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RURAL-URBAN ECONOMIC LINKAGES:  
THE CASE OF DODOMA REGION, TANZANIA

BY  
GRACIANA PETER

A THESIS SUBMITTED FOR THE DEGREE  
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## Abstract

The government of Tanzania has been active in attempting to stimulate national economic development since independence, and has used such methods as concentration of rural population in village settlements, the promotion of nine growth centres into secondary cities, and the decentralisation of both the decision-making machinery and economic activities, in particular industry, from Dar-es-Salaam, but with only limited success. Tanzania is still using the basic pattern of urban centres and structures developed during the colonial period, and the problem is that this pattern was designed to serve a different function and purpose from that of today. This study aims to evaluate Tanzania's current urban spatial structure, and the associated economic linkages, in relation to its present development goals. Specifically, it attempts to evaluate one aspect of the spatial economic structure, that of the urban hierarchy, in facilitating the flows of goods, services and information between the rural and urban sectors of the country. This is approached by evaluating the extent to which existing spatial structure has reduced both the primacy of Dar-es-Salaam and the existence of regional inequalities, has attracted industrial growth away from the coastal and northern zones, and has achieved the development objectives of the state of Tanzania.

The results of this study show that the dominance of the coastal areas, and, in particular, the metropolitan city of Dar-es-Salaam, the northern centres of Arusha, Moshi, Tanga and Morogoro over the other centres and regions of Tanzania, has not been weakened. The growth centre strategy has not been able to reduce either urban primacy, and in particular the primacy of Dar-es-Salaam, or regional inequalities. It can be concluded that although Tanzania's development goals have changed since Independence, the spatial organisation of its towns and service centres, its communication and transport networks and the economic links between them have remained largely unchanged. The present urban structure in Tanzania, and the Dodoma study region, is not appropriate for the nation's current development goals, and has not succeeded in bringing about either the desired rural development or regional equity.

# Chapter 1

## Introduction

### 1.1 Background to the Problem

An urban system plays an important role in influencing the pace and direction of national development. There cannot be a prosperous rural development without a corresponding urban development. The development of urban networks and spatial patterns of economic activity in Europe was different from that of both Latin America and Africa, as the development of cities in Europe was closely integrated with agricultural development. Small centres and towns grew up with spatial and economic linkages between them, building integrated transport networks between villages and the urban centres. In Latin America and Africa, only a few "primary" cities have developed. These functioned initially as administrative centres for the colonial government and as control centres for the export of raw materials. Transport networks were not particularly well - integrated, but formed clear patterns from hinterland cities or regions to important ports, frequently the primate city. The major growth in urbanisation in Europe coincided with industrialisation, with industries in the growing urban centres absorbing displaced surplus labour from rural areas. In Africa and other developing countries, urbanisation is currently very rapid, but Industrialisation is much less rapid, and, as such, African industry generally has a low capacity for employment opportunities for surplus rural labour.

Tanzania is one of the world's poorest and least urbanised countries. Most of the nation's wealth is produced in the rural areas where 80 per cent of the population live and work. Further, most of those major towns established during the colonial period were developed firstly, for administrative purposes, and, secondly, as centres for

commerce and trade. The administrative outposts, which eventually developed into towns, were used by colonial powers to control and administer the surrounding rural areas. The towns which acted as centres for commerce and trade were meant mainly to collect crops and minerals from the hinterland before being transported to the coast. These towns, established mostly in cash crop or mining areas, were linked by road or railway directly to the port towns of Tanga and Dar-es-Salaam. These latter centres, in turn, also became service and distribution centres for imported consumer and capital goods, mostly utilised in urban centres.

In the 1960s it was thought that for an economy to develop economically, it was necessary to foster within it "growth points" or "growth poles". Development was expected to spread from the "growth points" to the surrounding hinterland. International and inter-regional inequalities were seen as inevitable during the early stages of the development process (Hirschmann, 1964:623-628). A further argument centred around whether national development programmes should aim at regional equalities of per capita incomes, or at higher national level per capita incomes with no importance attached to geographic inequalities. It was basically accepted that the decision should be based on the economic and social goals of a nation (Isard and Cumberland, 1961:423). Some theorists, like Friedman (1964), argued for regional equalities of per capita incomes. Others, like Hirschmann (1964) and Williamson (1965), saw regional inequality as a temporary situation during the early stages of development that would disappear with mature growth. Unfortunately, no data nor any firm conclusions exist in the theoretical literature to support consistently either the ideas of divergence or of convergence (Gilbert, 1975:115-120). This is not very encouraging for developing countries as the question as to where public funds should be invested is not answered (Rodwin, 1964).

In the 1970s the debate moved on to question whether urban growth does in fact

contribute at all to national development. Two opposing views developed, centralisation and decentralisation, both of which influence Third World planning (Rondinelli and Ruddle, 1978). Centralised development policies have been applied, with limited success, in countries like Italy (Ricardo, 1972:199); Canada (Higgins, 1972); Nigeria (Filani, 1981) and in Tanzania during the early days of Independence (Lundqvist, 1981). In 1972, Tanzania embarked on decentralisation policies, but also with limited success (Lundqvist, 1981). The Chinese, on the other hand, with their alternating combinations of centralised and decentralised rural development policies, achieved more success (Wu and David, 1981). Based on the fact that resources available for development are so limited, and also on the Chinese experience, neither a highly concentrated nor a thinly dispersed investment scheme is likely to achieve growth with equity goals. The same views are shared by Hirschmann (1964:630-633) and Rondinelli and Ruddle (1978).

In the late 1970s, concentrated investment policies came under attack, as development policies turned away from the goal of maximising economic growth to one of more moderate rates of economic expansion, with a more socially equitable distribution of benefits (Rondinelli and Ruddle, 1978:15; Rondinelli, 1983:16). The assumptions that the benefits of investments in the largest cities would trickle down, and thereby reduce urban-rural and inter-regional disparities, have also come into question (Rondinelli and Ruddle, 1978:15; Rondinelli, 1983:16). Metropolitan centres have often produced "back-wash" effects which drain rural hinterlands of their capital, labour and raw materials (Gilbert, 1975; Hansen, 1982:1; Rondinelli, 1983:16).

The concept of a more balanced spatial development, or de-concentrated urbanisation, has now emerged. This is a move away from the highly skewed distribution of urban population and resources to a more diffuse pattern of urbanisation. Farmers are to be encouraged to stay on their farms and any migrants are encouraged to move to smaller villages and towns rather than the large or primate cities (Friedman, 1973:159-167;

Rondinelli, 1983:21). Such policies, even if they do not promote widespread urban growth, would at least extend urban services, facilities and amenities to more isolated and disadvantaged rural areas (Rondinelli and Ruddle, 1978:7).

It has become more apparent in recent years that rural development goals, no matter how carefully conceived, cannot be achieved in isolation from the cities, nor entirely "through bottom up stimuli" (Rondinelli, 1983:10). Economic growth with social equity requires both accelerated agricultural development and, at the same time, the expansion of urban industry and commerce. The whole spectrum of human settlements, from villages, market towns, intermediate cities, and metropolitan areas must be strengthened and integrated into mutually sustaining networks of production and exchange centres (Rondinelli and Ruddle, 1978). The failure of development to diffuse is partly attributed to the existence of inadequately articulated settlement systems through which innovations and the benefits of urban growth can be efficiently diffused (Misra and Sundaram, 1978:170). Major economic linkages are almost entirely conducted through urban activities and institutions, making towns and cities essential components of any rural development strategy. The size and spatial arrangement of cities, their inter-relationships, both among themselves and with their hinterlands, are vital factors for regional development planning, and, at the same time, a decisive factor for rural development (Lasuen, 1973; Friedman, 1973:76-77,169; Stohr and Taylor, 1981; Rondinelli and Ruddle, 1976; 1978:29; Rondinelli, 1983:19).

The creation of isolated industrial "growth poles" in rural regions is not sufficient to stimulate widespread economic growth in rural areas, or to spread the benefits of urbanisation equitably throughout the country. As the spread effects tend to weaken rather rapidly with increased distance, a system of secondary cities is necessary, although the simple creation of a system of secondary cities alone is not sufficient. A

well-distributed system of secondary cities in a form of a nested hierarchy is necessary. The lowest urban centres in the urban hierarchy have to be integrated with their hinterlands (Friedman 1973:143-167; Stohr, 1974; Stohr and Taylor, 1981; USAID, 1975:3-7). The integration of peripheral areas to the national system is necessary to increase the value of the whole national resource base, as well as for the reduction of inter-regional disparities and for the manifestation of national sovereignty over all areas of the country (Hirschmann 1964:630-633; Friedman, 1964; Stohr, 1975).

The main task facing development theorists or planners today is to identify ways through which resources can be reallocated to create an articulated network of development centres in rural areas that are integrated into the national system of production and exchange, and that can provide access to productive resources and facilities for the majority of the rural population (Rondinelli and Ruddle, 1978:7). This development concept is in line with Tanzania's current rural development policy. The identification of the ways through which development resources can be distributed to achieve sustainable rural development will contribute greatly towards Tanzania's rural development. The present study aims to contribute knowledge on how development resources can be channelled to attain Tanzania's rural development goals.

In Tanzania, like other Third World countries, industry does not provide much employment; agriculture, employing almost 90 per cent of the country's labourforce (Economic Research Bureau, 1988:11) is likely to remain the dominant activity for many years to come. Transportation and communications are poor. Population is growing at a high rate of 2.8 per cent annually (United Republic of Tanzania, 1989). Given these conditions, and also in line with the country's development objectives (to achieve rural development with equitable development between places and individuals), de-concentrated urbanisation becomes appropriate. In this policy, more

employment opportunities are created in agriculture to keep farmers in that sector. The new, lower-order urban centres absorb the necessary migrants. They also provide markets for agricultural products and sources for agricultural inputs and consumer goods, both prerequisites for increased production and income. As such, the development of an articulated network of urban centres in the rural areas, which are integrated into the national system of production and exchange, and which can provide access to productive resources for the majority of the population, is crucial for the development of the country as a whole.

The Tanzanian government has made several efforts towards achieving its rural development goals. In 1972, attempts were made to concentrate the dispersed rural population in village settlements. Attempts were also made to promote nine urban centres as secondary cities or "growth poles". Industry was to be decentralised to those nine growth centres to reduce the dominance of the primate city, Dar-es-Salaam. During 1972, development planning was initiated from the grassroots and went hand in hand with the decentralisation of the decision-making machinery to give more powers at the local level. Official institutions were established to carry out both marketing and distribution in the country. Attempts were also made to create a system of central places.

Tanzania, like many other developing countries, is still using the same urban centres developed during the colonial period. The problem is that these urban centres, and indeed the whole urban structure, were designed to serve a different function and purpose from that of today; that is, a structure suitable to serve an externally oriented economy, dependent on the outside world. Since Independence, Tanzania and most other developing countries have been aspiring to build a self-sustaining economy. The problem faced by these countries is that although the goals for development changed after Independence, the same urban structures are used to attain different goals. This may be a possible explanation for the partial success in rural development, despite the

numerous and very costly rural development programmes and projects. As such, it is important to evaluate the nature of Tanzania's urban spatial structure, especially its small rural service centres, and their economic linkages in relation to present Tanzanian development goals.

## **1.2 Research Aims**

The broad aim of this study is to evaluate the effectiveness of one aspect of Tanzania's spatial economic structure, that of the urban hierarchy, in facilitating the flows of goods, services and information between the rural and urban sectors of the country. This is to be achieved by evaluating the existing spatial structure, in terms of reducing the primacy of Dar-es-Salaam and regional inequalities, of attracting industrial growth away from the coastal and northern zones, and of achieving the development objectives of the state of Tanzania.

The study also aims to answer some specific questions. What is the nature of the economic linkages that exist between the rural and urban centres? Is the urban spatial structure of Tanzania, especially at the level of the rural-urban interface, and are the small rural service centres and their economic linkages, consistent with the present development goals of the country? Does the urban structure facilitate or hinder Tanzanian development? What is the economic relationship between the urban structure and Tanzania's development goals? Does the market structure, especially the marketing system, stimulate or hinder the development of the hinterland surrounding the urban centres in which the markets are located?

The fieldwork for the study was carried out in Dodoma region, Tanzania. This choice is appropriate as this is one of the least developed regions of Tanzania, despite having relatively good transport links with the coastal economic core. In addition, the

government has made positive efforts to stimulate development in Dodoma region through its decentralisation policies. The region has a great potential for the production of a variety of grains, cereals, vegetables and fruits like grapes. The income of the people could be increased through a smooth flow of agricultural products up through the urban hierarchy and incentive goods downwards to the farmers. Besides this, the region now possesses the national capital, Dodoma city, and the increasing population has to be provided with food, services and other consumer goods.

Of particular interest to this study are the ways in which the growth centres within Dodoma region are located geographically in relation to each other and to others elsewhere; the strengths and geographic patterns of economic linkages between these growth centres and their hinterlands through small service centres; the strength, efficiency and geographic patterns of economic linkages between the small rural service centres and their hinterlands, especially with regard to services provided, purchasing and investment patterns, labour flows, commodity and incentive goods flows, supplies of agricultural inputs, information and innovation flows, and general accessibility by various movement types (e.g. foot, bicycle, lorry and bus).

## Chapter 2

### Spatial Development Theories

#### 2.1 The role of Central Places

Some locations, according to Morrill (1974:69), compete to serve as centres for the marketing of rural produce or the provision of goods and services that rural people cannot supply for themselves. This competition produces regular patterns of service centres that provide the best access for the most people at least effort, thus satisfying the dual goals of maximising the utility of places and maximising economic interaction at least cost. Service centres exist to fulfil basic human desires and needs. Even in the most primitive of societies, people desire goods and services that they themselves do not produce. To obtain such products, a place is needed where goods can be exchanged. Besides this, human societies have to be administered and they also need military protection and religious or ethical control. These functions are performed most efficiently at central places. Each village could provide one needed activity, but people need various activities and cannot travel to all villages. Due to this, there is need for a central village (to minimise movement) at which some services/functions can be obtained. One village that would minimise travelling distance for all villagers could be found, and, ideally, given free competition and efficient behaviour, such a village would attract and hold these services and functions, and thus become a town. Agglomeration of service types adds to the benefit of buying, as people are likely to use more than one service. Finally, relationships between the services are enhanced through centralisation. The city, as a large agglomeration, can bring together a greater number and variety of buyers, sellers and producers. These benefits are achieved at a cost as time and transport costs increase as the city exercises influence over an ever larger area. The purpose of agglomeration is to reduce or minimise the time and distance people must travel to carry out desired activities. It also promotes the vertical

and horizontal integration of services, especially marketing (Morrill, 1974).

Christaller (1966) regards central places in terms of their hierarchical functions. There are "central places of a higher order", and beneath these are "central places of the lowest order". Further downward in the basic gradation are "smaller places that usually have no central importance", which he calls "auxiliary central places". Brush (1953:380), observed that, in any given area, small centres are closely spaced and more numerous; large centres offering a greater range of services, are more widely spaced and less numerous. The small centres occur in an interlocking locational pattern, as well as in a subordinate functional relationship with the larger centres. Johnson (1970:18) observed that an effective exchange arrangement is one which permits producers to specialise. This in turn depends upon the local collection points and larger regional assembly centres that are inter-linked by a sales and payment system which provides incentives for producers, and, at the same time, facilitate the distribution of goods in accordance with consumer preferences. He also noted that such a mechanism, which will be capable of integrating production, distribution and payments, is normally a product of historical forces, and not something that can be created quickly. However, its emergence can be hastened by planning and appropriate policies. He further observed that when a landscape is organised by such market forces, a hierarchy of exchange centres ("central places") will normally evolve. At the local level (village and hamlets), small assembly and distribution activities will evolve and these village markets will cater for the needs of the people living in a relatively small surrounding area. These small markets are interrelated with larger markets located in towns and cities. Surplus products from village markets move to town markets, while goods too specialised for villages to produce move from towns to the villages. As the economy becomes more urbanised, still larger markets develop in cities. To these city markets, both the village and city markets are delicately attuned, so that the entire hierarchy of exchange facilities operates as an economic organism influencing the growth and development of the entire region.

In his search for workable patterns of spatial organisation, Johnson (1970:28) found that, except for the Soviet ventures, which are based on the assumption that traditional municipal economic functions can be performed by *kolkhoz* and machine tractor stations, a successful configuration consistently had a market town as its economic centre. Consequently, the key to the economic development of countries, or regions, is normally found in the historical relationship between town and country. He thus sees development as a function of agrarian commercialisation and that the rationalisation of agrarian conduct under pecuniary stimulus calls for a network of conveniently located central places where an efficient exchange of goods and services can occur.

Johnson (1970:39) goes on to demonstrate the importance of a network of market towns in stimulating agrarian savings and investments for development by citing England's success in the sixteenth century. This was possible in England because urban society was closely intertwined with that of the countryside. The towns were organising mechanisms which had transformed the countryside into a chain of agro-urban communities. The English market network of the agro-urban centres had relatively small market areas to serve, and as such, people had hardly need to travel more than five miles. Furthermore, sellers were not bound to sell their products in a single market; just as today, they could seek whichever market offered prospects of the highest price. As a result, high valued goods with low weight could be sold in distant specialised markets. In addition, in the English market system, because of the large number of central places, particularly in the east, many farmers were not bound to a single local market, but could choose the best among several nearby selling places. This increased their incomes. This market system also stimulated specialisation in production, as farmers responded to new opportunities, and as more critical consumers, whose tastes and desires were transmitted through the market system. Johnson (1970) also attributes Japan's success during her modernisation period as accruing from the functional interaction between agriculture and industry and between town and country (Johnson 1970:47). During the modernisation process in Japan,

there was the widespread establishment of more labour-intensive, small-scale industries in country towns. These increased rural cash earnings, thereby increasing the volume of consumption. To meet this increased demand for food and other farm products, local farmers raised their output by using greater inputs of fertilizer, cropping land more frequently, using superior seeds, modern tools and above all, by more efficient farming methods. Their cash incomes were augmented as workers in export-oriented rural industries such as pottery, embroidery and paper earned more and spent more on farm products. Both town and country bought clothing, furniture, household utensils, and a wide variety of domestic goods made in both cities and towns, besides spending on food.

Johnson (1970:70) further demonstrates the importance of an efficient spatial organisation in stimulating growth. He cites the American Midwest experience. This region underwent a practical improvement of spatial organisation through a process of "creative destruction". In this process, the unfavourably located villages were allowed to wither, and the better located ones allowed to develop. Also, the total number of central places was reduced as market isovectors lengthened. Out of this process emerged a regional hierarchy of central places that served to rationalise a rural landscape by a thorough-going process of commercialisation. A variety of locally available goods provided the minimum necessary supplies and equipment required for increased output. The proximity of larger supply centres, with their greater variety of consumer and producer goods, steadily increased the incentives for greater output and productivity.

A comparison of central places in the American Midwest with those in a majority of developing regions, as observed by Johnson (1970:70), reveals a striking difference. Developing countries, just like the American Midwest, have central places, and some have in fact too many. The problem lies in the fact that these central places rarely constitute a functional hierarchy, and for this reason, fail to provide an intermeshed system of exchange that would provide the requisite incentives for the increased

application of labour, capital and human skills. The American Midwest experience demonstrates the appropriate hierarchy and spatial pattern of central places and function for efficient regional production.

The degree of integration between village-centred areas and agro-urban communities, is markedly different in developed and in developing countries. The ratio of villages to towns is very low in developed countries while in the developing countries it is very high (1970:83). In developed countries, Johnson (1965:140) estimated it to be probably, about 16:1, as contrasted with a ratio ranging from as low as about 50:1, to as high as of over 300:1 in India and 600:1 in Yemen. Johnson too expresses the contrast more dramatically as: "if India was to have the same village to market ratio as that the United States now has, she would need more than 47,000 market towns. She now has less than 2,000 towns" (Johnson, 1970:83). The ratio between Villages and towns is also very high (468 villages to every urban centre). In addition, the gradations in the central-place hierarchy are far less abrupt in developed countries. Berry (1967:20) describes the spatial design of the American Midwest thus: "As one travels along between county seats, very regular progressions of places are encountered: county seat, village town, all approximately evenly spaced".

An economy can have visible markets where people can buy and sell things and these markets in some way, may be inter-linked with a system of large and smaller exchange centres. This does not necessarily mean that the centres are adequately monetised and capable of promoting development. The problem is not only the number of markets, but also the way they function. To use Johnson's (1970:84) own words: "Moreover, even if the markets are in some way inter-linked with a system of large and smaller exchange centres, it does not necessarily follow that the market structure is really capable of promoting development" (Johnson, 1970:84).

To illustrate the fact that it is not only the number of market places which determines a regions ability to stimulate development, Johnson cites the case of Haiti as:

"a poor and unprogressive country, with 200 regular and recognised rural market places, and more than 100 urban places. Haiti with an area of about 10,700 square miles (6,687.5 square kilometres) gives a ratio between market and area served which would seem to be very low" (Johnson, 1970:84).

Sidney Mintz (1960:16), in his analysis of Haitian marketing system, provides an example of how a basically rural society has become inextricably dependent upon a system of markets whose structure, control and mode of operation seriously limit the capacity of the peasantry to improve their standards of living. The structure of such a market system is essentially dendritic. The export crops and a wide variety of provisions for the urban population are gathered in or near rural markets bulked or processed in a few "strategic" markets. These are then moved by migrant traders to port cities. In the same manner, goods which the peasant community artisans cannot produce move from port-cities through strategic (wholesale) markets to local markets. As the peasants need cash income badly, they fall into the hands of the traders, and the whole system tends to keep the peasants' terms of trade persistently adverse. This results from the fact that the peasants do not have bargaining power for their products. Such a situation can either be a result of lack of alternative markets or marketing systems; a low demand for their products (low value); or poor organisation of marketing whereby peasants sell individually. As individuals, they do not possess strong bargaining powers. The traders, on the other hand, are more organised and have a very high bargaining power as a group. They thus determine the price of the products they buy from the farmers as well as the price of the consumer goods they sell to the peasants. This way they pay less and less for the peasants' products, while offering their own goods at higher prices.

In the Haitian case, Mintz observed that the organisation of the marketing system, as well as its control, frustrates any really progressive and equitable integration of town and country. The dendritic pattern of markets in Haiti also prevails in many other countries, especially those which have experienced imperialist suzerainty. Despite the many years of political independence, these countries still largely depend on the inherited economic structure. These economic structures in developed countries are not particularly exploitative, as in developing countries, as the developed countries do not possess externally dependent economies, and thus do not have an external leakage problem from the region or country. In developed countries, marketing is more organised and farmers have several market alternatives to choose from. These conditions are generally not available for farmers in developing countries.

There is, of course, as Mintz (1960:49) noted, some amount of "horizontal trade" at all points of the market system where exchange of those agricultural products not destined for export or movement to port cities, products fashioned by local artisans, and products available in some but not in all parts of a local market area, takes place. This trade does nothing to integrate town and country, nor does it promise to make any contribution to the development of more complex, differentiated, and efficient rural economic centres. This is because horizontal trade is conducted within one locality in a country. As observed earlier, the marketing system is exploitative in a way that the urban areas (through their traders) exploit the rural areas through the unequal trade system. This keeps rural incomes low and reduces the capacity for saving and investment. This leaves the rural areas persistently underdeveloped.

Shanin (1973:76) observed that market places are where farmers present themselves for exploitation by urbanites and where "terms of trade are unfavourable to peasant producers, and turn market exchange into yet another channel of exploitation of the peasantry by urban society at large". Surplus produce from the countryside is bought at low prices from farmers. The farmers are forced to sell immediately after harvest

when prices are low, either because of shortage of cash money or because they lack efficient storage facilities. Consumer goods needed by rural families are on the other hand provided at very high prices. The profits from these transactions are invested in expanding commercial activities in town or establishing links with businesses in the larger urban centre with which the merchants deal. Such capital is often not invested in rural areas. Also, such investments do not benefit the rural areas as they are not invested in improving the marketing system. Such investments are normally concentrated in items which benefit few people, such as the construction of a luxury house in town, or the purchase of saloon cars which do not assist in transportation of goods nor people. Sometimes when invested in passenger buses, these are likely to ply between the higher order centres where roads are better, and profits higher, than from high order centres to the rural villages usually with lower traffic volumes and poorer roads. Such investments would have benefited the rural areas if, as an example, they purchased a lorry which could ferry the produce from the rural areas to the urban markets. Unfortunately, this is rarely the case. This makes transport and transportation costs very high, further reducing possible rural incomes.

The administrative machinery of a region can also impinge on farming and rural development through decisions and actions related to the regional infrastructure, such as the provision and maintenance of roads, schools, drainage etc., by locating most of these in the urban areas. The administration can also deprive farm families of resources, which could otherwise have been spent on agriculture, through the imposition of taxes, fines, the confiscation of goods and demands for public work projects.

It has been observed by Johnson (1970:92) that not all market systems in peasant or "traditional agrarian" societies are dendritic. The structure of a market system is a reflection of colonial history and integration. In Less Developed Countries which have not experienced colonial integration in their market system, such as mainland China, those markets which developed created a neatly interlocked spatial system, in which

essentially different functions are performed by several types of markets in a well integrated central place hierarchy. The Chinese "standard market towns", that serve to integrate 18 - 20 villages, are "a subsystem of larger structure", as it is in turn linked with several larger exchange centres, and not merely with one, as is the case with most dendritic market systems.

Citing the Chinese example, Johnson (1970:137) does not blandly recommend it to all situations. He noted that the "rationality" of a spatial structure depends on the economic purpose for which it is designed. The important inference prevailing in Christaller's analysis is that there "are economic ways of creating a rational network of central places, and there are wasteful ways". In situations where the maximum commercialisation of a landscape is the goal of policy, random socio-political decisions concerning central places should be avoided. This is important, as unless central places are efficiently located and well connected with transportation and communication, it will be difficult to stimulate the commercialisation of the rural areas, a necessary factor for rural development.

Unfortunately, some developing countries seem unaware of this caution, as they are still looking for splendid capital cities such as Brasilia, Addis Ababa, Nairobi and Dar-es-Salaam, in Tanzania. In these countries, cities are usually very few and inordinately large; consequently a satisfactory interconnection between town and country by means of a hierarchy of central places in descending scale of utility and size, is either lacking or so imperfectly developed as to leave large areas unserved. Most of these primate cities serve as administrative centres. Also, such cities arise from the polarising influence of linear forms of transport facilities that connect a primate city, or any other large city, with portions of village structured rural landscapes, e.g. railways, roads and rivers. It can also result from a political influence.

The neglect of central-place analysis in the planning techniques of underdeveloped countries like Tanzania is unfortunate as opportunities are lost, and resources are

devoted to less than optimal uses. Considerable funds have been used by developing countries to connect large cities by means of paved roads, and too little has been allocated to building networks of roads that can help commercialise and invigorate rural landscapes. Worst of all, the unchannelled drift of people to the relatively few cities has frustrated and counteracted any prospects of a different type of orderly urbanisation whereby a revitalisation of rural landscapes could be set in motion by the location of new industrial establishments, processing plants and service industries at carefully selected points (Johnson, 1970:162).

With the very best of intentions, many developing countries have embarked on investment policies which are widening rather than narrowing regional differences. This results from overtheorized plans which neglect to consider the spatial consequences of their investment programmes. To use Johnson's words: "it is not enough (as planners) to allocate the intended investment between new plants or infrastructure, but equally important to select the geographical places where investments are to be made" (Johnson, 1970:163). Besides this, it is important to project the socio-economic, political, ecological and spatial implications and take these into account.

Kim (1979:57) observed that major gaps exist in the Tanzanian government system. He identified these as: the absence of analysis and appropriate action which relates to functions performed by the geographical hierarchy of towns and service centres; and the lack of knowledge on how towns and service centres are connected by transport networks. These two factors are to be considered in relation to the changing needs of the rural population. Tanzania's development goals have been changed since Independence. Tanzania has already declared her policy of an egalitarian development, and through this policy she intends to achieve a level of economic development which is equitably distributed among the people as well as over the country, the rural areas included. There is no way this policy can be implemented successfully without

carrying out a spatial analysis of the regions and of the nation at large. This information should provide the basis for development planning of the regions and the country as a whole. The present study is an attempt to provide some of this vital information on spatial structure, the pattern of central places and their inter-linkages, especially those at the lowest levels (rural-small centres) in relation to marketing and distribution.

## **2.2 Growth Pole Theory**

The concept of development poles has been developed relatively recent in theories of economic growth and regional development. It has, nevertheless, together with similar concepts such as growth centres, growth areas, growing points, development nuclei, core areas, and the like, attracted increasing attention in the search for tools to resolve problems of imbalances in inter-regional development in industrialised countries as well as non-industrialised countries (Hermansen, 1972:160). As opposed to what is usually found in economics, the theory of development poles as established by Perroux (1955) is derived inductively from observations of the actual process of economic development (Hermansen, 1972:161).

Hansen (1981:18) indicated that Perroux (1955) coined the term "growth pole" in an article published before the related works of Hirschmann and Myrdal. In this article, Perroux's primary concern tended to be interactions among industrial sectors rather than spatial development processes. In contrast to the then prevailing balanced and steady growth theories, Perroux maintained that the analysis of sustained growth of total production should concentrate on the process by which various activities appear, grow in importance, and in some cases, disappear; and he emphasised that growth rates vary considerably from sector to sector. He also stressed the importance of entrepreneurial innovation in the development process, which proceeds by a succession of dynamic sectors, or poles, through time. Another key element in

Perroux's development theory was the concept of dominance, which consists of an irreversible, or only partially reversible, influence exercised by one economic unit on another, because of its negotiating strength, the nature of its activity, or because it belongs to a zone of dominant activity. As soon as inequality appears among firms the breach is opened by which the cumulative effect of domination insinuates itself. Given these propositions, it followed that the dominant firm would generally be large and oligopolistic and would exert a considerable influence on the activities of suppliers and clients. In addition, dominant industries make the cities where they are located the development poles of their regions.

Hansen (1981:19) analysed the spatial implications of Perroux's theory, as elaborated by Perroux's colleague Jacques Boudeville. Boudeville (1972:263) held that a development pole is a "complex of activities agglomerated around a propulsive activity". He also noted:

"that the second half of the twentieth century is characterised by an acceleration of urbanisation and accompanied by the contradiction and expansion of numerous centres; and the study of regional economies is crystallising around economic polarisation process" Boudeville (1972:263).

Within the framework of technical and geographical external economies of agglomeration and large infrastructure projects, spatial planning "has become a problem of urban growth strategy" (Boudeville, 1972:263). According to Hansen (1981:19), these are the basic elements of a centre-down development strategy, stressing upon a few dynamic sectoral clusters and upon urban-industrial growth as the key to more generalised regional development.

Hermansen (1972:161) and Ricardo (1972:189) almost simultaneously refer to Perroux (1955:309). In this work, Hermansen noted that development does not

appear everywhere and all at once. It appears in points or development poles with variable intensities; it spreads along diverse channels and has varying terminal effects for the whole of the economy. Ricardo takes much the same view, but uses the term growth in place of development. To Hermansen, Perroux was led to the conception of development as essentially polarised in the sense that forces inherent in the development process worked towards the clustering of economic activities and growth, and towards imbalances between industries and geographical areas. To Ricardo, the fact that growth does not appear in all places at once, supports the fact that there is spatial inequality in economic development. He also adheres to the view that development is essentially polarised in the sense that forces inherent in the development process work towards the clustering of economic activities.

Further in his analysis, Ricardo (1972:190) observed that, at a certain moment, the advent of an economic activity in a given locality gives rise to a process of cumulative development by the expedient of phenomena of a direct character (demand effect, supply effect) and other indirect phenomena which have their origin in local incomes created by the direct effects, part of which (the income) will be spent locally. As a consequence of the need for communication (including transportation) and the fact that the communication costs increase rapidly with distance, a tendency emerges for the concentration of economic and human activities, which are technically linked with each other, to take place in a given locality. Thus, a variety of economic, industrial and tertiary activities is formed, giving birth to a growth pole.

Hermansen (1972:182) observed that Hirschmann took for granted that economic progress did not appear everywhere at the same time, and that, once development had appeared, powerful forces would make for a spatial concentration of economic activity and growth at the initial starting points. Based on this, Hirschmann (1958) argued that for an economy to lift itself to higher income levels, it must first develop within itself one or several centres of economic strength. Hirschmann's argument was based on his theories of economic development as an unbalanced process, propagated through

chains of disequilibria. Both Hirschmann and the French school view economic growth as unbalanced and occurring in certain leading firms and industries that induce growth in related industries through forward and backward linkages by means of investment incentives resulting from disequilibria (Hermansen, 1972:183). Hermansen further observed that Hirschmann, like Perroux, addressed himself primarily to the economics of development and not to the spatial aspects of the process. The interaction between strategic industries is only viewed as taking place in a spaceless matrix of an open national economy. Development always tends to be geographically unbalanced; therefore, for a country to develop, according to Hirschmann, there is a need for the emergence of some growth points.

The rationale for the growth pole strategy maintains that with limited resources it would be inefficient and ineffective to attempt to spread development investments thinly over most of the national territory. Rather, key urban centres should be selected (preferably those that would help to fill out a "rational" urban hierarchy) for concentrated investment programmes that would benefit from economies of scale and external economies of agglomeration. Such policies are justified not on the basis of helping the growth poles *per se*, but on the grounds that as a consequence of induced growth, beneficial spread effects will flow to the growth poles' lagging hinterlands. Hansen (1981:32) recalled that Hirschmann's position tended to be optimistic regarding these spread effects (at least concerning the medium to long-run prospects), whereas Myrdal was more cautious. After a number of experiments with growth pole strategies, the evidence to date largely supports Myrdal's views that, "spread effects" are difficult to occur, and that "polarisation" tends to be stronger; and, in this case, in the context of both developed and developing countries.

Gaile (1973) reviewed 17 different studies of attempts to implement growth pole strategies and concluded that spread effects were smaller than expected, limited in geographical context, or less marked than backwash effects. Empirical studies by

Nichols (1969) and Moseley (1973) indicate that if the objective of regional policy is to benefit small towns and rural areas, it would be advisable to invest directly in these places; some "trickle up" to larger cities would take place under such circumstances, but a "trickle down" situation cannot be relied upon. Pred's (1976) empirical studies show that spread effects to the immediate hinterlands of centres of innovation are minimal in comparison with the linkages that connect these centres with numerous distant places; in other words, the innovation diffusion process is highly discontinuous in spatial terms. Contrary to this, Richardson and Richardson (1975), using Latin American experience, have argued that:

"The disenchantment with growth centre policies in many countries is not evidence that the principle of polarisation is wrong. On the contrary, it reflects the over-optimism and short-run time horizon of regional policy-makers, the failure of sustained political will, the use of deficient investment criteria, bad locational choices, and lack of imagination in devising appropriate policy instruments" (Richardson and Richardson, 1975:169).

Moreover, Richardson (1976) maintains that effective regional planning requires a 15-25 year time horizon, and has developed a model for the analysis of spread and backwash effects over time, and, in this context, suggests that: "a well-located growth pole, promoted with vigour in appropriate economic conditions and resistant to political trimming, should pay off as a regional planning policy instrument if the planning horizon is long enough" (Richardson, 1976:8). Yet, Richardson acknowledges that the growth pole concept cannot simply be transferred to areas such as Latin America without major modifications. These include:

"a broadening of the approach away from the functional pole and institutional changes as well as sectoral measures; a more flexible attitude to the selection, location, and size of growth centres; placing growth centre policies within the broader context of a national spatial strategy and the introduction of consistent and

reinforcing non-spatial policies; careful consideration of the implications of the size and shape of the country, its topography, and its climate for growth pole policies; avoiding dissipation of scarce resources by designating too many centres; taking action to reduce the "enclave" characteristics of growth poles; and realistic expectations" (Richardson and Richardson, 1975:175).

Broad as it is, it may be questioned whether this is fundamentally a growth pole strategy at all. Indeed, as observed by Hansen (1981:33), Richardson's approach is not unlike that of Johnson (1970), who held that while developing countries need to create functional economic areas they also need proper milieus that will utilise all productive resources. Rondinelli and Ruddle (1976) likewise have stressed the need for developing countries to build an articulated network of growth centres, as well as linkages among them, in order to encourage the commercialisation of agriculture, savings, and investment in productive activities. Such a system is necessary if urban goods and services are to be delivered to rural populations and vice versa.

As observed by Hansen (1981:36), attempts to accelerate the development of lagging regions have largely relied upon some kind of growth pole strategy. While some informed observers, (Myrdal (1957), Nichols (1969), Moseley (1973), Gaile (1973), Friedman (1973), Coraggio (1975), Pred (1976) and Hansen (1981), for example, have become pessimistic about the efficacy of this approach, others, such as Hirschmann (1958), Williamson (1965), Johnson (1970), Richardson and Richardson (1975), Rondinelli and Ruddle (1976) and Mera (1978), maintain that it has not been implemented properly. In the latter's view, investments have been too few, they have not been sufficiently concentrated, planners have worked with unrealistically short time-horizons, and such strategies need to be embedded in more comprehensive development schemes. Hansen (1981:36) further observes that despite differences between those who support one form or another of centre-down paradigms and those who advocate development from the bottom up, some areas of agreement may be found. However, they have varying emphases on appropriate means for alleviating

poverty. These include: more attention to human resource development; greater efforts to curb population growth; wider and more rapid diffusion of agricultural innovations; planning in terms of functional economic area; and the linking of functional economic areas by a transportation and communications policy that encourages not only a more general spatial diffusion of innovations but also facilitates the movement of agricultural and light industry outputs from rural areas to large urban markets (Hansen, 1981:36). The centre-down paradigm proponents make their stand clearer by suggesting that, despite their faults, economic dualism and growth pole strategies will keep gross national product growing more rapidly than would be the case under alternative strategies. To them, so long as the divergence-convergence syndrome can be expected to operate with respect to regional and class per capita income differences, there would seem to be little point in slowing aggregate growth, that is, in making everyone more equal by giving everyone less. These assumptions, as noted by Hansen (1981:36), raise an alarm on the extent of their validity. Hansen (1981:24) has concluded that as long as the developing countries continue to adopt innovations that originate in the developed countries, it is difficult to imagine that the disparities between the developing and developed countries will be reduced to any marked degree in the near future. He noted, however, that it does not necessarily mean that per capita gross national product (GNP) will not grow in developing countries, or inter-regional disparities in these countries will not diminish. He recalled that Hirschmann believed that as developing countries matured, an eventual turning point would be reached; regional convergence would replace the polarisation tendencies characteristic of early development experience. Hansen (1981) noted that Hirschmann's position on this point was based on the assumption that political motives would bring about greater spatial equity, but he did not provide much concrete supporting evidence.

Williamson (1965) concluded that there is a systematic relationship between national development levels and regional inequality. To him, rising regional income disparities and increasing dualism are typical of early development stages, whereas, regional

convergence of incomes are typical of the more mature stages of national growth and development.

Friedman (1973), on the other hand, countered that Williamson's thesis was only partly borne out by detailed historical studies.

"Although not strictly related to our study of the developing countries, data for Canada suggest only a small amount of convergence between 1929 and 1956, while earlier periods led to a gradual widening of the income gap. And a recent study of regional income differences in Brazil, though showing a slight convergence in the decade of the fifties, is inconclusive on the long-term direction of the trend. The best that can be said from the available information is that regional income convergence is an extremely drawn-out process. It occurs, when it does, at a relatively advanced stage of industrialisation process, and it rarely changes the rank ordering of regions by income. Core-region dominance, we may conclude, is not easily challenged. And when it is, the reversal of earlier trends may require a number of generations" (Friedman, 1973:76-77).

Mera (1978) supports Williamson's thesis using Japanese and Korean experiences. The convergence of Japanese prefectural per capita incomes started to appear around 1961 and continued in parallel with a generally high rate of national economic growth. This phenomenon appears to have been caused by a convergence of wages in different parts of the economy, which in turn result from a tightening of labour markets. At this time the Japanese government had not yet adopted the policy of decentralisation. Also, there is no evidence of decreasing economies of scale or increasing diseconomies of agglomeration in large metropolitan areas. What occurred was an upward shift of relative incomes in other areas, usually those near the vicinity of metropolitan areas. The same process which produced regional per capita income convergence prevented further population concentration in large metropolitan areas. He then suggested

that population concentration might be a temporary problem in developing countries. He also maintained that although the process in Japan took about 30 years, it should require less time in developing countries, if they can maintain a high rate of national economic growth.

Mera in his analysis of South Korea found that a trend of widening regional income disparities was reversed when per capita (GNP) was only \$240. This reversal was achieved initially by improving the terms of trade for farmers through pricing policies. Basing on the Japanese and Korean experiences, Mera concluded that; "it appears quite probable that the maintenance of high growth of the economy is an effective way of reducing the rate of population concentration as well as reducing income disparities among regions once the economy reaches a certain stage" (Mera, 1977:174). Mera, as indicated by Hansen (1981:25), clearly sides with Williamson, but emphasises that there is "a wide margin of flexibility" (Mera, 1977:173) with respect to the divergence-convergence turn-around point. There is thus no doubt that Williamson's thesis will continue to be confirmed by some country case studies and denied on the basis of others.

Hansen (1981) finally, concludes that, in light of available evidence, it would be premature to propose that developing countries merely wait patiently because there is an automatic mechanism that eventually will eliminate or significantly reduce regional disparities. He noted that to non-western economic development experience, Japan is clearly an exceptional case and Korea is far from typical. Nevertheless, these cases illustrate what may be achieved if a high rate of national economic growth is sustained over a long period. Williamson (and to a lesser extent Mera) ignores structural issues and implicitly adopts the view that macro-economic policy is all that matters; regional disparities and presumably other structural problems will then take care of themselves. Regarding this aspect, the situation in developing countries is very different. It may be necessary to deal with fundamental structural problems before national growth can

proceed to a point where it positively affects remaining structural problems. There is also a considerable body of opinion that maintains that the developing countries are not really masters of their fate because they are dependent on the developed countries, and more particularly on large multi-national corporations based in the latter. It is often argued that both their macro-economic and structural difficulties are to a large degree related to their inability to create an urban hierarchy capable of diffusing development-inducing innovations through the national territory.

The assumptions behind the notion that a strategy of economic polarisation and dependent integration is beneficial for developing countries has been criticised. According to Coraggio (1975) this approach erroneously assumes that there is no structural unity among social, economic and political phenomena. This in turn implies that a strategy aiming at social objectives can be reduced to purely economic terms; social and political considerations can be taken on later. It further assumes that internal relations take place in a harmonious context. This comes about because the state is an idealised, autonomous element in the social system; it is regarded as separate from any real power structure. Similarly, it assumed that a neutral, rational bureaucracy exists. Thus, the application of structural changes would not bring about changes in the predominant political structures. Finally the strategy assumes that polarisation mechanisms can be reproduced independently at any level.

Hansen (1981:28) finally sums up these criticisms and adds to the contention that a theory of regional development must be embedded in a theory of social change, and that it is impossible to compose a development strategy through "economic engineering" alone, even if the main problems of development have an economic basis. He also noted that the notion that multi-national corporations are involved in a process that exploits both the urban and rural sectors of developing country economies is held not only by Marxist critics of the "dependency school", but also by some western scholars who are not biased by a particular ideology. Western observers such as Gilbert (1975:30) find that:

"Large land owners who live in the major cities transfer capital from the rural to the urban sector; trade between the rural and the urban sector tends to favour the latter; industrial concentration, fiscal transfers and the organisation of the banking system channel the economic surplus of smaller cities into the metropolitan centres. From there, processes such as the repatriation of profits by foreign companies and the gradual deterioration of the terms of trade lead to the transfer of funds to the world metropolis. It is unnecessary to accept the full Marxist version of this argument to support the view that major transfers do take place from the rural to the urban sector" Gilbert (1975:30).

The same views that economic mechanisms cannot be dissociated from the institutional and social political variables are shared by Kuklinski and Petrella (1972: 208). They are also of the opinion that, like every theory, that of growth poles is also not ideologically neutral. "All studies made on polarisation," states Jacques Boudeville in his final remarks, "show that, far from being automatic, it depends on the effect of exogenous political variables, the effectiveness of which must be judged and from which a choice should be made" (Boudeville, 1972:178). Similar views are held by Penouil (1971: 119) who concluded one of his studies by supporting the thesis that "polarised development is a total phenomenon that has not only economic dimensions". Finally, Kuklinski (1970: 12-13) rightly stresses that "it is a dangerous mistake to reduce the problem of growth poles and growth centres to solely economic dimensions and to study it as a problem concerning the effectiveness of the investment policy". Wherever the growth pole concept is applied to underdeveloped regions or to the ex-colonised countries, "it would be blindness to consider the political, institutional, social and cultural variables as elements of simple differentiation of the process of polarisation. It is increasingly evident that they are determining and conditioning elements of it" (Kuklinski and Petrella, 1972:209). With regard to ex-colonial countries, Kuklinski and Petrella hold the thesis that the extent to which the

economies of the underdeveloped countries remain subordinated to the interests of the big industrial powers will determine the problem of their modernisation, their industrialisation and the strategies relating to it, which in the first place include the growth poles policy, and will always be hindered and conditioned by exogenous variables. Arising from this, they also considered the need for new research to be carried out in the ex-colonial countries with the aim of achieving a theoretical and operational re-evaluation of the growth poles policy (Kuklinski and Petrella, 1972:210).

### 2.3 Core-Periphery Interaction

Hansen (1981:19) noted that the first attempt to formulate a systematic and comprehensive centre-hinterland development model was made by Friedman, a planner. Another planner, Rodwin (1963), had earlier proposed a study of "Concentrated decentralisation" for developing economically lagging peripheral regions. As indicated by Hansen (1981:19), this suggestion was the same as the notion that induced urban growth centres should be the basis for regional development policy. However, according to Friedman, Rodwin's approach had failed:

"To discriminate sufficiently among development regions and their problems. Activation of new core regions is not enough, nor indeed, always appropriate. An effective regional development must deal as a system with the separate developments of core regions, upward and downward transitional areas, resource frontiers, and special problem areas" (Friedman, 1966:53).

Friedman (1972), as observed by Hansen (1981:20), maintained that development, that is the unfolding of the creative potential of society through a successive series of structural transformations, occurs through a discontinuous, but cumulative process of innovation. Development originates in a relatively small number of "centres of

change" located at points of highest potential interaction within a communication field. Innovations diffuse from these centres to areas of lower potential interaction. Core regions are major centres of innovative change, while all other territory consists of "peripheral regions", which are dependent on the core regions and whose development is largely determined by institutions of the core region. The process by which core regions consolidate their dominance over peripheral regions tends to be self-reinforcing as a consequence of six principal feedback effects of core region growth as observed by Hansen (1981:20). These are:

- 1.The dominance effect, or the weakening of the periphery by resource transfers to the core;
- 2.The information effect, or increased interaction and innovation in the core;
- 3.The psychological effect, or a higher rate of innovation due to greater visibility, higher expectations, and lower risks;
- 4.The modernisation effect, or social and institutional change favouring innovations;
- 5.Linkage effects, or the tendency for innovations to include yet other innovations;
- 6.Production effects, which increase scale and agglomeration economies.

