of loosing part of your farmland within a period of 5 years ?	4	3	2	1	0
44. What is the likelihood that you will get a job in the city ?	4	3	2	1	0

4 = very likely; 3 = likely; 2 = so-so; 1 = unlikely; 0 = very unlikely.

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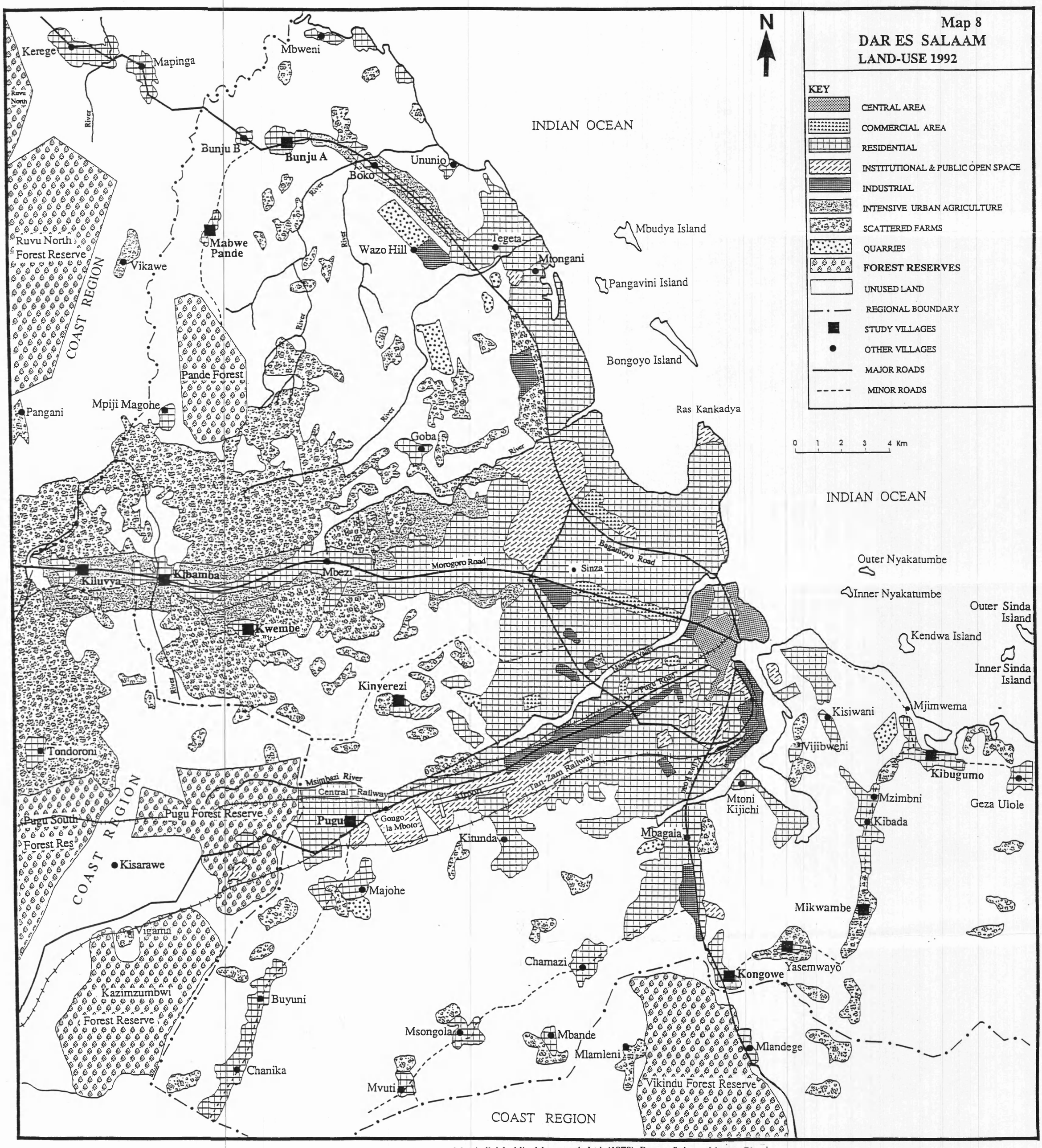

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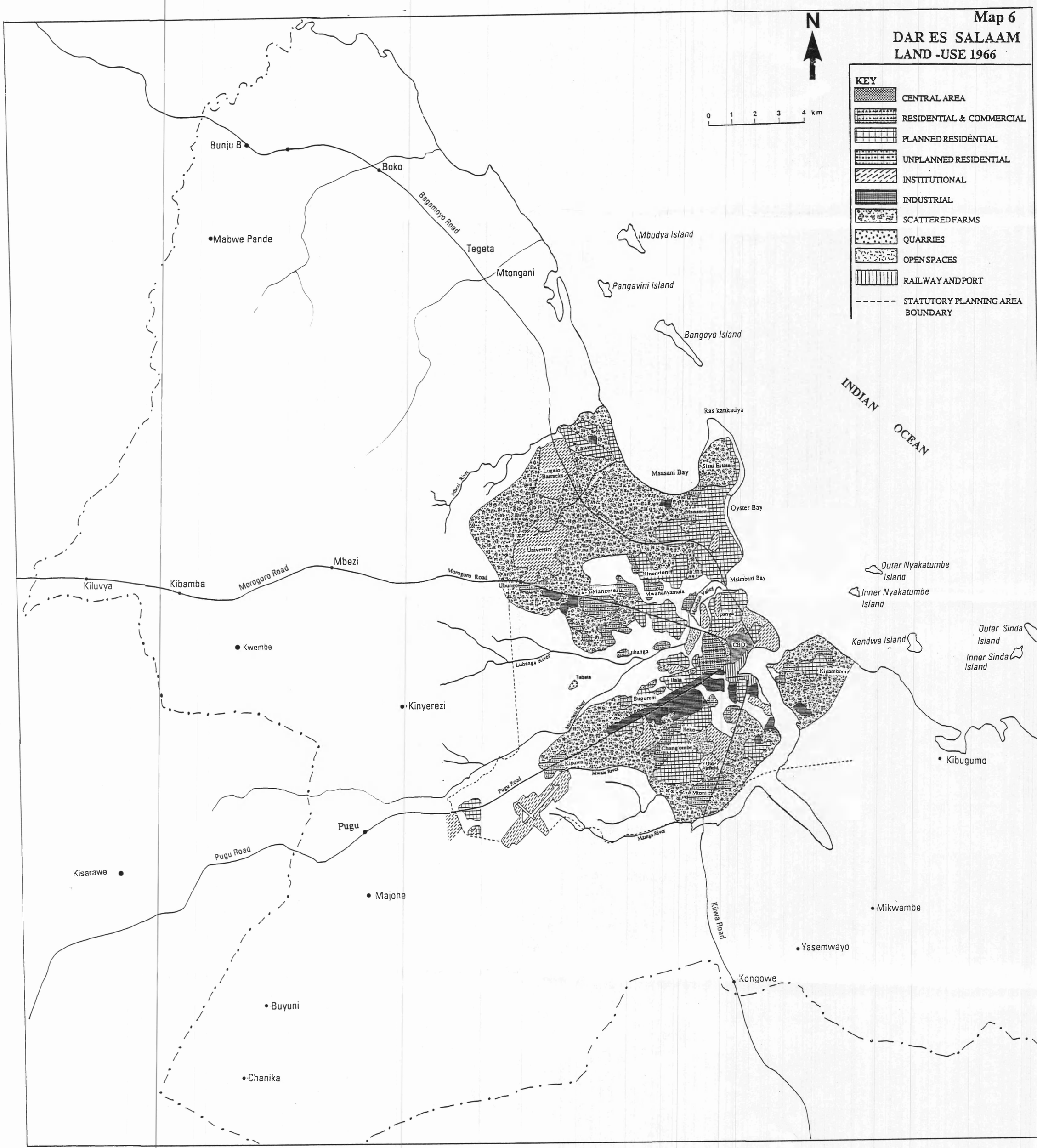