Hansen (1981) also noted that core regions are located within a nested hierarchy of spatial systems, ranging from the province to the world. A spatial system exists where a core dominates some of the vital decisions of the populations in the other areas, and a spatial system may have more than one core region. Peripheral regions are dependent on core regions by virtue of supply and market relations, as well as administrative and also political organisation. For any spatial system, a loose hierarchy of core regions exists in relation to the functional performance of each core for specified characteristics of system performance. Innovation is diffused to the peripheral regions from the core, and core region growth will tend to promote the development process of the relevant spatial system. Eventually, however, increasing social and political tensions between the core and periphery will tend to inhibit the development of the core, unless these tensions can be alleviated by the acceleration of spread effects or decrease of the

periphery's dependence on the core. The conflict between the core and the periphery may result in the repression or neutralisation of peripheral elites, the replacement of core region elites by peripheral elites, or a more equal sharing of powers between core and periphery by means of political decentralisation and the development of new core regions in the periphery. With the political and economic decentralisation and the development of new core regions, the authority dependency relations between cores and their peripheries may disappear with relatively minor expectations in remote rural areas or in urban slums.

In general, Friedman's theory as analysed by Hansen (1981:21), assigns a decisive influence to the institutional and organisational framework of society, and especially, to the patterns of authority and dependency that result from the unusual capacity of certain areas to serve as cradles of innovations. According to Hansen (1981:21), Friedman's theory is attractive in many respects. In particular, it includes all space and it treats variables in specific areas as part of a larger system rather than as isolated phenomena. It also integrates cultural and political processes into the process of economic development. He identified, however, one principal weakness of the theory in that its theoretical propositions are not postulated in a form of readily testable hypotheses or mathematical statements; a common criticism of much of the growth centre literature.

## **2.4 Polarisation And Trickle Down**

According to Hansen (1981:16-17), Hirschmann maintained that development strategies should concentrate on relatively few sectors rather than on widely dispersed projects; the key sectors would be dominated by measuring backward-linkage and forward-linkage effects in terms of input-output maxima. He maintained that growth is communicated from the leading sectors of the economy to the followers, from one

firm to another. The advantages of this approach over "balanced growth", where every activity expands perfectly in step with every other, is that it leaves considerable scope for induced investment decisions and therefore economises our principle scarce resource, namely, genuine decision-making (Hirschmann, 1958:62-63). Geographically unbalanced growth requires special considerations, for "while the regional setting reveals unbalanced growth at its most obvious, it perhaps does not show it at its best" because successive growth points may all "fall within the same privileged growth space" (Hirschmann, 1958:184).

The principal reason for the tendency for economic growth activity to become over-concentrated in one or a few growth poles is that the external economies associated with the poles are consistently overrated by investment decision-makers on the grounds that "nothing succeeds like success". Thus, according to Hansen (1981:17), where a clustering of investments around the initial growth poles is beneficial at the beginning of development, it may be irrational at a later period. The actual effects of the growth points on the hinterlands depend on the balance between favourable effects that trickle down to the hinterlands from the progress of the growth points, and the unfavourable, or polarisation effects of the hinterlands as a consequence of the attractiveness of the growth poles. Hansen (1981) also observed that the most important trickle down effects are generated by purchases and investments placed in the hinterlands by the growth points, though the latter may also raise the productivity of labour and per capita consumption in the hinterlands by absorbing some of their disguised unemployment. On the other hand, polarisation may take place in a number of ways. Competition from growth points may depress relatively inefficient manufacturing and export activities in the hinterlands; and the growth points may produce a "brain drain" from the hinterlands, rather than create opportunities for their disguised unemployed. In the long run, Hirschmann argued that public investment would cease to be pulled so heavily into the developed areas, largely because of the considerations of equity and national unity. Moreover, after development has proceeded after some time in the growth points, "the need for public investment tends

to decline and in any event an increased portion of public investment can be financed out of earnings of previous investments" (Hirschmann, 1958:194). In this way, government funds are released for use in other regions and in the long run, regional differences will tend to disappear. However, no empirical evidence exists to support this view. Finally, Hirschmann suggests that while some investments in utilities in the hinterlands may be indispensable, the provision of infrastructure is only a permissive mechanism; the essential task is to provide the hinterlands with economic activities which will stimulate continuously development in industry, agriculture and services. According to Hirschmann, as development always tends to be geographically unbalanced, for a country to develop, there is the need for the emergence of growth points. The existence of these geographical growth centres would then, by themselves, ensure their further growth, primarily because of the external economies of agglomeration mechanisms, but also because economic operators are systematically inclined to overestimate the importance of the economies and neglect equally good or even better investment opportunities elsewhere in the country. Besides this, development occurring in geographical growth points will nevertheless set in motion forces that will induce development in the backward hinterlands. Hermansen (1972:184) further observed that trickle-down forces work particularly through inter-regional trade and transfer of capital to the backward regions. Their effects depend largely on the existence of complementarities between the industries in the growth centre and the hinterland. In addition, migration from the hinterland to the growth centre may absorb some disguised unemployment and raise the marginal productivity of labour and the income per capita of the hinterland. However, the progress of the growth centre may also, and particularly in the case of weak complementarities, have unfavourable polarisation effects on the hinterland. The industries of the hinterland can be depressed as a result of the competition from the growth centre, particularly as the transportation facilities are improved. Owing to better opportunities in the growth centre, the hinterland can be drained not only of its most able parts of its labour force but also of a significant share of what savings there can be.

As observed later by Hermansen (1972:185), the polarisation effects generated in the growth centres may well turn out to be stronger than the trickle-down effect, in spite of Hirschmann's optimistic view that in the long run external diseconomies of the growth centres, together with complementarities, will assure a spontaneous spread of development. A lasting dual society may then be created in which industrial and geographical backwardness coincide. The tendency for the polarisation forces to be stronger than the trickle-down forces was the main conclusion of Myrdal when he studied the problem of geographical coincidence and spread of economic development at the same time as Hirschmann ( Myrdal, 1957).

Myrdal (1957), in his space theory of circular and cumulative causation, maintained that a simple model of circular causation with cumulative effects is more consistent with actual social and economic processes than the static equilibrium analysis typical of economic theory. He found that whatever the reason for the initial expansion of a growth centre, thereafter cumulating expanding internal and external economies would fortify its growth at the expense of other areas. These economies include not only a skilled labour force and public overhead capital, but also a positive feeling for growth and a spirit of new enterprise.

In developing his analysis, Myrdal employed the concepts of "backwash" and "spread effects", which correspond closely with Hirschmann's "polarisation" and "trickle-down" effects. The backwash effects involve the workings of population migration, trade and capital movements. Like Hirschmann, Myrdal noted the selective nature of migration from the hinterlands to the growth centre. Similarly, capital tends to flow to the growth centres because of increased demand. Consequently, income and demand increase again, resulting in yet another round of induced investment. The tendency for increased inequality is reinforced by the flow of savings from the hinterlands, where demand for investment capital remains relatively weak, towards the centres of expansion, where returns are high and secure. In addition, Myrdal recognised the

critical significance of non-economic factors to the cumulative process of maintaining poverty in the hinterlands. These ranged from their inability to support the necessary social and technical infrastructures and their general outlook, factors which are detrimental to the experimental and rational orientation of an economically progressive society.

Hansen (1981:18) noted that among the spread effects which may counter the backwash effects, are increased outlets for the hinterlands' agricultural products and raw materials, and a tendency for technical advance to diffuse from the growth centres. The spread effects will be stronger the higher the level of economic development of a country. Moreover, the attractiveness of the growth centres may be weakened by increasing external technological diseconomies and high labour costs. Finally, governments of wealthier countries are likely to initiate policies directed towards greater regional equality. Despite the similarities in the approaches of Hirschmann and Myrdal, there are considerable differences of emphasis. Hirschmann was more optimistic about the long-run future of less developed countries. He also related his theory explicitly to less-developed areas within countries as well as to less-developed countries. Hirschmann seemed to take for granted that strong forces eventually will create a turning point, once polarisation effects have proceeded for some time. Both Myrdal and Hirschmann seem to agree, however, that the development of growth poles makes for a more efficient spread effect. However, whereas Hirschmann argues in favour of the need for initial geographical imbalance, through the creation of development centres, Myrdal takes the opposite stand and argues that the mechanisms for spread effects should be strengthened from the outset. Hirschmann, like the other students of development, concentrates on economic factors and neglects social, cultural, and political factors and processes that can be subsumed under the role of the cities in socio-cultural and political development. This role, as observed by Hermansen, is crucial both for national development processes and their relations with urbanisation, and for the formulation of policies to cope with the rapid reorganisation

of spatial organisation that takes place in transitional societies.

The development of growth poles looks ideal as a mechanism to stimulate development in the poles' hinterland. However, the problem is how to induce the trickle-down of development effects to the hinterland. Hermansen (1972:188), possibly in an effort to search for a mechanism to ensure that the "trickle down" effects of development materialise, saw that a distinction between the spatial incidence of new development phenomena and their transmission throughout space to be very useful. He also noted that, at a general level, Hirschmann and Myrdal identified the mechanisms of development throughout geographic space which will spill development over to transitional areas in between geographical poles, as "trickling down" and "spread effects". These effects can be viewed as the materialisation of diffusion of innovations in geographical space. Hence, theories dealing with the geographic diffusion of innovations are closely related to the theory of localised poles of development, both at the general level and as a tool to explain the dynamic process of transmission of development among poles and from poles to their surrounding areas.

In the late 1960s, major geographical and economic analytical strands of thought were synthesised in a general model of a hierarchical diffusion of innovation. Berry (1970) described the urban oriented framework of economic activities in space as having two major elements: a system of cities arranged in a functional hierarchy; and corresponding areas of urban influence surrounding each of the cities in the system. Given this framework, the spatial extent of development spread effects radiating from a given urban centre are proportional to the centre's size and functions. "Impulses of economic change" are transmitted from higher to lower centres in the hierarchy, so that a continuing innovation in large cities is critical for the development of the whole system. Areas of economic backwardness are found in the most inaccessible areas, that is, between the least accessible lower level towns in the hierarchy. Finally, the growth potential of an area located between any two cities is a function of the intensity of interactions between the cities. According to Berry (1970:45-46):

"One would conclude from this that if metropolitan development is sustained at high levels, differences between centre and periphery should be eliminated and the space should be integrated by outward flows of growth impulses through the urban hierarchy, and inward migration of labour to cities. Troughs of economic backwardness at the inter-metropolitan periphery should, thereby, be eroded, and each area should find itself within the influence of fields of a variety of urban centres of a variety of sizes. Continued urban-industrial expansion in major central cities should lead to catalytic impacts on surrounding regions. Growth impulses and economic advancement should "trickle down" to smaller places and ultimately infuse dynamism into even the most traditional peripheries".

Lasuen (1973) extended the hierarchical diffusion model by examining the complex interaction between economic development and spatial business organisation in an international setting. He maintained that development results from the adoption of successive packages of innovations in clusters of establishments linked to a regional export activity. These sectorally clustered sets are also clustered geographically. The diffusion and adoption of successive sets of innovations follow similar patterns resulting in a fairly stable system of growth poles. Over time, innovations require greater scales of operation and larger markets. They also come at shorter intervals. Large cities are the earliest adopters of innovations which then diffuse to the rest of the urban system. As a consequence of this process, the system of growth poles becomes increasingly hierarchical in nature. Lasuen placed considerable emphasis on the international generation of innovations, and he argued that if innovation diffusion is delayed because of inadequate organisation arrangements, then changes need to be made in order to minimise the costs and risks inherent in the learning process. This implies that development policies should put less emphasis on production promotion and more emphasis on marketing and technical knowhow. To Lasuen, the spread of

innovations in developed countries has been accelerated by the existence of multi-plant firms. In developing countries, the location of the firm and the plant is usually the same. This makes difficult the spread of innovations spatially. The uncertainties and risks of adopting innovations in developing countries are less than in developed countries because the relevant products have become internationally standardised; yet the spread of innovations in developing countries is slower because they lack external complementarities, and because the spread process must be carried out through a host of unrelated individual decisions. Lasuen also noted that, significantly, innovation adopters usually are persons who previously were importers, distributors, servicers, or producers of substitution goods, familiar with the marketing, financing and technical characteristics of the product. Innovation adoptions occur where the largest previous market areas of the product were found, normally the largest city. New producers are pressed to satisfy their own local demand and cannot supply smaller towns. Eventually, producers spring up in other local market areas in spite of their smaller captive markets. Thus, most innovations start in the largest cities and gradually trickle down through the urban hierarchy. For Lasuen this is true whether the product in question is market-oriented or resource-oriented because at this initial stage, production is tied to the location of the market.

Based on Lasuen's theoretical context, the policy implications for developing countries to absorb successive innovation clusters more rapidly is to reduce technical and organisational lags overriding national boundaries and planning multi-national firms on a continental basis. Internationally, only two basic alternatives exist. Firstly, the largest urban centre adopts an innovation before previously adopted innovations have filtered down through the urban hierarchy. This would lead to the perpetuation of economic dualism. Secondly, the adoption of innovations at the top of the hierarchy should be delayed until previously adopted innovations have been adopted in turn in the rest of the country. This would lead to greater equality among regions, but the nation as a whole would be less developed because older and less efficient technologies would be utilised. In practice, nations do not pursue either of these

extreme paths, but most tend (at least implicitly) to prefer a dualistic economy to one which is spatially egalitarian but generally retarded (Lasuen, 1973:182). Pedersen (1969) noted that:

"As the country develops, the transportation and communication network improves. This improvement in communication in general will increase the spread of information diffusion, but it will tend to benefit the largest towns most, and the information diffusion process will therefore change from being a spatial process to being a diffusion down the urban hierarchy from the large to small towns. As all of the delaying factors tend to be of small importance in large towns, the chance that intermediate non-adopters will delay the diffusion process decreases. This leads to an even further increase in the speed of diffusion".

Hermansen (1972:190) noted that the key to the aggregated application is the concept of hierarchical ordering of the mean information fields, which, together with inductive generalisations from empirical examples, suggest that there may be a close connection between the hierarchy of mean information fields and the hierarchy of cities within the system of central places. He shares the same ideas with Hagerstrand (1963:277) who puts it: "In all probability there exist rather stable hierarchical systems or normative centres which are very difficult to counteract because they reflect not the accidental status of a few single individuals but a status order between clusters of population". Hagerstrand's ideas on this are further illustrated in his other paper, "... a closer analysis of this shows that the spread along the initial "frontier" is led through the urban hierarchy". He then continues in the same paper:

"--- also the leading cities within a country should give impulses first of all to towns next in rank. The further spread is then heavily regulated by distance friction; strong ties of the major towns with the capital over a rather long distance occur; the local influence is exerted on lower order centres closer by" (Hagerstrand, 1966:40-42).

Hermansen (1972:190) noted that, although Hagerstrand developed his theory as a positive micro-theory applicable to relatively well developed societies, it seems likely that the theory may be of equal importance if reformulated as an instrumental aggregate macro-theory applicable to developing countries. The same views are shared by Lasuen (1969) who concludes that:

"The profound geographical regularity (hierarchical) of the patterns of the diffusion and adoption sub-process seems to me the most obvious factor to account for the hierarchical and stable order in which the system of regions grow and develop. For this reason, the factors determining the patterns which, steadily grow through time, follow the diffusion and adoptions of successive sets from some leading regions hierarchically down to the regions which follow, are to be considered the factors to explain the invariant behaviour of the system of the nations" Lasuen (1969).

Finally, as observed by Hermansen, innovation diffusion is a key process of development. As such, much attention has to be devoted to the formulation of propagation strategies. Instead of working against or trying to enforce other patterns of diffusion, efforts should be made to identify the prevailing system in order to exploit its ability to disseminate and persuade. He was also of the opinion that, the lasting under-development of some regions is due to their being outside the prevailing national patterns of diffusion channels. Based on this, he suggested that the communication patterns should be corrected by creation of a new class of centres in the urban hierarchy (Hermansen, 1972:191).

## **2.5 Development Planning And Experiences With Growth Pole Strategies**

### **2.5.1 Introduction To Development Planning**

Development planning as observed by Gilbert (1976:1), emerged late in both the now developed as well as developing countries, and is still evolving. The early attempts at planning were undertaken by the now developed countries in the middle of the 1940s and early 1950s to deal with economic hardships emanating from the Second World War, and still some critical economic and social matters have not been dealt with even today. Certain regions in countries like France, Spain, Italy, Britain and the U.S.A. were suffering from slow rates of economic growth and encountering acute social hardship. There was also a fear that further growth of their metropolitan cities would absorb scarce agricultural land and create insoluble environmental, social and economic problems. In response to this, countries like Britain, through the 1965 Control of Office and Industrial Development Act, designated "green belts", developed "new towns", controlled industrial growth and office building to save London. A bigger force pushing forward for spatial planning in developed countries was the fact that in most of these countries, regional problems were clearly political priorities, and as such could not be ignored. In developed countries, planning started from the local level. People at the local level demanded solutions and action on spatial issues.

Spatial planning in developing countries like economic and sectoral planning started rather late. This does not mean that they did not have spatial development problems at all, only that the spatial dilemmas as remarked by Gilbert (1976:2) appeared less clear-cut. The Third World countries had, and still have, the same problems of poor regions, rapidly growing cities and large regional disparities. These problems are actually more severe, in terms of spatial inequality, than they were in the now developed countries and hence demand more political attention. Unfortunately, given the prevailing desperation for rapid industrialisation and agricultural development,

these problems seem to be of lesser importance. The Third World countries are still faced with problems of having too few large cities, unemployment, poor health and nutrition, and the inadequacy of services is widespread. Worse still, in the less-developed countries, like Nigeria or Tanzania in the early days of Independence, planning was introduced from the top down, and, in such a situation, there is no way the local level can influence decisions pertaining to development activities over their areas, let alone to press for action on spatial or local problems.

Today there is an increasing awareness of regional development and spatial planning in Third World countries, as most Third World governments are now concerned about the most appropriate spatial economic structure for their national development. It was realised that the spatial distribution of investments created many difficulties and that they required much guidance in the direction as well as sectoral allocation. This enlightened attitude was assisted by planners like Friedman (1966), Alonso (1969), Rodwin (1970) and Berry (1969), who stressed the importance of spatial planning for developing countries. They argued that, first, urban and regional policies were necessary to ensure that development opportunities for natural resource development included marginal social groups. Second, to prevent the emergence of unwanted "primate" cities, or acute regional income disparities, planners have to intervene at an early stage in the distribution of industry, urban centres and transport links. Third, Less Developed Countries are basically transitional societies moving from agriculture to industry, and this requires careful spatial planning to ensure the proper utilisation of the existing resources. This is well elaborated by Friedman (1964:65):

"The regional policy for the nation would accompany policies for the overall development of its resources. Specifically it would add the dimension of space to other considerations. Modern economic development - the transition from one form of social order to another - leads to shifts in the organisation of space economy ... where an economy is moving out of an agrarian past into an

industrial future, spatial organisation involves primarily a process of concentrating people and economic activities in cities. Further shifts take place as development proceeds into the post-industrial phase. These shifts pose serious problems for the society: Where should concentrations be encouraged? How many areas of emigration? ... What should be done with areas that fail to adapt to the changed conditions? What may be done to assist the process of concentration?".

Despite the fact that spatial planning in developing countries is a new phenomenon, there is every indication that it is growing rapidly in political importance and is beginning to affect national economic and social policies. India has a long tradition in planning; Nigeria established a Ministry for Economic Development in 1970; Tanzania adopted a "growth centre" policy and established a new capital as a way of arresting the growth of Dar-es-Salaam, the primate city; and Kenya has incorporated a "growth centre" strategy into its rural development programme. It is unfortunate that the efforts to incorporate spatial aspects in planning have not so far yielded the desired fruits due to a number of problems facing spatial planning and development. According to Gilbert (1976:5), these problems include:

- 1.The national policies of the various countries.
- 2.The isolation of national planners from grass roots reality.
- 3.Planners insufficiently subtle, or politically aware, to convince politicians and administrators of the urgency and need for the courses of action they recommend.
- 4.Earlier planners' inability to set or establish realistic goals.
- 5.Frequent changes of strategies.
- 6.Sophisticated planning and many plans with little external consultation.
- 7.Planners' weak role in state machinery and conflicts between planners and politicians.
- 8.Shortage of competent professionals to manage planning offices.
- 9.Intellectual failure to define accurately problems which planners should resolve and

to state clearly the kinds of techniques they require.

10. The absence of ready-made tools for use in Less-Developed Countries.

11. The tendency to transfer western experiences and models wholesale, even in situations where the very models have not worked well elsewhere.

Chief among these difficulties, according to Gilbert (1976), is the lack of precise knowledge by the planners on what they can do and what they ought to do. This results from the lack of theoretical and academic work, relevant to their particular planning problems, as well as experiences of other Third World Countries which have engaged in some form of spatial planning. This limitation has led Third World planners to accept blindly models which have been formulated in developed countries. In Third World countries, there are both cultural and economic barriers; for example, internal regions are frequently more socially and ethnically diverse than in developed countries. Hence, procedures for allocation are more difficult as social harmony has to be maintained. There are also greater spatial economic variations and more marked inequalities between regions, as well as significant political and administrative barriers on occasions. The adopted strategies must be consistent with the ideological and philosophical goals of the country, especially necessary as the political and administrative commitment to support, finance and administer the strategy is crucial. To use Gilbert's words (1976): "Good planning demands local answers based on knowledge about local resource availabilities, political aspirations and social conditions." When this knowledge is sound, indigenous methods and concepts for development planning can be developed, or a modification of imported models can be undertaken.

Arising from these difficulties facing spatial planning in the Third World Countries, and in particular Tanzania, the present study is an attempt to evaluate the spatial planning strategies adopted in Tanzania in relation to the existing spatial structure and development goals and policies. This is intended to contribute to our knowledge on

which spatial structures may be most appropriate for the development of a particular country.

### **2.5.2 The Case of the Mezzogiorno, Italy**

Italy experimented with growth pole policies in developing the Mezzogiorno, a backward region in the south of the country. In 1957 the development office in Mezzogiorno was charged with promoting the location of industrial activities in the backward region through the creation, development and administration of infrastructure, such as road and railway connections, water and energy supply installations (Ricardo, 1972). This strategy was based on the two fundamental arguments of industrial location theory and of spontaneous polarised growth: the pre-existence of attractive factors for the location of industrial activities; and the wish to obtain external economies so that the pre-existent locational factors can have the highest degree of influence. The policy was operationalised by the creation of 12 areas and 34 nuclei of industrialisation.

Analysts of the Italian experience, such as Ricardo (1972), explain the failure of the growth pole strategies as originating from three main factors. First, the policy of poles of development in the Mezzogiorno has been hampered by the multiplication of areas and nuclei and, thus, by the difficulty in pursuing an effective concentration of initiatives by the public authorities. Ricardo (1972) argues that even if a more restricted number of areas of industrial development had been designated, it is still likely that there would have still been a concentration of infrastructure at individual locations and certainly of the population, speeding up the abandonment of the remaining territory of the Mezzogiorno. Second, the failure of development poles in the Mezzogiorno is not due to a deficiency in the underlying theory, but is due to the fact that it had been applied following the logic of unplanned spontaneous industrial location, while the public authorities followed a policy of planned and voluntary

development. In addition, it had been applied without the development processes of the national economy being held back everywhere else. A third reason lies with the political and social forces which had weakened development policy in the Mezzogiorno. These included the activities of the Maffi group which reduced the effectiveness of reforms.

Ricardo (1972:202-204) holds the opinion that the polarisation policy would have been different in the Mezzogiorno if the following two elements had been present: firstly, the existence of a contractual force of agricultural *braccianti* (unskilled day labourers) and a determining presence of labour unions; and, secondly, is the existence of regional powers which should have enabled the population of the Mezzogiorno to take direct responsibility, within the framework of a national strategy for the whole of the country, for the problems of development. Unfortunately many *braccianti* had been leaving the countryside. Those who were left were neither united nor organised. The workers in towns were dispersed in small factories of an artisan type and had no effective trade union or political influence (it was only in 1970 that the decentralisation of the public powers and planning responsibilities were established throughout the territory). The aim of the national policy being industrialisation, it had been difficult within the framework of growth poles policy in the Mezzogiorno, to face up to the pressures of the economically strong regions of the country. When a choice of location and/or use of national resources had to be made, the regions, put forward the argument that investments should be located in the most dynamic activities in the northern regions. Ricardo (1972) also noted that even the legislative law compelling state enterprises to locate at least 40 per cent of any new investment in the southern regions, one of the conditions needed to promote the creation of poles there, has not always been respected. Further, Ricardo concludes that the Mezzogiorno experience shows that the elements on which action should be taken in the application of a growth pole policy are extremely complex, and that such a policy implies a widespread co-ordinated action at transforming the existing conditions of not only economic, but also the political, social, institutional "Milieus", not only at the local level or regional level

of areas directly concerned by the poles, but also, at the national level and, in the case of Italy, at the European Community level.

From the Mezzogiorno's experience, it can be seen that for the policy to have a chance of success, it is necessary to start with only a few centres of concentration of resource investments to avoid spreading the resources too thinly and eventually rendering them ineffective. This is particularly necessary for Third World countries where resources for effective development are limited. There is also a need to have control of the whole national economy and an ability to deflect further development in the already better developed regions of the country to allow the backward regions to develop. The existing economic, political, social and institutional conditions at the local, regional, national and in some situations, the international levels have to be transformed in line with the growth pole theory to allow for the spread effects to the hinterlands of the growth poles. Besides the implementation problems, some deficiencies exist in the underlying theory itself, as it is applied on the logic of unplanned spontaneous industrial location, while, in practice, it is a question of planned and voluntary policy public authorities. This made it difficult for the enforcement of Legislative Laws to make investors invest in backward regions, a condition necessary for the development of the backward regions.

### **2.5.3 The Case of China**

The Chinese have been alternating combinations of "top - down" and "bottom - up" strategies in their rural development policies (Wu and David, 1981), and this has been complicated by variations in approaches to planning in different parts of the country. The two main approaches represent a differing treatment of: firstly, the pursuit of equality among individuals and among rural and urban populations; and secondly, the relationships between rural and industrial development; and lastly, the administrative

structure for development. Development strategies were formulated within a framework of socialism, and were made possible after a revolution where the ownership of the means of production had been collectivized.

"Planning from above" in China, as examined by Wu and David (1981), might best be exemplified by early efforts to collectivize agriculture with the imposition of collective farming on a large scale. Private plots, as well as private markets in rural areas, were discouraged. This culminated in the "Great Leap Forward", with the centralised planning of production targets, production schedules, and even methods. National and state control were paramount. During the Cultural Revolution, which came to be known as the regime under the "Gang of Four", there were more egalitarian policies equalising individual incomes. At the same time, a centrally directed decentralisation of state, as well as provincial, control of enterprises was a continuing strategy.

"Planning from below", as observed by Wu and David (1981), might best be exemplified by the better-known rural development strategies under a system of restructured communes with more responsibilities given to the brigade and, in turn, to the work teams. The accounting unit was decentralised to the brigade level. Private plots and markets were allowed. Decision about production methods, what to be produced, as well as the distribution of income and surpluses, were decentralised to the team level. Small-scale industries, managed along similar lines, were established to serve the needs of agriculture and the rural population. In the communes more responsibilities were given to the brigade and in turn to the work teams. It has been indicated by Reynolds (1978) that the two planning approaches have tended to be applied at various times to industrial as well as rural development, and could operate in different sectors at the same time. What occurred within China is therefore not so much a succession of approaches, but often a simultaneous implementation of "from top down: from bottom up".

In China, strategies characteristic of "both planning from above" and "planning from below" have been practised for more than 30 years since the establishment of the People's Republic. The strategy of growth centres to promote regional development is a recent example (Wu, 1976b). It is not clear whether "growth centres" as such have been considered by the Chinese, but the intentions of their programmes of industrial decentralisation have been generally similar to that of most developing countries (Wu and David, 1981).

The impacts of China's policies of decentralisation can be seen by ranking provinces by per capita gross value of industrial output (Wu, 1979a). The most notable changes in the ranking for the 1949, 1952, 1957, 1965 and 1974 years were those of Nei Monggol and Gansu. These have experienced significant new resource development and are the locations of several new industrial cities. Nevertheless, despite the adoption of decentralisation policies in China, the available estimates confirm that the coastal provinces, dominant in 1949, still remain the central industrial core in spite of vigorous decentralisation programmes. The relative positions of the top-ranked provinces and those at the bottom have virtually remained static since 1952. Provinces with the lowest per capita incomes have remained relatively the same since 1957. The top four ranking provinces (Shanghai, Liaoning, Tianjin and Beijing) maintained their positions throughout the same period, though a small decline in their total share is evident. As observed by Lardy (1976), the highest concentrations have been prevented and this is the mark of success when compared to generally worsened inequality in most developing countries during the same period.

This analysis demonstrates that in spite of the forceful implementation of policies aimed at a more even distribution of industrial activities across China, the dominance of the pre-revolution industrial centres remained largely unchanged. The coastal industrial core continues to dominate due to the necessity to expand heavy industries, most of them based in the existing core, in order to promote other light and agro-based

industries. Resource endowments also play a part; much of the increased industrial output which has occurred in the interior provinces has been due more to the development of extractive industries, particularly petroleum and coal, rather than any other factor (Wu and David, 1981).

The stability of the spatial pattern of industrial output in China confirms the more recent thinking among development theorists that the redistribution of urban-based industrial activities is unlikely to bring about significant changes in reducing spatial inequality (Friedman and Douglass, 1978; Lo and Salih, 1978; Appalraju and Safier, 1976). Lasuen (1969) has argued that no significant changes in the spatial system can be expected in the early stages of the development process, hypothesising that economic growth will simply distribute itself over the existing urban system, leading to a stable pattern of growth. This, according to Wu and David (1981:161), seems to have been confirmed by the available information on China.

Centrally directed industrial decentralisation, as the major component of national development, is characteristic of the "top-down" type of development strategy. It has been criticised for its "urban bias", that is, for focusing investments in urban centres and in activities such as industries, which inevitably favour urban locations (Lipton, 1976). Regional development strategies, based on the decentralisation of industries, assumes that growth would decentralise from the selected points and the development of the surrounding areas would follow. It further assumes that the surrounding areas of such centres would benefit by a greater degree of connectivity with the centres (Richardson, 1978; Rondinelli and Ruddle, 1978; Rodwin, 1978). China's experience of decentralising major industrial activities reflects a similar locational approach, though it is not clear whether her planners subscribe to the assumptions which underlie such policies (Paine, 1976). Wu and David (1981:161-162) observe that rapid urbanisation is not exclusively the result of a "top - down" type of development strategy. The rapid population growth associated with industrial decentralisation merely underlines the fact that economic growth may not necessarily

spread to other parts of the region, since urban concentration generally results from such industrial development. Again, the Chinese experience in this respect is similar to that of many developing countries.

Planning "from above" has not been limited to industrial planning. Soon after the revolution, agricultural development policy consisted chiefly of land reform measures to redistribute surplus land from the rich peasants. This was not a complete reform as rich and middle-peasants continued to flourish, and polarisation among the rural population continued (Wong, 1973). The above policy resulted in persistent poverty in the rural areas, and this prompted experimentation with the collectivisation of agriculture. Step by step, the early successes with the agricultural producers' cooperatives encouraged the leadership, and, in 1958, they announced the formation of people's communes. The communes had an average of 5,000 households, and were aimed at self-sufficiency and combining political, social, economic and cultural functions. These were later organised into large production brigades of about 250 households each, and these were further subdivided into smaller production brigades (later called teams) of about 40 households. The system of organisation vested management of all resources and decisions for production at the commune level. Production levels for communes were fixed by plan directives which merely reflected central planning goals rather than being related to local production capabilities (Wu and David, 1981:163). The need for investments in the rural areas was ignored; as an example, in the years 1953-1957, only 6.2 per cent of the state budget was invested in the agricultural sector (Wheelwright and McFarlane, 1970). The impacts of these measure were not very successful, as "Inflexible central management and planning, combined with ignorance of local conditions; and three years of exceptionally bad weather, brought chaos to agricultural production and suffering to the countryside" (Wu and David, 1981:163).

As attempts at "planning from above", especially the policies of collective agriculture and industrial decentralisation, did not generate the desired results, other attempts, with more emphasis on rural development, were undertaken with "planning from below". This approach, as analysed by Wu and David (1981:175-178), has been more successful due to the facts that :

- 1.The strategies focused on the provision of basic needs to ensure that the population had productive work, was supplied with essential commodities, and was provided with medical care.
- 2.A well-defined national framework for local control of decisions regarding the use of resources, planning for production, infrastructure improvements, work values, work distribution, and the deployment of surpluses was introduced.
- 3.National policies which consistently supported the rural sector through the reduction of agriculture tax, guarantee of low taxation, price support ensuring favourable terms of trade for the agricultural sector as well as provision for purchase price bonuses for production aboveplanned targets were implemented.
- 4.Small-scale industries, complementary to the rural sector, were promoted.
- 5.Emphasis was placed on the use of local resources, manpower, and knowledge, that is self-reliance (Jiang, 1965; Morehouse, 1976).
- 6.Surpluses from the industrial enterprises were generally ploughed back for reinvestment. This is very important as one of the major causes of continuing rural underdevelopment in many developing countries is not the lack of productivity but the lack of local control over the surpluses Griffin and Ghose (1979).

Wu and David (1981:177) finally observed that the six essential features that brought success to the Chinese rural development strategy outlined above are integrally related and complementary. These elements provide the basis for a new set of interdependent urban and rural relations. The Chinese experience suggests that a rural-bias and a class-oriented strategy is necessary to address the existing inequalities and to promote interdependent urban-rural relations. The Chinese experience also gives support to the

concept of "selective regional closure" (Stohr and Todtling, 1977; Lo *et al.*, 1978; Stohr, 1981; Lo and Salih, 1981), as a strategy to promote regional development. A key element in this concept is regional control over the penetration of its economy by outside (national and international) elements, as well as control over economic surpluses generated within the region. The Chinese experience with rural development supports the basic ideas of regional closure as a means of ensuring rural development. For any proposal for "selective regional closure", two features of the Chinese experience are particularly relevant: these are self-reliance; and the national support system (Wu and David, 1981). Regional self-reliance, under collective ownership and decision-making, allowed for regional variations in styles of management in selecting programmes suitable to the regional level of development and to the available resources. The devolution of power, that is, decision-making, to lower levels closer to individuals, is essential. Self-reliant rural development was possible only with the implementation of a carefully designed national support system, including the favourable pricing of agricultural commodities, tax reductions, favourable terms of trade, as well as a unified purchasing and distribution system. These made possible the increase of rural incomes and, consequently, the generation of accumulated surpluses. Unified purchasing and distribution regulates the interactions between the regional, national and international systems. The Chinese example also shows the importance of institutional arrangements. This gives peasants and masses sustained participation, a factor which motivates them to take responsibility over their own development, thus promoting rural development.

#### **2.5.4 The Case of Tanzania**

At Independence in 1961, Tanzania was amongst the poorest nations in the world. Potential development opportunities were considered to be limited, and as such, the colonial powers had not interfered as much in its internal policy or social structure as they had done in other African countries. However, foreign domination influenced the organisation and the direction of the economy. About 85 per cent of exports consisted

of raw materials, and external trade contributed about 50 per cent to GDP. The physical and social infrastructure was concentrated in towns and in export or cash-crop producing areas. The remainder of agriculture and the rural population were largely left to themselves, or were called upon as a labour reservoir for labour demanding estates. Industry in the modern sense was small, contributing 7.6 per cent to GDP (Economic Research Bureau, 1988:23).

Lundqvist (1981) further observed that the rural sector was divided into two systems as far as crop orientation was concerned: export crops and food crops. Sisal, coffee, cotton, tea and cashewnuts were essential cash or export crops, accounting for about 75 per cent of total net monetary output in agriculture (United Republic of Tanganyika and Zanzibar, 1964, Vol.1, p.20). The regional distribution of these crops was uneven, with four out of 17 regions producing some 60 per cent of the total. Export and cash crop production stretched in a belt in the north along the border of Kenya, Lake Victoria and Uganda. The central and western parts of the country were virtually without these important crops, and agriculture in the south was of minor importance. This crop orientation and distribution persisted after Independence (Jensen, 1968; Briggs, 1980) and was further concentrated as "self-sufficiency of the family agricultural unit will be discouraged and specialisation in one or two crops urged" (United Republic of Tanganyika and Zanzibar, 1964, Vol.1, p.20).

The first five years of Independence saw a rapid growth in the volume and value of major crops with the exception of sisal. The value of cotton, coffee and cashewnuts more than doubled between 1961 and 1966 (United Republic of Tanzania, 1969, p.14). As observed by Lundqvist (1981:334), monetary income naturally increased in regions producing these crops compared to the other regions where staple crops were grown. As a result, the value of total marketed production per capita showed large variations between regions. In 1966, Dodoma in Central Tanzania marketed a production equivalent to TShs 28.00 per inhabitant, while marketed production in

Kilimanjaro was worth TShs 258.00 per inhabitant (Jensen, 1968). The value of production marketed in other regions varied between these two extremes, although the high-income regions in the north were clearly predominant. However, although there was increased total crop production and value in general, with some crops like cotton, the increase was mostly through increased cultivated areas; labour productivity and crop husbandry did not appreciably improve. Growers did not benefit to the extent implied by production figures. Rather, it was the traders and transporters who benefited (Mapolu and Phillipsson, 1976:51). To use Lundqvist's words, "It was literally speaking regional growth, and not regional development" (Lundqvist, 1981:335). The relative growth and wealth in cash export producing areas was further augmented by the First Five Year Development Plan (FFYDP) policy. In addition to crop orientation, the policy of settlement schemes contributed to a concentration of rural development resources in small areas and mostly on progressive farmers. This created "islands" of development, whilst most peasants were left out. New social and regional disparities arose, and because of these frustrating developments this approach was abandoned in 1966. The projects were also capital intensive while funds for them were limited (Briggs, 1980; Hyden, 1980; Lundqvist, 1981).

The cash or export crop earning areas were increasingly affected by price fluctuations. Lundqvist (1981:335) observed that export earnings from sisal were reduced by more than 50 per cent between 1963 and 1967, and, besides the disruptive consequences on the national economy, effects were even more severe at the regional and local levels. The fall in total export earnings was serious, as imports had greatly expanded. The plan (FFYDP) was greatly dependent on foreign aid, and, due to strained political relations with some donors, about half of the anticipated funds never materialised. The FFYDP, to use Lundqvist's own words, "was basically a "centre-down" strategy with capital, technology, and expertise expected largely to come from abroad" (Lundqvist, 1981:336).

With the frustrations experienced in the FFYDP in the over-reliance on foreign aid, self-reliance was viewed more favourably. This, coupled with the internal situation which had led to the promotion of a privileged class, culminated in the Arusha Declaration in 1967, in which self-reliance and socialism were declared as major policy guiding national development. This was followed by the nationalisation of all the major means of production. To use Lundqvist's words (1981:337), "whatever the motive, it is clear that changes which took place after the Arusha Declaration created a situation where a "bottom up" strategy could be implemented". The Second Five Year Development Plan, 1969-1974 (SFYDP), translated some of the Arusha Declaration intentions into planning guidelines. Rural development had top priority and major emphasis was put on *Ujamaa* development: "modern traditionalism". The SFYDP also advocated a spread in urban development to divert expansion from Dar-es-Salaam into nine regional centres (Lundqvist, 1981:337).

The *Ujamaa* idea includes communal arrangements in ownership, work effort, and the sharing of benefits. Through *Ujamaa* development, it necessitated the movement of the dispersed population into concentrated village settlements. This was done in three main phases. Voluntary movement to *Ujamaa* villages took place from 1967 to 1970 by which time only about half a million were then registered as living in these villages. Selected/forced movements took place between 1970 and 1973, at the end of which period two million peasants lived in *Ujamaa* villages, accounting for 15 per cent of Tanzania's total population. Movement to villages, without communal production being a component part, has taken place since 1974 (Briggs, 1979:698; 1980; Hyden, 1980:101-104). Regional differences in the spatial distribution of villages appeared from the start. In 1969, Mtwara region, near the Mozambique border, had one-third of all the villages while at the same time, half the country had only 15 per cent of registered villages. For four years, about one-fifth of villages were concentrated in one region, Mtwara, and one-fifth were spread out in nine regions with low *Ujamaa* village densities. Response was particularly low in the more affluent regions of

Kilimanjaro, Arusha, and West Lake in the north and north-west, with only 1-3 per cent of the population living in registered villages. It is clear that geographically, the number of Ujamaa villages was uneven (Briggs, 1979:698; 1980; Hyden, 1980:101-104; Lundqvist, 1981:338).

Resulting from the movement to *Ujamaa* villages, the loss of crops left behind or destroyed, other labour demands at the new location, the uncertainty and unsettling influence of the TANU decision of September 1973 to move the rural population to concentrated villages and the severe drought in 1973, agricultural production declined (Briggs, 1969:699; 1980; Hyden, 1980). But, as observed by Lundqvist (1981:341), national agricultural growth had been declining for a long time. The performance of this sector raised questions about the policy's relevance. Food imports had also increased since the 1960s, placing a heavy burden on foreign reserves. Lundqvist further observed that besides the overall decline in production, evidence shows that the regional income gap for small holders increased during the early 1970s. There were relatively wealthy farmers, especially in the northern regions with a favourable climate. These are areas where missionaries have in the past encouraged the growth of commercial crops. To use Lundqvist's own words:

"geographically it is interesting that these areas with relative land scarcity have a fairly high income level on average - though there are certainly poor people here as well - whereas regions with land abundantly available have relatively small high income groups" (Lundqvist, 1981:341).

Priority for rural development also implied changes in the administration of planning. One step was the establishment of the Regional Development Fund (RDF) in 1968, which allocated one million Shillings to each region for projects not exceeding TShs 50,000 million each, a step which increased the power of regional authorities. A further step which came in 1972 with decentralisation was to strengthen the regions' involvement in planning their own development. Decentralisation upgraded the rank

of Regional Commissioner to that of Minister, and, in addition, new positions of Regional and District Development Directors were created. Forty per cent of the national development budget was transferred to the regional level, under the direction of the Regional Development Director and his staff. As a logical consequence, regional and lower government levels formulated development plans to be approved by the Prime Minister's office for review and co-ordination. At the same time, local governments and town councils, which had been inherited from the colonial era, were abolished.

In practice, however, the RDF was largely spent on infrastructure. With a high demand on the RDF budget, many applications were rejected, especially those calling for social schemes which exceeded administrative capacity. Also, the intention to decentralise 40 per cent of the national development budget to regions was not fulfilled. The Prime Minister's Office (PMO) had the right to reject projects proposed by regions and sometimes the cuts were much greater: "Data for Rukwa Region indicate that the regional submission of their 1976/77 plan stood at TShs 48,095 million. This is what represented the views of people of Rukwa since it had been approved by both the Government and Party organs in the region. Pressure from the centre, i.e. PMO and Treasury, caused the regional authorities to cut down the budget half way to TShs 24,447 million. This submission was not even accepted for it had to be cut down further to TShs 15,373 million. Ultimately the approved regional budget was TShs 15.18 million" (Shao, 1977:42).

As observed by Lundqvist (1981), decentralisation succeeded in terms of central bureaucratic control but failed in ideological conformity, popular participation and expediency. Coulson (1977: 93 - 94) summarises decentralisation thus: "it was a decentralisation of the civil service: for elected local government was abolished ..... the Party strengthened the salaried Party officials at the expense of the elected

representatives". The success of decentralisation of economic activities in Tanzania is also doubtful. Sawers (1989) observed that:

"This re-organisation, universally described as decentralisation, is frequently cited as one of the policies designed to lower Dar-es-Salaams' primacy and promote greater regional equality, but how this effect is to come about is not clearly specified. Indeed, I argue that the opposite is more likely. The re-organisation could just as easily have been described as centralisation instead of decentralisation" (Sawers, 1989:847).

The Second phase of decentralisation was seen as the strengthening of central control in both rural and urban - industrial sectors (Lundqvist, 1981). Although conditions were conducive for the implementation of a "bottom - up" development, this advantage was lost, as central control was imposed to ensure popular participation in planning and project implementation. Besides a deceleration of the agricultural growth rate during the second phase of decentralisation, there were increasing inter- and intra-regional differences in terms of income and response to *Ujamaa* policy. By the end of 1976, over 13 million people, that is almost the whole rural population, were reportedly living in development villages (Nyerere, 1977 : 41). Villagisation was seen as a step to better living conditions for the people. As noted earlier, however, production decreased, particularly in the initial phase of settlement in the new location. More disturbing in the long run, was the effect of lack of selectivity in the choice of sites. To use Lundqvist's (1981 : 344) own words, "it seems that access to and from towns and authorities played a central role. As a result new settlements were located near roads. This could increase farmers' accessibility to production inputs and markets for their products as well as incentive goods". In some cases this had disastrous results for agricultural progress. "In certain regions, among them the West Lake Region, the existence of roads had been the key determinant for the location of villages. In the Karagwe district this is a disastrous choice. Here the roads are mainly located in the top of the mountains where the soils are thin and sandy, excellent for

roads, but unsuitable for cultivation. The traditional villages are located in the valley bottoms where the fertile soil has been washed down and where the drinking water is available" (Boesen *et al.*, 1977:172).

The country had aimed at self-sufficiency in food and consumer goods. However, the Tanzania's economy was in serious trouble, especially between 1974 and 1976 (Lofchie, 1978; Briggs, 1979; Coulson, 1982) and imports of food and manufactured goods were rising. The drought affected both food and cash crop production. Cotton production was most severely hit and showed a decrease in export from an index of 145 in 1972 to 85 in 1975; coffee declined slightly in 1974 but recovered in 1975 (Nnunduma, 1977:99). The existing regional disparities were intensified by the crisis. In the coffee-producing areas in the extreme north, south and west, the decline in production was balanced by increased prices on world markets, which enabled peasants to increase slightly their incomes. Poorer regions, mainly in the central, southern and western parts of the country, raising mostly food crops, were less fortunate. On average earnings here were about 15 per cent less in 1975 than in 1969 (Lundqvist, 1981:345). In urban areas the crisis hit low income groups because of their different consumption patterns. While middle grade civil servants in Dar-es-Salaam had a rise in price index for goods and services of about 51 percent between March 1974 and March 1975, the increase in consumer prices for minimum-wage earners in the same period and district rose by 73 per cent (Nnunduma, 1977).

Efforts up to 1978 had concentrated more on institutional aspects of villagisation and the settlement pattern; but attention was also paid to producer price policies as incentives to stimulate rural growth. Lundqvist (1981:346) observed that, by May - November 1974, substantial price increases had been announced. For the 1978-79 season, price increases were announced in December 1977 (Daily News, 31 December 1977). The increases were for cash crops only, prices for food crops remaining stable. Cash crop production was clearly of concern: "... our cash-crop production

continues to decrease from year to year, although due to favourable prices for some of them, the monetary value of these crops has not decreased" (United Republic of Tanzania, 1978b:11). There was also an announcement that the Third Five Year Development Plan (TFYDP) was to place special emphasis on ox-ploughing, to raise area productivity. Until the end of 1977, increases in production were due to the cultivation of new land (Daily News, 27 December 1977). Unfortunately, all these measures only widened the inter-regional or geographic distribution of income. Price increases further enriched the export crop areas, while the ox-plough programme, where successful, only favoured those areas where the animals can survive (tse-tse free area) and where the terrain makes possible the use of the plough. Consequently, the project favoured only a few geographic areas in the country.

Analysing the Tanzanian experience so far reveals a clear picture that, although politically independent and with claims to pursue a rural development policy of socialism and self-reliance, there is still a marked external influence on the organisation and direction of the economy. The economy is still export-oriented, with a dependence on the export of raw materials. As such, more emphasis has so far been given to cash crop production, and price policies have favoured cash or export crops. This means a higher income for the cash-producing areas and producers. Unfortunately, there is an uneven geographic distribution of agricultural resources, specifically rainfall and soils, with the highland areas more favoured. This results in an uneven distribution of cash crop growing areas, and hence incomes, with the cash crop areas covering only four out of the 17 regions. As indicated by Lo and Salih (1981), for equitable spatial development to take place, there is a need at the initial stage to redistribute income, and this necessitates the redistribution of the assets which determine income distribution. In this case, it is not easy to redistribute the cash crop growing areas over the whole country as this depends on environmental factors. But within the same area, income can be distributed more uniformly in the country by policies which boost food crop production (non-traditional cash crops) to serve as food as well as a cash crop for the food producing farmers and areas. Better and

broadened marketing opportunities on the non-traditional cash crops will increase the income of the food crop producing areas and farmers, and possibly make it possible for more savings and investment for further development of such areas. In this way, spatial income inequalities, fostered through an emphasis on traditional cash crops, could be reduced.

## **2.6 General Observations and Conclusions**

The experiences of both developed and developing countries experimenting with growth pole strategies do not appear to have been very successful. In practice development, expected to spread from the growth points to their surrounding hinterlands, has been difficult to achieve. The "spread effects" have tended to be smaller and spread only to very limited geographical areas. The "backwash effects", increasing polarisation of the growth points, seem to have been stronger.

The colonial experience in countries such as Nigeria, Tanzania and the Ivory Coast indicated that the main emphasis on development was on a limited range of export crops to the colonial countries and on the construction of transportation and communication systems to facilitate this, that is, transportation of crops to sea ports. As such, the transportation and communication patterns developed at that time were to foster colonial administrative and economic control of the country. This led to the development of a monetised exchange economy and stimulated cash crop production. The present spatial problem results from the imposition of a colonial spatial order, and this, therefore, is the main mechanism responsible for the disequilibrium that has shaped the spatial patterns of subsequent economic development. This has resulted in the marked spatial contrasts associated with a dual economy, whereby, the rural/agricultural populations support urban development, and, in turn, receive little or no benefit in terms of Hirschman's "trickle down" effects.

In the early years of Independence, most developing countries did not take into consideration the spatial consequences of development projects. This enforced further spatial inequalities, especially between the rural and urban areas, a situation reinforced by transportation and communication networks which focus on the capital city / port, leaving the other towns and areas largely unconnected with each other. This situation has frequently been perpetuated after Independence through development plans which have maintained spatial disparities in development and income.

Most developing countries, have been practising one form or another of a "centre-down" approach, but due to a marked lack of success, some countries like Tanzania and Nigeria have already embarked on the "bottom-up" approach. Other countries, such as China, have combined the "bottom-up" and "centre-down" approaches. Chinese experience with this combination has been comparatively successful. However, conditions such as size of the country in terms of area and population, the political system, the existing level of economic development and the available resources for development, plus other socio-economic, political conditions in China, are different when compared to ex-colonised African countries. This means that the approach used in China cannot be uncritically transferred to these countries. It might possibly require a different degree of the mix of the same two approaches, or they may not work at all.

Lo and Salih (1981:133) observed that an approach to regional development from below requires some degree of regional closure. Without the ability to internalise the benefits of their own resources, regional economies outside the core areas will continue to be subject to overwhelming national and international forces, leading to the capture of these resources outside the region with little, if any, observable top-down spread effects. Based on this, they suggest that the growth pole strategy has a potential, but is inappropriate for the development of underdeveloped, peripheral regions, because the strategy represents an approach to regional development from

outside, when in fact the source should be internal, at least in the early stages until an overall initial evenness has been achieved. They also observe that, under current conditions of dependency and high regional leakage, no turning point can be expected within, perhaps, several decades, unless the basic unequal structural relations are transformed. The inequality which exists between the core and the periphery could be eliminated through decentralisation strategies, as attempted by many developing countries like Tanzania, but these strategies cannot be implemented fully because sources of growth are largely outside both the national core region and the underdeveloped regional economy. This tends to reproduce relations of exchange through external investment, aid, and trade, as well as via the ownership of key technology, production assets and other resources. Similar views have been aired that regional economies are integrated or linked to a world economy on an unequal basis, leading to a polarisation ("backwash") of development activities and leakage of vital regional resources out of the metropolis and abroad (Myrdal, 1957; Hirschman, 1958; Friedman, 1966).

Regional policy under the policy of development from below, aimed at the reduction of disparities through regional self-reliant development, involves an understanding and solution of the leakage problem in a spatial context. The problem, observed by Lo and Salih (1981:147), essentially is how can net rural-urban transfers of resources be channelled to favour the growth and development of rural areas? More narrowly, how can the agricultural surplus be retained in the rural areas, preventing it from flowing excessively to the urban areas, and how can it be reinvested for its own development? How can alternative employment opportunities be created to enhance local purchasing power to increase the possibilities for rural industrialisation to induce a more dynamic role for lower-order centres? For a successful pursuit of rural development it is necessary to reduce rural-urban distortions through the creation of rural-urban linkages on a symbiotic, equal basis at lower territorial scales of interaction. Based on this, it is argued that small towns provide an essential focus for reducing economic leakages from agrarian regions which arise from inter-regional linkages (Taylor, 1979). These

small towns should be relatively small in geographic scale; they should have a high degree of self-sufficiency and self-reliance in decision-making and planning, based on popular participation and co-operative action at local levels; there should be a diversification of rural employment to include both agricultural and non-agricultural activities emphasising the growth of small-scale rural industrialisation; there should be urban-rural industrial functions with linkages to local resources and economic structures; and there should be a utilisation and evolution of local resources and technologies (Lo and Salih, 1981:135).

To achieve this, there is a need initially to redistribute income and to revise the institutional structure of the economy. To redistribute income necessitates the redistribution of assets (such as land) which determine income distribution. There is also a need for research on the agricultural production system and its social relations; the role of small urban centres in articulating the process of primary accumulation in underdeveloped regions so as to enhance local production and distribution; and the structure of utilisation of labour. These seem to be important conditions, without which it is not likely that development planning, whether from above or below, or some combination of these, will be successful. Developing countries should address themselves to solving these problems at the initial stages in order to achieve a more egalitarian society, both spatially as well as socially. The present study will contribute to knowledge on the role of small urban centres in articulating the process of primary accumulation in underdeveloped regions, so as to enhance local production and distribution.

For Hagerstrand (1966) the leading cities in the country should give impulses first of all to towns next in rank. The further spread is then regulated by friction of distance. Lasuen (1969) explains that the profound geographic regularity (hierarchical) of the patterns of diffusion and the adoption sub-process seem the most obvious factors to account for the hierarchical and stable order in which the system of regions grows and

develops. As such, the factors determining the patterns should be considered to be the factors to explain the invariant behaviour of the system of nations. This can be linked to Berry's (1970) explanation that impulses of "economic change" are transmitted from higher to lower centres in the hierarchy, and that areas of economic backwardness are found in the most inaccessible areas, that is between the least accessible lower level towns in the hierarchy. Others, such as Hermansen (1972), saw innovation diffusion as the key process of development. Based on this, he recommends that efforts be concentrated on the formulation of strategies which make possible the propagation or spread of these innovations to the target development areas. He then proposed efforts to be directed towards the identification of the prevailing system in order to exploit its ability to disseminate and persuade, instead of working against or trying to enforce other patterns of diffusion. Hermansen (1972) had the opinion that lasting underdevelopment in some regions is due to their being outside the prevailing national patterns of diffusion channels. Based on this, he proposed that the communication patterns be corrected by the creation of a new class of centres in the urban hierarchy.

Rondinelli and Ruddle (1976) proposed that developing countries should build an articulated network of growth centres, as well as linkages among them, to encourage the commercialisation of agriculture, savings and investments in productive activities. Hansen (1981), in line with Rondinelli and Ruddle (1976), proposed the need for the functional economic areas to be linked by a transportation and communication policy that encourages a general spatial diffusion of innovations, as well as movement of agricultural and light industry outputs between the rural areas and large urban markets. This is necessary to counter the backwash effects by facilitating the spread effects through the increased outlets for the hinterlands' products, as well as the improved diffusion of technical advance from the growth centres.

These planners and other theorists advocate the need to strengthen the mechanisms for the spread effects to take place from the outset when implementing growth pole policy, siding with Myrdal's (1957) earlier views. The experiences of many developing

countries with growth pole strategies have indicated the difficulty of spread effects taking place at all. It seems very likely that this results from the fact that it was taken for granted that once a development pole is established, development would automatically spread to the surrounding areas. It also results, as evidenced from the experiences of ex-colonial countries like Nigeria and Tanzania, from the fact that growth pole policies do not take into account the disequilibrating spatial mechanisms in the developing countries established by the imposition of the colonial spatial system over the traditional spatial system.

Given the fact that resources for development are so limited, there is a need to concentrate the few resources in few growth points. Key urban centres are selected for concentration investments. As a consequence of induced development in these centres, beneficial spread effects are expected to flow to the growth poles' lagging hinterlands. This is considered as an ideal mechanism to stimulate development in the poles' hinterland. The problem with this view, as observed by Hermansen (1972:185), is how to make the poles spread down their development effects to their hinterlands. Hirschman (1958) was optimistic about this, but Myrdal (1957) was more pessimistic, and saw the need for a mechanism that would ensure that development "trickle down" from the development poles is established at the outset. There is a tendency for polarisation forces generated in the growth centres to be stronger than the trickle-down (Hermansen, 1972). This seems to be supported by experiences in both developed and developing countries.

While searching for a mechanism that would ensure "trickle down" effects of development, it was considered important to isolate the spatial incidence of new phenomena and their transmission throughout space (Hermansen, 1972). Spread effects are considered as the materialisation of diffusion of innovations in geographical space. Theories dealing with the geographic diffusion of innovations are thus closely related to the theory of localised poles of development, both at the general level and as

a tool to explain the dynamic process of transmission of development among the poles and from poles to their surrounding areas (Hermansen, 1972). In the late 1960s, major geographical and economic analytical strands of thought were synthesised in a general model of hierarchical diffusion of innovation (Hansen, 1981). Economic activities in space have two major elements; a system of cities arranged in a functional hierarchy and corresponding areas of urban influence surrounding each of the cities in the system. Impulses of change are transmitted from higher to lower-order centres in the hierarchy. Areas of economic backwardness are found in the most inaccessible areas, that is between the least accessible lower level towns in the hierarchy (Berry, 1970). If metropolitan development is sustained at high levels, differences between centres and peripheries should be eliminated and the space should be integrated by outward flows of growth impulses through the urban hierarchy and inward migration of labour to cities. Growth impulses and economic advancement should "trickle down" to smaller places and ultimately infuse dynamism even to the most traditional peripheries (Berry, 1970). Lasting underdevelopment in some regions is due to their being outside the prevailing national patterns of diffusion channels. There is thus a need to correct the communication patterns by the creation of a new class of centres in the urban hierarchy such as a well-distributed system of secondary cities in the form of a nested hierarchy in the middle of the urban hierarchy, as well as small rural urban centres which are integrated to villages in their hinterlands at the lowest level of the urban hierarchy.

Such a system of an orderly hierarchy of central places is necessary for developing countries to reduce development disparities. Developing countries need to build an articulated network of growth centres as well as linkages among the centres in order to encourage the commercialisation of agriculture. Such a system is necessary if urban goods and services are to be delivered to the rural population and vice versa. It has also been argued that there is a need for developing countries to create functional economic areas, and that these should be linked by transportation and communications which would encourage the spatial diffusion of innovations, as well as facilitate the

movement of agricultural and light industry outputs from rural areas to large urban markets. This is necessary to counter backwash effects, by facilitating the spread effects through increased outlets for hinterlands' agricultural products and raw materials, and the diffusion of technical advance from the growth centres to the hinterland. The higher the level of economic development, the stronger the spread effects likely to prevail.

Most "trickle down" forces work through inter-regional trade by purchases placed in the hinterlands by the growth points, and the transfer of capital through investments made in the backward regions. Investments in the hinterlands may raise the productivity of labour and per capita consumption by absorbing some of the disguised unemployment. However, their effects depend largely on the existence of complementarities between industries in the growth centres. The centres may also, and particularly in the case of weak complementarities, have unfavourable polarisation effects on the hinterland. Industries of the hinterland, and in particular the relatively inefficient manufacturing and export activities, can be depressed as a result of competition from the growth centres. Owing to better economic opportunities in the growth centre, the hinterland can be drained of its most valuable labour force rather than creating opportunities for its disguised unemployed.

## **2.7 Research Questions**

From the review of literature and experiences of countries experimenting with growth - pole, it can be seen that these theories, cannot be applied blindly to Third World Countries, as socio-economic, political, ecological, and spatial conditions vary considerably. For a successful application of these theories to Third World Countries they have to be adapted to the conditions pertaining in these countries. There is thus a need to find out whether Tanzania took special consideration of the implications of the size and shape of the country when adopting a growth pole strategy, and, in particular,

of the choice of the number of growth centres, their location and linkages in relation to resources available for their development. It is equally important to find out whether the implementation of the growth pole strategy in the country and the study region has been supported by the necessary spatial and non-spatial policies to facilitate the developmental effect of the growth centres themselves as well as that of their hinterlands.

For the successful implementation of growth pole theory, there is a need for the particular country to have a functional hierarchy of urban centres which are integrated with the villages in their hinterlands so as to facilitate the flow of information and innovations from the urban centres to the villages. The urban centres have to be linked efficiently by a transportation and communication network to encourage the commercialisation of agriculture in the rural areas. It has also been observed that to counter the "backwash effects" of the growth centres and to promote the "spread effects", there is a need to have specialisation in production and functions between areas, and these economic areas have to be linked by transportation and communication to facilitate the movement of products. The growth centres have to broaden marketing outlets for their hinterlands' products. In Tanzania, for example, has Dodoma centre been able to increase marketing alternatives for products from its hinterland? Has the centre increased purchases from its rural areas? To reduce rural-urban distortions, the rural-urban transfer of resources has to be channelled in a way that stimulates the development of the rural areas. Do the rural-urban economic linkages, especially marketing, exist in a constructive or exploitative relationship?

For a country like Tanzania, it is important to establish whether a system of well distributed cities arranged in a functional hierarchy and integrated to the villages in their hinterlands exists. What are the functions performed by the geographical hierarchy of towns and service centres? How are the towns and service centres linked to the villages surrounding them? It is equally important to find out whether the urban

centres, and in particular the growth centres, are efficiently located and whether these growth centres are linked effectively by a transportation and communication network. What is the relationship between the functions performed by the towns and service centres and their transport links and the changing needs of the rural population? Tanzanian development goals have changed since Independence. Has the spatial organisation of the towns and service centres, and their communication and transportation networks, as well as their economic links, changed in line with the current development goals? It is important also to establish whether Tanzania in her national spatial planning has been able to promote functional economic areas, and whether these functional areas are linked by efficient transportation and communications to facilitate the movement of goods between the supply and demand areas.

Tanzania's major development goal is to attain rural development with spatial equity between regions and areas. To attain such a goal it is necessary to allocate investments relatively evenly, such as industries in the growth centres, to create an articulated and integrated national system of production and exchange. This is also necessary to prevent the emergence of unwanted "primate" cities or acute regional income disparities. It is thus necessary to establish how such investment resources have been allocated to the urban centres, and specifically to the growth centres. Have industries been able to decentralise and locate in urban centres other than the traditional industrial core areas of Dar-es-Salaam along the coast, and the northern centres of Arusha, Moshi and Tanga?

It has also been observed that the construction of an integrated system of service centres and the provision of the institutional framework for trade does not necessarily lead to a rise in rural incomes. Service centres may provide many of the critical elements of socio-economic change, but may also harbour the mechanisms which lead to a decline in the economic position of the rural population in relation to the other sectors of the population. It is thus important to evaluate the service centres in terms

of their adequacy in providing the required services, accessibility of the people to these centres, the economic relationship between the centres and the rural population, and the efficiency of the marketing structure and mechanisms to the rural population being served.

The leakage of resources from the rural regions and areas in terms of capital, labour and surplus production is among the main factors limiting regional and rural development. The solution to this lies in the reinvestment of surplus production in the region and the rural areas. This necessitates the prevention of excessive flows of agricultural surplus from rural areas to urban centres, and its reinvestment in the rural areas, and in particular in the development of agriculture. It is also necessary to create alternative employment opportunities to enhance local purchasing power to increase possibilities for rural industrialisation. Has the country placed investments in the established growth centres? Have the growth centres in turn placed investments in their rural hinterlands? Is the surplus created in agriculture invested back in agriculture in the rural areas? Have industries been established in the growth centres and their hinterlands to offer alternative non-farm employment?

It is also known that competition from growth centres may depress relatively inefficient manufacturing and export activities in the hinterlands and the growth points may produce a "brain drain" from the hinterlands, rather than creating opportunities for their disguised unemployed. To prevent this happening, there is need to establish linkages between industries (urban) and agriculture (rural), as well as between the large scale industries in higher-order urban centres and small scale industries in the lower-order urban centres and the rural areas. These rural-urban industrial functions have again to be linked to the local resources and economic structures. Do the rural-urban industrial functions in Tanzania, and, in particular, in the study region complement each other? Are the industries linked to local resources in the region and the country?

## Chapter 3

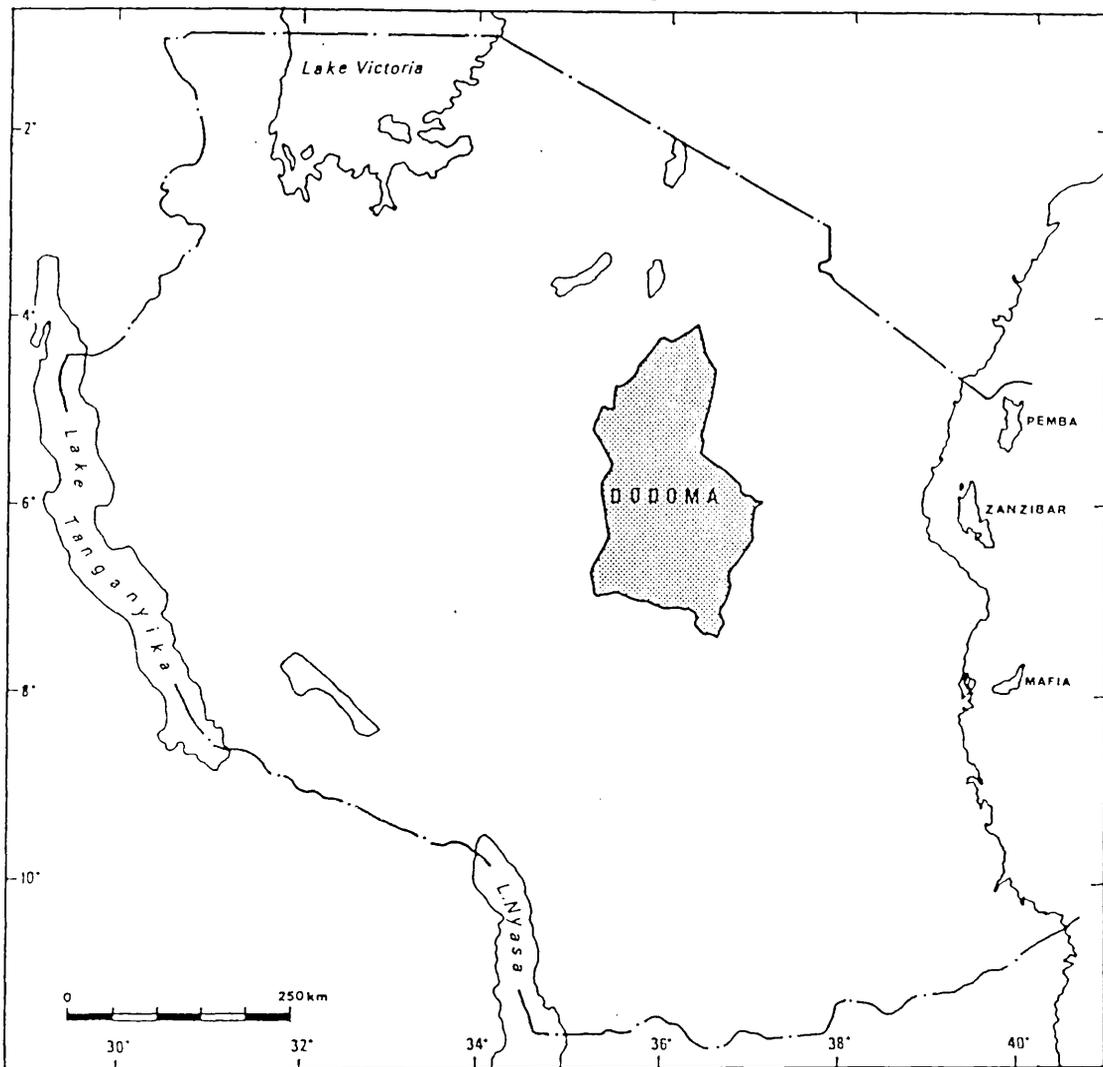
### Methods

#### 3.1 Dodoma Region

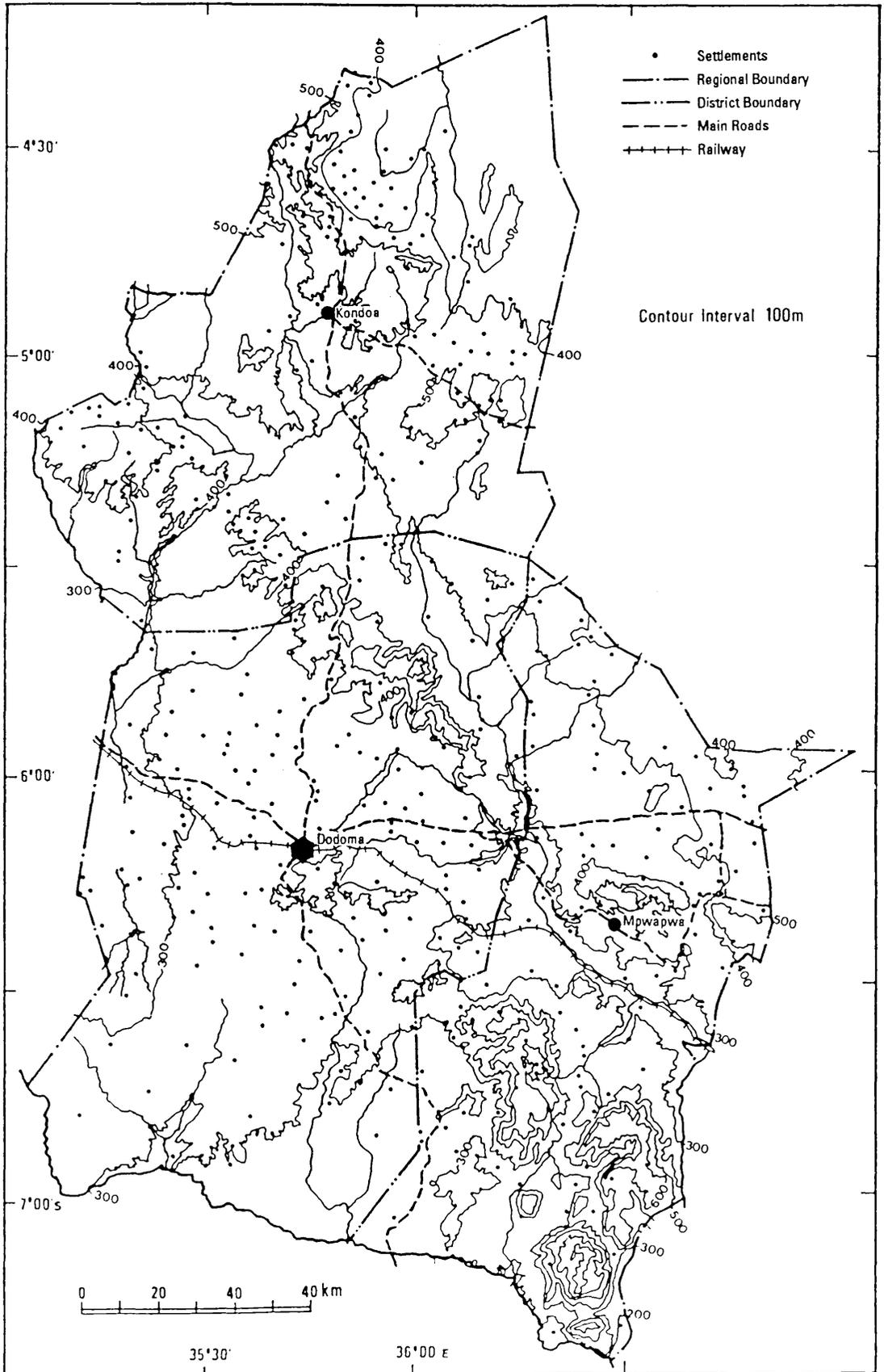
Centrally located in Tanzania, Dodoma region is one of the twenty regions of mainland Tanzania, and is also the National Capital. The region has an area of 41,331 square kilometres with a population of 1,267,886. The region has four administrative districts: Dodoma Urban; Dodoma Rural; Kondoa and Mpwapwa (Map 3:1).

The region comprises a generally low-lying plain with rock outcrops and swamps (Map 3:2). The area has two marked climatic seasons in any 12-month period. A long dry season typically lasts 7-9 months, and the rainy season 3-4 months. Annual rainfall is generally low, below 400 mm. The vegetation is mostly short grass and shrubs, mainly supporting grazing and drought resistant crops unless under irrigation. The soils are moderately fertile, and without the limitation of rainfall, could support good agriculture, especially crops. Ecologically the region is very fragile. This results from the generally lower rains giving rise to a poor vegetation cover. Due to overgrazing and poor cultivation of these marginal lands, deforestation and soil erosion have depleted much of the good soil. Currently there is an intensive re-forestation and reclamation of the destroyed lands by the Hifadhi Ardhi Dodoma (HADO) (Dodoma Land Conservation Project). The Gogo forms the largest ethnic group, and, are both cultivators as well as pastoralists, with cattle dominating the socio-economic life of the community. The crops grown are maize, millets, oil-seeds, some paddy and vegetables as tomatoes. Grapes are also grown as a cash crop. The income of the people in the region when compared to other regions is low (Young-Sing, 1971:51). Most of the Households in rural areas of Dodoma live in villages, both registered with 175,458 (94.1 per cent) and non-registered with 3,985 (2.1 per cent). Only 6, 986 (3.7 per cent) of the households live outside villages in the rural areas (1978 National Census)

Map 3 : 1 Location Of Dodoma Region in Tanzania



Map 3 : 2 Dodoma Region : Relief and Settlement Pattern



### 3.2 Identification of the Rural-Urban Links

Both the physical and economic links between rural and urban areas were identified. The physical links included the road networks and transport links; among the roads were the national trunk roads linking Dodoma region with other regional and lower-order district centres, as well as the district roads linking the lower-order district centres in the study region with higher-order regional centres and other lower-order centres. The transport links included the volume of traffic linking the main urban centres, as well as those linking the urban centres with the villages in their respective hinterlands.

The economic links included the movement of commodities as well as the market structure itself. Other economic links identified included households' production and marketing links. All types of commodities moved on the roads covered by the traffic counts study were counted by type, origin and destination. The markets identified for studying included all the regional and district markets. In Dodoma regional centre, these markets are Dodoma Central market, Miembeni lower-order market and the Maili Mbili cattle market. In the districts, these included Kondoa Central market in Kondoa district, and Mpwapwa Central market and the Iloilo cattle market in Mpwapwa district. The marketing links for households included households' accessibility to the urban centres where the markets are located, the supply of incentive goods from the urban centres to the rural villages, as well as the production and marketing of agricultural products by the rural households.

The sources of information are basically primary, through surveys in the study region. Secondary information has also been used, especially in the early stages of the survey to provide background information. Four basic surveys were carried out to obtain the required information. These included counts of all vehicles entering or leaving the three main urban centres in the study region; counts of commodities entering or leaving the same urban centres; a survey of the main markets; and a household survey

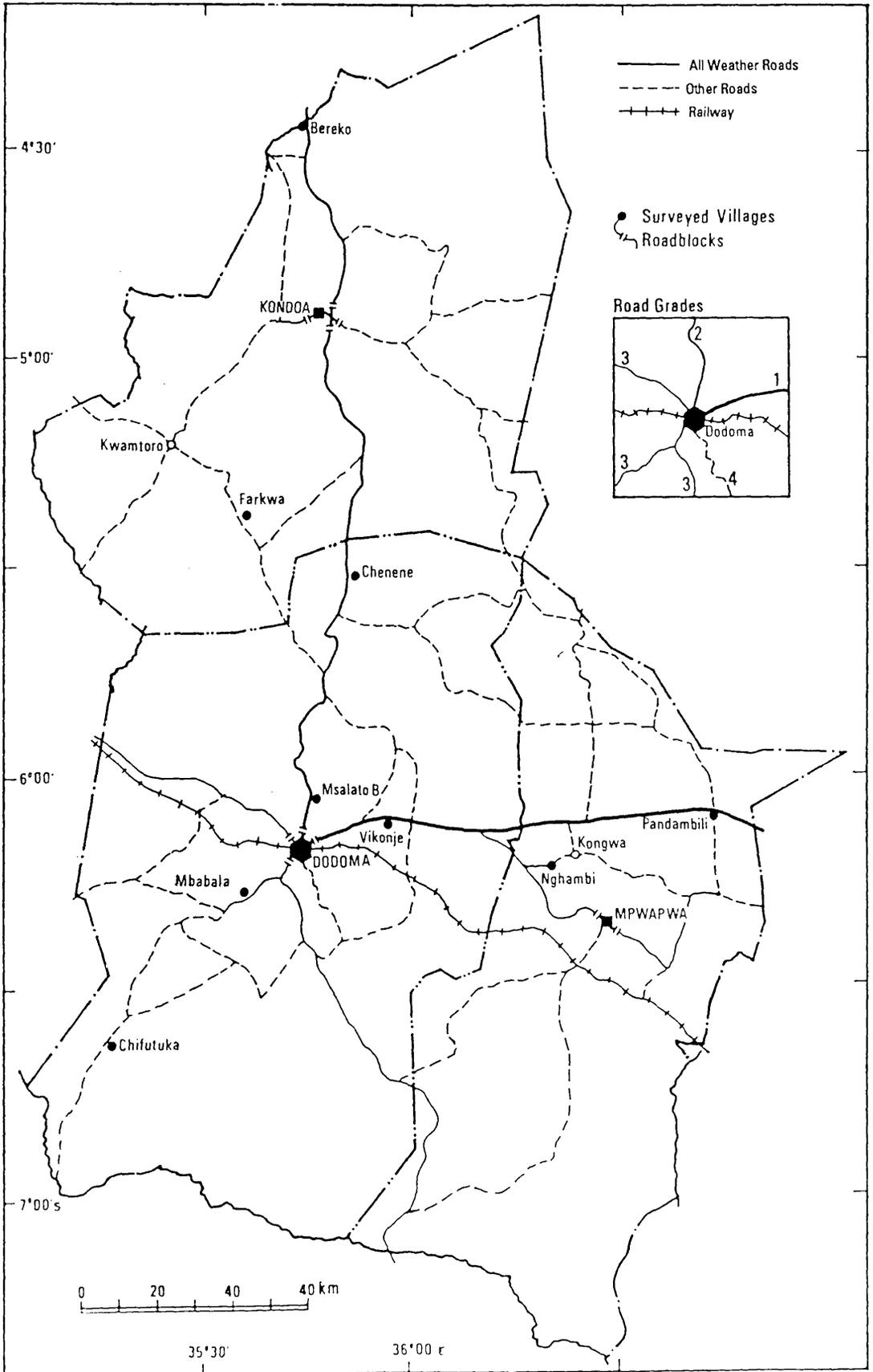
to ascertain households demographic characteristics, crops produced and their disposal, as well as their general accessibility to the urban centres. Observation and recording of the resource potentials for the development of the region and functions performed by the urban centres in the study region was also undertaken to complement information obtained in the four main surveys. The region has two marked climatic seasons, the wet / farming and the dry / harvesting seasons, and to allow for seasonal variations, the road - side count on the flows of traffic and commodities, as well as the market surveys, was done in the middle of the two distinct seasons, January to February (wet) and July to August (dry).

### **3.3 Primary Information Sources**

#### **3.3.1 Traffic Counts**

Information on the traffic flows was obtained through a count of all vehicles by the main road sides entering or leaving the regional and the two district urban centres. The drivers of these vehicles were asked to indicate the origin and destination of their journey. In Dodoma regional centre all the four main roads were covered; in Kondoa district centre, also all the four main roads were covered; and in Mpwapwa district centre, there are only two main roads and both of them were covered (Map 3:3). The stations used for counts were some distance from the urban centres to avoid traffic movements solely within the urban centres. The intention was to count all the vehicles going to the urban centres from within and outside the region, as well as those leaving the urban centres to other places inside or outside the region. To allow for the variations in the volumes of traffic between the wet and dry seasons, the traffic counts were done in both the wet and dry seasons. Further information was obtained through the observation and recording of bus travel destinations from Dodoma regional centre and the two district centres of Kondoa and Mpwapwa.

Map 3 : 3 Dodoma Region : Main Roads and Villages Covered in the Surveys



### **3.3.2 Commodity Counts**

Information on the flows of commodities was obtained through counts on quantities by types of products carried by vehicles on the major roads entering or leaving the regional and the two district urban centres. The commodities counted were those carried by the same vehicles counted in the traffic counts. The drivers of these vehicles were asked to show the research assistants the goods they were carrying and to indicate the origin (where loaded) and destination (where taken to) of the goods carried. Commodities carried by bicycles, animals and individual people walking along these roads were also counted. This was more common in the district urban centres, especially along the roads with low volumes of traffic. To allow for the variation in the types, volumes, origin and destination of commodities with seasons, the counts were done in both seasons. This information has also been supplemented by records from the National Milling Corporation (NMC) and the Central Region Cooperative Union (CRCU) on crops procured from different Primary Societies in the villages in the study region and the redistribution of these products within and outside the region.

### **3.3.3 Market Survey**

A market survey was conducted through a questionnaire administered on the traders selling in the main markets. This sought information on the market structure and distribution channels in the region, and included questions on who was selling what, where were the goods sold obtained, and how the goods were procured. Traders selling most types of commodities were included in the sample. The types of commodities covered in the market survey included manufactured goods, processed and unprocessed agricultural products, vegetables, fruits and crafts. This information was supplemented by observation and recording in the markets covered. A total of six

markets were covered in this study and from these markets, a total of 268 traders were interviewed (Table 3:1). As indicated earlier, the variation in seasons, farming and harvesting, was anticipated to have an influence on the supply of commodities on markets in terms of varieties, volumes, sources, prices and the volume of trade in general. To account on this variation, the market surveys were carried out in both seasons in all the markets covered. The number of market traders interviewed in the two seasons can be seen in Table 3:2.

**Table 3:1**

No. Of Traders Interviewed In Each Market

Location of Market	Name / Level of Market	No.	%
1. Dodoma Regional Centre	1. Dodoma Central Market	74	27.2
	2. Miembeni Lower Market	34	12.5
	3. Maili Mbili Cattle Market	43	15.8
2. Kondoa Centre	4. Kondoa District Central Market	57	21.0
3. Mpwapwa Centre	5. Mpwapwa District Central Market	44	16.2
	6. Mpwapwa Cattle Market	16	5.9
Total	Interviewed	268	100.0

**Table 3:2**

No. Of Traders Interviewed In Different Seasons

Market / Season	Wet	Dry	Total
1. Dodoma Central Market	32	42	74
2. Miembeni Lower Market	12	22	34
3. Maili Mbili Cattle market	21	22	43
4. Kondoa Central Market	25	32	57
5. Mpwapwa Central Market	25	19	44
6. Mpwapwa Cattle Market	6	10	16
Total	121	147	268

### 3.3.4 Household Surveys

The household survey was conducted through a questionnaire administered on sampled households in sampled villages. This sought information on the demographic characteristics of the households, resources available for production, quantities of crops produced and the disposal of the crops in the market. The same household questionnaire also solicited information on the supply of production inputs and incentive goods to farmers, farmers' awareness of market information and their satisfaction with the marketing institutions, as well as their accessibility to urban markets, shopping pattern behaviour and extension services. See appendix 1 for the details of the questionnaire.

A total of nine villages was selected for survey by the use of criteria related to their accessibility to Dodoma regional market centre. Accessibility to the regional centre by various means such as distance, nature of the roads and the volume of traffic on the roads is expected to have a great influence on a households' accessibility to important

services available in these urban centres. The services available in the urban centres, such as markets, supply of incentive goods and agricultural production inputs, in turn influence agricultural production, and in particular cash crop production. These factors are necessary for integrating rural households in the market economy and in bringing rural development.

The distance factor was divided into close distances of between 5-10 kilometres, average distances of between 30-50 kilometres, and very remote distances of above 80 kilometres from Dodoma regional centre. It is expected that villagers in the study region can even walk the distances termed as close, and, in any case, transport costs will be the lowest. In the average distance villages, villagers cannot walk with ease to the urban centre, but transport costs were expected to be higher than in the close distances, but lower than in the remote distance. In remote distances, villagers have to rely on transportation and the transport costs are the highest. The nature or condition of the road is based on the motorability levels of the road. These are: highly motorable (asphalt surfaced and all weather road) as first class road; average motorability (without asphalt surfaces but used in all weather) as second class road; and poor motorability (without asphalt surfaces and used with less difficulty in dry season only) as the third class road. The volume of the traffic on the road was classified according to the number of vehicles (buses, lorries and all other cars) per day. Over 50 vehicles passing in a day was considered as very heavy volume; between 10-50 vehicles was considered as average; and below 10 vehicles was considered as very low. The motorability of the road was expected to correspond with the volume of traffic, the higher the motorability of the road, the higher the volume of traffic on that particular road, and vice versa.

Based on the distance factor, three villages were chosen from remote distance category, three villages from the average distance category and three from the closest. Of the three villages from the remote distances, one was picked because of its location

on a first class road, the second because of its location on a second class road, and the third on a third class road with a very low volume of traffic. Similar criteria were used for the average and closest distance villages (See Table 3:3 on the sampling framework and Map 3:1 for the location of the sampled villages).

**Table 3:3**  
Village Sampling Framework

Name of Village	Category No.1 (Distance)	Category No.2 (Road Condition)	Category No.3 (Traffic Volume)
Pandambili	Remote-Over 80 km.	First Class	High
Bereko	"	Second Class	Average
Chifutuka	"	Third Class	Low
Nghambi	Average 30-50 km	First Class	High
Chenene	"	Second	Average
Farkwa	"	Third	Low
Vikonje	Closest 5 - 10 km	First	High
Msalato	"	Second	Average
Mbabala	"	Third	Low

It was intended to sample households in the villages from the village register. This used to be a reliable source showing all households in the village. Regrettably, in all the villages sampled, such a register no longer exists. As an alternative, a development levy tax register, indicating all adults (males and females) above 18 and eligible for taxation, was used, this list consisting of the active part of the population appropriate for this particular household study. With the assistance of the village leadership, all members who were at that time not around in the village (those dead, migrated permanently or temporarily, or had travelled out of the village) were removed

from the register. The intention was to interview 45 people from each village. The total number of the remaining registered people present in the village was taken and divided by 45. Where the result obtained from the calculation was 25, as an example, every twenty fifth name was picked from the updated village list for interviewing. As members of one household are registered together serially, and as each house on average consisted of about six to seven people, by picking every twenty fifth individual in the list, there was a very small chance of picking two or more members of the same household. Although forty five people was the target selected in each village for interviewing, the real number interviewed was below this in each case. In some of these villages, some of the selected people could not be found for interview; in others, especially those in which a very small number were interviewed, the researcher was mistaken for a court official charging parents whose children are either not attending school, or parents who had not paid their childrens' school contributions or uniforms. In other villages where it coincided with tax collection season, some individuals who had not paid their taxes went into hiding when they saw the researcher approaching their houses. As the researcher had limited time, under such circumstances, it was not possible to interview all the intended people. Nevertheless, a total of 310 households was interviewed from the nine villages (Table 3:4).

**Table 3:4****Sampled Households In Each Village**

Name Of Village	No.	% of Households in villages
1.Pandambili	23	7.4
2.Bereko	43	13.9
3.Chifutuka	40	12.9
4.Nghambi	36	11.6
5.Chenene	32	10.3
6.Farkwa	30	9.7
7.Vikonje	33	10.7
8.Msalato	37	11.9
9.Mbabala	36	11.6
Total	310	100.0

**3.3.5 Services Available in Urban Centres:**

Services available in the urban centres in the study region were identified and recorded in the four main urban centres identified. More information on these centres, as well as other lower-order centres was obtained from the planning section of district administrative offices. The services identified and recorded included health, education, water, postal, bank, security (police), courts, community centre halls, markets, godowns, administrative offices and shops. The shops were further classified into wholesale, retail shops and shops selling farm implements and spare parts.

### 3.4 Secondary Information Sources

National census reports, in particular those of 1978 and 1988, were used to provide population figures for the region, as well as for the nine villages sampled for the household study and the villages accessed by vehicles in the traffic and commodity counts study. The Atlas of Tanzania (Ministry of Lands and Urban Development, Surveys and Mapping Division), as well as other maps and records (such as the road map of Dodoma region, prepared and used by the Trunk Road Maintenance (TRM), a department within the Ministry of Works, Transport and Communication, and census maps in the 1978 census reports) were used in the preparation of the base maps for the study region. These include the digitised map of Dodoma region showing the location of the urban centres and village settlements.

The headquarters of the TRM office in Dar-es-Salaam and its Dodoma regional office provided some information on the road network and the classification of the roads in the study region. They also provided information on the volumes of traffic on the four main roads in Dodoma regional centre. These data could not be used much as they did not show the origin or destination of the traffic. However, they provided an overall impression of the volumes of traffic carried by the different roads in Dodoma regional centre. Similar information from the TRM head office provided the volumes of traffic handled by main roads in all regional centres in the country, thus providing useful data for the comparison of Dodoma regional centre with other regional centres in terms of volumes of traffic handled.

An attempt was also made to obtain information from the Regional and District Agricultural Development Offices, as well as from village files, on the amounts of inputs distributed, volumes of crops marketed, acreages under production of the different crops and production trends over the years. Most records were unfortunately found to be scanty and incomplete. In the past, when most crops were sold through

official marketing channels, the marketing institutions used to have relatively reliable figures on crops marketed. This is no longer the case as most crops, and in particular groundnuts and maize, are now increasingly sold through unofficial marketing channels which are not monitored.

The National Milling Corporation (NMC) Dodoma regional office as well as the Central Region Cooperative Union (CRCU) main office provided some information on agricultural crops procured in terms of their volumes, value and origin as well as the distribution of the same products in terms of volumes, value and destination. An attempt was also made to obtain data from the Regional Trading Company (RTC) office records on types and amounts of agricultural production inputs and manufactured goods distributed to districts and villages. This, before liberalisation in the late 1980s, used to be a reliable source of information on the supply of incentive goods down the urban hierarchy, when the distribution of production inputs and consumer goods, and in particular of basic goods like sugar, salt, rice, wheat flour, cooking oil, soap and textiles, was distributed by government institutions like the NMC and RTC. Although this system is still in place, it no longer works efficiently, and little appears to be moving down the urban hierarchy through these institutions. Due to the inefficiency of these institutions and the corruption of some of their leaders, most of what is allocated for the villages never arrives.

Some data were also obtained from the main market in Dar-es-Salaam city, the Kariakoo Market Corporation (KMC). This market deals mostly with vegetables, fruits, and, to some extent, root crops, bananas and coconuts. These products come in bulk from upcountry regions and are resold either wholesale, or in some small quantities on a retail basis. The traders buying wholesale resell these goods in the numerous lower - order markets in the city. Information obtained from the KMC includes the types of fruits, vegetables and other products purchased and sold, the quantities purchased from upcountry vehicles, and the origin of these products. Similar information was also obtained from the weekly radio programme, "The

Kariakoo Market This Week." This information provided an impression on how the study region fared in trade in comparison with other regions in terms of commodities supplied to this national market.

### **3.5 Data Analysis**

Primary data collected in the study region in the traffic and commodity counts, market and household surveys was analysed statistically by computer using the SPSS-X Statistical Package. In addition, the traffic counts data were also analysed using the GIMMS Package, and flow maps were subsequently produced.

#### **3.5.1 Traffic Counts Data**

The vehicles counted in the three urban centres of Dodoma regional centre, Kondoa and Mpwapwa district centres were analysed in the same manner, but separately. All vehicles counted in each urban centre were grouped in terms of their origin and destination, and this gave the volume of vehicles moving between two locations. The vehicles were first separated into those entering and those leaving the urban centres. To appreciate the influence of the rainy season on the volume of traffic among the different roads and seasons, the volumes of traffic entering or leaving was again subdivided according to the seasons in which the count was made (Table 3:5, groups 1-3). There was a need to evaluate the volume of traffic between the urban centres themselves in the study region, as well as between the urban centres in the study region with the villages in their hinterlands. This was done by adding the volumes of traffic between locations within the region only in all seasons (See Table 3:5, group 4). A measure of the volume of traffic handled by the urban centres in the study

region, but coming from outside centres, in all seasons combined, was necessary. This was done by adding the volumes of traffic between a location inside with that outside the region, in all seasons (Table 3:5, group 5). It was also necessary to compare the volumes of vehicles in transit through the urban centres in the study region, with those entering or leaving the urban centres, from or to urban centres outside the region, as well as the volumes of transit between other regional centres outside the study region but passing through the study region. This was done by adding the volumes of traffic between two outside locations but passing through the study region in both seasons combined (Table 3:5, group 6).

**Table 3:5**  
Combinations Used In The Analysis Of Traffic Counts

Group 1	Traffic Entering Urban Centres (All)	Wet Season
	"	Dry Season
	"	Wet+Dry Seasons
Group 2	Traffic Leaving Urban Centre (All)	Wet Season
	"	Dry Season
	"	Wet+Dry seasons
Group 3	Traffic Entering / Leaving Urban Centres (All)	Wet Season
	"	Dry Season
	"	Wet+Dry Seasons
Group 4	Traffic Entering Urban Centres From Within Region	Wet+Dry Seasons
	Traffic Leaving Urban Centres To Within Region	Wet+Dry Seasons
	Traffic Entering/Leaving Urban centres Within Region	Wet+Dry Seasons
Group 5	Traffic Entering Urban Centres From Outside Region	Wet +Dry saons
	Traffic Leaving Urban Centres To Outside Region	Wet+Dry Seasons
	Traffic Entering/Leaving Urban Centres From/To Outside	Wet +Dry Seas.
Group 6	Traffic Entering Urban Centres Transists Only	Wet and Dry Seasons
	Traffic Leaving Urban Centres Transists Only	Wet and Dry Seasons
	Traffic Entering/Leaving Urban Centres Transits Only	Wet and Dry Seas.