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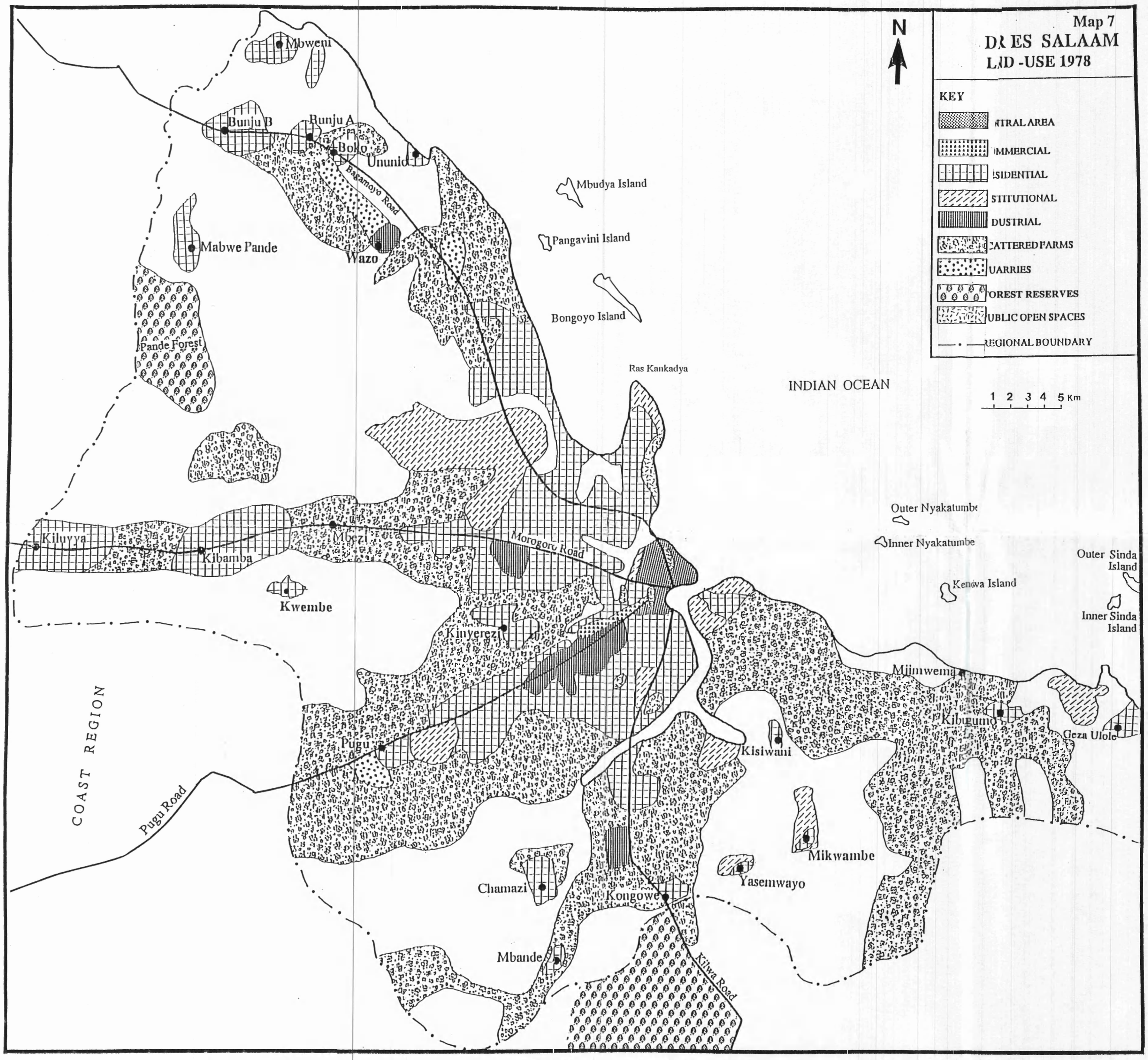

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