To facilitate interpretation, flow maps were drawn. The data were entered in the computer and a map of the study region showing the location of the villages, the urban centres within the study region, and the hypothetical location of the urban centres outside the region, but accessed by the traffic, were digitised. The flows of traffic were then plotted on the digitised map using the GIMMS Package, and the resulting flow maps showed the movement of traffic in the study region in terms of its volume and patterns. Two types of flow maps were produced: direct lines linking the two points of the traffic (origin and destination); and cumulative flow lines showing the volume of traffic passing between two successive points following the main transport routes used. In both types of flow maps, lines with different widths, corresponding to a particular volume of traffic, were used to differentiate the different volumes of traffic between places. The above maps showed the movement of traffic counted in each urban centre separately. It was also necessary to show the movement of traffic in the whole region to evaluate the hierarchy of these urban centres in the study region in terms of traffic handled and the size of the hinterlands served. To do this, the maps drawn separately earlier were combined on one map.

Tables were also made to compare the volumes of traffic between the three urban centres and other urban centres and villages in their hinterlands. These included tables showing traffic moving between Dodoma regional centre and villages in its hinterland, between the regional centre and the district centres, between the regional centre and Dar-es-Salaam, coastal centres of Tanga and Morogoro, northern centres of Arusha and Moshi, western centres of Singida, Tabora and Mwanza and the southern centres of Iringa and Mbeya, as well as transits between these centres outside Dodoma region. The same was done for the two district urban centres.

There was a need to compare those villages in the study region, which were better served in terms of traffic to and from the regional centre, and those poorly or not served at all. It was also necessary to establish some basis as to why some of these villages were served while others were not. A table was made to compare the

proportion of villages served and those not served by traffic to and from Dodoma regional centre in all the districts and the study region as a whole. To facilitate the visual interpretation of this, a map was prepared showing the villages served and those not served. Finally, accessibility indices to Dodoma regional centre of all villages served by the traffic, and those not served by the traffic, as well as all villages in general, were calculated.

### **3.5.2 Commodity Counts Data**

All commodities counted in each urban centre were grouped into broad similar types and were classified by source and destination. From this, tables were made showing the volume, origin and destination of the different products entering or leaving each particular urban centre. The incidence of wet and dry seasons, influencing the motorability of the roads, was anticipated to have an influence on the types, volumes, origin and destination of the various products moved. To evaluate this, the commodities entering and leaving the urban centres was again separated into those counted in the wet and dry seasons.

Distance was again expected to have an influence on types and volumes of commodities moved between the urban centres and rural villages. The villages from which commodities came, or were taken to, were classified by the distance factor, namely closest, average and remote distances from the urban centres. The above information presented in table form could have been presented in a more effective way in flow maps, but it was not possible to combine the different types of products using the same unit of measurement in terms of their volumes. Pie charts were produced showing proportions of the main commodities moved between the study region and other regions. Finally flow maps were made showing the movement of main commodities between the regional centre and villages.

### 3.5.3 Market Survey Data

All the six markets covered in the study are different in terms of size, location and, in some cases, type. There was thus a need to compare the results of these markets in general, as well as between the seasons. The respondents were grouped according to the markets where each was interviewed, and the respondents in each market were grouped between those interviewed in the wet and dry seasons respectively. Frequency tables on the above variables covered were calculated covering all respondents in each market, as well as respondents in the two seasons in each market separately. Some t-tests were also carried to determine whether the differences observed between the markets and between the two seasons within the same markets were statistically significant.

Tables were prepared to show the places where the various types of commodities sold in each market had originally been obtained. This was necessary as the same type of commodity sold in one market was at times procured in very different places. These tables were also separated between the wet and dry seasons to test for marked differences in the sources of commodities between the climatic seasons. Pie charts were also prepared to show where the bulk of the main commodities sold were purchased.

It was again anticipated that distance from Dodoma regional centre to the villages in the hinterland, where the commodities sold in the regional market centre were obtained, might have an influence in terms of types and volumes of commodities supplied to the regional central market. To measure these, villages from which commodities were bought, were classified by the same distance factor used earlier. The impact of the wet and dry seasons on the procurement of products from villages for selling in the urban markets is likely to be felt more on poor roads in the wet season and where great distances are to be moved. To test for this, the villages where commodities were obtained were divided by road type and distance earlier were separated between the

two seasons. Frequencies were then calculated for the wet and dry seasons separately in the villages grouped by distance factor, as well as villages grouped by road type.

#### **3.5.4 Household Surveys Data**

Frequencies of all variables included in the questionnaire were calculated for all 310 households interviewed to establish the nature of their demographic characteristics, resources available for production, the production and disposal of products, households' accessibility to facilities located in the urban centres, market information and farmers' satisfaction with marketing institutions.

Statistical tests, such as Analysis of Variance, were carried out to test the statistical significance of the differences between the three village groups as well as within each village group. To confirm further the influence of distance on the key variables, t-Tests were applied between the closest and remote distance village groups, the closest and average distance village groups, and between the average and remote distance village groups.

### **3.6 Limitations of the Methods Used**

Problems were encountered in establishing the sampling framework of villages for the household interviews. The selection was done using the road map of the region, but unfortunately up-to-date maps were not available, and the selection had to be done by using an old map. Consequently, it was difficult to locate in the field some of the villages (especially Vikonje and Nghambi) which were supposed to be located on the main Dodoma to Dar-es-Salaam road. The location of these villages, in relation to the road, had changed after the construction of the new Dodoma to Dar-es-Salaam road, the villages are now located away from this road by five kilometres (Vikonje) and by

ten kilometres (Nghambi). According to the sampling criteria used, these two villages are supposed to be on the main road.

The availability of transport for the researcher to the villages and the district centres was very difficult, especially in the wet season, when the motorability of the roads was very limited and some of the bridges had been washed away. Many days and hours were wasted waiting for transport, or in actual movement between places.

Random sampling was used in selecting the households to be interviewed in the villages. In some situations, however, it was difficult to contact the particular person for the interview, and much time was used up searching for one person. Some of the villages are very big and the households scattered, and as the researcher did not have transport, this created some important logistic difficulties. There were, in addition, some poor response rates to those questions which seemed to be sensitive to the respondents. This was particularly the case on the question asking respondents' satisfaction with government marketing institutions and to whom exactly they sold their crops. Other questions of perceived sensitivity included total amounts of crops produced and quantities sold. This is a measure of income, and, as elsewhere, people are not very ready to disclose this type of information. Staying in the villages for an extended period of time, especially those in the more remote villages was not easy because of shortages of accommodation and food.

In the market surveys it was difficult to interview those traders buying commodities for reselling. First, it was difficult to distinguish between people buying commodities for domestic consumption, and those buying for reselling. Consequently, the researcher had to talk to anybody buying; some of these went away before the interview was finished as they were in a hurry, whilst others just refused half way, changing their mind that they were not traders, but buying for consumption. Such traders, in most cases, generally had no licence for trading.

In the traffic counts, it was not an easy task to stand all day on the roadside under the hot sun and in the dust from passing vehicles. In each urban centre, the traffic was counted on all roads entering and leaving the urban centre simultaneously, and this created co-ordination difficulties. Moreover, traffic which passed during the night could not be included as it was insecure to be on the roadside during the late hours of the evening and night. Similarly, not all those individuals walking, or using a bicycle or animal transport, could be included, as these persons used the numerous foot paths to enter or leave the urban centres. Not suprisingly, many drivers were not always ready to indicate clearly what they were carrying; in these cases, it was necessary to climb up onto the vehicles to check and count. With sealed containers, there was no alternative but rely on the information given by the drivers.

## Chapter 4

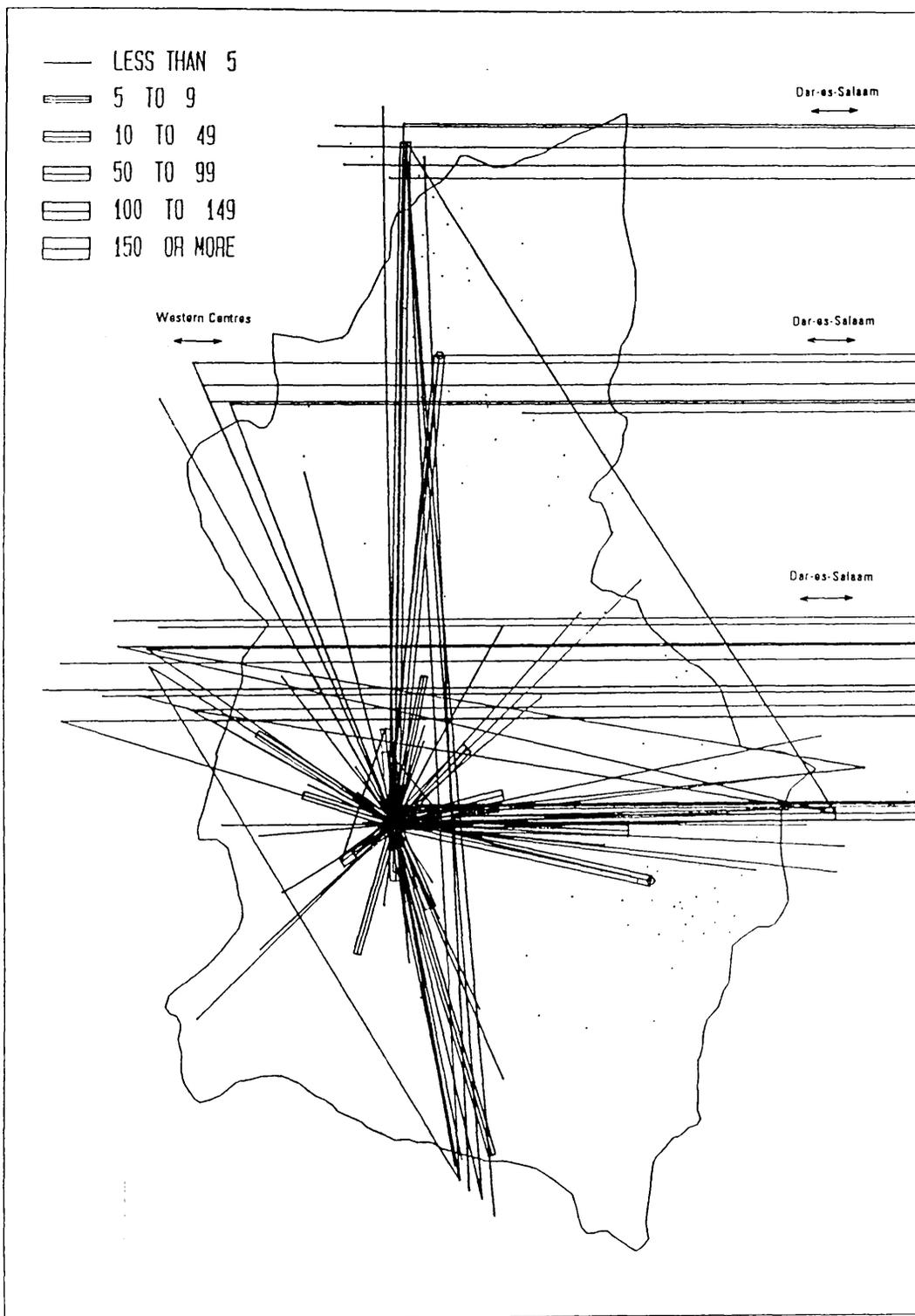
### Traffic Counts Survey in Dodoma Region

#### 4:1 Inter - Regional Traffic Links

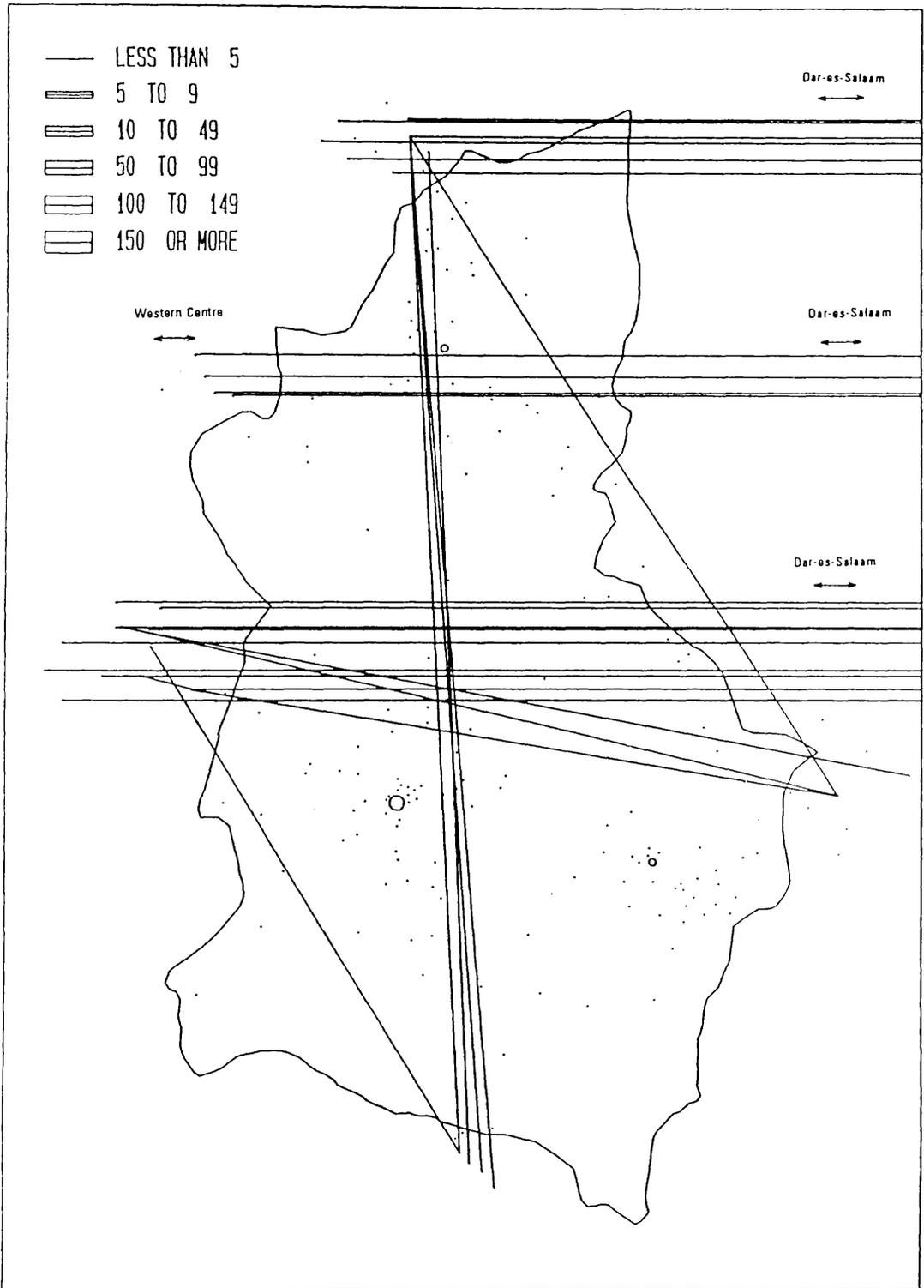
Table 4:1 and Map 4:1 illustrate the nature and strength of all vehicle movements between Dodoma regional centre. It can clearly be seen that local movements, between Dodoma centre and villages within the region dominate with 72.3 per cent of all traffic movements, although this does vary between seasons; in the dry season, the figure increases to 77 per cent, but in the wet season drops to 64.2 per cent, reflecting motorability problems at that time of the year. It is also significant that transit traffic through Dodoma centre accounts for only 2.5 per cent of movements in the wet season, compared with 7.6 per cent in the dry.

The strength of the links between Dodoma regional centre and other regional centres in Tanzania varied considerably (Table 4:2; Maps 4:1 and 4:2). The strongest link existed with the metropolitan city of Dar-es-Salaam the highest urban centre within the urban hierarchy in the country with 31.3 per cent of all vehicle movements between regional centres. Apart from Dar-es-Salaam, the links were strongest with the northern centres (12 per cent), and in particular with Arusha. The other centres performed less well, with weakest links being between the southern centres at 5.8 per cent. Once more, significant seasonal differences exist. During the wet season, Arusha accounted for 23 per cent of all movements to / from Dodoma at that time of the year, compared with only 4 per cent in the dry season. This can be explained by the fact that Arusha centre, owing to its climatic conditions and better road links with Dodoma centre, generate more economic activities (supply of agricultural product) and traffic movements with Dodoma centre in the wet season than other centres with similar climatic conditions but with poorer road links.

Map 4 : 1 Total Volume of Traffic Entering and Leaving Dodoma Centre  
On Sample Days: Direct Links



Map 4 : 2 Volume of Transit Traffic Passing Through Dodoma Centre  
On Sample Days: Direct Links



**Table 4:1**

Volume Of Vehicles Entering and Leaving Dodoma Regional Centre On Sample Days

From	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Villages In Region	260	64.2	758	77.0	1018	73.3
Kondoa District Centre	14	3.5	26	2.6	40	2.9
Mpwapwa District Centre	9	2.2	14	1.4	23	1.7
Kongwa Urban Centre	10	2.5	10	1.0	20	1.4
Coastal - Dar-es-Salaam	44	10.9	43	4.4	87	6.3
Coastal - Other Regional Centres	22	5.4	17	1.7	39	2.8
Northern Regional Centres	26	6.4	11	1.1	37	2.7
Western Regional Centres	2	0.5	22	2.2	24	1.7
Southern Regional Centres	8	2.0	8	0.8	16	1.1
Transit D'Salaam-West Centres	9	2.2	45	4.6	54	3.9
Transit " -Kondoa Centre	1	0.2	2	0.2	3	0.2
Transit " -Villages	-	-	7	0.8	7	0.5
Transit Other Coastal-West Centres-	-	-	9	0.9	9	0.6
Transit D'Salaam-North Centres	-	-	7	0.8	7	0.5
Transit North-South Centres	-	-	4	0.4	4	0.3
Transit West-South Centres	-	-	1	0.1	1	0.1
<b>Total</b>	<b>405</b>	<b>100.0</b>	<b>984</b>	<b>100.0</b>	<b>1389</b>	<b>100.0</b>

In addition to the direct links between Dodoma regional centre and the other regional centres, Dodoma regional centre, owing to its central position, is a focus for transit links between the other centres, especially between the coast and the west. Indeed, the strongest single transit link was between the metropolitan city of Dar-es-Salaam and the western centres (19.4 per cent), as well as with the neighbouring countries of Burundi, Rwanda and Zaire. Transit links, other than those involving Dar-es-Salaam, were ill-developed; transit links between north and south centres accounted for only 1.4 per cent of the total number of vehicles, and transit between west and south centres only 0.4 per cent. There were also direct links, although weak, between the metropolitan

city and the lower-order district centres of Kondoia and Mpwapwa, as well as with some villages in the region (Table 4:1).

**Table 4:2**

Volume Of Vehicles Entering and Leaving Dodoma Regional Centre On Sample Days To / From Other Regional Centres And Dar-es-Salaam

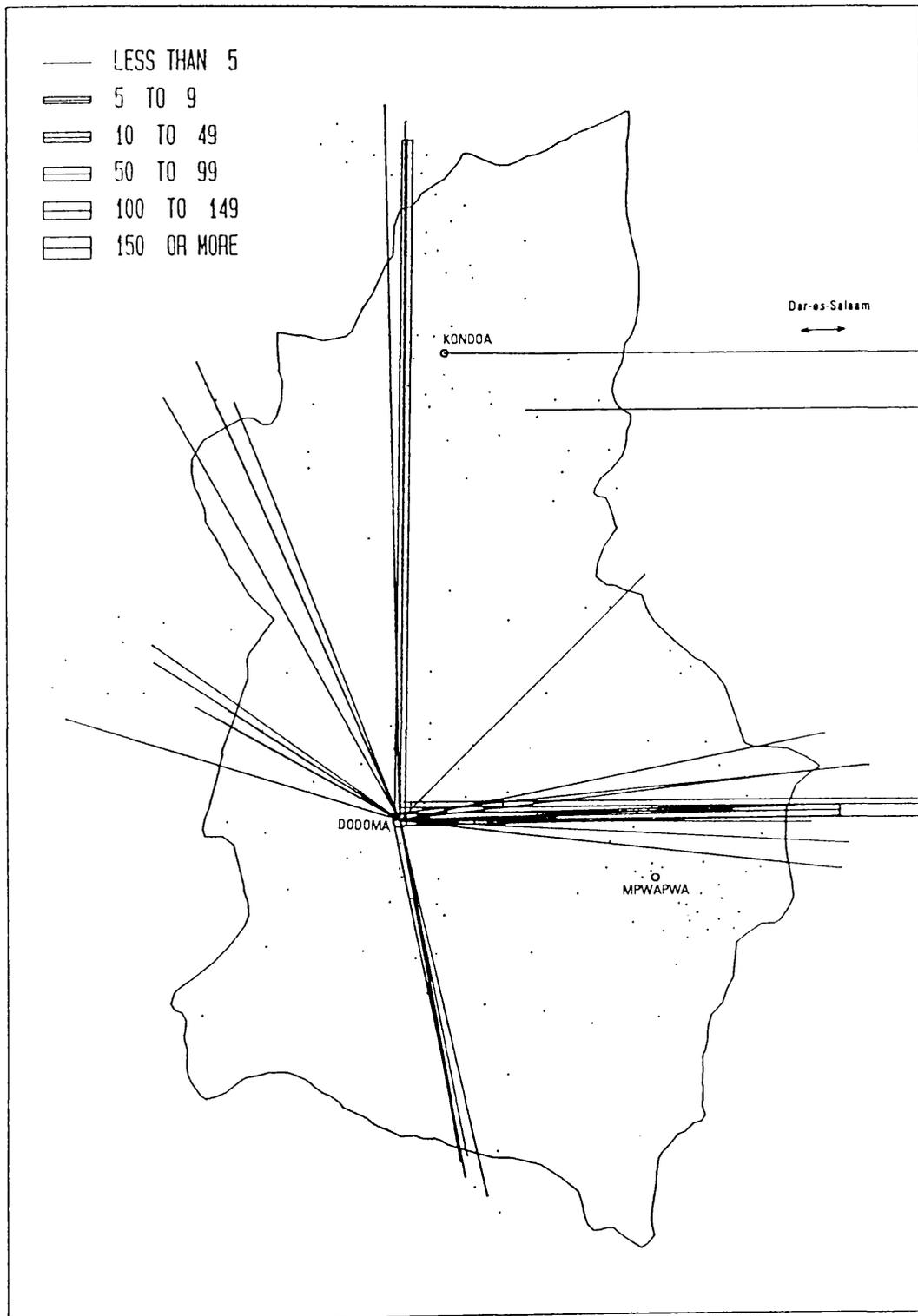
From / To	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Dodoma - Dar-es-Salaam	44	39.6	43	25.7	87	31.3
Dodoma - Morogoro	12	10.8	7	4.2	19	6.8
Dodoma - Other Coastal Centres	10	9.0	10	6.0	20	7.2
Dodoma - Arusha	26	23.4	7	4.2	33	12.0
Dodoma - Other Northern Centres	-	-	4	2.4	4	1.4
Dodoma - All Western Centres	2	1.8	22	13.2	24	8.6
Dodoma - All Southern Centres	8	7.2	8	4.8	16	5.8
Transits D'Salaam-West Centres	9	8.2	45	26.9	54	19.4
Transits Other Coastal-West Centres	-	-	9	5.4	9	3.2
Transits D'Salaam-North Centres	-	-	7	4.2	7	2.5
Transits North - South Centres	-	-	4	2.4	4	1.4
Transits West - South Centres	-	-	1	0.6	1	0.4
<b>Total</b>	<b>111</b>	<b>100.0</b>	<b>167</b>	<b>100.0</b>	<b>278</b>	<b>100.0</b>

Clearly, Dar-es-Salaam, to a great extent, and Arusha and Morogoro to a lesser extent, dominate inter-regional traffic links with Dodoma regional centre, whilst the links between Dodoma centre and the western and southern centres are weak. The metropolitan city, as well as the growth poles of Arusha and Morogoro, has a more developed industrial base compared to the other growth poles of Dodoma itself, Mwanza in the west and Mbeya in the south. Besides this, agricultural production, and in particular the production of food crops, is higher in both Arusha and Morogoro regions than most other regions. This was observed in the movement of food crops and fruits from these regions to Dodoma region in the commodity counts survey (see Chapter 5).

Table 4:2 shows that 31.1 per cent of all traffic movements were between Dodoma regional centre and the western centres. However, the volume consisted not only of vehicles destined for, or coming from, many western centres, but also for centres outside the country. Thus, although the link appears to be strong on a general basis, it does not appear so when divided into the individual centres. When the transit traffic is separated from the traffic originating or terminating in Dodoma regional centre, it is evident that the link between the coastal centres, and in particular with the metropolitan city of Dar-es-Salaam, with the western centres was much stronger (19.4 per cent), than that between Dodoma regional centre and the western centres (8.6 per cent) (Table 4:2 and compare Maps 4:2 and 4:3).

The volume of transit traffic going through Dodoma regional centre also emphasises the continuing dominance of the metropolitan city of Dar-es-Salaam over the other regional centres of Tanzania. The volume of transit movements between the southern and the northern regional centres and the western centres existed, but only at a very limited level, compared with the volume of traffic from Dar-es-Salaam to the western centres (Table 4:2).

Map 4 : 3 Volume of Traffic Entering and Leaving Dodoma Centre On Sample Days  
To / From Outside the Region: Direct Links

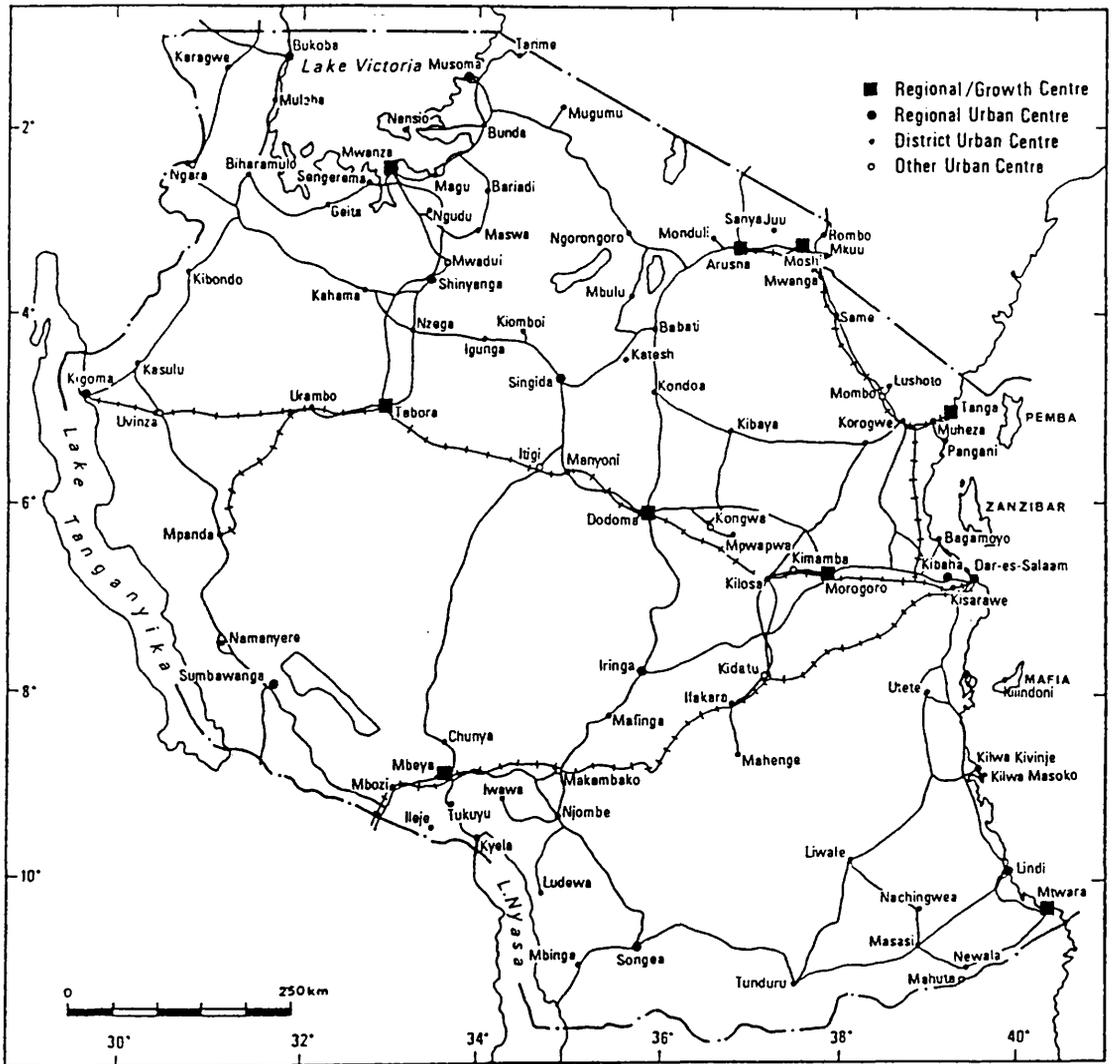


Although a strong vertical economic link exists between Dar-es-Salaam and the regional centres, and in particular with Dodoma regional centre, the traffic counts study indicates that horizontal links between Dodoma regional centre and the other regional centres are either missing, or are very weak in comparison. The vertical link between Dodoma regional centre and Dar-es-Salaam constituted 31.3 per cent of the total traffic; on the other hand, the strongest horizontal link, that is between Dodoma regional centre and Arusha constituted only 12 per cent of the traffic. The other horizontal links were even less well - developed, with Morogoro accounting for only 6.8 per cent of traffic volumes, other coastal centres 7.2 per cent, western centres 8.6 per cent, and all the southern centres only 5.8 per cent. Out of the total of 20 regional centres in Tanzania, Dodoma regional centre is linked directly by traffic to only 11, leaving 9 regional centres without a recorded direct economic link to Dodoma regional centre (Table 4:2 and Map 4:2). This is all the more surprising as Dodoma city has officially been the state capital of Tanzania since 1974. Moreover, Dodoma regional centre has a geographically central location in Tanzania, and is also linked by a nationally recognised road network to all other regional centres on its north, south, west and eastern sides (Map 4:4). Given this, Dodoma regional centre could be expected to demonstrate better results in terms of transport links with other regional centres. In spite of these apparent advantages, Dodoma centre's horizontal links with the other regional centres, and, in particular, with those in the south and west, are very weak.

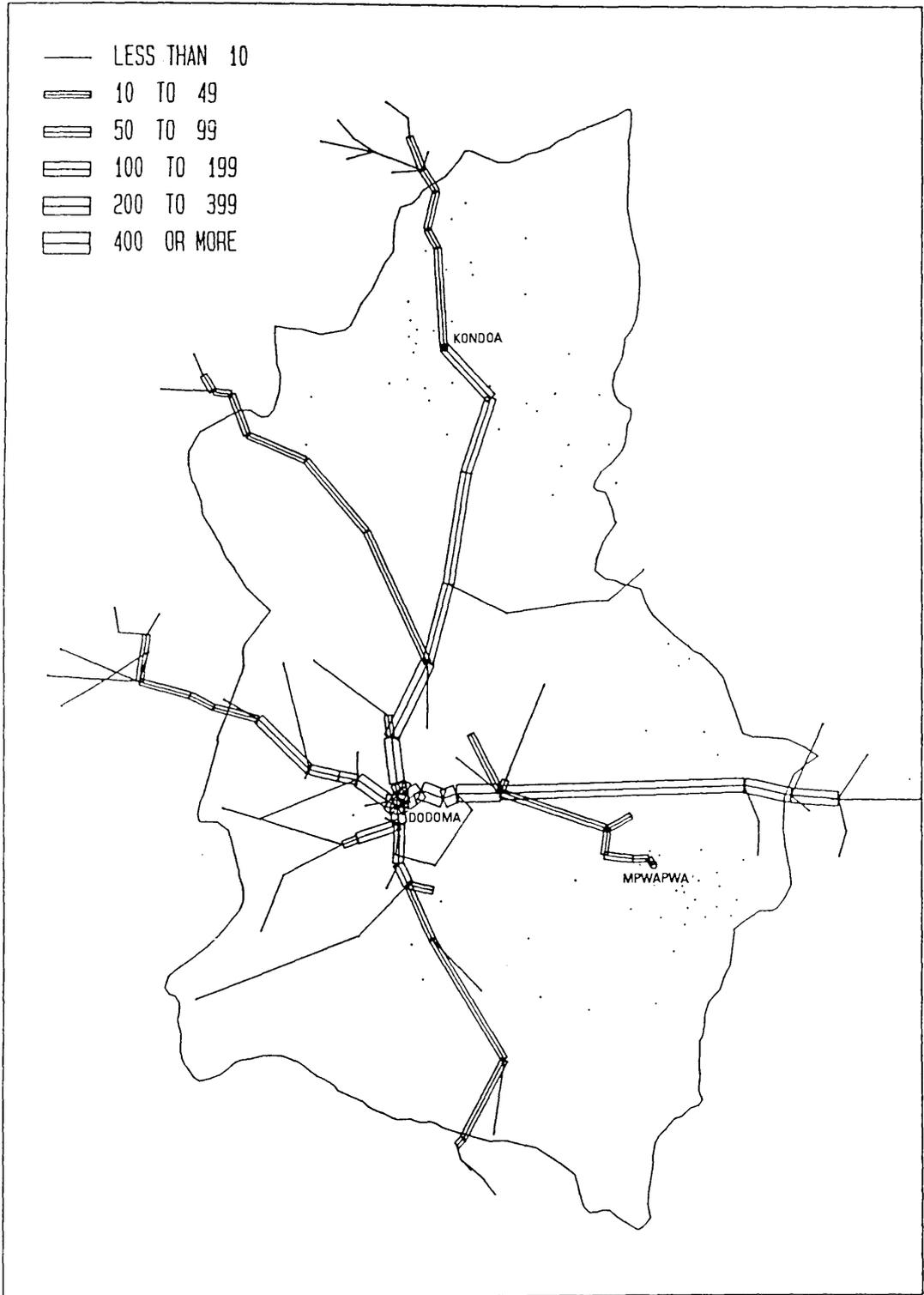
Based on the volumes of vehicles moving between the regional centre of Dodoma and the other regional centres, it is clear that the establishment of the other growth centres in Tanzania, as well as the regional centres acting as secondary cities, have not so far succeeded in reducing the dominance of the metropolitan city of Dar-es-Salaam, at least in terms of volumes of traffic moving between the regional centres, as compared to those moving between the metropolitan city and the regional centres. Particularly surprising, is the relatively weak inter - regional link with Morogoro, given its relative

proximity to Dodoma regional centre, its location on the main all-weather asphalt road between Dodoma and Dar-es-Salaam, and the fact that it has been developed both as a regional centre and as a growth centre to reduce the dominance of Dar-es-Salaam. Besides this, Morogoro is rapidly growing with expanding industries, and job opportunities. Current economic conditions in Morogoro are likely to attract other economic activities and population to the centre, and indeed, some migrants have already been attracted from Dar-es-Salaam city. Based on the results of the traffic counts survey, Morogoro urban centre has not been able so far to reduce the pull of Dar-es-Salaam on the other interior regional centres, even though Morogoro is closer to Dodoma (283 kilometres) than is Dar-es-Salaam (479 kilometres). The same applies to those centres located at even greater distances on the western side of the country, such as Mwanza, Tabora and Shinyanga. In terms of volumes of traffic, neither Morogoro nor Dodoma regional centres have been able to reduce the economic dominance of Dar-es-Salaam over the western centres. There were more vehicles travelling between Dar-es-Salaam and the western centres (like Mwanza, 1164 kilometres away) past Morogoro and Dodoma, than both Dodoma and Morogoro combined with the western centres (Table 4:2 and Maps 4:1 and 4:5).

Map 4 : 4 Tanzania : Main Urban Centres and Transport Links



Map 4 : 5 Total Volume of Traffic Entering and Leaving Dodoma Centre  
On Sample Days: Cumulative Flows



#### **4.1.1 The Impact of Climate on Inter-Regional Physical Traffic Links**

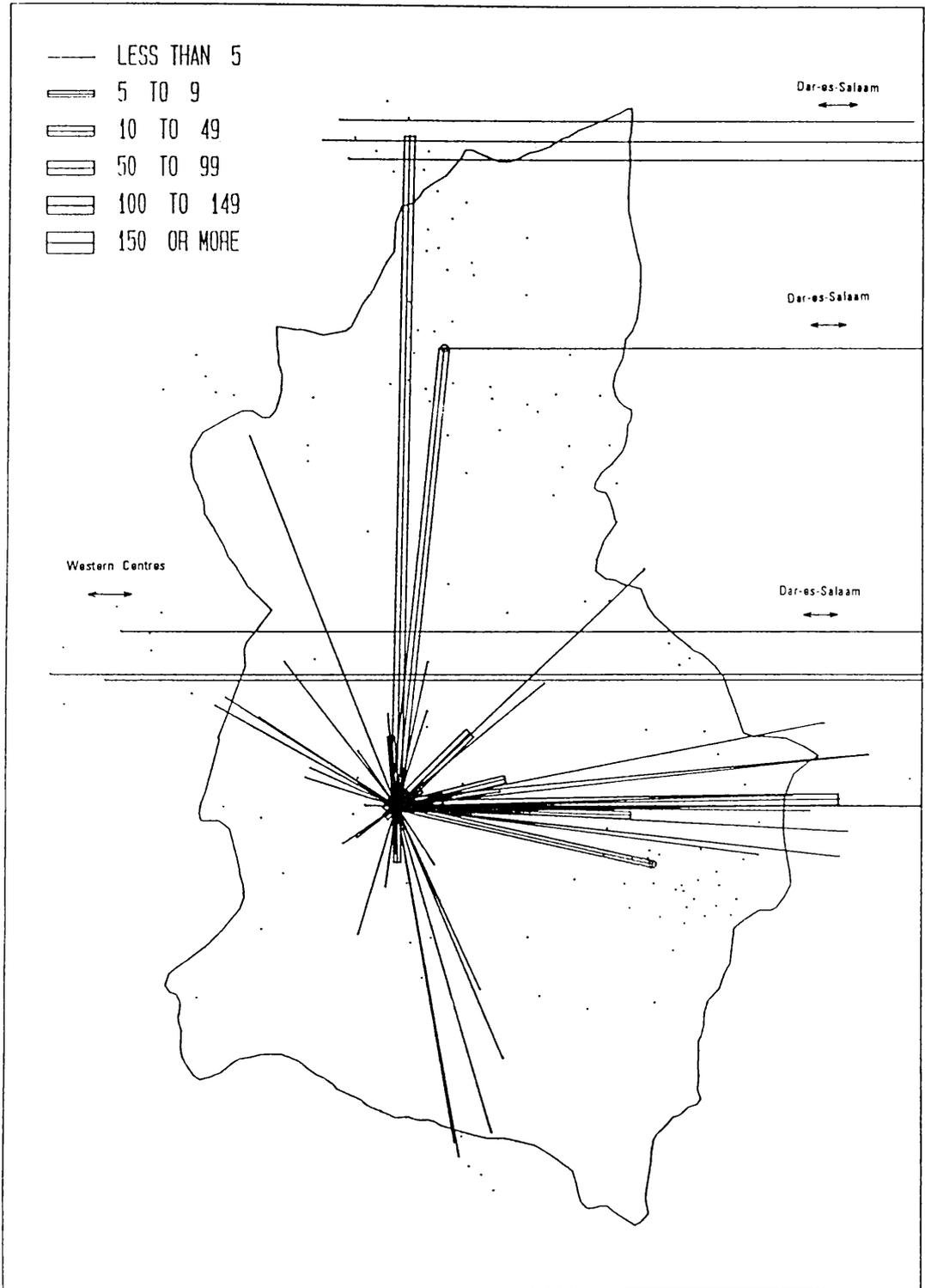
Most roads in Tanzania, and especially in the study region, are not all-weather, and their motorability can be severely affected by the rains. The impact of this is reflected in the differences in the volumes of traffic along these roads between the wet and dry seasons, which, in turn, affects the existence, and the strengths, of the physical links in terms of volumes of traffic moving along these roads.

The absolute volume of traffic between Dodoma regional centre and Dar-es-Salaam city did not change much between the two seasons with about 40 vehicles per day. This is because the two centres are linked by an all-weather road. All the remaining centres, with the exemption of Morogoro, are not linked to Dodoma regional centre by all-weather roads, and as a result, with the exception of Arusha region, the volumes of traffic between these other centres and Dodoma regional centre was either very low or absent during the wet season (Table 4:1 and Maps 4:6; 4:7). The Dodoma to Arusha road, however, although not an all-weather road, is generally still passable during the wet season. During the wet season, interestingly, the survey showed that this road carried more vehicles than it did in the dry season. This can be explained by the impact of climate on economic activities which in turn influence the volume of traffic. During the wet season, agricultural activity in both Arusha and Dodoma regions is at its peak, and much of this traffic at this time of the year seems to be associated with this traffic at this, especially the transportation of grains from Arusha.

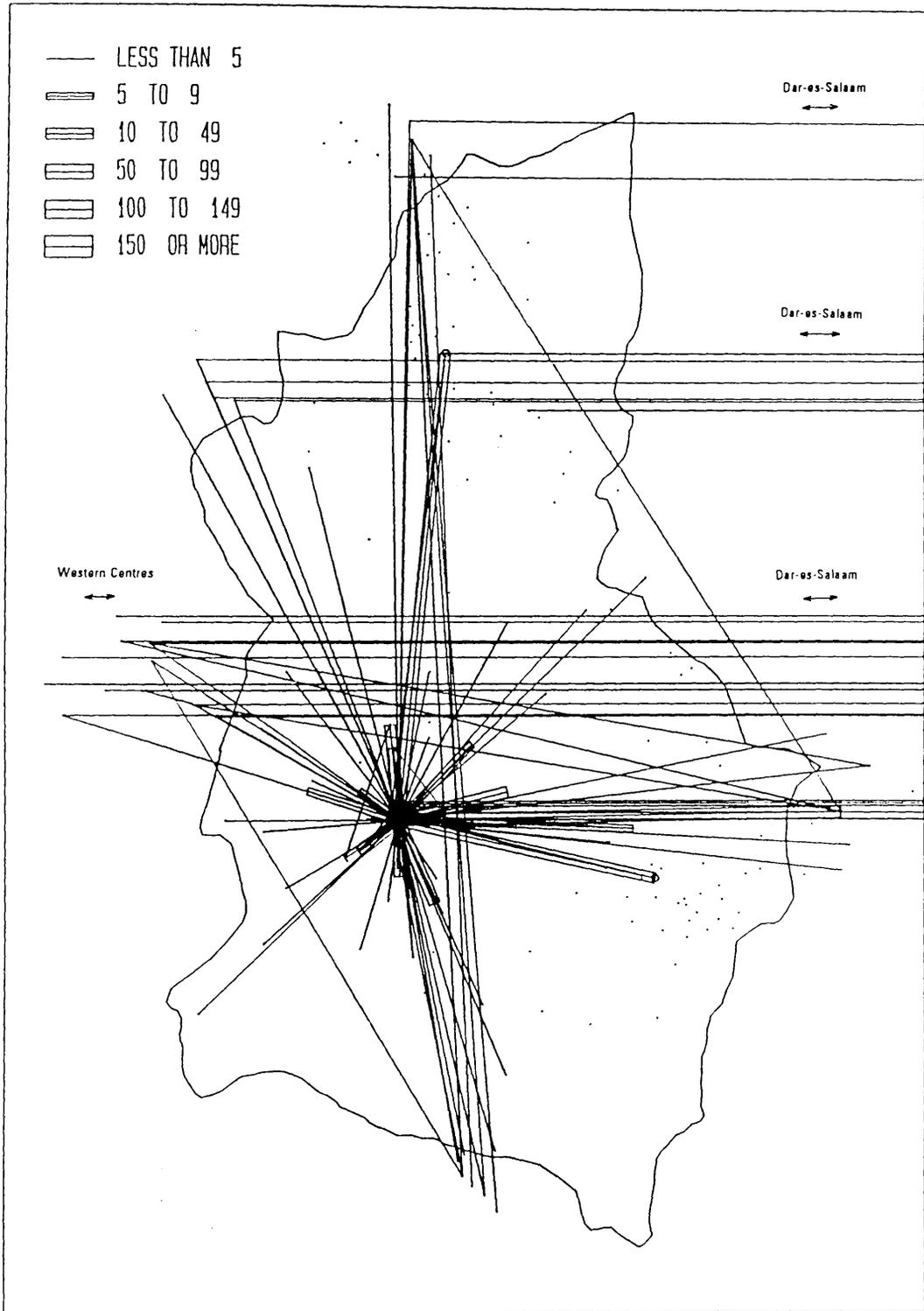
The volume of traffic between Dodoma regional centre and the southern centres, although low, did not vary much between the seasons. However, the routes used did change. In the wet season, there are few direct contacts between the southern centres and Dodoma regional centre, as a result of the poor state of the road and the washing away of bridges along this road by rainfall run-off. On these occasions, traffic is

diverted through Morogoro regional centre, thus reducing volumes of traffic between the southern centres and Dodoma centre. This situation also continues, although on a reduced scale, during the dry season, possibly as a result of great distances involved, as well as the poor state of the road which does not always improve much, even in the dry season (Table 4:1 and compare Maps 4:8; 4:9). The volume of traffic between the western centres and Dodoma regional centre is almost non-existent during the wet season, due to the road conditions being virtually impassable for most vehicles. However, the volume of traffic between these centres increases markedly during the dry season, with the improved motorability of the road (Table 4:1 and Maps 4:6; 4:7). The same applies to the transit traffic from the coastal centres, including Dar-es-Salaam, to the western centres of Tanzania. The volume is very low or even non-existent in some situations in the wet season, but, is very high in the dry season.