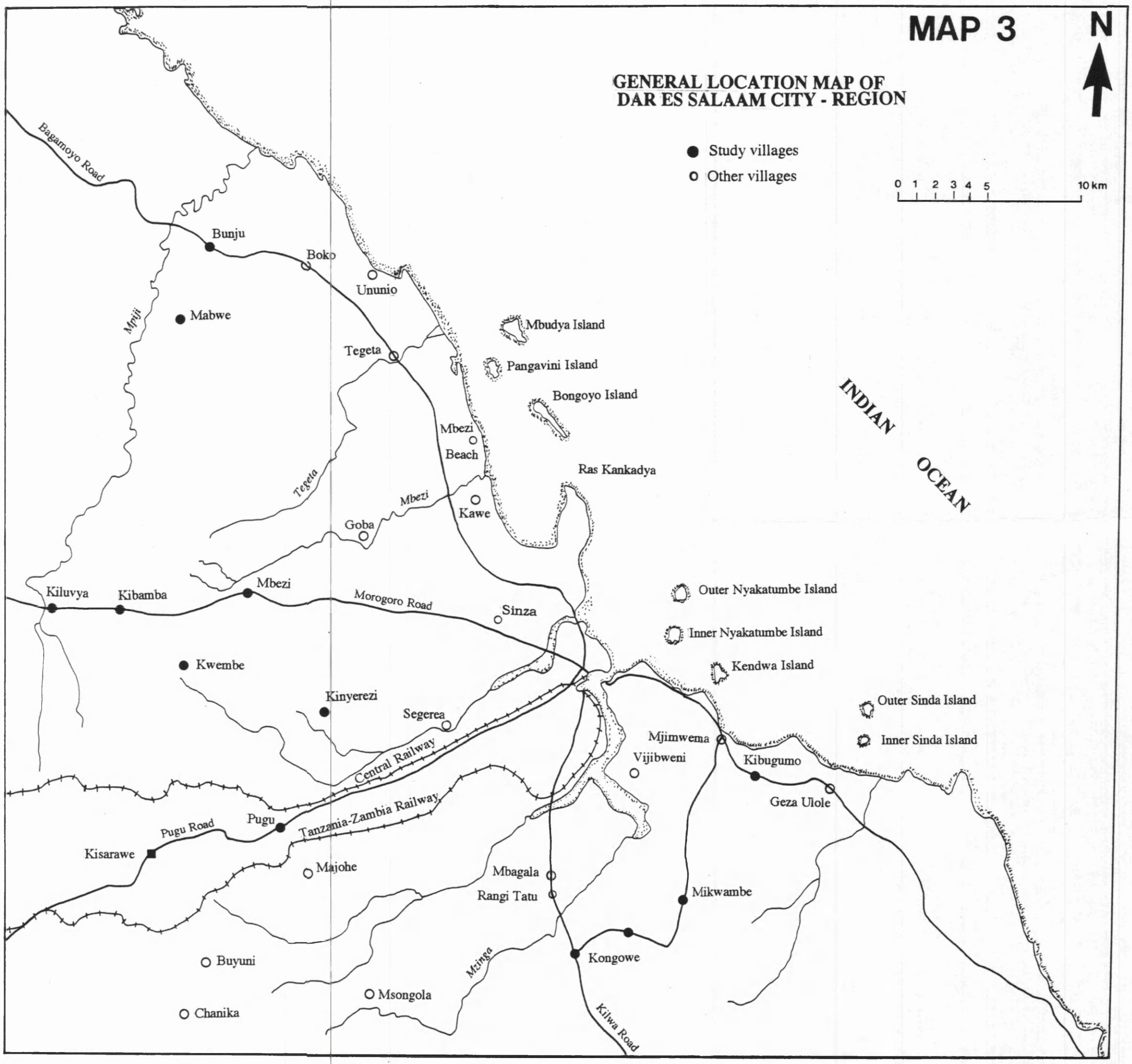

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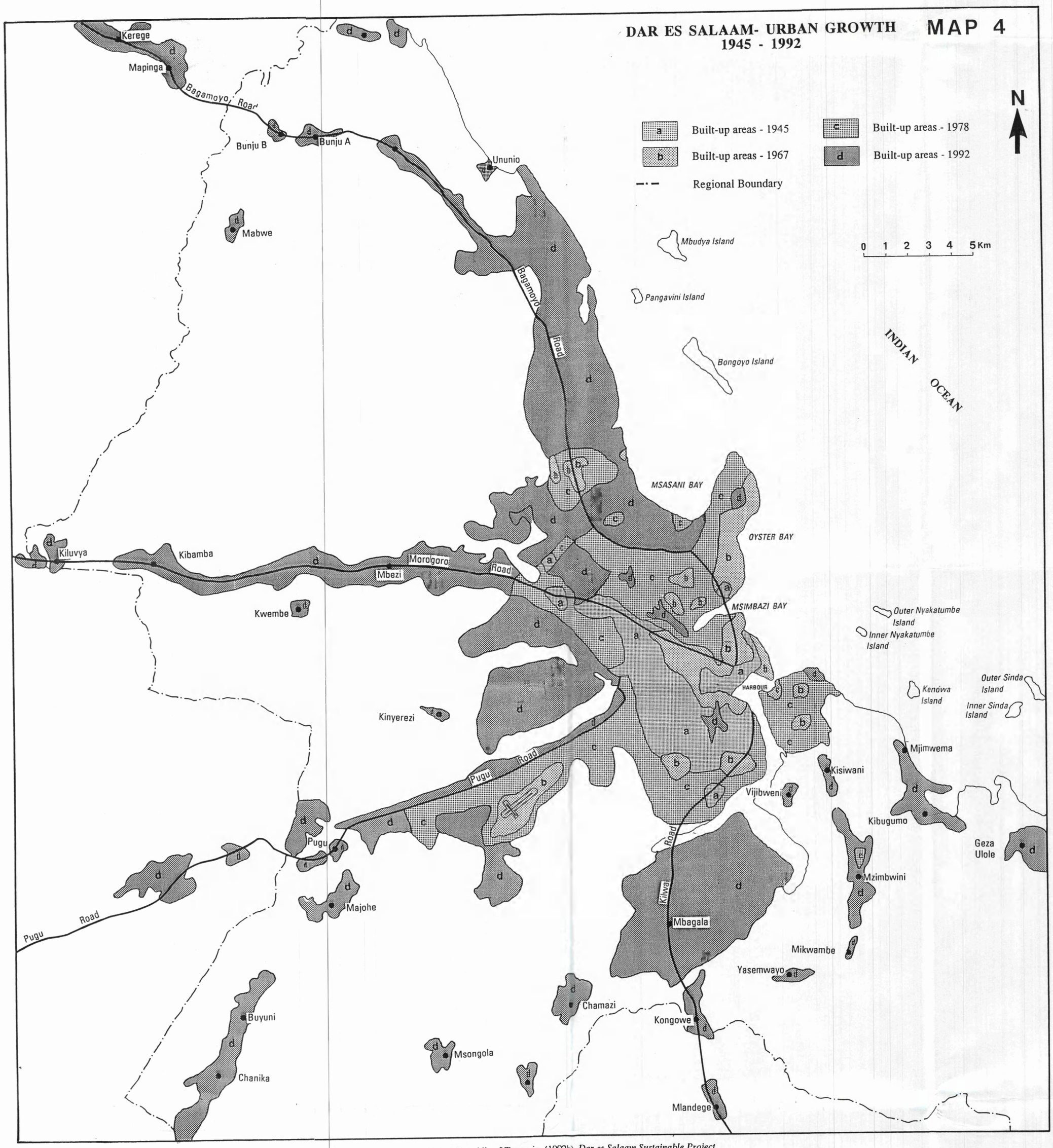