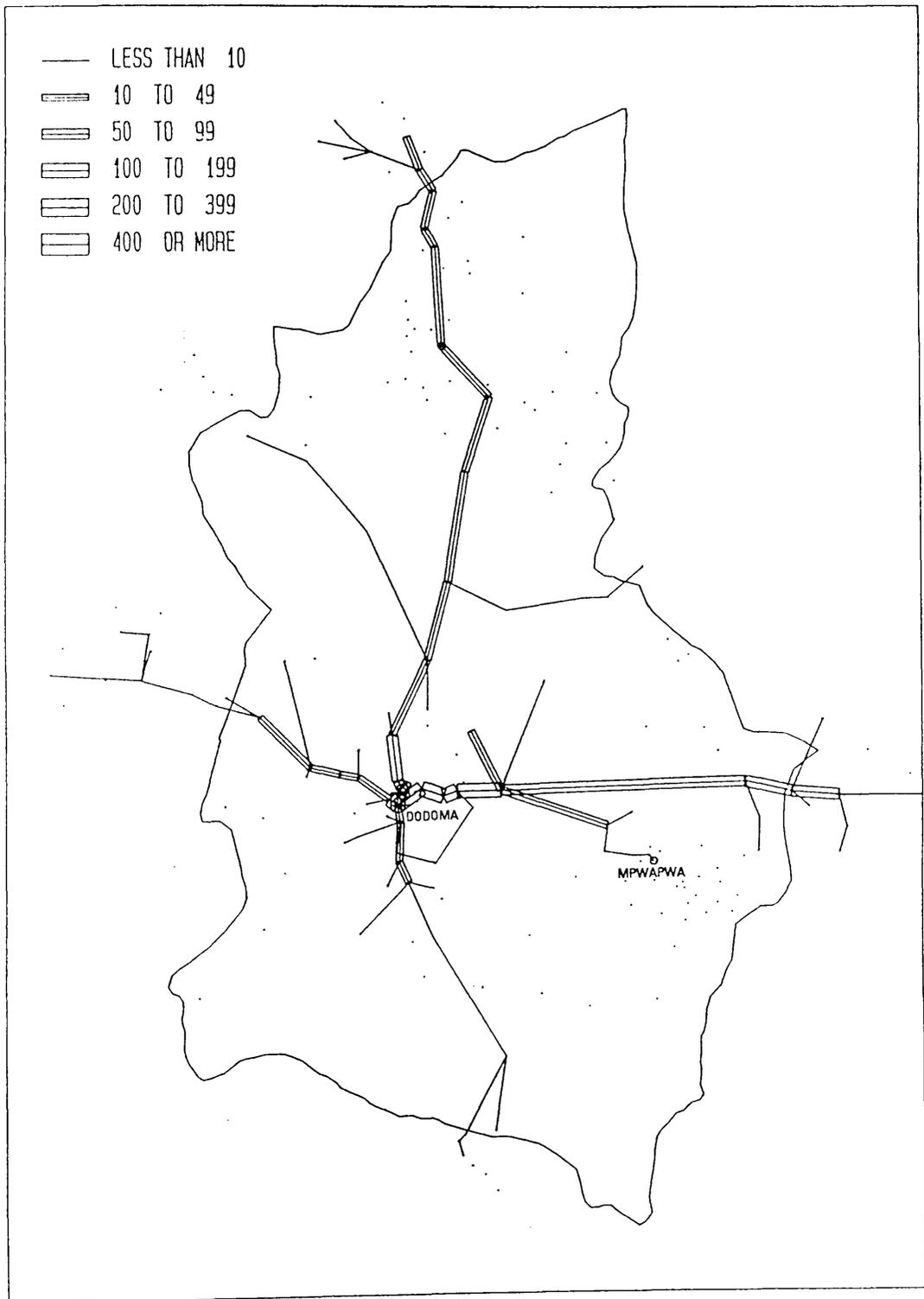
Map 4 : 6 Total Volume of Traffic Entering and Leaving Dodoma Centre  
 On Sample Day: Direct Links - Wet Season Only



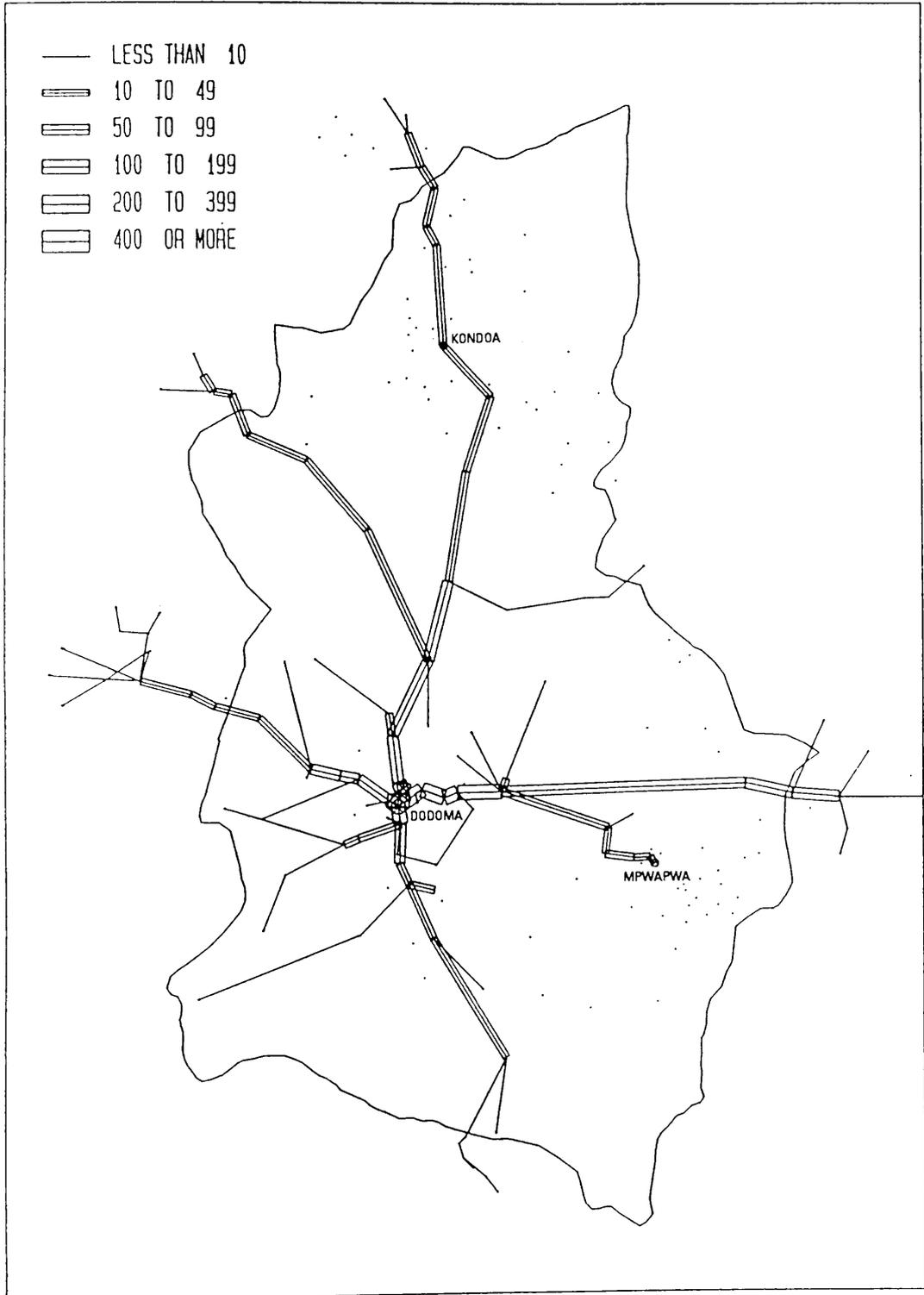
Map 4 : 7 Total Volume of Traffic Entering and Leaving Dodoma Centre  
On Sample Day: Direct Links - Dry Season Only



Map 4 : 8 Total Volume of Traffic Entering and Leaving Dodoma Centre  
On Sample Day: Cumulative Flows - Wet Season Only



Map 4 : 9 Total Volume of Traffic Entering and Leaving Dodoma Centre  
On Sample Day: Cumulative Flows - Dry Season Only



In the wet season, traffic is usually diverted around a longer route through Kondoa and Kwamtoro, both in Kondoa district. The motorability of these roads may not be much better, but at least they are usually passable. Transit movements in the wet season between Dar-es-Salaam and the western centres accounted for only 16.7 per cent of the total movements, whilst, the other 83.3 per cent took place in the dry season.

#### **4.1.2 The Impact of Climate on Inter-Regional Economic Activities And Traffic Links**

So far, the influence of rainfall has been seen to be critical in affecting the motorability of most roads in the region, which in turn, influences seasonal variations in traffic volumes on these roads. Climate also influences economic activities, and, in particular, agricultural production and the resulting exchange of agricultural products between different places. This can be exemplified by the case of Dodoma and Arusha regions. Dodoma has only one short wet season whilst Arusha has two wet seasons. This influences their respective production calendar, total agricultural production and supply (Figure 4:1). Arusha region supplies Dodoma region with grain and cereals almost all the year. The influence of climate on economic activities and economic links are bound to be strong in an agricultural country like Tanzania, which trades mostly on primary agricultural products. Agriculture contributed 61.1 per cent to the GDP in 1989 (Government of Tanzania). The same situation prevails in the study region. The economic activities and links between the regional centres are dominated by the exchange of agricultural products. These products have to be moved between the centres, and, in this way, generate a volume of vehicles moving between the centres to trade or supply areas. Under these conditions, climate influences the volume of traffic by influencing production and exchange between centres, as well as by influencing the motorability of the roads along which the vehicles have to pass.

**Figure 4:1**

Grain and Cereal Production Calendar for Dodoma and Arusha Regions

Activity	Region	J	F	M	A	M	J	J	A	S	O	N	D
Planting	Dodoma	x										x	x
	Arusha	*	*	*							*	*	
Weeding	Dodoma	x	x	x									
	Arusha		*	*	*							*	*
Harvesting	Dodoma					x	x	x					
	Arusha	*	*						*	*	*		
Marketing	Dodoma						x	x	x				
	Arusha	*	*	*					*	*	*	*	*

In the wet season, there is a high demand in Dodoma for agricultural products, especially grains, from Arusha and Morogoro. The results of the commodity counts survey support this (see Chapter 5). As the physical link between the western and southern centres with Dodoma regional centre is very weak in the wet season, there is little competition from the southern and western centres in the supply of agricultural products to Dodoma regional centre. Consequently the volume of traffic is high in the wet season between Morogoro and especially Arusha with Dodoma regional centre to facilitate the movement of those agricultural products. In the dry season, the supply of agricultural products from Arusha and Morogoro regions to Dodoma regional centre is either very limited or non-existent, and hence volume of traffic tends to decline in the dry season. Improvements in the motorability, leading to, increased volumes of traffic, on other roads, such as to the western centres, increases supplies and competition in the dry season in Dodoma's regional markets. There are also greater supplies of cereals and grains from within Dodoma region itself in the dry season. A change in the nature of economic links between the regional centres and Dodoma regional centre between the two marked climatic seasons is evident (compare Maps 4:8 and 4:9).

## **4.2 Dodoma Urban Centre as a Regional Centre**

### **4.2.1 Traffic Links Between Urban Centres in Dodoma Region**

A hierarchy of urban centres within the study region is evident. Dodoma regional centre is the highest-order urban centre, with more well-defined links and contacts with the metropolitan city of Dar-es-Salaam, whilst the district centres of Kondoia and Mpwapwa are of a lower-order, communicating more with Dodoma regional centre than with other higher-order urban centres elsewhere in Tanzania. A third lower-order centre is that of Kongwa, Kongwa being a sub-district urban centre within Mpwapwa district. This urban hierarchy within the study region is also reflected in terms of population numbers; Dodoma regional centre has a population of 88,473 people (1989 National Population Census), Kondoia district centre 12,182, Mpwapwa district centre 10,182, and Kongwa lower-order centre 8,557 people (1978 National Population Census). At the base of the regional urban hierarchy lie the rural villages in the hinterlands of the regional and district centres.

In terms population numbers, Kondoia has more persons as seen above. In terms of transport connections Kondoia has more (48.2 per cent) connections with Dodoma regional centre than Mpwapwa with only 27.7 per cent of the total traffic between the regional centre and its lower-order centres ( Table 4:3). Furthermore, Kondoia district centre handles more traffic in total (172 vehicles) than Mpwapwa (101 vehicles), and also has more contacts with outside urban centres and handles more transit vehicles between urban centres (Tables 4:4 and 4:5). Mpwapwa has fewer contacts with outside centres, and no recorded transit vehicles between urban centres. Indeed, Kondoia serves more villages (33), than the 23 villages served by Mpwapwa (Tables 4:4; 4:5 and Maps 4:10; 4:11).

**Table 4:3**

Volume Of Vehicles On Sample Days Entering and Leaving Dodoma Centre To / From District Centres

From / To	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Kondoa - Dodoma Centre	14	42.4	26	52.0	40	48.2
Mpwapwa - Dodoma Centre	9	27.3	14	28.0	23	27.7
Kongwa - Dodoma Centre	10	30.3	10	20.0	20	24.1
<b>Total</b>	<b>33</b>	<b>100.0</b>	<b>50</b>	<b>100.0</b>	<b>83</b>	<b>100.0</b>

**Table 4:4**

Volume Of Vehicles Entering and Leaving Kondoa District Urban Centre On Sample Days

From / To	Wet season		Dry Season		Total	
	No.	%	No.	%	No.	%
Village In District	42	52.5	60	65.2	102	59.3
Mpwapwa District	-	-	2	2.2	2	1.2
Dodoma Regional Centre	9	11.2	17	18.5	26	15.1
Dar-es-Salaam City	6	7.5	1	1.1	7	4.0
Northern Centres	2	2.5	4	4.3	6	3.5
Transit D'Salaam-West Centres	6	7.5	-	-	6	3.5
Transit " -North Centres	4	5.0	-	-	4	2.3
Transit North-South Centres	1	1.3	-	-	1	0.6
Transit Dodoma-West Centres	2	2.5	-	-	2	1.2
Transit Dodoma-North Centres	7	8.7	7	7.6	14	8.1
Transit Arusha-Kiteto	1	1.3	1	1.1	2	1.2
<b>Total</b>	<b>80</b>	<b>100.0</b>	<b>92</b>	<b>100.0</b>	<b>172</b>	<b>100.0</b>

**Table 4:5**

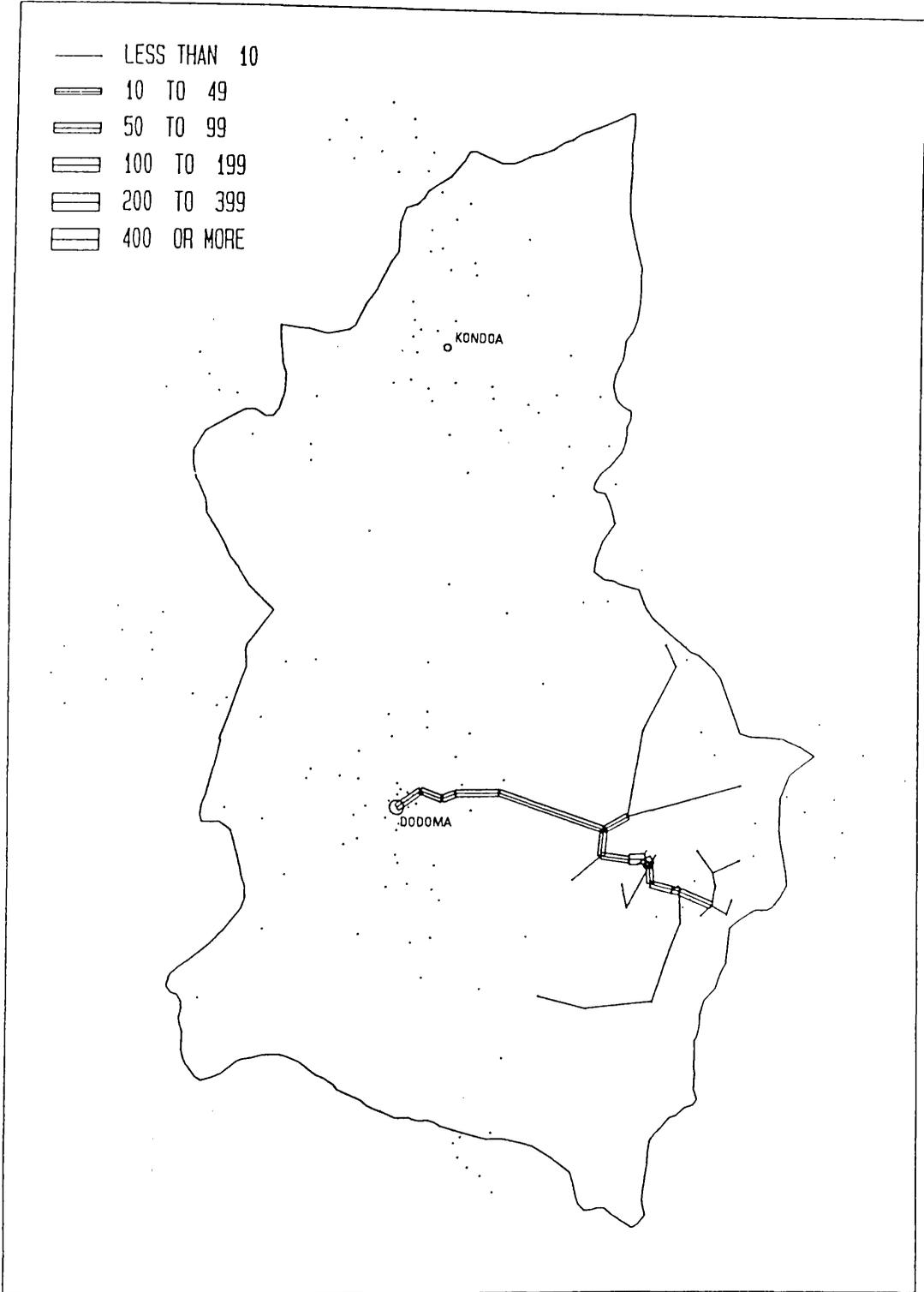
Volume Of Traffic Entering and Leaving Mpwapwa District Urban Centre  
On Sample Days

From / To	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Villages In District	11	42.3	47	62.7	58	57.4
Kongwa Urban Centre	6	23.1	3	4.0	9	8.8
Kondoa District Centre	-	-	-	-	-	-
Dodoma Regional Centre	6	23.1	19	25.4	25	24.8
Dar-es-Salaam City	1	3.8	4	5.3	5	5.0
Other Coastal Centres	2	7.7	1	1.3	3	3.0
Village In Dodoma District	-	-	1	1.3	1	1.0
<b>Total</b>	<b>26</b>	<b>100.0</b>	<b>75</b>	<b>100.0</b>	<b>101</b>	<b>100.0</b>

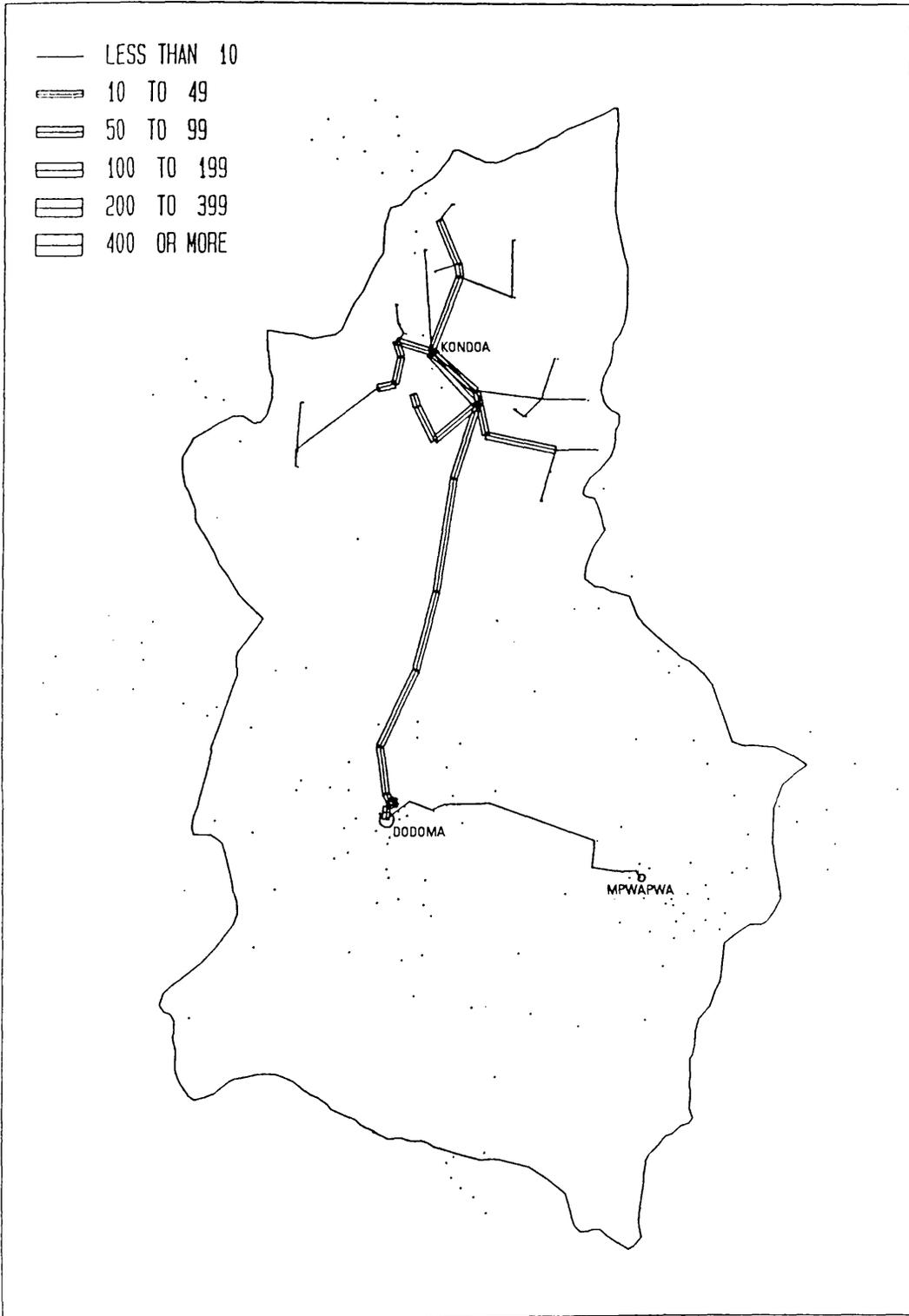
Traffic volumes between Dodoma and its district centres also vary between the seasons, with volumes of traffic being generally lower in the wet season. The volumes in the wet season constituted only 35 per cent of the total whilst the dry season carried 65 per cent, between Kondoa and Dodoma; and 39.1 per cent (wet season) and 60.9 per cent (dry season) between Mpwapwa and Dodoma (Table 4:6 and compare Maps 4:12 and 4:13; 4:14 and 4:15; and 4:16 and 4:17). During the wet season, the weakest link is between Dodoma and Mpwapwa with only 9 vehicles per day, as compared to 10 and 14 vehicles between Kongwa and Kondoa respectively with Dodoma in the same wet season (Table 4:6). Indeed, the link between Dodoma and the third lower-order centre of Kongwa, during the same period, is actually stronger, in terms of volume of traffic handled, than that with Mpwapwa as seen above. This is mainly due to the poor motorability of the road linking Mpwapwa and

the other urban centres. During the wet season, Mpwapwa urban centre is frequently totally cut off from other centres, as key bridges are frequently washed away by floods. Consequently, at that time of the year, Kongwa gains from being located on the eastern edge of Mpwapwa district and very close to the Dar-es-Salaam to Dodoma all-weather road. Indeed, the difference in the total volumes of traffic handled between Mpwapwa and Dodoma in all seasons is not very different as compared with that with Kongwa. Mpwapwa had 23 vehicles while Kongwa had 20 vehicles (Table 4:6). Mpwapwa clearly suffers from its isolated location in relation to other urban centres, as well as from the poor quality road linking it to those other centres. In addition, more economic linkages exist between Kondoia and Dodoma than with Mpwapwa. A greater proportion of commodities sold in Dodoma regional centre, such as maize, seem to have been originally purchased from Kondoia, rather than from Mpwapwa, even during the dry season.

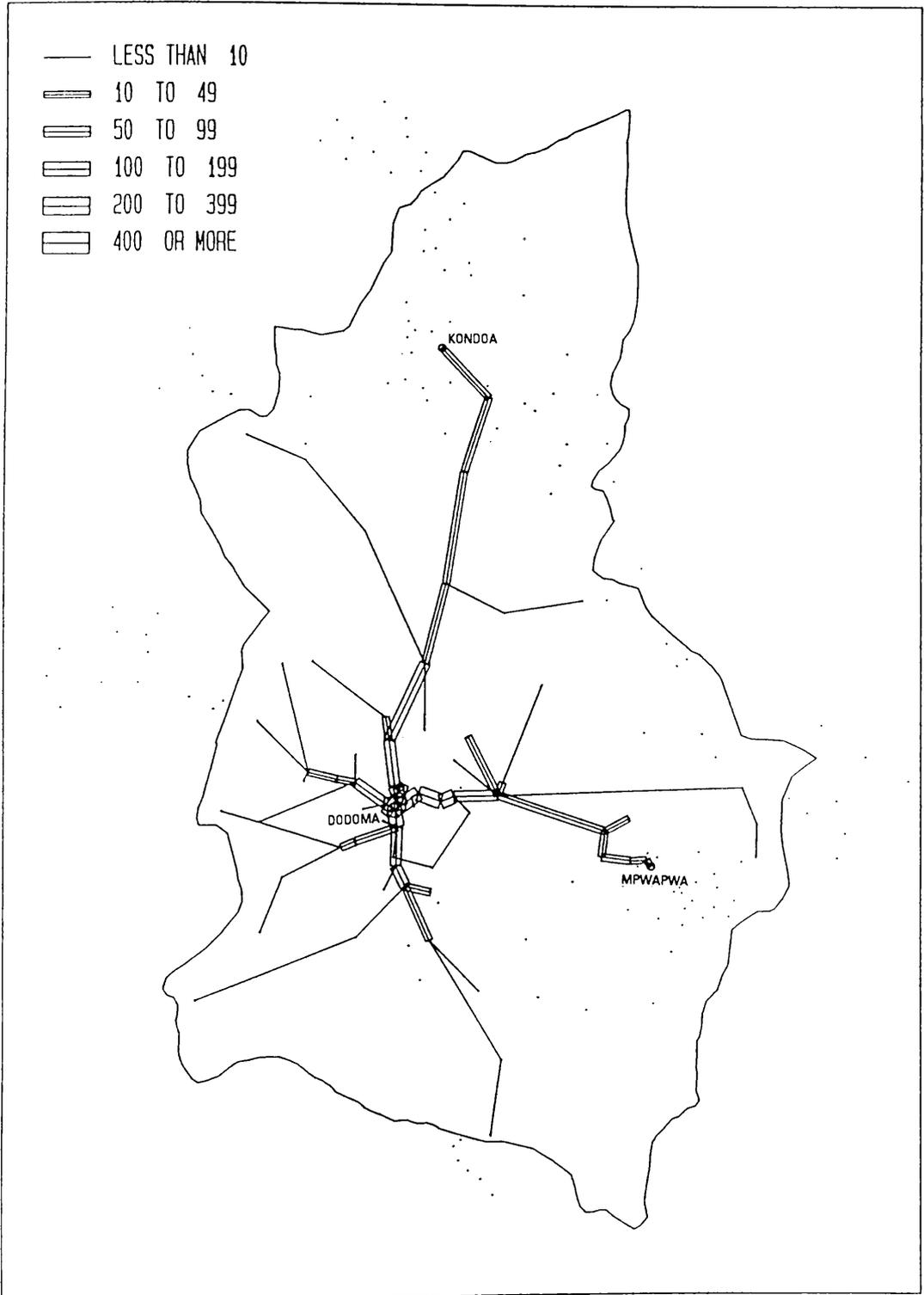
Map 4 : 10 Total Volume Of Traffic within the Region Entering and Leaving  
Mpwapwa Centre On Sample Days: Cumulative Flows



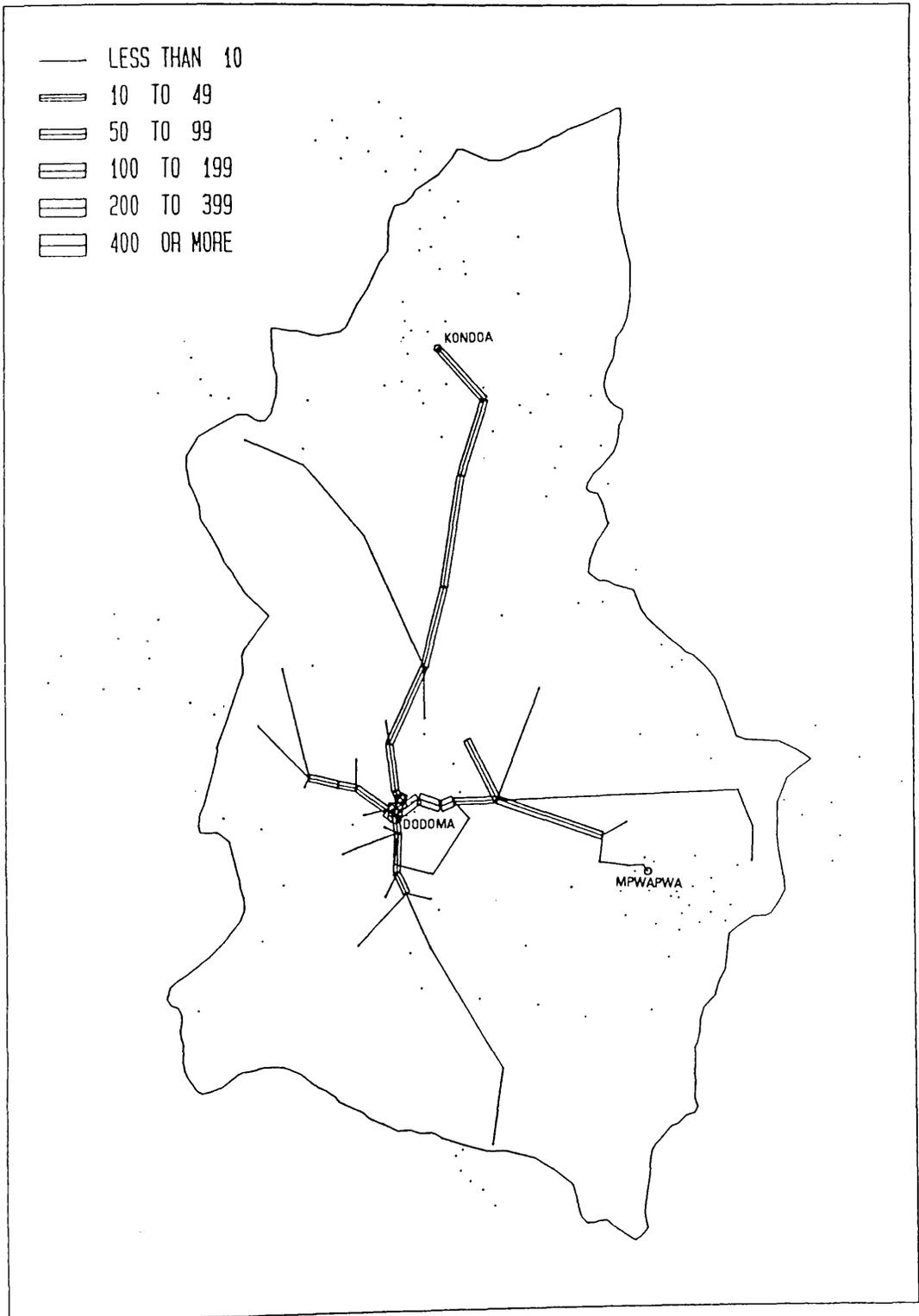
Map 4 : 11 Volume of Traffic within the Region Entering and Leaving Kondo Centre  
On Sample Days: Cumulative Flows



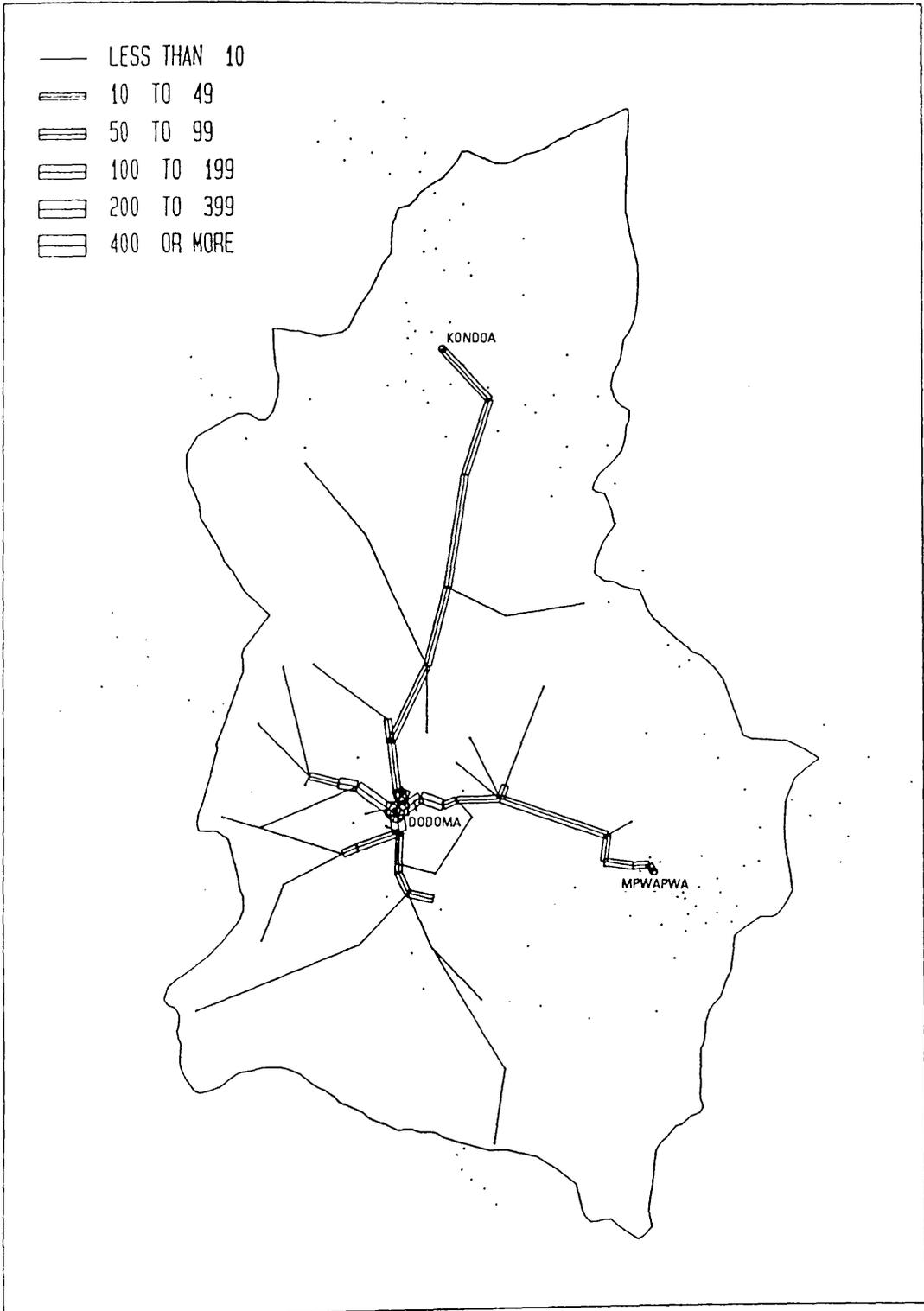
Map 4 : 12 Volume of Traffic within the Region Entering and Leaving Dodoma Centre  
On Sample Days: Cumulative Flows



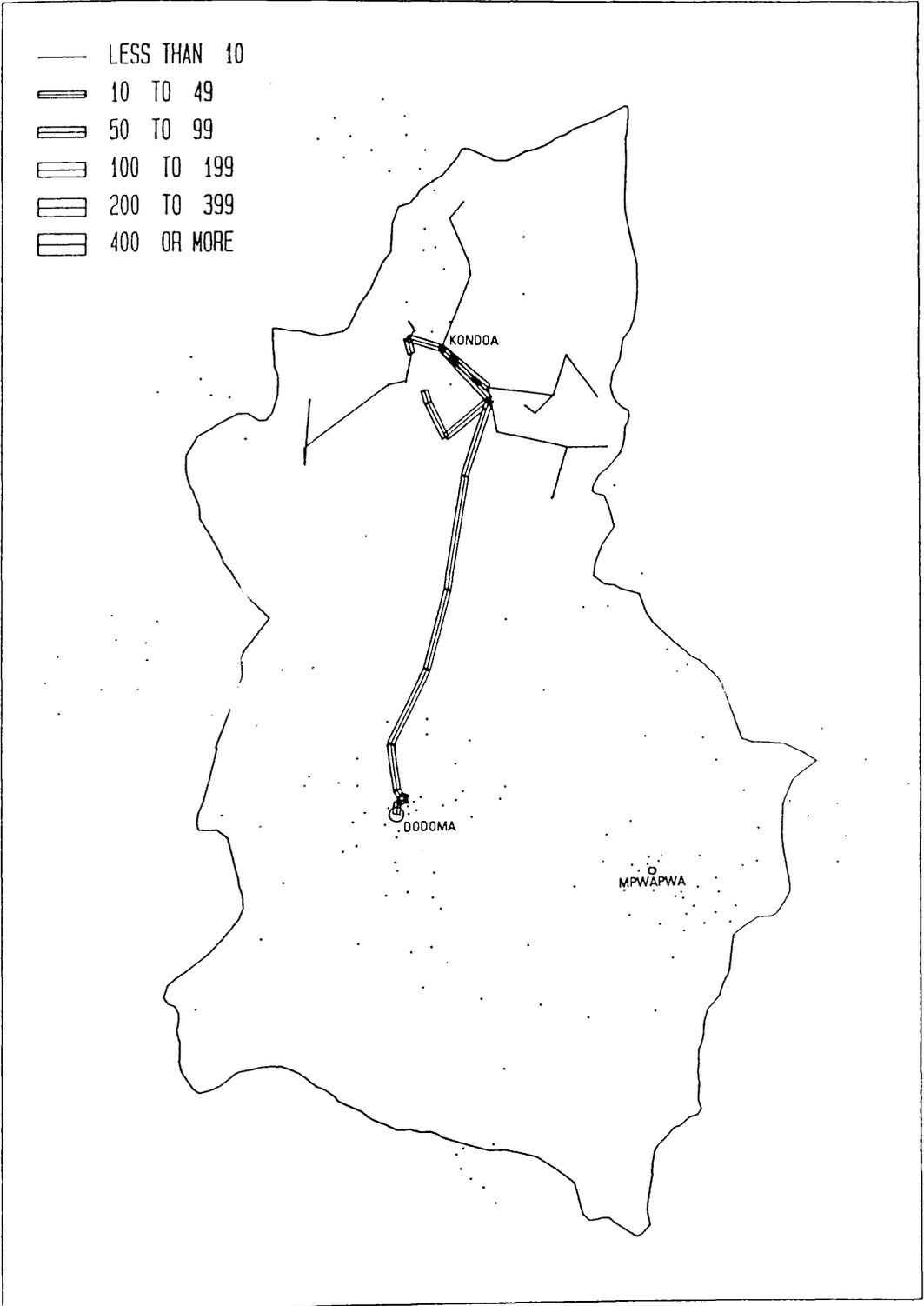
Map 4 : 13 Volume of Traffic within the Region Entering and Leaving Dodoma Centre  
On Sample Day: Cumulative Flows - Wet Season Only



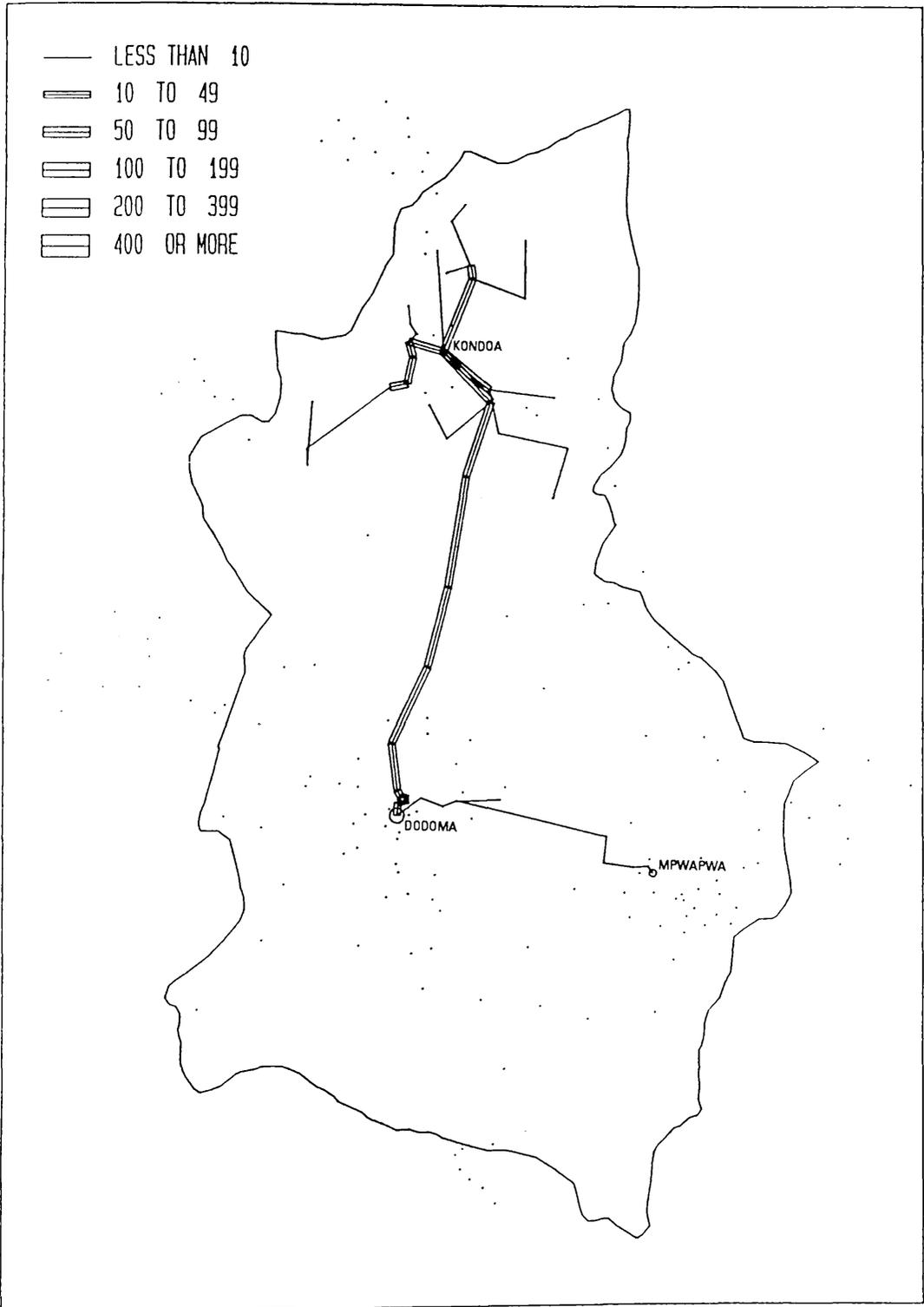
Map 4 : 14 Volume of Traffic within the Region Entering and Leaving Dodoma Centre  
On Sample Day: Cumulative Flows - Dry Season Only



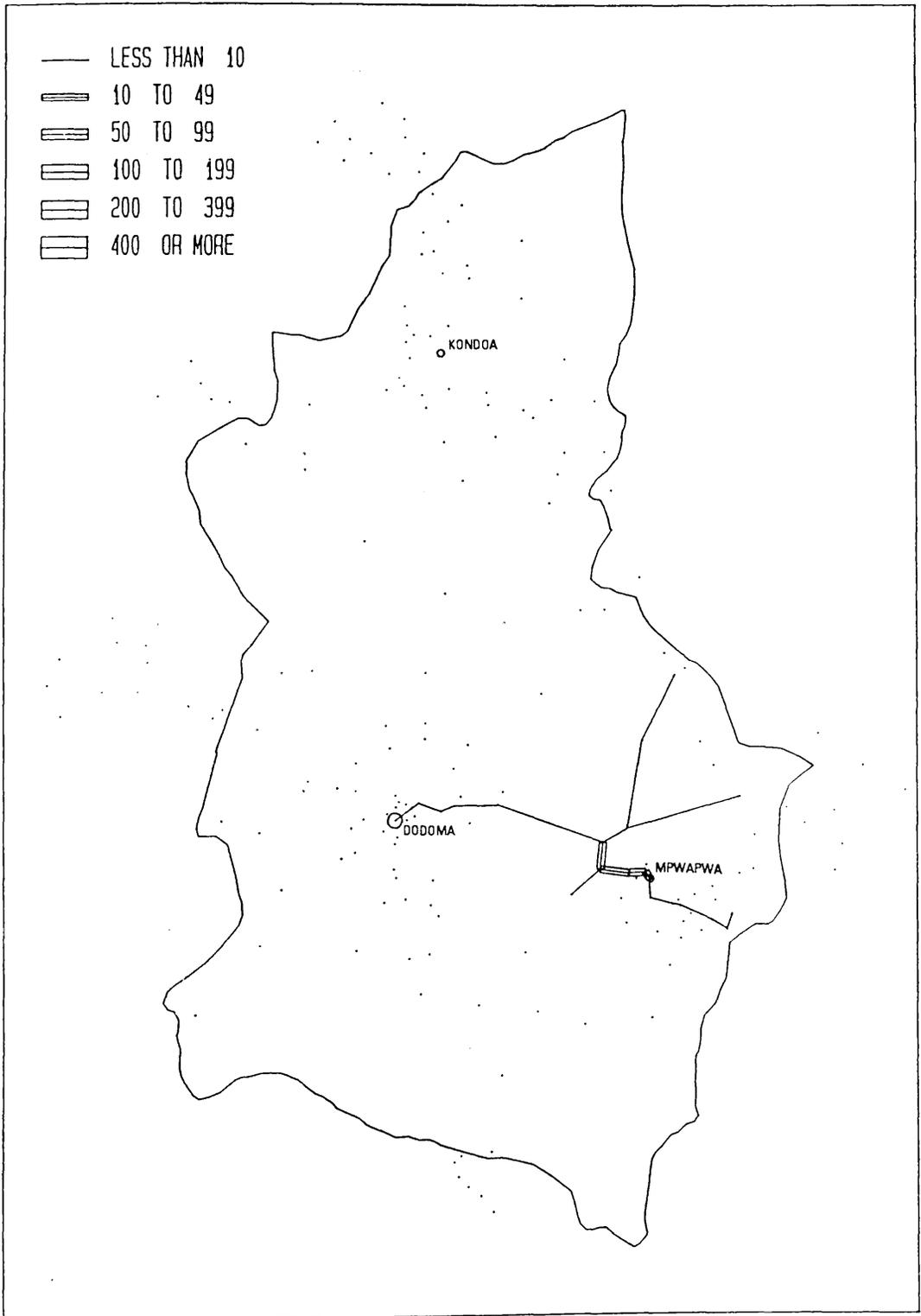
Map 4 : 15 Volume of Traffic within the Region Entering and Leaving Kondoa Centre  
On Sample Day: Cumulative Flows - Wet Season Only



Map 4 : 16 Volume of Traffic within the Region Entering and Leaving Kondoa Centre  
On Sample Day - Dry Season Only



Map 4 : 17 Volume of Traffic within the Region Entering and Leaving Mpwapwa  
Centre On Sample Day: Cumulative Flows - Wet Season Only



**Table 4:6**

Seasonal Volume Of Vehicles On Sample Days Entering and Leaving Dodoma Regional Centre From / To Lower-Order District Urban Centres

Urban Centres	Volume Of Traffic					
	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Kondoa - Dodoma Centre	14	35.0	26	65.0	40	100.0
Mpwapwa - Dodoma Centre	9	39.1	14	60.9	23	100.0
Kongwa - Dodoma Centre	10	50.0	10	50.0	20	100.0
Total	33	39.8	50	60.2	83	100.0

A further factor in the strength of linkages between Dodoma city and the other lower-order urban centres is the existence of the Central Region Cooperative Union (CRCU) and the National Milling Corporation (NMC). Both the CRCU and NMC godowns are located in Kizota, an Industrial centre within Dodoma regional centre, and traffic movements here represent 20 per cent of the total volume of traffic from the lower-order centres to Dodoma centre in the dry season (Table 4:7). Thus, when the activities of CRCU and NMC are removed from the traffic counts, the physical links between the lower-order urban centres and Dodoma are significantly weakened.

**Table 4:7**

Volume Of Traffic Generated by CRCU and NMC To Kizota In The Traffic Entering and Leaving Dodoma Centre On Sample Days

From / To	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Kondoa - Dodoma	14	100.0	21	80.8	35	87.5
Kondoa - Kizota	-	-	5	19.2	5	12.5
<b>Total</b>	<b>14</b>	<b>100.0</b>	<b>26</b>	<b>100.0</b>	<b>40</b>	<b>100.0</b>
Mpwapwa - Dodoma	9	100.0	11	78.6	20	87.0
Mpwapwa - Kizota	-	-	3	21.4	3	13.0
<b>Total</b>	<b>9</b>	<b>100.0</b>	<b>14</b>	<b>100.0</b>	<b>23</b>	<b>100.0</b>
Kongwa - Dodoma	10	100.0	8	80.0	18	90.0
Kongwa - Kizota	-	-	2	20.0	2	10.0
<b>Total</b>	<b>10</b>	<b>100.0</b>	<b>10</b>	<b>100.0</b>	<b>20</b>	<b>100.0</b>
Total To Dodoma Centre	33	100.0	40	100.0	73	88.0
Total To Kizota Centre	-	-	10	20.0	10	12.0
Total To Dodoma And Kizota Centres	33	100.0	50	100.0	83	100.0

Table 4:8 shows that the lower-order centres are also linked directly with the metropolitan city of Dar-es-Salaam, and even other regional centres, without necessarily passing through their own regional centre of Dodoma. Out of the total traffic which left Kondoa district, only 66.7 per cent went to Dodoma, but another 33.3 per cent went directly to Arusha and Dar-es-Salaam higher-order centre; for Mpwapwa, 76 per cent of the traffic went to Dodoma, whilst 24 per cent went directly to Dar-es-Salaam and Morogoro centres (Table 4:8). This further confirms the

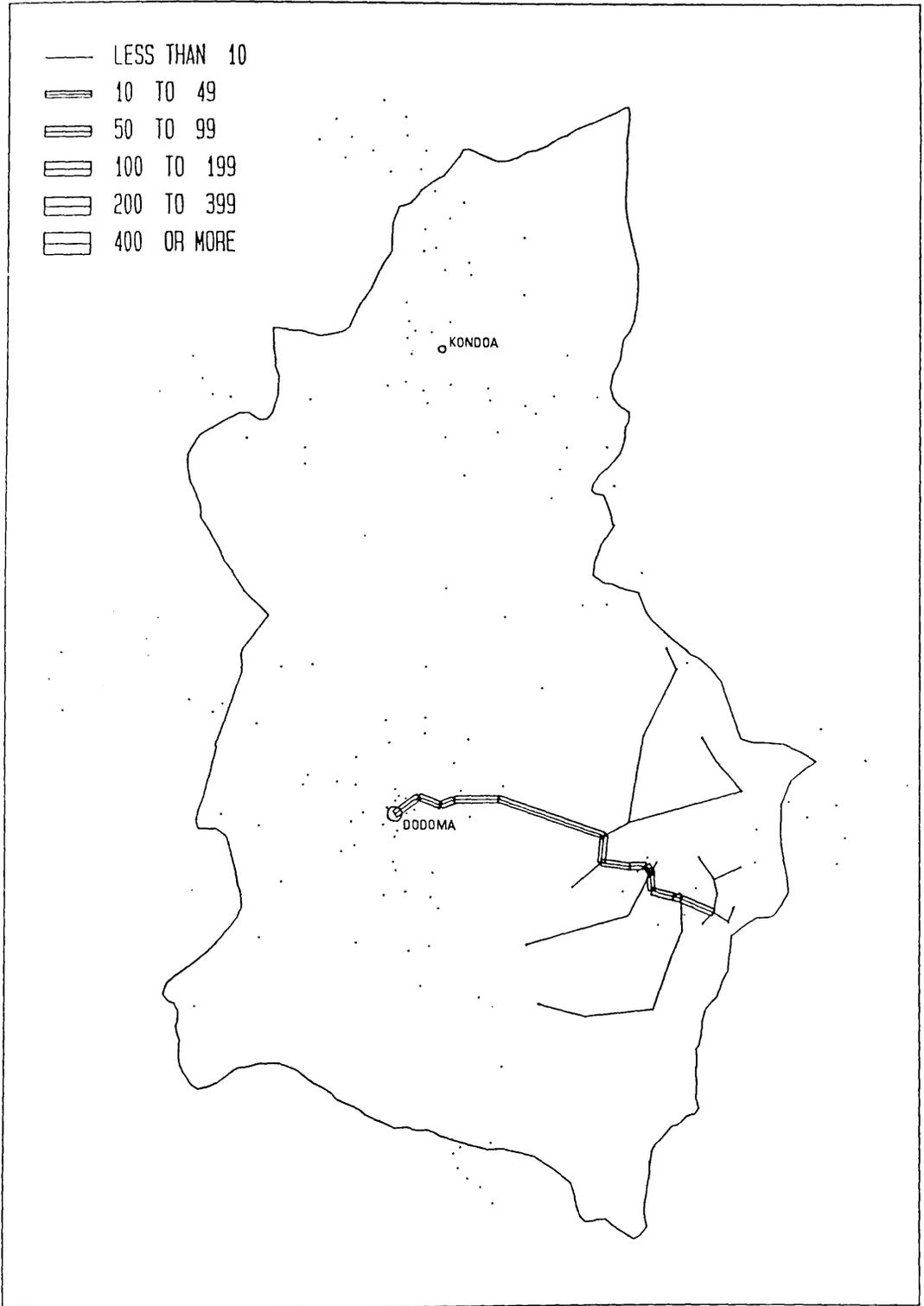
existence of the urban hierarchy within the study region, with Dodoma regional centre as the highest-order urban centre in the region, although recognising that the lower-order urban centres of Kondoia and Mpwapwa also communicate, to some extent, directly with the highest-order national urban centre, the metropolitan city of Dar-es-Salaam. In addition, it can be seen that the vertical links between Dodoma regional centre and the metropolitan city of Dar-es-Salaam are stronger (51.2 per cent of the volume of traffic) than those with the lower-order urban centres of Kondoia (23.5 per cent) and Mpwapwa with 13.5 per cent of the volume of traffic (Table 4:9 and Map 4:1). Indeed, the horizontal links between Dodoma centre and the other Tanzanian regional centres are also stronger, than those between the lower-order centres themselves, which are almost nonexistent. Where they do exist, they are very weakly developed; only two vehicles were recorded in the survey as moving between the lower-order district centres (Tables 4:4; 4:5 and Map 4:18).

**Table 4:8**

Volume Of Traffic On Sample Days Between The District Centres And Higher-Order Centres Of Dodoma And Outside The Region

Urban Centres Traffic	Volume Of	
	No.	%
Kondoia - Dodoma	26	66.7
Kondoia - Dar-es-Salaam and Arusha	13	33.3
<b>Total</b>	<b>39</b>	<b>100.0</b>
Mpwapwa - Dodoma	25	76.0
Mpwapwa - Dar-es-Salaam and Morogoro	8	24.0
<b>Total</b>	<b>33</b>	<b>100.0</b>

Map 4 : 18 Volume of Traffic within the Region Entering and Leaving Mpwapwa  
Centre On Sample Day: Cumulative Flows - Dry Season Only



**Table 4:9**

Volume Of Traffic On Sample Days Entering and Leaving Dodoma Centre From / To Dar-es-Salaam And Lower-Order Centres In The Region

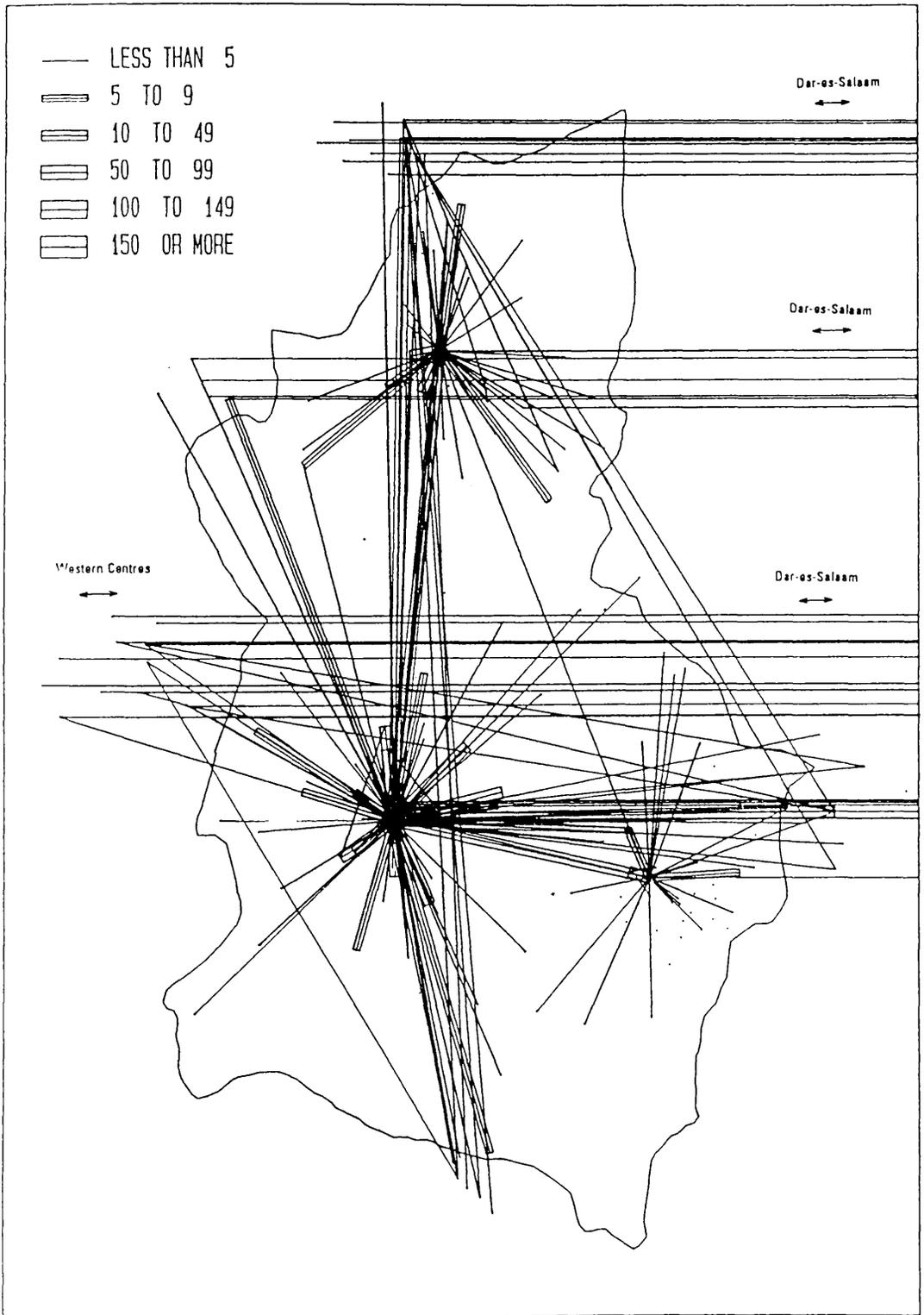
Urban Centres	Volume Of Traffic	
	No.	%
Dodoma - Dar-es-Salaam	87	51.2
Dodoma - Kondoa	40	23.5
Dodoma - Mpwapwa	23	13.5
Dodoma - Kongwa	20	11.8
Total	170	100.0

There is a clear indication that both the vertical and horizontal linkages between urban centres become weaker at lower levels in the urban hierarchy. It is also clear that the vertical linkages tend to be stronger than the horizontal links between urban centres of the same level. This can be explained to some extent by the fact that the vertical linkage coincide with the better-developed road and transport connections, as compared to the horizontal linkages. Besides this, there is little in terms of economic activities moving all the way down the urban hierarchy: the little that comes down, ends up more in the urban centres, with much less finding its way down to the much lower-order urban centres, or indeed, finally to the villages. The situation is worsened by the lack of substantial economic activity generated within the lower-order centres themselves for redistribution. This is a typical characteristic of an urban system in which manufacturing and distribution is dominated by the highest-order centre, the metropolitan centre, as is the case with Dar-es-Salaam.

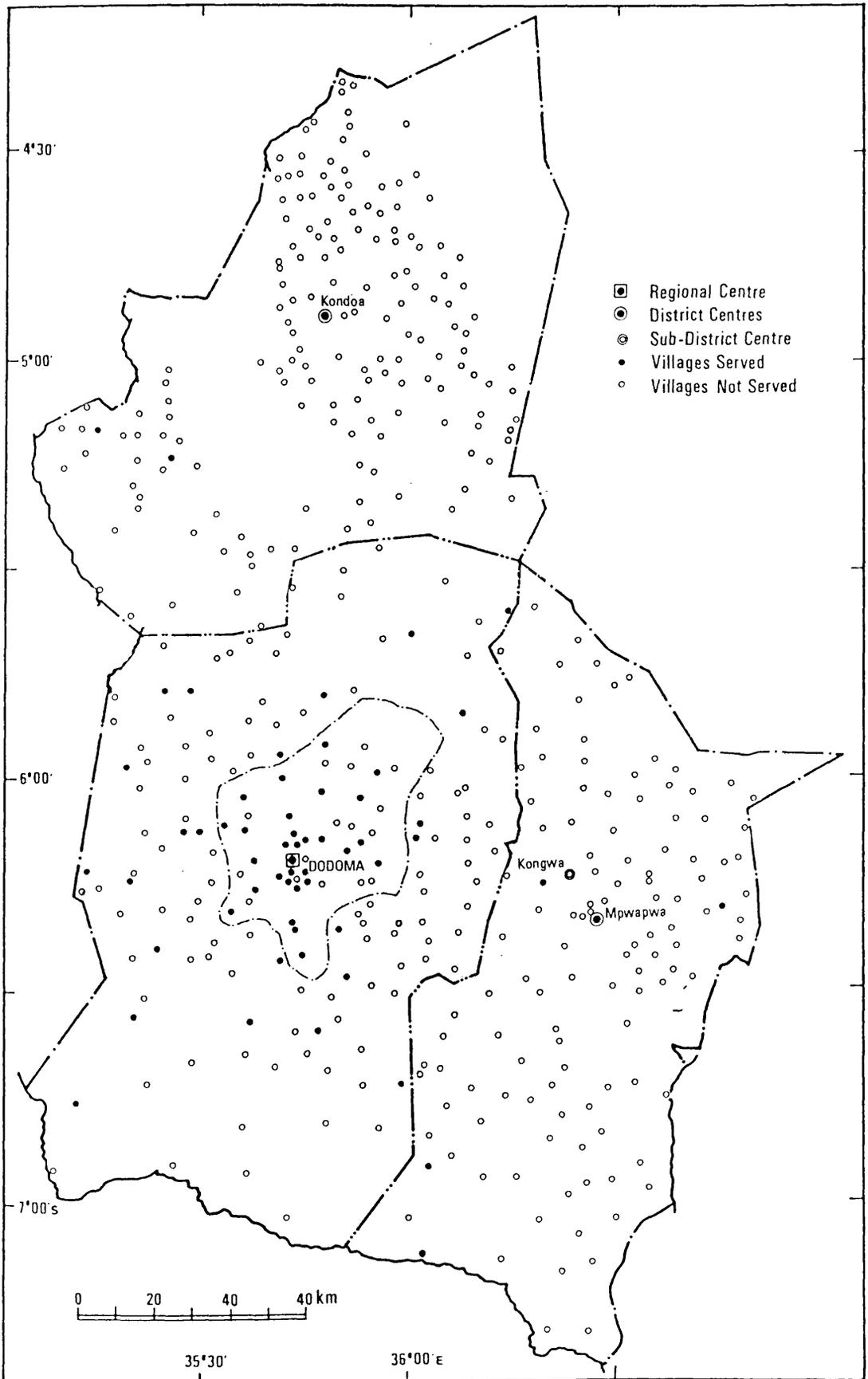
## **4.2.2 Traffic Links Between Dodoma Regional Centre And Villages in its Hinterland**

Dodoma urban centre is also linked to those villages immediately surrounding it. There is a strong link, in terms of traffic, between the regional centre and those villages lying within a radius of 34 kilometres from the centre on average. Out of the 45 villages in Dodoma urban district, 29 (64.4 per cent) were served by traffic from Dodoma Regional centre, and only 16 (35.6 per cent) were not. The volume of traffic to these villages was also high. Out of the total of 1,018 vehicles from the centre serving villages in the region, 920 (90.4 per cent) went to villages within the urban district (Tables 4:10; 4:11; 4:12 and Maps 4:19; 4:20). These links weaken sharply as distances from the centre increase. Beyond the urban district are Dodoma rural villages, extending from between 34-90 kilometres from Dodoma centre. Out of the 123 villages in Dodoma rural district, only 24 (19.5 per cent) were served by traffic from Dodoma centre, and the majority, 99 (80.5 per cent) had no traffic serving them at all. The volume of traffic to these villages was equally low as compared to the volume to the urban district. Out of the 1,018 vehicles travelling between Dodoma centre and the villages, only 82 (8 per cent) went to villages beyond a radius of 34 kilometres. Beyond the 90 kilometres distance from Dodoma centre, only 16 vehicles (1.6 per cent), out of the total volume of traffic, went to these villages from the centre. Of a total of 279 villages beyond 90 kilometres radius in Kondoa and Mpwapwa districts, only 6 (4.4 per cent) of the villages were served by traffic from Dodoma city. Two of these villages are Ovada and Kwamtoro in Kondoa district, lying at 124 and 108 kilometres respectively from Dodoma centre, and Mtera, Mlali, Nghambi and Chipogoro in Mpwapwa district, lying at 104, 102, 65 and 83 kilometres respectively from the regional centre (Tables 4:10; 4:11; 4:12 and Maps 4:19; 4:20).

Map 4 : 19 Volume of Traffic Entering and Leaving Main Urban Centres in Dodoma Region  
On Sample Days: Direct Links



Map 4 : 20 Villages Served by Traffic To / From Dodoma Regional Centre On Sample Days



**Table 4:10**

Villages Served / Not Served By Traffic To / From Dodoma Regional Centre On Sample Days

District / Villages Served Villages	Served		Not Served		Total No.
	No.	%	No.	%	
Dodoma Urban District	29	64.4	16	35.6	45
Dodoma Rural District	24	19.5	99	80.5	123
Total Dodoma (U and R Districts)	53	31.5	115	68.5	168
Kondoa District	2	1.0	158	99.0	160
Mpwapwa District	4	3.4	115	96.6	119
Total Dodoma Region	59	13.0	388	87.0	447

**Table 4:11**

Volume Of Traffic On Sample Days Between Dodoma Regional Centre And Villages In The Seperate Districts In The Region

District	Volume Of Traffic	
	No.	%
Dodoma Urban	920	90.4
Dodoma Rural	82	8.0
Kondoa	4	0.4
Mpwapwa	12	1.2
Total	1018	100.0

**Table 4:12**

Volume Of Traffic On Sample Days In Dodoma Centres Serving Villages Within Different Distances From Dodoma Centre

Distance Group	Villages Served		Volume Of Traffic	
	No.	%	No.	%
34 km Radius	45	60.0	920	90.4
90 "	24	32.0	82	8.0
Beyond 90 km	6	8.0	16	1.6
Total	75	100.0	1018	100.0

There is a stronger link between Dodoma centre and those villages on its northern side, along the Dodoma to Arusha road. Of the 920 vehicles travelling between Dodoma centre and villages within the urban district, a majority, of 70.9 per cent went to villages along Arusha road, and specifically to the Villages of Miyuji, Msalato, Mnzakwe and Vyeyula (Table 4:13; and Maps 4:12; 4:21). This, according to the Capital City Development (CDA), is the Development Corridor Area, dominated by the villages indicated above. These villages are relatively close to the urban centre, lying at distances between 6.5 kilometres (Miyuji) and 25.7 kilometres (Mnzakwe) along the main road. There are small-scale grape farms in this area, as well as institutions like the prisons, national service, secondary schools and missionary centres. Only a very small volume of traffic goes to villages beyond Mnzakwe village, which lies 25.7 kilometres from the urban centre.

Map 4 : 21 Volume of Traffic within the Region Entering and Leaving Dodoma Centre  
On Sample Days: Direct Links



There are also some linkages between Dodoma centre and villages along Iringa road. Of the 920 vehicles linking Dodoma centre and villages within Dodoma urban district, 130 (14.1 per cent) went to villages along Iringa road, and mostly to Bihawana, Handali, and Mpunghuzi, lying at 14.4 , 31.6 and 28.8 kilometres respectively from the centre. A significant volume of vehicles also went to the sand pits in the Mlimani area within 4 kilometres from the urban centre (Table 4:13 and Maps 4:20; 4:21).

A much weaker traffic link exists between Dodoma centre and villages along the Dar-es-Salaam road. Within Dodoma urban district, only 116 vehicles (12.6 per cent) went to villages along Dar-es-Salaam road. The traffic links along this road tend to be stronger with villages located on the main road, as well as with those closer to the urban centre. Out of the 10 villages served along this road, only two, Hombolo and Chamwino, are not located on the main road itself. However, they are only about 19.3 and 2 kilometres respectively from the main road and are linked with high-quality feeder roads. All these villages are located within relatively close distances to Dodoma centre, lying within a radius of about 33.6 kilometres from the centre. Beyond this distance, no traffic links appear to exist with villages (Table 4:13 and Maps 4:20; 4:21). This is interesting as the Dar-es-Salaam road is the best quality road in the region, with heavy volumes of traffic. This possibly results from the fact that many villages, far from Dodoma centre along this road, are not actually located on the main road itself, but are joined by access roads only, whose quality can vary considerably. It is also possibly due to the fact that these villages are not linked economically with each other, nor with their urban centres, and may be less commercially minded, thus reducing economic links and the need for transport and transportation to the urban centres.

**Table 4:13**

Volume Of Traffic On Sample Days Between Dodoma Regional  
Centre And Villages Along Different Roads In Dodoma Urban District

Road	Villages	Volume Of Traffic Total By Road			
		No	%	No.	%
Dodoma - Dar-es-Salaam	Ihumwa	42	36.2		
	Hombolo	21	18.1		
	Chamwino	21	18.1		
	Nzuguni	16	13.8		
	Other Closest	16	13.8		
	Others Beyond 34 km	-	-		
	Total	116	100.0	116	12.6
Dodoma - Arusha	Miyuji	289	44.3		
	Msalato	141	21.6		
	Vyeyula	94	14.4		
	Mnzakwe	88	13.5		
	Makutopora	38	5.9		
	Others Beyond 26 km	2	0.3		
	Total	652	100.0	652	70.9
Dodoma - Iringa	Bihawana	33	25.4		
	Handali	30	23.1		
	Mpunghuzi	21	16.2		
	Mbabala	11	8.4		
	Mnkonze	9	6.9		
	Mlimani Sand Pits	21	16.2		
	Matumbulu	5	3.8		
	Others Beyond 29 km	-	-		
Total	130	100.0	130	14.1	
Dodoma - Singida	Segu-Nala	10	45.5		
	Zuzu	5	22.7		
	Others Within 24 km	7	31.8		
	Total	22	100.0	22	2.4
Total All Roads		920	100.0	920	100.0

The weakest traffic links exist between Dodoma centre with the villages along Singida road. Out of the 284 vehicles counted on this road, the majority, 239 (84.2 per cent) were between the city centre and Kizota industrial areas, within Dodoma regional centre itself. Thus, only 45 (15.8 per cent) of the vehicles linked the centre and the villages along this road. Out of these 45 vehicles, 22 (7.7 per cent) were linked to villages within Dodoma urban District. When compared with the other roads, the Singida road has the lowest volumes of traffic linked to villages, with only 22 (2.4 per cent) of the 920 vehicles linked to villages within Dodoma urban district. Most of these vehicles went to Segu Nala 10 (45.5 per cent) and Zuzu 5 (22.7 per cent) lying 14.5 and 12.8 kilometres respectively from Dodoma urban centre. Within the urban district, only 7 (31.8 per cent) of the vehicles went beyond Segu Nala, 14.5 kilometres from the centre, and these went to Chigongwe and Mbalawala lying 24.8 and 24 kilometres respectively from the centre (Table 4:13 and Maps 4:20; 4:21).

Physical links, in terms of traffic between Dodoma centre and the villages in its hinterland, are strongest with those villages which are closest to the centre (60 per cent), within 34 kilometres on average from the centre, as well as those located on the main road arteries (Table 4:12). There is a sharp distance decay from the centre, as fewer villages (32 per cent) were served beyond distances of 34 kilometres from the centre, and only 8 per cent villages beyond 90 kilometres. The volume of traffic declined in the same manner: 920 vehicles (90.4 per cent) within 34 kilometres; 82 (8 per cent) within 90 kilometres; and only 12 (1.6 per cent) beyond 90 kilometres from Dodoma centre. The serviced villages are mainly those located on the main roads. For example, even along the best road, the Dodoma to Dar-es-Salaam road with heavy volumes of traffic, few villages located off the road were heavily served; even this first class road means very little to the distant villages lying beyond 33.6 kilometres from Dodoma centre, as heavy flow of traffic tended to bypass these distant villages. The volume of traffic along the Dodoma to Arusha road also declines abruptly after Mnzakwe village lying about 25.7 kilometres from Dodoma centre. Only a few

villages, like Mundemu and Mayamaya, 28.9 and 41.7 kilometres respectively from the centre, are served with daily traffic volumes of 14 and 6 vehicles each respectively, and the remaining six villages beyond 41.7 kilometres from the centre, Izava, Lamaiti, Dabalo, Itiso, Kwamtoro and Ovada mission are served with a total traffic of only 11 vehicles between them. Most of the remaining traffic linked Dodoma regional centre with either Kondoa or centres outside Dodoma region altogether.

The same feature applies to the Dodoma to Iringa road traffic, with volume of traffic declining abruptly by 16.2 per cent after Mlimani sand quarry 4 kilometres from the centre. It is reduced further to about 10 per cent of the total traffic volume along this road after passing the village cluster of Bihawana, Mbabala, Mpunghuzi and Handali lying 14.4, 19.2, 28.8 and 31.6 kilometres respectively from the centre. The situation is even more marked along the Dodoma Singida road. The volume of traffic was greatly reduced to just over 15 per cent after Kizota industrial area, within the regional centre itself, where the godowns for the CRCU and NMC are located, as well as the soft drinks factory and the outlets associated with the construction industry. (Table 4:13 and Maps 4:5; 4:20; 4:21).

The volumes and patterns of traffic flows between Dodoma centre and villages in its hinterland did not differ much between the wet and dry seasons. The same applies to the distance decay factor. Even during the dry season, the volumes of traffic decline sharply with distance from Dodoma centre, with those villages serviced still being the closer ones to the centre, as well as being along the main roads (compare Maps 4:6 and 4:7; 4:12 and 4:13).

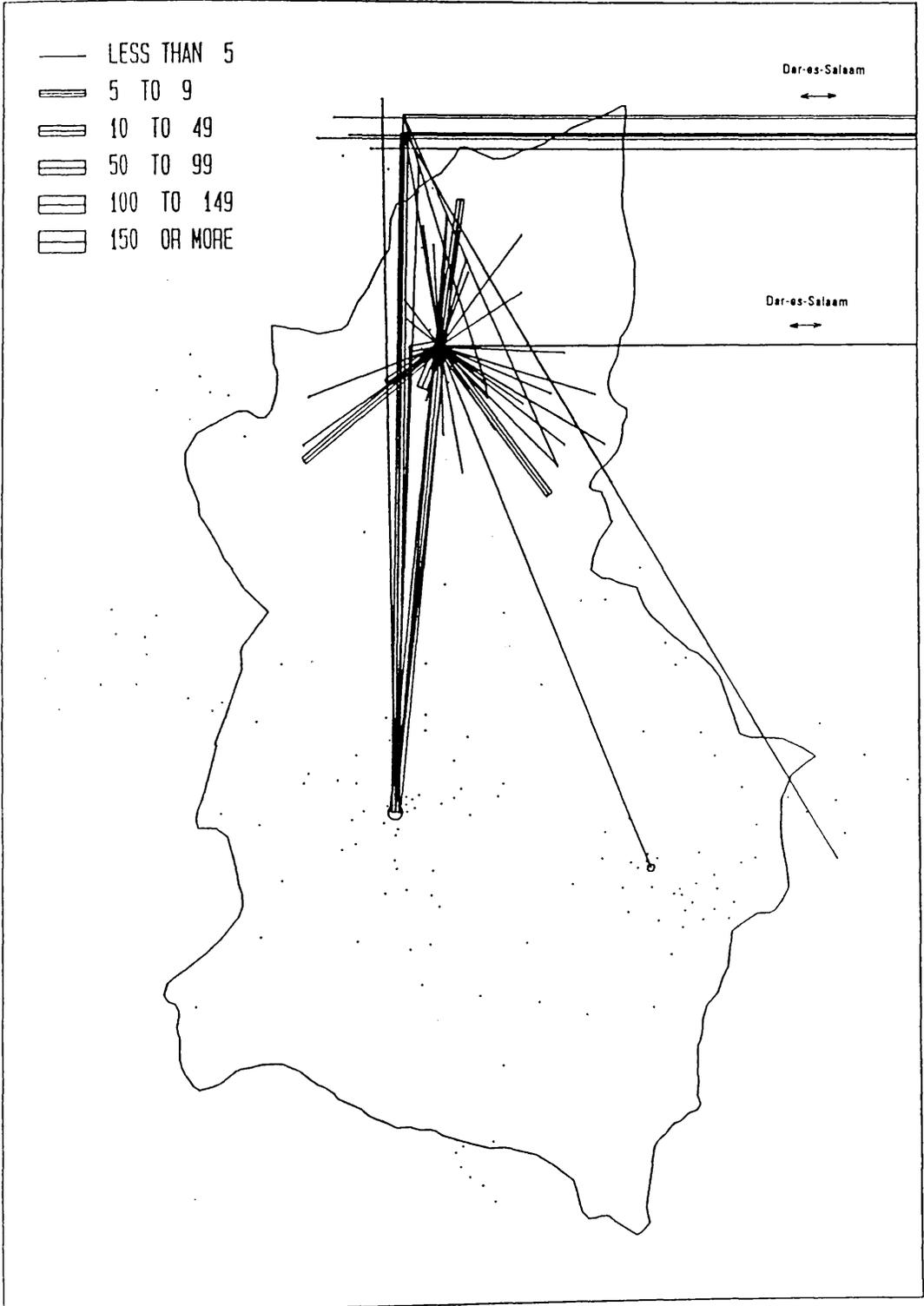
### **4.3 Traffic Links Between the Lower-Order District Urban Centres and Villages in their Hinterlands**

Kondoa district urban centre had direct links with the northern centres of Babati and Arusha, as well as with Dar-es-Salaam. The centre also handles transit traffic, in particular between Dar-es-Salaam and the western centres, as well as between Dodoma regional centre and the northern centres. Kondoa urban centre has also tried to function as a district urban centre, serving the villages in its hinterland, as well as providing a bridge to the higher-order centre of Dodoma. However, only a small percentage of villages was served from Kondoa. Out of 160 villages, only 42 (10.6 per cent) were served in the wet season and 60 (16.3 per cent) in the dry season (Maps 4:22 ; 4:23; 4:24. See also Table 4:4).

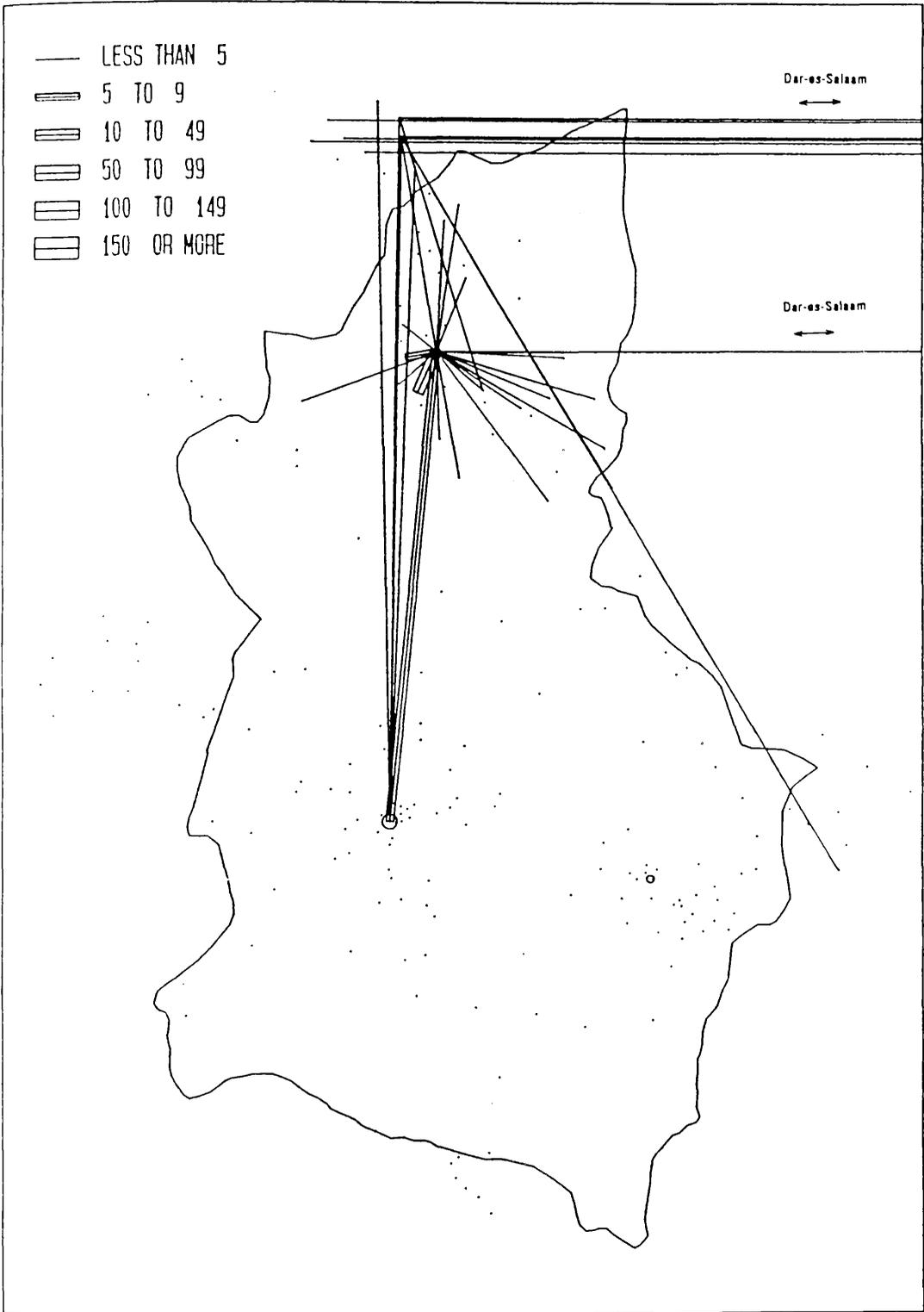
Mpwapwa district centre has more links with Dodoma regional centre than with any other centre, although there are direct links with Dar-es-Salaam and Morogoro. Mpwapwa district centre, owing to its location, did not handle any transit traffic. Compared to Kondoa, Mpwapwa centre is a much lower-order centre in terms of total traffic handled, both in terms of volumes and number of centres and villages served. Out of 119 villages in Mpwapwa district, only 11 (5.9 per cent) were served in the wet season and 47 (18.5 per cent) in the dry season (See also Table 4:5, and compare Tables 4.4 and 4:5, Maps 4:22 and 4:25; 4:26 and 4:27).

Mpwapwa centre is located only 85 kilometres from Dodoma regional centre, about 168 kilometres from Morogoro and over 318 kilometres from Dar-es-Salaam, but this does not appear, in any way, to give Mpwapwa an advantage in terms of better-developed traffic links with these three cities, especially when compared to Kondoa centre's traffic links with the same centres, despite Kondoa being located about 150 kilometres from Dodoma centre, and 525 kilometres from these centres.

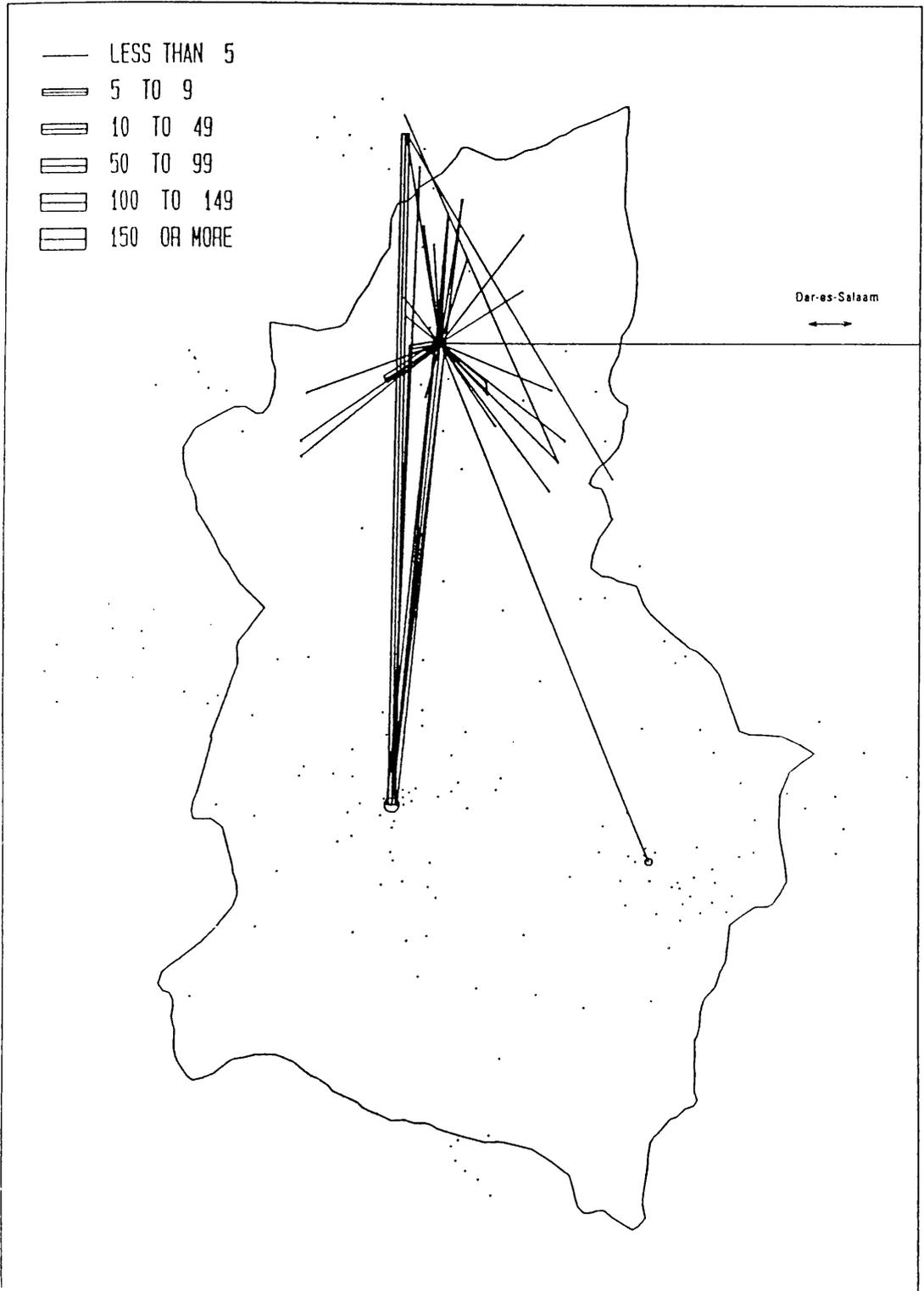
Map 4 : 22 Total Volume of Traffic Entering and Leaving Kondoa Centre  
On Sample Days: Direct Links



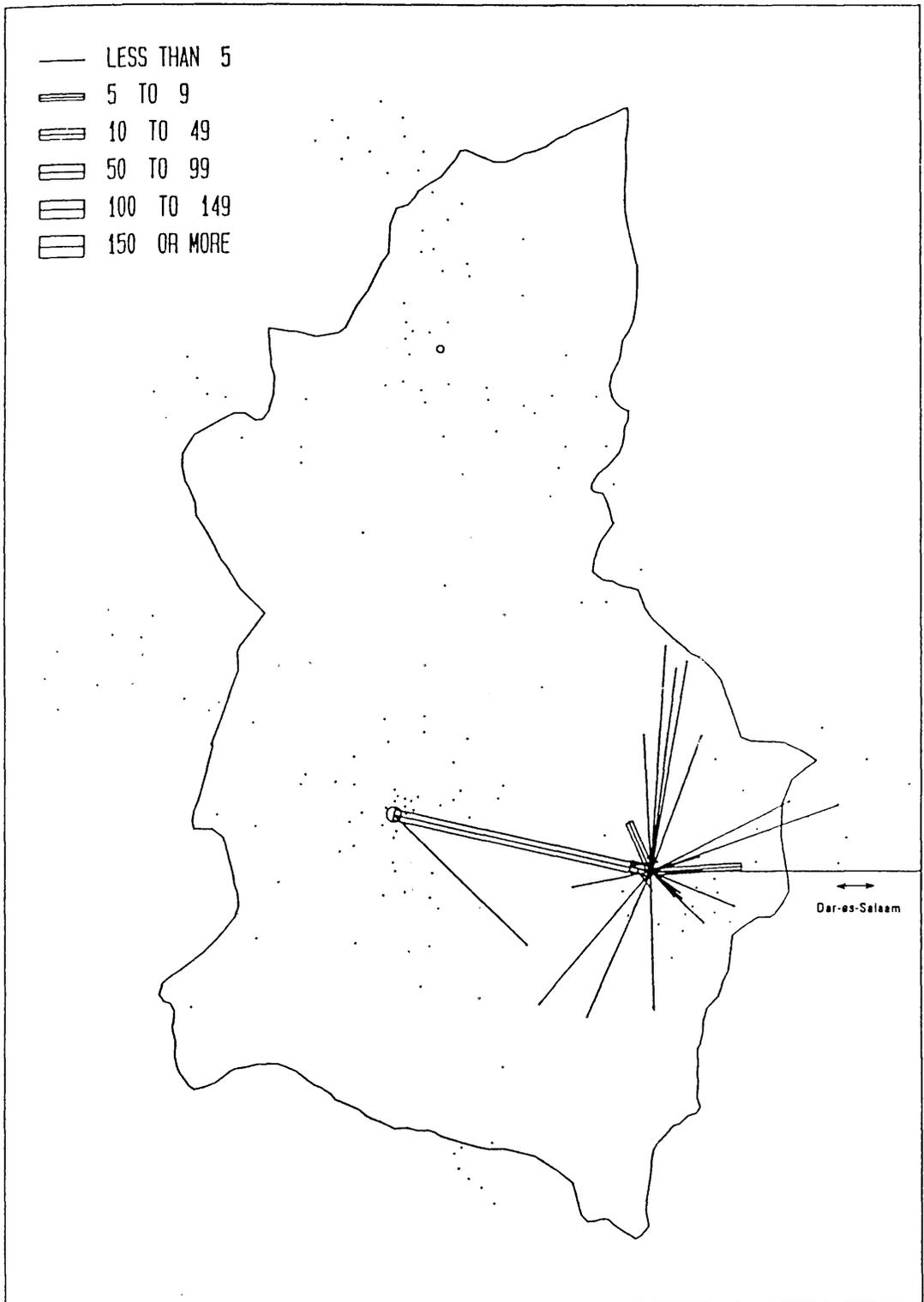
Map 4 : 23 Total Volume of Traffic Entering and Leaving Kondoa Centre  
On Sample Day: Direct Links - Wet Season Only



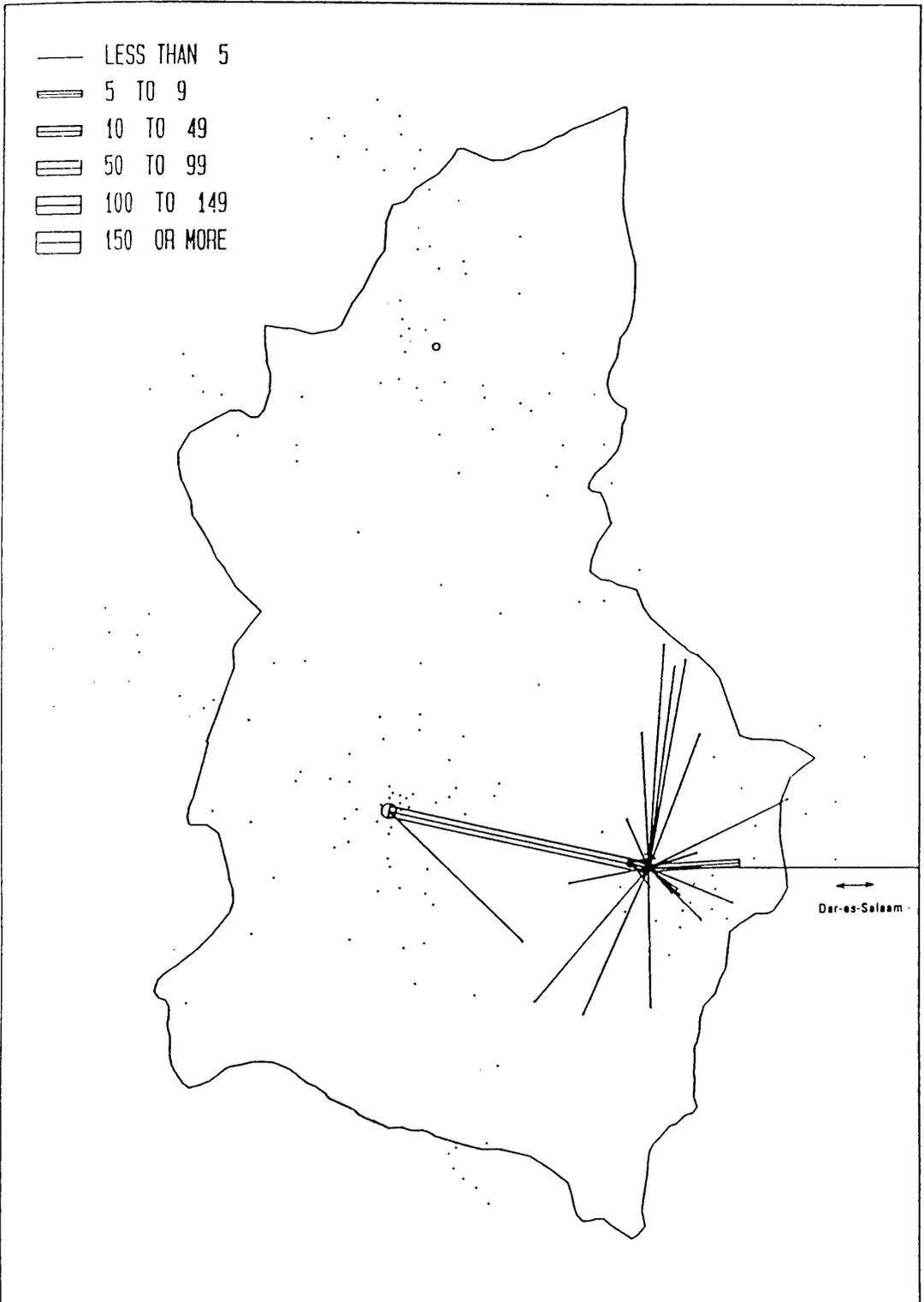
Map 4 : 24 Total Volume of Traffic Entering and Leaving Kondoa Centre  
On Sample Day: Direct Links - Dry Season Only



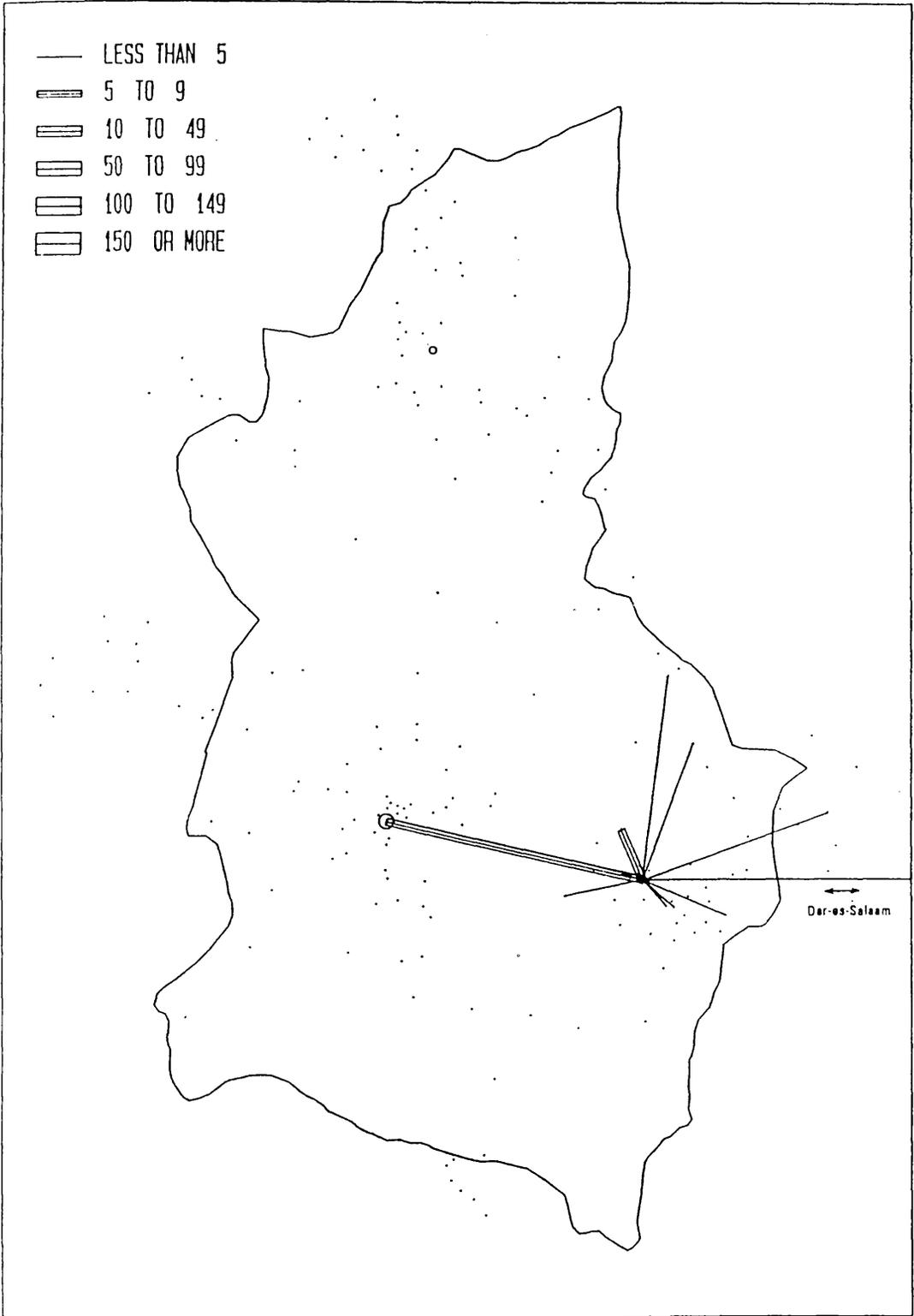
Map 4 : 25 Total Volume of Traffic Entering and Leaving Mpwapwa Centre  
On Sample Days: Direct Links



Map 4 : 26 Total Volume of Traffic Entering and Leaving Mpwapwa Centre On  
Sample Day: Direct Links - Dry Season Only



Map 4 : 27 Total Volume of Traffic Entering and Leaving Mpwapwa Centre  
On Sample Day: Direct Links- Wet Season Only



The variation of traffic levels between the wet and dry seasons is greater in Mpwapwa than the other centres in the study region. The volume of traffic and number of villages served during the wet season is low in Mpwapwa. Out of the total traffic flows, only 26 per cent took place in the wet season, and 74 per cent in the dry season; out of 58 villages served by traffic from Mpwapwa, only 19 per cent were served in the wet season, but 81 per cent in the dry season (compare Maps 4:23 and 4:26, 4:24 and 4:27). It is not unusual for bridges to be washed away on both roads out of Mpwapwa district centre, and for Mpwapwa centre to be left without any traffic connections to the many villages along the Mlali and Dar-es-Salaam roads. This problem partially arises from the physical geography of the district; Mpwapwa urban centre is hemmed in on the northern side by a mountain block, and the roads have to go round these mountains. When bridges along these roads are washed down, Mpwapwa urban centre is cut off, as an island, from the rest of the country (Map 3:2).