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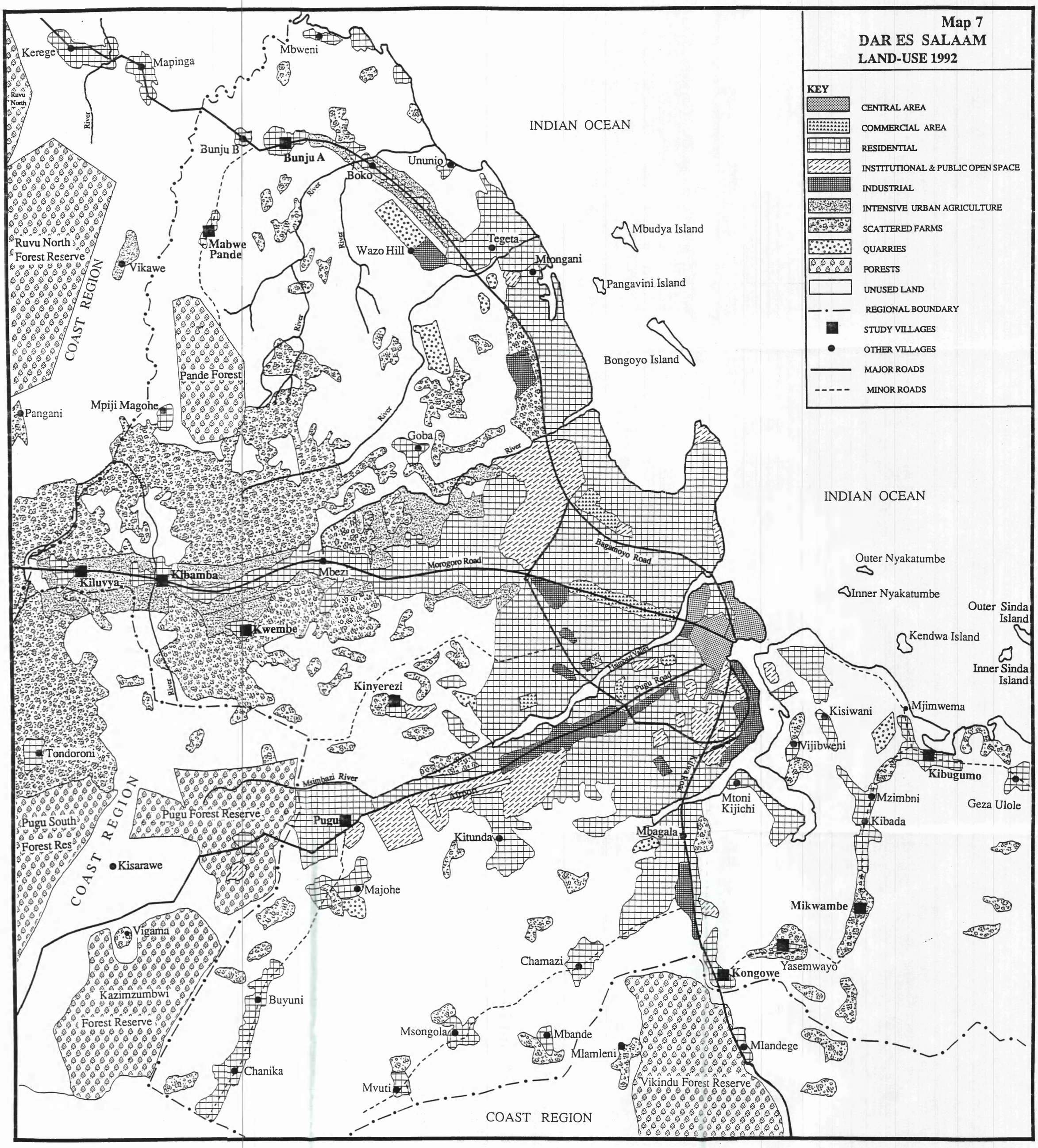

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