Distance decay, in terms of volumes of traffic handled between the district urban centres of Kondoa and Mpwapwa and the villages in their respective hinterlands, is generally evident. The patterns of traffic, as well as the volumes, are different between the two district centres. Table 4:14 shows that Kondoa centre has the heaviest volumes of traffic with its closer villages (45.1 per cent), especially Munguri (14.7 per cent) along the Kwamtoro road lying about 9.7 kilometres from the centre. This is where the Folk Development Centre is located. The linkages with average distance villages in Kondoa, between 24 and 36.8 kilometres, is weakest with only 17.6 per cent of the total traffic. However it strengthens again with furthest villages (37.3 per cent), especially with Kwamtoro (6.9 per cent), again along the Kwamtoro road, Itololo (5.9 per cent) and Kisese (5.9 per cent) both along the Arusha road, and Mwilanje (5.9 per cent) along the Mondo road. These villages lie at distances of 54.4 , 41.7 and 48.3 kilometres respectively from Kondoa centre (Table 4:14 and Maps 4:11 and 4:22). This mostly results from Kondoa district's village settlement pattern (Map 3:2). Along the Arusha road, villages are located at least over 19 kilometres away from Kondoa

centre, and, along the Mondo road, at least over 16 kilometres from the centre. The average and remote villages along Arusha, Mondo and Dodoma roads range from 36 to 56 kilometres from the centre. However, those at the furthest distances from Kondo centre along the Dodoma road communicate directly more with the higher-order urban centre of Dodoma. On the other hand, along the Kwamtoro road, most of the villages are located within closest (9 kilometres) and average distances (24 kilometres).

**Table 4:14**

Volume Of Traffic On Sample Days In Kondo Centre  
Serving Villages Within Different Distances and Roads

Road / Distance Group	Closest 1 - 24 km		Average 25 - 36 km		Remote 37 - 55 km		Total By Road	
	No.	%	No.	%	No.	%	No.	%
Arusha road	-		11		14		25	24.5
Dodoma road	16		1		-		17	16.7
Mondo road	5		6		12		23	22.5
Kwamtoro road	25		-		12		37	36.3
<b>Total by Distance</b>	<b>46</b>	<b>45.1</b>	<b>18</b>	<b>17.6</b>	<b>38</b>	<b>37.3</b>	<b>102</b>	<b>100.0</b>

In Mpwapwa district, the volume of traffic declines more gradually with increased distance from Mpwapwa centre. Out of the total traffic flows, 50 per cent is with closest distance villages, 29.3 per cent with the average distance villages and only 20.7 per cent with furthest distance villages. (Table 4:15). The decline in the volumes of traffic along the different roads of Mpwapwa varies; along the Mlali road, the traffic link is strongest with the average distance villages, especially Mlali village (14 per cent) and the Folk Development Centre of Chisalu (8 per cent), lying 28.9 and 36.5 kilometres respectively from Mpwapwa centre. It is possible that many villagers along this road, lying as far as 20 kilometres from the centre, walk to the urban centre.

During the traffic counts, significant numbers of people were walking along this road and indicated that they were going as far as Manghangu village, 18 kilometres away. Along the Dodoma/Dar-es-Salaam road, the traffic link is strongest with the closest villages, in particular with Kisokwe (20 per cent) and Msagali (6 per cent), lying 9.6 and 20.9 kilometres respectively from Mpwapwa centre. It is almost equally strong with remote distance villages, especially Matongoro (8 per cent), lying 57.2 kilometres from the centre. This is possibly a result of the fact that the average distance villages along this road can communicate with Kongwa lower-order centre, which is closer to them than Mpwapwa centre. In addition, they can communicate with the highest-order urban centre of the region, Dodoma regional centre (Table 4:15; and Maps 4:10; 4:25. See also Map 3.3).

**Table 4:15**

Volume Of Traffic On Sample Days In Mpwapwa Centre  
Serving Villages Within Different Distances And Roads

Road / Distance Group	Closest 1-24km		Average 25-36km		Remote 37-60km		Total By Road	
	No.	%	No.	%	No.	%	No.	%
Mlali	18		15		3		36	62.1
Dodoma / Dar-es-Salaam	11		2		9		22	37.9
Total By Distance	29	50.0	17	29.3	12	20.7	58	100.0

As with Dodoma, the strongest linkages from the district centres were with villages on or very near to the main roads. Kondoa district centre handled a total volume of 102 vehicles with villages in its hinterland, and this traffic was linked to 30 villages, with an average of 4 vehicles per village. The furthest village served from Kondoa centre was at a distance of 56 kilometres. Mpwapwa district centre, on the other hand, handled a smaller volume of only 58 vehicles with villages in its hinterland. This

During the traffic counts, significant numbers of people were walking along this road and indicated that they were going as far as Manghangu village, 18 kilometres away. Along the Dodoma/Dar-es-Salaam road, the traffic link is strongest with the closest villages, in particular with Kisokwe (20 per cent) and Msagali (6 per cent), lying 9.6 and 20.9 kilometres respectively from Mpwapwa centre. It is almost equally strong with remote distance villages, especially Matongoro (8 per cent), lying 57.2 kilometres from the centre. This is possibly a result of the fact that the average distance villages along this road can communicate with Kongwa lower-order centre, which is closer to them than Mpwapwa centre. In addition, they can communicate with the highest-order urban centre of the region, Dodoma regional centre (Table 4:15; and Maps 4:10; 4:25. See also Map 3.3).

**Table 4:15**

Volume Of Traffic On Sample Days In Mpwapwa Centre  
Serving Villages Within Different Distances And Roads

Road / Distance Group	Closest 1-24km		Average 25-36km		Remote 37-60km		Total By Road	
	No.	%	No.	%	No.	%	No.	%
Mlali	18		15		3		36	62.1
Dodoma / Dar-es-Salaam	11		2		9		22	37.9
<b>Total By Distance</b>	<b>29</b>	<b>50.0</b>	<b>17</b>	<b>29.3</b>	<b>12</b>	<b>20.7</b>	<b>58</b>	<b>100.0</b>

As with Dodoma, the strongest linkages from the district centres were with villages on or very near to the main roads. Kondoa district centre handled a total volume of 102 vehicles with villages in its hinterland, and this traffic was linked to 30 villages, with an average of 4 vehicles per village. The furthest village served from Kondoa centre was at a distance of 56 kilometres. Mpwapwa district centre, on the other hand, handled a smaller volume of only 58 vehicles with villages in its hinterland. This

traffic is linked to only 19 villages, with an average of 3 vehicles per village, but the furthest village was at 65.6 kilometres from Mpwapwa centre (Tables 4:14, 4:15 and Maps 4:10, 4:11, 4:22 and 4:25).

The impact of climate, as a factor influencing the volume of traffic, prevails in all urban centres in the study region. However, it seems to play a greater role in the lower-order urban centres, with the situation being worse in the wet season. This is an indication of the difficulties of movement and transportation in the country and study region, movement being extremely difficult in the wet season, with many roads being frequently cut. In the dry season there is usually an improvement but the problem still remains. Villagers clear and repair some patches on these roads to make it possible for some traders to reach their villages to purchase their crops. The wet season, which impairs movement, also coincides with the cultivation and planting seasons in most parts of the country and the study region as a whole; this is also the time when agricultural inputs, like fertilizers and seeds, are required by the farmers. Under these circumstances, such inputs can reach farmers only with difficulty at the time required. This, in turn, reduces possible total agricultural production. Unfortunately, the wet season also coincides with the lean season in terms of food supplies for households, and most households have to purchase food in this season, as their supplies cannot last them throughout the year.

#### 4.4 Summary

From the results of the traffic counts survey, local movements between Dodoma centre and the villages dominate the overall pattern. However, the volumes of movements vary with seasons, volumes being lower in the wet season, indicating motorability problems during that time of the year. Traffic links are stronger between the urban centres and those villages immediately surrounding them, and these links weaken abruptly with increased distances from these centres. In addition, they are stronger with villages located on the main roads or linked to the main roads by feeder roads with a high degree of motorability.

The relief of the region, in particular the mountain blocks in Mpwapwa district, the rivers and the black soils contribute greatly to the motorability problems in the wet season. The influence of climate on economic activities and exchange between places is also reflected in the volumes of traffic generated between these places; areas with climatic and economic advantages, and linked with higher quality of roads, generated higher volumes of traffic, indicating stronger economic linkages. Areas with similar climatic and economic advantages, but linked by poorer roads, generated lower volumes of traffic indicating weaker economic linkages. This demonstrates the importance of the existence of economic products for exchange, as well as the physical nature of the transport links themselves between areas in forging stronger economic linkages.

Traffic movements between the region and other regional centres are particularly strong with the metropolitan city of Dar-es-Salaam, the northern centre of Arusha and Morogoro, but are much weaker with the southern and western centres. This reflects the more developed industrial base of Dar-es-Salaam, Arusha and Morogoro, as well as higher agricultural production levels in Arusha and Morogoro. Vertical traffic links are stronger than the horizontal links; there are stronger traffic links between Dodoma

centre and Dar-es-Salaam, than with any other regional centre. However, both vertical and horizontal links become weaker downwards in the urban hierarchy. This is a reflection of the more developed economic activities and road links in the higher order centres.

Although Dodoma is centrally located in Tanzania and is also the capital city, it does not demonstrate these advantages in terms of traffic links with other regional centres, particularly those in the south and west. The establishment of growth centres, as well as the regional centres acting as secondary cities, has not so far succeeded in reducing the dominance of Dar-es-Salaam in terms of volumes of traffic generated by their activities.

## Chapter 5

### Commodity Counts Survey in Dodoma Region

#### 5.1 Inter-Regional Commodity Flow Links

A count on all commodities entering and leaving the regional and district centres was carried out on all the main roads in the region (Map 3:3). This covered all types of commodities, ranging from processed and unprocessed agricultural products, manufactured consumer goods and implements for agricultural and construction activities.

Most of the commodities which entered Dodoma regional centre are manufactured goods, both imported and locally manufactured, or processed products coming mostly from the coastal centres and in particular, Dar-es-Salaam, not only the main city but also the main centre of imports. The predominant commodities are petroleum products, such as petrol, diesel and kerosene, cement, corrugated iron sheets, foam mattresses, agricultural machines, and cigarettes (Table 5:1). The factories for all these products are located in Dar-es-Salaam. There are also volumes of sugar being moved from distribution centres in both Morogoro and Dar-es-Salaam. Most of these commodities, with the main exception of the petroleum products, foam mattresses and agricultural machinery, which were in transit to the western centres, are destined for Dodoma centre. Apart from the 60,000 kilograms of sugar, destined for Rwanda, Burundi and Zaire, out of the 4,050 kilograms of sugar which entered Dodoma centre from Dar-es-Salaam, only 100 kilograms (2.5 per cent) was in transit to Singida. Conversely, of the 259,260 litres of petroleum products which entered Dodoma, 195,000 litres (75.2 per cent) were in transit to other western and north-western centres, with only 74,260 litres (28.6 per cent) remaining in Dodoma. Other

manufactured goods entered Dodoma centre from the northern and southern industrial centres; these included 207 bags of cement from Mbeya, 600 sacks of flued tobacco from Tanga, and 12,500 crates of beer and 350 car tyres from Arusha. There is also a significant movement of grains and cereals from the granaries of Arusha (5,028 tins) and Morogoro (186 tins) into Dodoma centre.

Shinyanga, which is assuming a growing importance in grain production, and in particular paddy, supplied 14,862 tins of rice to Dodoma centre. Fruits entered Dodoma mostly from Morogoro (400 sacks) and Dar-es-Salaam (261 sacks), whilst vegetables came from as far as Iringa (40 sacks), Singida (12 sacks) and Dar-es-Salaam (9 sacks). Cooking oil (28,800 litres) entered Dodoma centre from Mwanza, wood blocks from Tabora (610 pieces) and Iringa (250 pieces). Also, 2,280 tins of oilseeds passed through Dodoma in transit from Singida to Dar-es-Salaam. With the exception of oilseeds in transit from Singida to Dar-es-Salaam, all other commodities coming from all centres other than Dar-es-Salaam, had a final destination of Dodoma centre. The transit goods were mostly manufactured and processed products from Dar-es-Salaam to the western centres and outside the country (Table 5:1 and Figure 5:1).

Based on the volumes and origins of the commodities entering Dodoma regional centre, it can be seen that there are very strong economic linkages between Dodoma centre and the metropolitan city of Dar-es-Salaam. Significant, but less strong, economic links exist with other regional centres in Tanzania, and in particular with the other industrial centres of Arusha, Morogoro, and, to some extent, Tanga, Mbeya and Mwanza respectively, in the supply of manufactures and processed commodities and in unprocessed and processed agricultural commodities (Table 5:1). This clearly reflects the dominance of Dar-es-Salaam in particular, and, to a lesser extent, of the coastal, southern and western regional centres of the country in Dodoma's geographic pattern of inter-regional economic linkages. Most manufactured commodities come

from Dar-es-Salaam, Arusha, Morogoro and Tanga. Only cement came from Mbeya in the far south, and as cement is also supplied from factories in Dar-es-Salaam and Tanga, when domestic demand is depressed in these centres, cement supplies from Mbeya are put under stiff competition due to the town's great distance from Dodoma centre. From all the western centres, only cooking oil from Mwanza came to Dodoma.

**Table 5:1**

Commodities Entering Dodoma Centre On Sample Days From Outside the Region

Type	Unit	Amount	From
Sugar	Kg	4,050	Dar - es - Salaam
Vegetables	Bags	9	"
Cigarettes	Cartons	485	"
Foam mattresses	Pieces	41	"
Petrol / Oil	Litres	61,390	"
Building materials	Assortments	200	"
Cement	Bags	200	"
Corrugated Iron Sheets	Pieces	100	"
Agricultural Machines	Pieces	18	"
Fruits	Sacks	261	"
Chicken mesh	Bags	10	"
Books / Paper	Boxes	90	"
Electrical ware	Assortments	200	"
Wire mesh	Metres	200	"
Fruits	Sacks	403	Morogoro
Cereals / Grain	Tins	186	"
Chicken mesh	Bags	140	"
Sufi	Sacks	45	"
Tea leaves	Boxes	50	"
Empty bottles - Soda	Crates	19,200	"
Petrol / Oil	Litres	12,500	"
Books / Paper	Boxes	5	"
Flued Tobacco	Sacks	600	Tanga
Cereal / Grain	Tins	5,028	Arusha
Irish Potatoes	Sacks	100	"
Beer	Crates	12,500	"
Charcoal	Sacks	6	"
Cement	Bags	2	"

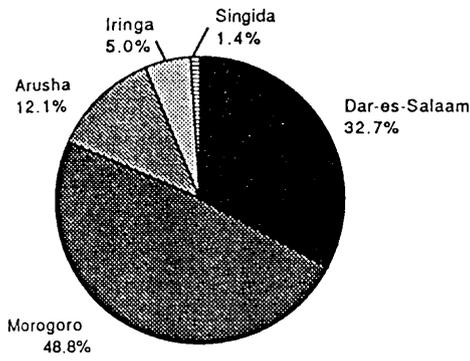
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Table 5:1 (continued)

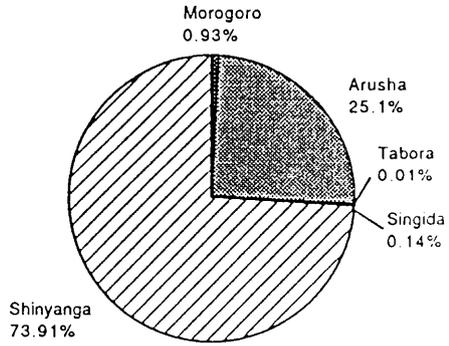
Car Tyres	Pieces	350	"
Cereal / Grain	Tins	28	Singida
Vegetables	Bags	12	"
Salt	"	1	"
Wood blocks	Pieces	610	Tabora
Cereal / Grain	Tins	2	"
Oilseeds	Tins	1	"
Petrol / Oil	Litres	260	"
Cooking Oil	Litres	28,800	Mwanza
Petrol / Oil	"	200	Kigoma
Grain	Tins	14,862	Shinyanga
Charcoal	Sacks	3	"
Vegetables	Bags	40	Iringa
Irish Potatoes	Sacks	1	"
Drinks - Orange Squash	Cartons	1,104	"
Books / Paper	Boxes	20	"
Wood Blocks	Pieces	250	"
Cement	Bags	207	Mbeya
Charcoal	Sacks	5	"
Empty Barrels	Unit	1	"
Corrugated Iron Sheets	Pieces	160	* D'Salaam - Bukoba
Chip Boards	"	20	"
Agricultural Machines	"	55	"
Foam Mattresses	"	170	* D'Salaam -
Mwanza			
Post Parcels	Boxes	11	"
Used Clothes	Pieces	20	"
Medicine	Cartons	30	"
Petrol / Oil	Litres	125,500	"
"	"	34,500	* D'Salaam - Singida
"	"	35,000	* D'Salaam-
Shinyanga			
Iron Bars	Pieces	359	*D'Salaam - Singida
Sugar	Kg	100	"
Medicine	Cartons	11	"
Books / Paper	Boxes	10	* D'Salaam - Tabora
Oilseeds	Tins	2,280	* Singida - D'Salaam
Tea leaves	Boxes	400	** - D'Salaam
Sugar	Kg	60,000	* D'Salaam - **
Shoes	Pairs	24,000	"

\* Transit Goods

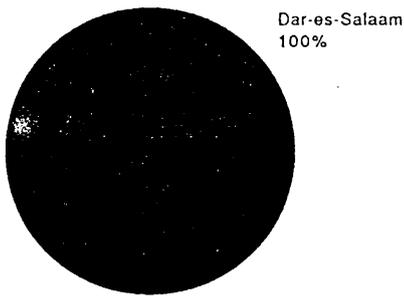
\*\* Goods To / From Outside The Country



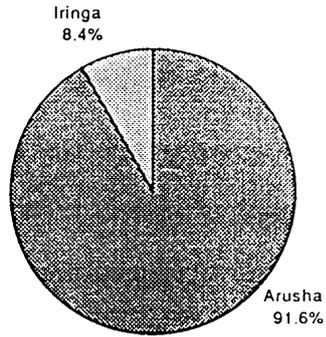
VEGETABLES / FRUITS



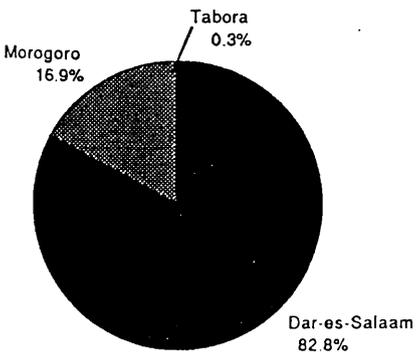
GRAINS /CEREALS /OILSEEDS



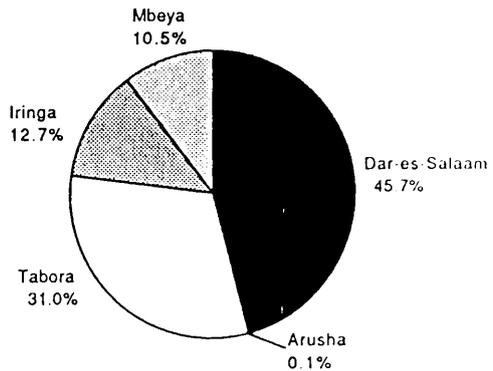
SUGAR



DRINKS



PETROLEUM PRODUCTS



CONSTRUCTION MATERIALS

Figure 5.1 Main Commodities Entering Dodoma Centre from Other Regions on Sample Days.

An analysis of commodities leaving Dodoma centre to centres outside the region reveals equally interesting results. Most commodities, and in particular manufactured goods, are transit goods from Dar-es-Salaam to the west, mainly petrol, diesel, kerosene, foam mattresses, shoes, soap and sugar. A much lower volume of commodities is produced in Dodoma centre and then transported outside the region, but these include soft drinks from the Dodoma factory to Morogoro and Singida regional centres in particular, and grain, mainly to Dar-es-Salaam, and, to a smaller extent, Tanga (Table 5:2 and Figure 5:2).

Based on the types and volumes of the commodities entering and leaving Dodoma regional centre, it is clear that more enters than leaves the city (Compare Tables 5:1 and 5:2). This reflects the relatively weak position of Dodoma as an industrial growth centre, especially compared to the performances of the other eight national growth centres, and particularly compared to the performance of the main industrial centre of Dar-es-Salaam. This situation questions the effectiveness of the national policy, embarked upon in 1972, to decentralise economic activities, and, in particular, to decentralise industries from the main, traditional location of Dar-es-Salaam, and to promote the nine growth centres of Arusha, Moshi, Tanga, Morogoro, Dodoma, Tabora, Mwanza, Mbeya and Mtwara. Based on the results of commodity counts, the dominance of the coastal and northern centres in industrial development is still evident, despite the fact that Dodoma regional centre, as one of the nine growth centres, is centrally located in the country, in relation to the other regional and growth centres, and also possesses communication linkages, in terms of road connections, to these other centres.

**Table 5:2**

**Commodities Leaving Dodoma Centre On Sample Days To Outside The Region**

Type	Unit	Amount	To
Grain	Tins	5,552	Dar - es Salaam
Oilseeds	"	2,720	"
Fruits	Sacks	6	"
Vegetables	Bags	2	"
Foam mattresses	Pieces	2	"
Iron Bars	"	50	"
Drinks - Soda	Crates	25,200	Morogoro
Grain	Tins	36	Tanga
Cereals / Grain	"	72	Arusha
Cigarettes	Cartons	1	"
Women Cloths	Pieces	14	"
Empty Bottles (Beer)	Crates	12,500	"
Empty Sacks	Pieces	100	Moshi
Cereals / Grain	Tins	24	Singida
Cooking Oil	Litres	20	"
Drinks - Soda	Crates	8,400	"
Oilseeds	Tins	2,280	* Singida -D'Salaam
Animals	Heads	4	* Morogoro - Arusha
Medicine	Cartons	11	* D'Salaam- Singida
Iron Bars	Pieces	359	"
Sugar	Kg	100	"
Petrol / Oil	Litres	21,000	"
"	"	125,500	*D'Salaam -Mwanza
"	"	35,000	*D'SalaamShinyanga
"	"	13,500	*D'Salaam-Tabora
Foam mattresses	Pieces	170	*D'Salaam-Mwanza
Books / Paper	Boxes	10	*D'Salaam- Tabora
Medicine	Cartons	30	*D'Salaam-Mwanza
Used Clothes	bales	20	"
Post Parcels	Boxes	11	"
Corrugated Iron Sheets	Pieces	160	*D'Salaam-Bukoba
Agricultural Machines	Pieces	55	"
Chip Boards	Pieces	20	"
Tea leaves	Cartons	400	** - D' Salaam
Sugar	Kg	60,000	*D'Salaam - **
Shoes	Pairs	24,000	"

\* Transit Goods \*\* Goods To / From Outside The Country

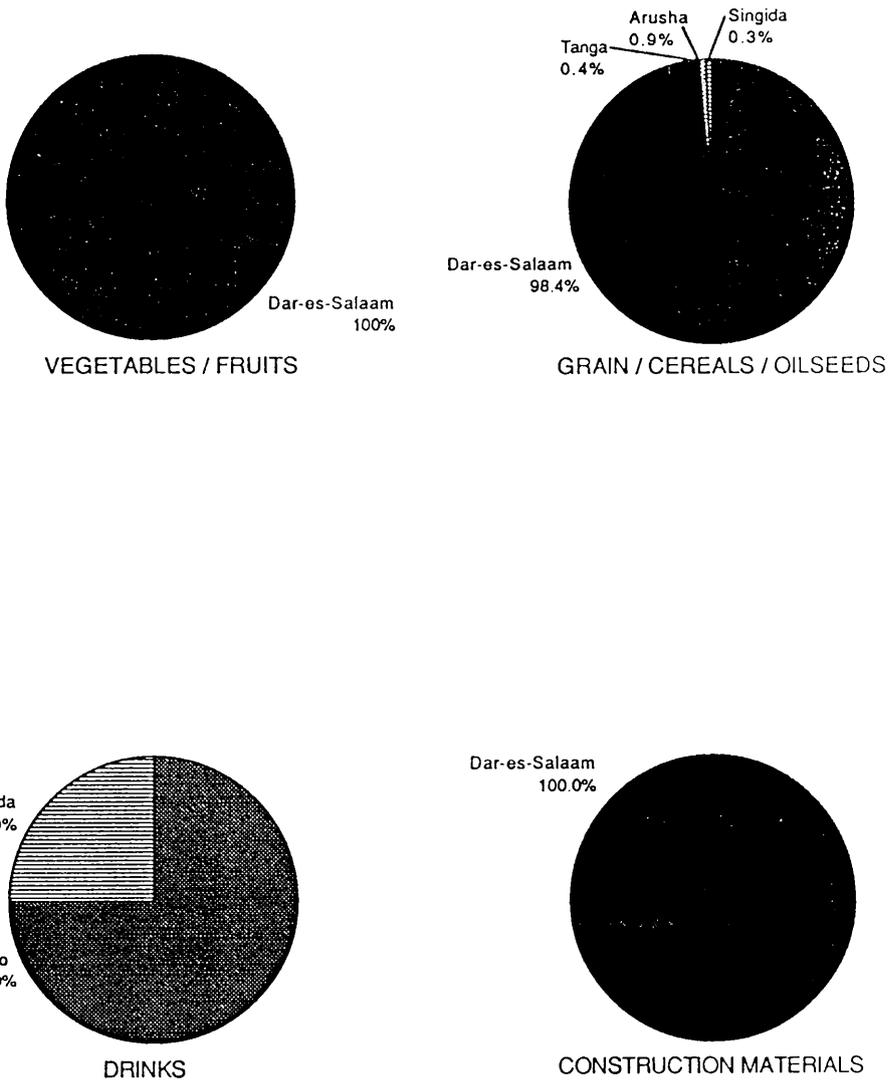


Figure 5.2 Main Commodities Leaving Dodoma Centre to Other Regions on Sample Days.

Given the difficulties of the road system during the wet season, discussed in Chapter 4, it is not surprising that there are seasonal variations in inter-regional commodity movements. During the wet season, which also coincides with the main farming and planting times in the region, the condition of the roads, especially mud roads, is poor. The wet season is also the lean season in terms of crop availability, and hence food availability, in the region, and so there is generally little to be offered in the markets which has been produced in the region itself at this time of the year. During this season, therefore, Dodoma regional centre, and parts of the districts, are heavily dependent on supplies from outside regions. During the dry season, the conditions of the roads improve, and movement within the region increases. As this is also the harvesting season for most crops grown in the region, more locally produced agricultural products are offered in the markets in the region. There is a greater variety in types of commodities being moved, as well as being larger volumes, in the dry season. There are also differences in the types and volumes of commodities supplied to Dodoma centre from similar centres between the seasons (Tables 5:3, 5:4, 5:5, 5:6).

In the wet season, despite the generally poor conditions of the roads, relatively large volumes of grains (3,228 tins), and in particular maize, are moved from Arusha region to Dodoma regional centre (Table 5:3). On the other hand, there is only a small volume of commodities (only 97 bags of cement from Mbeya) come from southern centres, and nothing arrives from the western centres, as the road conditions in that part of the country are almost impassable. However, the movement of manufactured and imported goods from the coastal centres and northern centres still prevails, with significant quantities of manufactured goods and foodstuffs arriving from Dar-es-Salaam (Table 5:3). Significantly, however, the transit of manufactured and imported goods from Dar-es-Salaam to the western centres, and outside the country, declined drastically; only sugar, shoes, foam mattresses and petrol entered Dodoma in transit for the western centres (Table 5:3 and Figure 5:3).

**Table 5:3**

Commodities Entering Dodoma Region On Sample Day From Outside the Region -  
Wet Season

Type	Unit	Amount	From
Sugar	Kg	4,050	Dar - es - Salaam
Vegetables	Bags	9	"
Cigarettes	Cartons	485	"
Foam mattresses	Pieces	41	"
Petrol / Oil	Litres	59,800	"
Building materials	Assortments	200	"
Cement	Bags	200	"
Corrugated Iron Sheets	Pieces	100	"
Agricultural Machines	Unit	16	"
Fruits	Sacks	403	Morogoro
Cereals	Tins	186	"
Chicken mesh	Bags	140	"
Sufi	Sacks	45	"
Empty bottles - Soda	Crates	12,000	"
Cereal / Grain	Tins	3,228	Arusha
Irish Potatoes	Sacks	100	"
Beer	Crates	12,500	"
Charcoal	Sacks	6	"
Cement	Bags	2	"
Flued Tobacco	Sacks	600	Tanga
Cement	Bags	97	Mbeya
Sugar	Kg	60,000	*D'Salaam - **
Shoes	Pairs	24,000	"
Foam mattresses	Pieces	120	*D'Salaam - Mwanza
Petrol / Oil	Litres	13,500	*D'Salaam - Singida
"	"	25,500	*D'Salaam - Mwanza

\* Transit Goods

\*\* Goods To / From Outside the Country

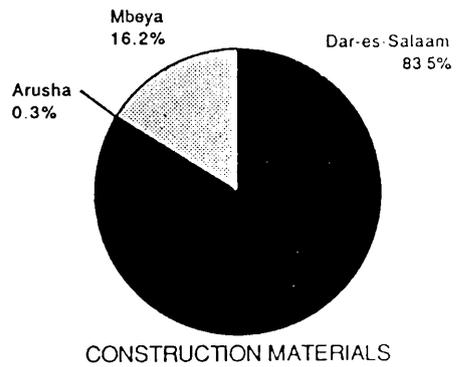
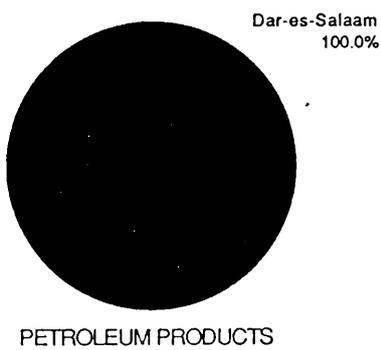
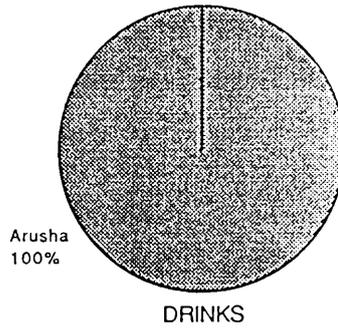
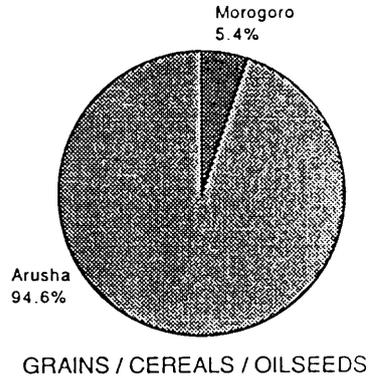
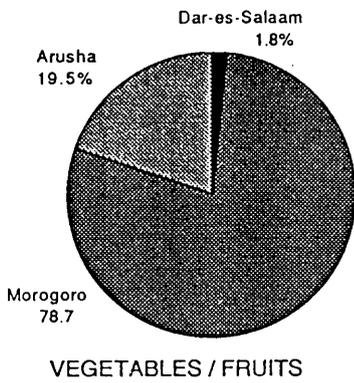


Figure 5.3 Main Commodities Entering Dodoma Centre from Other Regions on Sample Day - Wet Season Only.

**Table 5:4**

Commodities Leaving Dodoma Centre On Sample Day To Outside The Region - Wet Season

Type	Unit	Amount	To
Grain	Tins	4,540	Dar -es-Salaam
Drinks - Soda	Crates	25,200	Morogoro
"	"	8,400	Singida
Grain	Tins	36	Tanga
Empty Bottles (Beer)	Crates	12,500	Arusha
Petrol / Oil	Litres	13,500	*D'Salaam - Tabora
"	"	25,500	*D'Salaam - Mwanza
Foam mattresses	Pieces	120	*D'Salaam - Mwanza
Sugar	Kg	60,000	*D'Salaam - **
Shoes	Pairs	24,000	"

\* Transit Goods

\*\* Goods To / From Outside the Country

**Table 5:5**

Commodities Entering Dodoma Centre On Sample Day From Outside The Region Dry Season

Type	Unit	Amount	From
Fruits	Sacks	261	Dar - es - Salaam
Chicken mesh	Bags	10	"
Petrol / Oil	Litres	1,590	"
Agricultural Machines	Units	2	"
Books / Paper	Boxes	90	"
Electical ware	Assortments	200	"
Wire - mesh	Metres	200	"
Tea leaves	Cartons	50	Morogoro
Petrol / Oil	Litres	12,500	"
Books / Paper	Boxes	5	"
Empy Bottles (Soda)	Crates	7,200	"
Cereal / Grain	Tins	1,800	Arusha
Car Tyres	Pieces	350	"

continued overleaf

Table 5:5 (continued)

Cereal / Grain	Tin	28	Singida
Vegetables	Bags	12	Singida
Salt	Bags	1	"
Wood - Blocks	Pieces	610	Tabora
Cereal / Grain	Tins	2	"
Oilseeds	Tins	1	"
Petrol / Oil	Litres	260	"
Cooking Oil	Litres	28,800	Mwanza
Petrol / Oil	Litres	200	Kigoma
Grain	Tins	14,862	Shinyanga
Charcoal	Sacks	3	"
Vegetables	Bags	40	Iringa
Irish Potatoes	Sacks	1	"
Drinks - Orange Squash	Cartons	1,104	"
Books / Paper	Boxes	20	"
Wood Blocks	Pieces	250	"
Cement	Bags	110	Mbeya
Charcoal	Sacks	5	"
Empty Barrels	Unit	1	"
Corrugated Iron Sheets	Pieces	160	* D'Salaam - Bukoba
Chip Boards	"	20	"
Agricultural Machines	Units	55	"
Foam Mattresses	Pieces	50	* D'Salaam - Mwanza
Post Parcels	Boxes	11	"
Used Clothes	Bales	20	"
Medicine	Cartons	30	"
Petrol / Oil	Litres	100,000	"
"	"	35,000	*D'Salaam-Shinyanga
"	"	21,000	* D'Salaam - Singida
Iron Bars	Pieces	359	*D'Salaam - Singida
Sugar	Kg	100	"
Medicine	Cartons	11	"
Books / Paper	Boxes	10	*D'Salaam - Tabora
Oilseeds	Tins	2,280	*Singida - D'Salaam
Tea leaves	Cartons	400	* * - D'Salaam

\* Transit Goods

\*\* Goods To / From Outside the Country

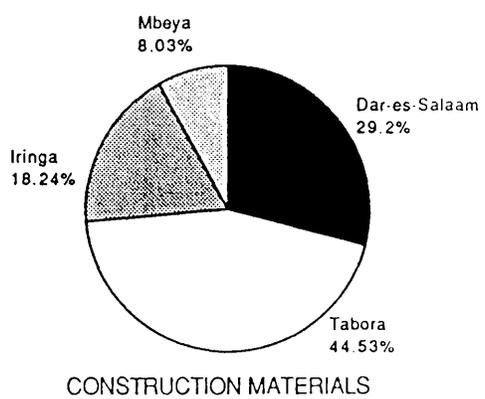
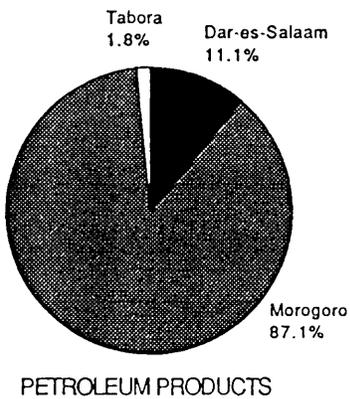
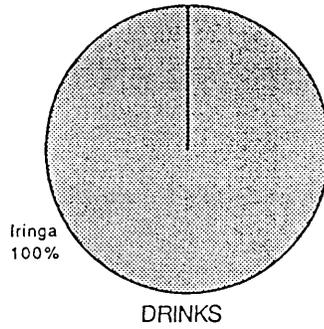
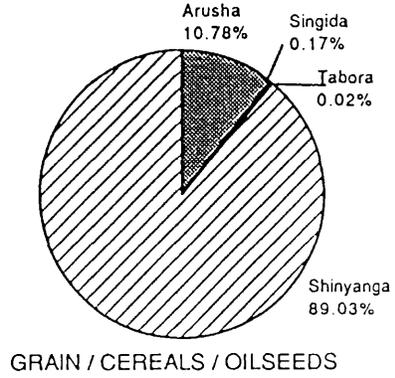
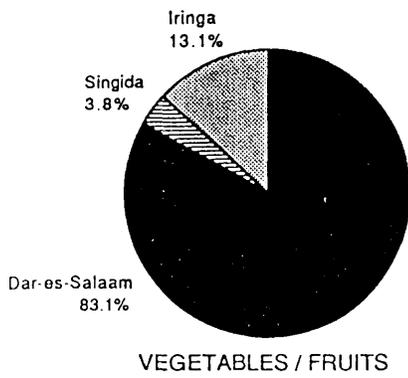


Figure 5.4 Main Commodities Entering Dodoma Centre from Other Regions on Sample Day - Dry Season Only.

As Dodoma centre is highly dependent on imports from outside the region in the wet season, there is only a very limited movement of commodities leaving Dodoma region in this season (Table 5:4). Most of this movement was associated with the transport of soft drinks to Morogoro (25,200 crates) and Singida (8,400 crates), and some 4,540 tins of grains to Dar-es-Salaam, with even smaller amounts of grains (36 tins) to Tanga (Table 5:4).

In the dry season, there are not only higher volumes, but a greater variety of commodities entering Dodoma regional centre (Table 5:5 and Figure 5:4). Further, a greater volume of transit goods is handled by the centre in the dry season, mainly manufactured goods from coastal and northern centres, but also from the southern and western centres, linkages which all but disappeared in the wet season. There are still large volumes of grains from Arusha region during the dry season, but during this season, they are mostly wheat and wheat flour, and not maize as in the wet season. In the dry season, more products from Dodoma centre went out of the region, mainly oilseeds and grains to Dar-es-Salaam, with smaller amounts of grains to Arusha and Singida, as well some fruits, such as grapes, and vegetables, such as tomatoes, to Dar-es-Salaam (Table 5:6). During the dry season, and in times of good harvests (as was the case during fieldwork for this study in 1989), locally-produced maize is readily available in the markets of Dodoma region. However, although Dodoma region produces large amounts of grains, especially maize, the region is still not self sufficient in its maize requirements for the whole year. There are two possible explanations for this. Firstly, it is not possible to store the crop for periods of several months before use; and secondly, current production levels are not sufficient, and, so Dodoma has to import food during the lean season when its own supplies are exhausted .

**Table 5:6**

Commodities Leaving Dodoma Centre On Sample Day To Outside The Region - Dry Season

Type	Unit	Amount	To
Iron Bars	Pieces	50	Dar - es - Salaam
Oilseeds	Tins	2,720	"
Cereals / Grain	Tins	1,012	"
Fruits	Sacks	6	"
Vegetables	Bags	2	"
Foam mattresses	Pieces	2	"
Cereal / Grain	Tins	72	Arusha
Cigarettes	Cartons	1	"
Women Clothes	Pieces	14	"
Empty Sacks	Unit	100	Moshi
Cereals / Grain	Tins	24	Singida
Cooking Oil	Litres	20	"
Oilseeds	Tins	2,280	* Singida - D'Salaam
Animals	Heads	4	* Morogoro - Arusha
Medicine	Cartons	11	* D'Salaam - Singida
Iron Bars	Pieces	359	" "
Sugar	Kg	100	" "
Petrol / Oil	Litres	21,000	" "
"	"	100,000	" - Mwanza
"	"	35,000	" - Shinyanga
Books / Paper	Boxes	10	" - Tabora
Medicine	Cartons	30	" - Mwanza
Used Clothes	Bales	20	" "
Foam mattresses	Pieces	50	" - Mwanza
Post Parcels	Boxes	11	" "
Corrugated Iron Sheets	Pieces	160	" - Bukoba
Agricultural Machines	Units	55	" "
Chip Boards	Pieces	20	" "
Tea leaves	Cartons	400	** - D'Salaam

\* Transit Goods

\*\* Goods From / To Outside the Country

## **5.2 Dodoma City as a Regional Centre**

### **5.2.1 Commodity Flow Links Between Dodoma Regional Centre and Lower-Order District Urban Centres**

In terms of commodity movements, as an indicator of economic linkages between places, Dodoma regional centre's vertical links with its lower-order district centres within the region are generally weaker than its horizontal links with other regional centres elsewhere in Tanzania. There is a wider variety and a greater volume of commodities moving between Dodoma centre and other regional centres, than between the regional centre and its lower-order centres (compare Tables 5:1 and 5:7; and Tables 5:2 and 5:8). Between the regional centre and its lower-order district centres, mostly manufactured and processed products move from the regional centre to the district centre, and only agricultural products moved from the district centres to the regional centre. As an example, while 73,890 litres of petroleum oils entered Dodoma centre from Dar-es-Salaam and Morogoro, only 2,000 litres (2.7 percent) went to Kondoia and 8 litres (0.01 percent) went to Mpwapwa (Table 5:8). When the two district centres are compared, in terms of their economic relationships, with the higher order regional centre of Dodoma, Kondoia district centre has stronger economic links than Mpwapwa district centre in terms of both variety and volume of commodities (Tables 5:7 and 5:8). The variety can be seen in that, for example, 1,750 kilograms of sugar, 400 wood blocks, 2,000 litres of petroleum products, 400 litres of cooking oil, 50 pieces of agricultural machines, 180 pieces of plastic buckets, 1000 cartons of soap, 200 pieces of empty sacks, 200 kilograms of salt and 390 tins of grains are distributed from Dodoma centre to Kondoia district centre, but only 10,000 kilograms of sugar, 1,000 pieces of fish and 8 litres of petrol went to Mpwapwa district centre from Dodoma Regional Centre (Table 5:8).

Besides commodity distribution, Dodoma acts as a regional assembly centre for agricultural products, and in particular, crops from the districts. There is a high volume of cereals, grains and oilseeds from the districts coming into the regional centre, and, in particular, to the National Milling Corporation (NMC) and Central Regional Co-operative Union (CRCU) godowns in the Kizota area of Dodoma city (Table 5:7), where they are collected and stored before redistribution. It is only because the godowns happen to be located in Dodoma regional centre that the economic linkages with the districts occur on any meaningful scale, especially in terms of what moves up the hierarchy. As well as being consumed within Dodoma, some of this produce is sold to higher order outside centres, especially Dar-es-Salaam for grains, and Morogoro for oilseeds for the oil processing factory located there. This therefore, strengthens the economic linkages upwards through the urban hierarchy, from the villages and districts, and on to the higher centres through their regional centre of Dodoma.

**Table 5:7**  
Commodities Entering Dodoma Centre On Sample Days From District Centres

Type	Unit	Amount	From
Empty Bottles	Crates	19,200	Mpwapwa
Cooking Oil	Litres	400	"
Oilseeds	Tins	1,410	"
Cereals / Grain	Tins	996	"
"	"	1,248	Kongwa
Oilseeds	Tins	633	"
Meat		3	"
Medicines	Cartons	10	"
Chickens		200	"
Cereal / Grain	Tins	3,566	Kondoa
Oilseeds	"	840	"
Empty Bottles	Crates	7,200	"
Cement	Bags	6	"

**Table 5:8**

Commodities Leaving Dodoma Centre On Sample Days To The District Centres

Type	Unit	Amount	To
Petrol / Oil	Litres	8	Mpwapwa
Fish	Pieces	1,000	"
Sugar	Kg	10,000	"
"	"	1,750	Kondo
Wood - Blocks	Pieces	400	"
Petrol / Oil	Litres	2,000	"
Cereals / Grain	Tins	390	"
Cement	Bags	4	"
Cooking Oil	Litres	400	"
Agricultural Machines	Units	50	"
Plastic Buckets	"	180	"
Soap	Cartons	1,000	"
Frames	Pieces	180	"
Empty Sacks	Pieces	200	"
Salt	Bags	200	"

Further interesting results were obtained in the analysis when the wet season was separated from the dry season. In the wet season, generally lower volumes of cereals and grains were moved from the district centres to the regional centre of Dodoma (Tables 5:9 and 5:10). Virtually nothing was transported from Mpwapwa district as such, with the exception of minute amounts of grains and chickens from Kongwa, a much lower-order urban centre within Mpwapwa district, and located closer to the Dar-es-Salaam - Dodoma road. In the dry season, the volumes of grains and cereals from all the centres in the districts increased considerably, and in particular, those destined for the NMC and CRCU godowns in Dodoma centre (Table 5:10). The same applies for commodities distributed from Dodoma centre; in the wet season, much less in terms of varieties of commodities went to the district centres as compared to the dry season (Tables 5:11 and 5:12).

**Table 5:9**

Commodities Entering Dodoma Centre On Sample Day From The District Centres - Wet Season

Type	Unit	Amount	From
-	-	-	Mpwapwa
Cereals / Grain	Tins	27	Kongwa
Chicken	Chickens	200	"
Cereals / Grain	Tins	1,436	Kondoa
Cement	Bags	6	"

**Table 5:10**

Commodities Entering Dodoma Centre On Sample Day From District Centres - Dry Season

Type	Unit	Amount	From
Empty Bottles	Crates	19,200	Mpwapwa
Cooking Oil	Litres	400	"
Oilseeds	Tins	1,410	"
Cereals / Grain	Tins	996	"
"	"	1,221	Kongwa
Oilseeds	Tins	633	"
Meat	Carcases	3	"
Medicines	Carons	10	"
Cereal / Grain	Tins	2,130	Kondoa
Empty Bottles -Soda	Crates	7,200	"
Oilseeds	Tins	840	"

**Table 5:11**

Commodities Leaving Dodoma Centre On Sample Day To The District Centres - Wet Season

Type	Unit	Amount	To
Petrol / Oil	Litres	8	Mpwapwa
Fish	Pieces	1,000	"
Sugar	Kg	1,750	Kondoia
Wood - Blocks	Pieces	400	"
Petrol / Oil	Litres	2,000	"
Cereals / Grain	Tins	390	"

**Table 5:12**

Commodities Leaving Dodoma Centre On Sample Day To The District Centres - Dry Season

Type	Unit	Amount	To
Sugar	Kg	10,000	Mpwapwa
Cement	Bags	4	Kondoia
Cooking Oil	Litres	400	"
Agricultural Machines	Units	50	"
Plastic Buckets	Units	180	"
Soap	Cartons	1,000	"
Frames	Unit	180	"
Empty Sacks	Units	200	"
Salt	Bags	40	"

From this, it can be seen that Dodoma regional centre tries to function as a regional centre in distributing basic commodities from the national production areas to its districts, as well as in assembling agricultural products harvested in the districts. The economic linkages between Dodoma regional centre and its districts are, however, very vulnerable. The distribution role could be achieved more efficiently directly

through the district centres, as the districts are closer to the main sources of supply than Dodoma regional centre in terms of distance. Mpwapwa district, for example, is closer to Dar-es-Salaam, Morogoro and Tanga centres, and Kondoa is closer to the northern industrial centres, than is Dodoma. It is evident in the analysis of commodity counts at the district level that some of these direct relationships between district centres and external regional centres have already been established, by-passing Dodoma regional centre (Tables 5:13 to 5:16). Commodities, such as 672 pieces of empty sacks, 40 pieces of fish, 600 pairs of shoes, 38,800 litres of petrol/diesel were transported from Dar-es-Salaam directly to Kondoa centre, and another 40 cartons of mixed goods and 10 empty sacks came directly from Arusha. On the other hand, only 1 pumping engine, 3 agricultural machines, two welding machines, 60 empty sacks and 15 empty containers came from Dodoma regional centre to Kondoa. There were also 600 tins of grain, 150 kilograms of salt, car tyres, coconuts, used cloths, fruits and tea leaves transported directly to Mpwapwa, bypassing Dodoma as compared to 336 tins of grains, 380 wood bars, 150 bags of agricultural inputs, 100 pieces of corrugated iron sheets, some sugar and potatoes from Dodoma. In the situation of a much freer market economy, in which distribution is not controlled by the state, it can be argued that Dodoma centre's economic links, in terms of movement of commodities, with its district centres might well weaken. Apart from soft drinks production, little else is produced or processed in Dodoma centre to provide the basis of economic links with its lower-order centres within the region. Although the lower-order centres might continue to supply grain to the urban population in Dodoma centre, with a much more open marketing system, the districts might find better alternative markets outside the region, thus reducing the role of Dodoma as a regional centre.

**Table 5:13****Commodities Entering Kondoa District On Sample Days**

Type	Unit	Amount	From
Empty Sacks	Units	672	Dar - es - Salaam
Cooking Gas	Cylinders	1	"
Corrugated Iron Sheets	Pieces	40	"
Fish	"	2,000	"
Used Clothes	Bales	1	"
Fruits	Sacks	15	"
Shoes	Pairs	600	"
Petrol / Oil	Litres	38,800	"
Sundry Goods	Cartons	40	Arusha
Empty Sacks	Units	10	"
Pumping Engines	"	1	Dodoma Regional Centre
Agricultural Machines	"	3	"
Welding Machines	"	2	"
Used Clothes	Bales	1	"
Charcoal	Sacks	25	"
Empty Sacks	Units	60	"
Empty Containers	"	15	"
Coffee Beans	Sacks	80	*Mbeya - Arusha
Used Clothes	Bales	1	*D'Salaam - Mwanza
Threads	Cartons	1	"
Glass	Cartons	1	"
Agricultural Machines	Units	40	"
Shoes	Pairs	720	"
Textiles	Pieces	4,600	"
Travelling Bags	Units	5,000	"
Paints	Tins	656	*D'Salaam - Shinyanga
Chip Boards	Pieces	18	"
Frames	Units	20	"
School Equipment	Boxes	6	*Moshi - Dodoma Centre
Oilseeds	Tins	36	*Mwanza - D'Salaam
Cereals / Grain	Tins	12	*Shinyanga - D'Salaam
Petrol / Oil	Litres	200	*Arusha - Dodoma Centre
Cereals / Grain	Tins	843	"
Cooking Oil	Litres	36	"
Soap	Cartons	100	"

continued overleaf

Table 5:13 (continued)

Fertilizer	Bags	240	*Dodoma Centre - Arusha
Cereals / Grain	Tins	46	"
Salt	Bags	1	"
Empty Sacks	Units	18	"
Cooking Oil	Litres	5	"
Corrugated Iron Sheets	Pieces	100	"
Oilseeds	Tins	2	"
Agricultural Machines	Units	1	"

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\* Transit Goods

**Table 5:14**

Commodities Leaving Kondoa District On Sample Days

Type	Unit	Amount	To
Cereals / Grain	Tins	24	Dar - es Salaam
Cooking Pots	Units	80	Arusha
Cereals / Grain	Tins	65	"
Empty Sacks	Units	18	"
Wax	Sacks	50	"
Cereals / Grain	Tins	420	Moshi
"	"	2,531	Dodoma Centre
Charcoal	Sacks	4	"
Sugar	Kg	250	"
Fruits	Sacks	315	"
Petrol / Oil	Litres	10,000	"
Oilseeds	Tins	12,000	"
Cooking Oil	Litres	36	*Arusha -Dodoma
Cereals / Grain	Tins	843	"
Oilseeds	Tins	36	*Mwanza - D'Salaam
Cereals / Grain	Tins	12	*Shinyanga - D'Salaam
School Equipment	Boxes	6	*Moshi - Dodoma
Petrol / Oil	Litres	200	*Arusha - Dodoma
Soap	Cartons	100	"
Coffee Beans	Sacks	80	*Mbeya - Arusha
Paints	Tins	656	*D'Salaam - Shinyanga
Chip Boards	Pieces	18	"
Frames	Units	20	"
Used Clothes	Bales	1	*D'Salaam - Mwanza
Threads	Cartons	1	"
Glass	Cartons	1	"
Agricultural Machines	Pieces	40	"
Shoes	Pairs	720	"
Textiles	Pieces	4,600	"
Travelling Bags	Units	5,000	"
Agricultural Inputs	Units	240	*Dodoma - Arusha
Cereals / Grain	Tins	46	"
Salt	Bags	1	"
Empty Sacks	Units	18	"
Cooking Oil	Litres	5	"
Corrugated Iron Sheets	Pieces	100	"
Oilseeds	Tins	2	"

\* Transit Goods

**Table 5:15**

Commodities Entering Mpwapwa District On Sample Days

Type	Unit	Amount	From
Car Tyres	Pieces	17	Dar - es - Salaam
Oilseeds	Tins	4	"
Textiles	Pieces	4	"
Fruits	Sacks	8	"
Salt	Bags	150	"
Cereals / Grain	Tins	600	"
Tea leaves	Cartons	30	"
Wood - Blocks	Pieces	380	Dodoma Centre
Fertilizer	Sacks	150	"
Cereals / Grain	Tins	336	"
Flued Tobacco	Sacks	1	"
Used Clothes	Bales	1	"
Charcoal	Sacks	6	"
Cooking Oil	Litres	40	"
Biscuits	Cartons	1	"
Irish Potatoes	Sacks	1	"
Sugar	Kg	25	"
Hay	Bales	4	"
Corrugated Iron Sheets	Pieces	100	Dodoma Centre
Furniture	Units	2	"

**Table 5:16**

Commodities Leaving Mpwapwa District On Sample Days

Type	Unit	Quantity	To
Animals	Heads	2	Morogoro
Cereals / Grain	Tins	12	Dar - es - Salaam
Chickens	Chickens	100	"
Vegetables	Bags	12	"
Oilseeds	Tins	90	"
Cereals / Grain	Tins	606	Dodoma Centre
Empty Bottles - Soda	Crates	6,240	"
Petrol / Oil	Litres	28	"
Generators	Units	1	"
Furnitures	Units	1	"

### 5.2.2 Commodity Flow Links Between Dodoma City and Villages in its Hinterland

Dodoma regional centre, besides having economic links through the district centres to the villages, also communicates directly with some villages, especially those closest to the centre. The survey showed that these villages supplied 131 bags of vegetables, 223 bags of fruits, 830 litres of milk, 4,550 live chickens, 115 sacks of charcoal and 1,669 tins of grains to Dodoma regional centre directly (Table 5:17). In return, Dodoma regional centre supplied manufactured goods such as 690 cartons of soap, 580 kilograms of sugar, 384 crates of soft drinks (soda), 13,280 litres of petroleum products (petrol, diesel and kerosene), 30,000 litres of water, and 1,277 tins of grains (especially rice and wheat flour). It also supplied construction materials including 210 pieces of wood blocks, 110 bags of cement, 340 metres of mesh, 18 litres of paints, 200 bricks and 600 pieces of assorted building materials (Tables 5:18). The centre also supplied smaller amounts of agricultural inputs and implements, medicine,

cooking oil, bread, used cloths, shoes, foam mattresses, newspapers and empty containers like sacks and drums to the closest villages. There is also a direct economic link between Dodoma centre and a number of remote villages. The remote distance villages supplied 254 sacks of charcoal, 490 tins of grains and cereals, 84 tins of oilseeds and some 3,500 fish (Table 5:17); whilst the regional urban centre in turn supplied 250 kilograms of sugar, 25 cartons of soap, 975 crates of soda, 13, 100 litres of petroleum products, 252 tins of grains, some empty containers like sacks and barrels and medicine to these remote villages (Table 5:18). There were no recorded direct contacts between Dodoma regional centre and the average distance villages. The absence of such economic links can be attributed to the fact that movement is easier between the closest villages in terms of distance and availability of transportation. Goods, and, in particular, perishables, can be moved quickly to the market. In the same way, commodities from the higher centre can reach these villages. The movement of commodities from the regional centre to the remote villages was mostly to institutions, like missionary centres, with access to their own transport facilities. Moreover, commodities from these remote villages were mostly grains, oilseeds, smoked fish and fuel, all of which are not highly perishable. It is also the case that, the remote villages depended more on farming or crop production for their incomes, because of fewer off-farm opportunities, and, a result, the remote villages are important suppliers of crops to the regional market. It is possibly the case that they have more cash available to purchase those products supplied from the regional centre, increasing a demand for urban-supplied commodities.

**Table 5:17**

Commodities Entering Dodoma Centre On Sample Days From Villages:  
Villages Classified By Distance From Dodoma Centre

Type	Unit	Quantity	From
Grain / Cereals	Tins	1,669	Closest Distace Villages
Milk	Litres	830	"
Vegetables	Bags	131	"
Foam Matress	Pieces	13	"
Sand Stones	Lorries	126	"
Cooking Pots	Units	32	"
Fruits	Sacks	223	"
Charcoal	Sacks	115	"
Animals	Heads	5	"
Medicine	Cartons	8	"
Furniture	Units	1	"
Empty Bottles - Soda	Crates	696	"
Empty Bags / Tins	Units	8	"
Chickens	Chickens	4,550	"
Skins	Pieces	3	"
Used Cloths	Bales	69	"
Potatoes / Cassava	Sacks	1	"
Agricultural Machines	Units	2	"
-	-	-	Average Dist. Villages
Charcoal	Sacks	254	Remote Dist. Villages
Grain / Cereals	Tins	490	"
Oilseeds	Tins	84	"
Corrugated Iron Sheets	Pieces	4	"
Fish	Pieces	3,500	"
Empty Bottles-Soda	Crates	542	"

**Table 5:18**

Commodities Leaving Dodoma Centre On Sample Days To Villages ;  
Villages Classified By Distance

Type	Unit	Quantity	From
Soap	Cartons	690	Closest Distance Villages
Grain / Cereals	Tins	1,277	"
Wood Blocks	Pieces	210	"
Cement	Bags	110	"
Sand Stones	Lorries	95	"
Agricultural Inputs	Bags	16	"
Meat		1	"
Town Refuse	Lorries	10	"
Medicine	Cartons	5	"
Wire Mesh	Metres	340	"
Paints	Tins	18	"
Used Clothes	Bales	15	"
Bricks	Blocks	200	"
Vegetables	bags	4	"
Sugar	Kg	8,580	"
Petro / Oils	Litres	13,280	"
Drinks - Soda	Crates	384	"
Furniture	Units	1	"
Building Materials	Assortments	600	"
Iron Bars	Pieces	4	"
Desks	Units	23	"
Empty Containers	Units	75	"
Agricultural Machines	Units	11	"
Shoes	Pairs	25	"
Spades	Unit	4	"
Foam Mattress	Pieces	17	"
Water	Litres	30,000	"
Generators	Units	1	"
Charcoal	Sacks	14	"
Empty Barrels	Unit	4	"
Empty Sacks	Units	32	"
Cooking Oil	Litres	32	"
Animals	Heads	65	"
Bread	Loaves	172	"
Chicken Mesh	Bags	5	"

continued overleaf

Table 5:18 (continued)

Newspapers	Pieces	100	"
Chickens	Chickens	15	"
-	-	-	Average Dist. Villages
Empty Sacks	Units	100	Remote Dist. Villages
Empty Containers	Units	5	"
Sugar	Kg	250	"
Soap	Cartons	25	"
Drinks - Soda	Crates	975	"
Petrol / Oils	Litres	13,100	"
Medicine	Cartons	3	"
Grain / Cereals	Tins	252	"
Charcoal	Sacks	115	"
Gas Cylinders	Cylinders	7	"

On the other hand, the closer villages, with relatively shorter distances to Dodoma city, and with greater availability of transport (See section 4.2.2), produce and sell less grain, but produce and sell more of the highly perishable products, such as vegetables, fruits and milk for the urban centre. For the closest villages, there are also alternative employment opportunities in the urban centre to supplement incomes, especially as, given the shorter distances, people can walk to and sell their labour in the urban centres.

Proximity of the closest villages to the urban centres, can also have negative effects on the general development of the region. Villagers in the closer villages may spend more hours in the urban centre looking for non-farming employment, or trying to sell some few products directly in the urban markets at only slightly higher prices than in the village, once time and transport costs are considered. The average distance villages appear to have no direct economic linkages with the regional centre, possibly because of under counting, but also because these people use transport to the closest villages and then walk the remaining distance as it is difficult to get transport to their villages

lying at greater distances from the centre. In such a situation, any commodities carried in with them will have been recorded as coming from the closest villages; the origin and destination of the transport used was assumed to be the same origin and destination of the commodities carried. Besides this, household production levels, and thus incomes, in the average distance villages was also low. It is also possible that more people in these households seek alternative employment in the urban centre, and as they cannot commute on a daily basis between the centre and their homes, as is the case with the closest villages, they tend to stay in the urban centre for longer periods of time.

Based on the commodity movements, the economic links between the villages and urban centres are stronger in the dry season, when movement is at its easiest and farmers have harvested their crops. The dry season is characterised by higher volumes of grains (2,045 tins), oilseeds (84 tins), fruits (223 bags) and milk (560 litres) with much smaller amounts in the wet season of grains (120 tins), milk (270 litres) and vegetables (90 bags). During the wet season, some grains (1477 tins) were transported from Dodoma to the villages, and, in particular, to the closest villages. Fewer manufactured and processed products went to the villages from the urban centre in the wet season (compare Tables 5:19; 5:20; 5:21 and 5:22).

Most of the basic commodities between the regional centre and the villages are moved along the best roads and this is especially so with the highly perishable products. The Dodoma to Arusha Road, with the highest volumes of vehicles (652 or 70.9 per cent), followed by the Dodoma - Dar-es-Salaam road (116 or 12.6 per cent), carried most of the essential commodities. The Iringa Road, with 130 or 14.1 per cent of the volume of traffic, also carried significant volumes of the basic commodities, as well as a greater variety of commodities in smaller quantities. Vegetables mainly entered Dodoma city from villages along the Dar-es-Salaam (58.2 per cent) and Arusha roads (41.1 per cent) (Table 5:23 and Map 5:1). Milk has to be sold while still fresh, and as

such has to reach the market centre quickly. This explains why only the closest villages, such as Chamwino and Hombolo along the Dar-es-Salaam road, the best road, can supply milk to the regional centre. Although livestock, and, in particular, cows producing milk, are abundant in all villages, many of these villages are at a disadvantage, given the greater distances and poorer roads connecting them to the regional centre. The same situation applies to vegetables, and the situation remains the same in all climatic seasons emphasising the importance of fast transport from the villages to the urban centre in the supply of perishables. Villages along the poorer roads, such as that of Iringa, supplied smoked fish, chickens and some grains only. There is no significant movement of commodities along the worst road, from Singida, to the regional centre in any season. This is consistent with Von Thunen's theory of agricultural location, as the production of highly perishable products is located closer to the market centre and along the fast transportation routes. Less perishable produce, such as grain in the case of Dodoma region, is produced at greater distances from the market centres, but at locations where they can at least be moved to the market centres (Table 5:24 and Map 5:1).

The situation is not very different in the supply of commodities from the urban centre to the villages, and, in particular, in the supply of basic commodities like grain products, sugar and soap. The supply is better to the villages along or near the best roads to Dar-es-Salaam or Arusha. Most grain and grain products (72.7 per cent) are supplied to villages along the Dar-es-Salaam road. Most of the sugar, (89.7 per cent) is supplied to villages along the Arusha road, and soap is again mostly (54 per cent) supplied to villages along the Dar-es-Salaam road and the Arusha Road (30.3 per cent). Although a greater variety of commodities is supplied to villages along the Iringa road, with the exception of soft drinks (94.7 per cent), their quantities are very insignificant (Table 5:24 and Map 5:2). This demonstrates clearly the fact the the quality of the roads in terms of their motorability and availability of transport and

transportation, besides distance influences the economic relationships between urban centres and the villages in their hinterland, as evidenced in Dodoma region. The economic links in terms of commodity exchanges is stronger with the villages located closer to the urban centres as well as along the best roads in terms of transport and transportation.

**Table 5:19**  
Commodities Entering Dodoma Centre On Sample Day From Villages;  
Villages Classified By Distance - Wet Season

Type	Unit	Quantity	From
Vegetables	Sacks	90	Closest Distance
Villages			
Charcoal	Sacks	58	"
Sand / Stones	Lorries	49	"
Cereals / Grain	Tins	115	"
Used Clothes	Bales	69	"
Potatoes / Cassava	Sacks	1	"
Empty Bottles	Crates	48	"
Agricultural Machines	Units	2	"
Milk	Litres	270	"
Ckicken	Chicken	3,350	"
-	-	-	Average Dist. Villages
Cereals / Grain	Tins	9	Remote Dist. Villages
Charcoal	Sacks	152	"
Empty Bottles	Crates	542	"
Fish	Pieces	3,000	"

**Table 5:20**

Commodities Entering Dodoma Centre On Sample Day From Villages  
 Villages Classified By Distance - Dry Season

Type	Unit	Quantity	From
Cereal / Grain Villages	Tins	1,554	Closest Distance
Milk	Litres	560	"
Vegetables	Bags	51	"
Foam Matress	Pieces	13	"
Sand / Stones	Lorries	77	"
Cooking Pots	Pieces	32	"
Fruits	Sacks	223	"
Charcoal	Sacks	57	"
Animals	Heads	5	"
Medicine	Cartons	8	"
Furniture	Pieces	1	"
Empty Bottles	Crates	648	"
Empty Containers	Units	8	"
Chickens	Chickens	1,200	"
Skins	Pieces	3	"
—	—	—	Average Dist. Villages
Charcoal	Sacks	102	Remote Dist. Villages
Cereal / Grain	Tins	481	"
Baobab Fruits	Sacks	36	"
Corrugated Iron Sheets	Pieces	4	"
Fish	Pieces	500	"

**Table 5:21**

Commodities Leaving Dodoma Centre On Sample Day To Villages;  
Villages Classified By Distance - Wet Season

Type	Unit	Quantity	To
Cereals / Grain	Tins	1,225	Closest Distance
Villages			
Sand / Stones	Lorries	27	"
Soap	Cartons	40	"
Sugar	Kg	500	"
Cement	Bags	10	"
Animals	Heads	65	"
Agricultural Inputs	Bags	1	"
Bread	Loaves	172	"
Chicken Mesh	Bags	5	"
Drinks-	Crates	312	"
Petrol / Oils	Litres	60	"
News Papers	Pieces	100	"
Charcoal	Sacks	10	"
Chickens	Chickens	15	"
Water	Litres	20,000	"
Foam Matress	Pieces	4	"
-	-	-	Average Dist. Villages
Cereals / Grain	Tins	252	Remote Dist. Villages
Charcoal	Sacks	115	"
Petrol / Oils	Litres	13,000	"
Cylinders	Unit	7	"
Sugar	Kg	200	"
Drinks	Crates	725	"

**Table 5:22**

Commodities Leaving Dodoma Centre On Sample Day To Villages:  
Villages Classified By Distance - Dry Season

Type	Unit	Quantity	To
Soap	Cartons	650	Closest Distance
Villages			
Cereals / Grain	Tins	52	"
Wood Blocks	Pieces	210	"
Cement	Bags	100	"
Sand / Stones	Lorries	68	"
Meat	Carcases	1	"
Town Refuse	Lorries	10	"
Medicine	Cartons	5	"
Wire Mesh	Metres	340	"
Paints	Tins	18	"
Used Clothes	Bales	15	"
Bricks	Blocks	200	"
Vegetables	Bags	4	"
Sugar	Kg	8,080	"
Agricultural Inputs	Bags	15	"
Petrol / Oils	Litres	13,220	"
Drinks	Crates	72	"
Furniture	Pieces	1	"
Building Materials	Assortments	600	"
Iron Bars	Pieces	4	"
Desks	Units	23	"
Empty Containers	Units	75	"
Agricultural Machines	Units	11	"
Shoes	Pairs	25	"
Spades	Units	4	"
Foam Matress	Pieces	13	"
Water	Litres	10,00	"
Generators	Units	1	"
Charcoal	Sacks	4	"
Empty Barrels	Units	4	"
Empty Sacks	Units	32	"
Cooking Oil	Litres	32	"
-	-	-	Average Dist. Villages

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Table 5:22 (continued)

Empty Sacks	Units	100	Remote Dist. Villages
Empty Containers	Units	5	"
Sugar	Kg	50	"
Soap	Cartons	25	"
Drinks	Crates	250	"
Petrol / Oils	Litres	100	"
Medicine	Cartons	3	"

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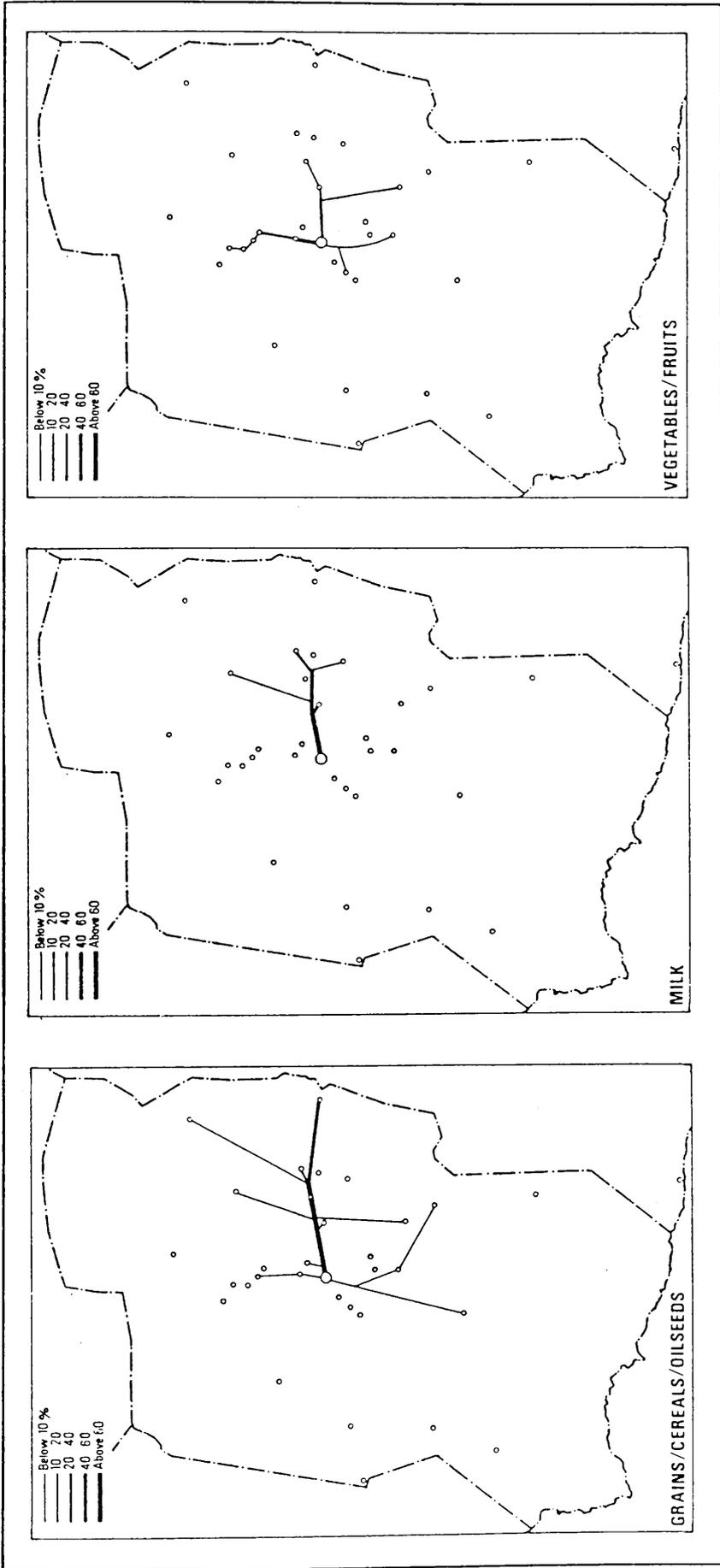
Table 5 :23  
Units Of Commodities Entering Dodoma Regional Centre From Villages On Sample Days - Villages Classified By Roads

Commodity / Road	Dur-es-Salaam Road			Arusha Road			Singida Road			Iringa Road			Total		
	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total
	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%
Cereals / Grain	118	1510	69.4	-	37	1.6	-	-	-	6	674	29.0	124	2221	2345
Oilseeds	-	-	-	-	-	-	-	-	-	-	116	100.0	-	116	116
Vegetables	48	34	82	42	16	41.1	-	-	-	1	1	0.7	90	51	141
Fruits	-	-	-	-	205	91.9	-	6	6	2.7	-	5.4	-	223	223
Milk	270	560	830	100.0	-	-	-	-	-	-	500	100.0	270	560	830
Fish	-	-	-	-	-	-	-	-	-	3000	100.0	-	3000	500	3500
Charcoal	1	-	1	0.3	150	94.8	-	-	-	9	9	4.9	210	159	369
Potatoes / Cassava	1	-	1	100.0	-	-	-	-	-	-	-	-	1	-	1
Chickens	-	-	-	-	2000	41.8	-	-	-	1350	1440	58.2	3350	1440	4790
Baobab Fruits	-	-	-	-	-	-	-	-	-	-	36	100.0	-	36	36
Furniture	-	-	-	-	-	-	-	-	-	-	1	100.0	-	1	1
Skins	-	-	-	-	-	-	-	-	-	-	1	100.0	-	1	1
Animals	-	-	-	-	5	100.0	-	-	-	-	-	-	-	5	5
Foam Mattress	-	13	13	100.0	-	-	-	-	-	-	-	-	-	13	13
Empty Containers	-	-	-	-	-	-	-	-	-	-	8	100.0	-	8	8
Empty Bottles	48	-	48	3.9	-	-	42	-	42	3.4	500	92.7	590	648	1238
Agricultural Machines	1	-	1	50.0	-	-	-	-	-	-	1	50.0	2	-	2
Cooking Pots	32	-	32	100.0	-	-	-	-	-	-	-	-	-	32	32
Sand / Stones	10	7	17	9.0	7	3.7	-	63	63	33.3	39	54.0	49	140	189
Corrugated Iron Sheets	-	-	-	-	-	-	-	-	-	-	-	100.0	-	4	4
Used Clothes	16	-	16	23.2	53	76.8	-	-	-	-	-	-	16	53	69
Medicine	-	-	-	-	8	100.0	-	-	-	-	-	-	-	8	8

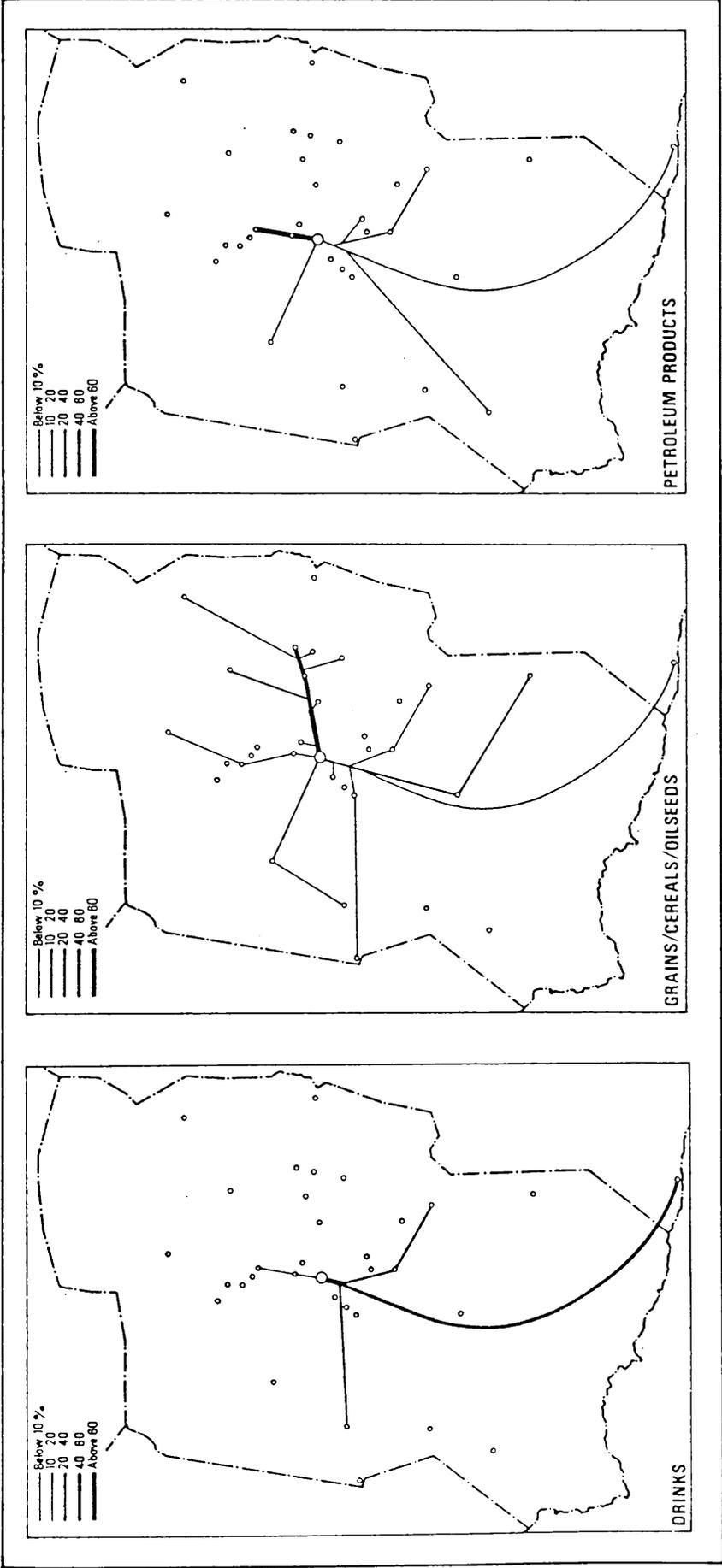
Table 5:24  
Units Of Commodities Leaving Davoma Regional Centre To Villages On Sample Days - Villages Classified By Roads

Commodity / Road	Dures-Sallaam Road			Anusha Road			Singida Road			Iringa Road			Total			
	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total	Wet	Dry	Total	
	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	No.	No.	%	
Cereals / Grain	1096	36	1132	72.8	90	5.8	3	0.2	318	13	331	21.3	1504	52	1556	100.0
Fruits	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0
Meat	-	1	100.0	-	-	-	-	-	-	-	-	-	-	1	1	100.0
Vegetables	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0
Chicken	-	-	-	-	4	100.0	-	-	-	-	-	-	-	4	4	100.0
Animals	-	-	-	-	64	98.5	-	-	15	-	15	15	65	15	15	100.0
Sugar	500	500	5.8	7800	89.7	700	4.5	700	200	190	390	4.5	700	7990	8690	100.0
Soap	40	400	54.0	250	30.7	-	-	-	20000	125	125	15.3	40	775	815	100.0
Water	-	-	-	-	-	-	-	-	1037	250	1287	94.7	1037	322	1359	100.0
Soda - Drinks	-	-	-	-	-72	5.3	-	-	-	-	-	-	-	-	-	100.0
Cigarettes	12	-	12	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0
Bread	-	-	-	-	172	100.0	-	-	-	-	-	-	172	-	172	100.0
Petrol / Oils	-	-	-	-	1300	8.8	200	1.4	13060	160	13220	89.8	13060	1660	14720	100.0
Cement	100	100	90.9	10	9.1	-	-	-	-	-	-	-	10	100	110	100.0
Wood Blocks	210	210	100.0	-	-	-	-	-	-	-	-	-	-	210	210	100.0
Wire Mesh	-	-	-	-	340	100.0	-	-	-	-	-	-	-	340	340	100.0
Paints	-	-	-	-	18	100.0	-	-	-	-	-	-	-	18	18	100.0
Bricks	-	-	-	-	100	100.0	-	-	-	-	-	-	-	100	100	100.0
Iron bars	-	-	-	-	-	-	4	100.0	-	4	4	-	-	4	4	100.0
Building Materials	-	-	-	-	-	-	-	-	-	400	400	100.0	-	400	400	100.0
Desks	-	-	-	-	23	100.0	-	-	-	23	23	-	-	23	23	100.0
Gas Cylinders	-	-	-	-	-	-	-	-	7	-	7	-	7	-	7	100.0
Foam Mattress	-	-	-	-	-	-	-	-	4	13	17	100.0	4	13	17	100.0
Charcoal	-	-	-	-	65	50.4	-	-	60	4	64	49.6	125	4	129	100.0
News Papers	-	-	-	-	100	75.8	-	-	100	-	100	100.0	100	-	100	100.0
Empty Sacks	-	-	-	-	100	100.0	-	-	-	32	32	24.2	-	132	132	100.0
Furniture	-	-	-	-	1	100.0	-	-	-	-	-	-	-	1	1	100.0
Chicken Mesh	-	-	-	-	5	100.0	-	-	-	-	-	-	5	-	5	100.0
Agricultural Machines	-	-	-	-	-	-	-	-	-	15	15	100.0	-	15	15	100.0
Agricultural Inputs	6	6	37.5	1	8	56.3	-	-	-	1	1	6.2	1	15	16	100.0
Sand / Stones	12	23	45.5	12	30	54.5	-	-	-	-	-	-	24	53	77	100.0
Medicine	-	-	-	-	5	62.5	3	37.5	-	-	-	-	-	8	8	100.0
Town Refuse	-	1	16.7	-	-	-	5	83.3	-	-	-	-	-	6	6	100.0
Used Clothes	-	-	-	-	15	100.0	-	-	-	-	-	-	-	15	15	100.0
Shoes	-	-	-	-	-	-	-	-	-	25	25	100.0	-	25	25	100.0
Spades	-	-	-	-	-	-	-	-	-	4	4	100.0	-	4	4	100.0
Generators	-	-	-	-	-	-	-	-	-	1	1	100.0	-	1	1	100.0
Empty Barrels	-	-	-	-	-	-	-	-	-	4	4	100.0	-	4	4	100.0
Cooking Oil	-	-	-	-	-	-	-	-	-	32	32	100.0	-	32	32	100.0

Map 5 : 1 Volume Of Main Commodities Entering Dodoma Centre  
 On Sample Days from Villages - Villages Classified By Roads



Map 5 : 2 Volume Of Main Commodities Leaving Dodoma Centre  
 On Sample Days to Villages - Villages Classified by Roads



### **5.3 Commodity Flow Links Between Lower-Order District Urban Centres With Other Urban Centres**

No commodities are moved between the two district centres of Kondoa and Mpwapwa, the absence of economic linkages between the two district centres being a result of the weak, or absent, physical linkages between the two centres. It is also due to the lack of commodities for exchange, resulting from the absence in production specialisation.

However, there are direct economic links between the lower district centres with outside centres of the same level, as well as with higher-order regional growth centres, and even with the metropolitan city of Dar-es-Salaam. There are commodities supplied directly from Dar-es-Salaam and Arusha to Kondoa (see, for example, Table 5:26), and grain, in particular finger millet, from the main producing areas around Kondoa is supplied to Arusha and Moshi, the main demand areas (see, for example, Table 5:30). The other crops were moved through the NMC and CRCU, mostly to the regional centre, and hence possibly outside the region.

Kondoa centre also handles a lot of transit goods to the western centres, especially during the wet season, as well as lower volumes of transit goods between the southern and northern centres (Tables 5:25 and 5:26). Mpwapwa district centre also received commodities direct from the metropolitan centre of Dar-es-Salaam (Table 5:28), but generally its linkages were nothing like as well-developed as those from Kondoa.

When the analysis of commodity counts at the district level is separated into the wet and dry seasons, the marked seasonal differences are seen. In the wet season, the physical linkages are weak, mainly because districts have fewer agricultural products to be moved out; also, there are fewer commodities coming down the hierarchy,

possibly due to the difficulties of physical movement or, perhaps, because of limited demand in the lower centres. At this time, most households have exhausted the supplies of crops harvested last season, and have little to offer for sale. As a result, farmers, during the wet season, have limited cash available for purchasing commodities, thus reducing demand.

In the wet season, Kondoa supplies very limited amount of grain to Dar-es-Salaam (24 tins) and Dodoma regional centres (15 tins (Table 5:25), along with small amounts of sugar (250 kilograms) to Dodoma centre. Very little came into Kondoa during the wet season, and that which did, came mainly from Dar-es-Salaam, with petrol/diesel/kerosene (38,800 litres) dominating (Table 5:26). Nothing else came from other places outside Kondoa, except for some charcoal, normally picked up the outskirts of the town. Although Kondoa had little terminating or originating in the town in the wet season, it nevertheless handled a heavy volume of transit goods, mostly between the coastal centre of Dar-es-Salaam and the western centres of Tanzania (Tables 5:25 and 5:26).

The situation was worse with Mpwapwa district in the wet season. Road connections experienced in 1989 were very bad because of the rains (See 4.2.2 and 4.3). Only some 590 tins of grain were moved from Mpwapwa to Dodoma regional centre and 2 cows to Morogoro (Table 5:27). Few commodities went into Mpwapwa in the same season, mostly manufactured products such as car tyres, textiles, as well as salt, coconuts and grain products from Dar-es-Salaam. The regional centre supplied 150 bags of agricultural inputs, 180 tins of grains and 40 pieces of wood blocks (Table 5:28).

During the dry season, the physical and economic linkages are greatly improved, as most roads become motorable. Furthermore, crops have been harvested, and so more is available for sale. The movement of manufactured goods, and processed and

unprocessed agricultural products from both Dodoma regional centre, and other outside centres, was increased to both Kondoa and Mpwapwa districts. However, there are fewer transit goods through Kondoa at this time of year, as a result of the improved direct physical links between the major regional centres, and hence the longer route through Kondoa is not used. Only transits between Dodoma regional centre and Arusha continue (Tables 5:29 to 5:32), because of the existence of strong and permanent economic links between these centres. A closer observation of the results of the commodity counts survey indicates that the existence and the quality of the physical linkages between places, the spatial location of the centre in relation to other centres, and production specialisation between the centres determine the existence of economic linkages between different centres, the strengths of these linkages, as well as the pattern or direction of movement of the economic activities between centres.

**Table 5:25**

Commodities Leaving Kondoa District Centre To Outside The District  
On Sample Day - Wet Season

Type	Unit	Quantity	To
Cereals / Grain	Tins	24	Dar-es-Salaam
Cooking Pots	Pieces	80	Arusha
Cereals / Grain	Tins	15	Dodoma Centre
Sugar	Kg	250	"
Fruits	Sacks	315	"
Charcoal	Sacks	4	"
School Stationary	Cartons	6	*Moshi - Dodoma
Oil Seeds	Tins	36	*Mwanza - D'Salaam
Cereals / Grain	Tins	12	*Shinyanga - D'Salaam
Cooking Oil	Litres	36	*Arusha - Dodoma
Petrol / Oils	Litres	200	"
Cereals / Grain	Tins	843	"
Cofte Beans	Sacks	80	*Mbeya - Arusha
Used Clothes	Bales	1	*D'Salaam - Mwanza
Threads	Cartons	1	"
Glass	Cartons	1	"
Agricultural Machines	Units	40	"
Shoes	Pairs	720	"
Women Clothes	Pieces	4,600	"
Travelling Bags	Pieces	5,000	"
Paint	Tins	656	*D'Salaam - Mwanza
Frames	Pieces	20	"
Chip Boards	Pieces	18	"

\* Transit Goods

**Table 5:26**

Commodities Entering Kondo District Centre From Outside The District  
On Sample Day - Wet Season

Type	Units	Quantity	From
Petrol / Oils	Litres	38,800	Dar-es-Salaam
Fish	Pieces	2,000	"
Corrugated Iron Sheets	Pieces	40	"
Charcoal	Sacks	4	"
Cooking Gas	Cylinders	1	"
Empty Containers	Units	72	"
Empty Sacks	Units	600	"
Charcoal	Sacks	19	"
School Stationary	Cartons	6	*Moshi - Dodoma
Oilseeds	Tins	36	*Mwanza - D'Salaam
Cereals / Grain	Tins	12	*Shinyanga - D'Salaam
Cooking Oil	Litres	36	*Arusha - Dodoma
Petrol / Oils	Litres	200	"
Cereals / Grain	Tins	843	"
Coffee Beans	Sacks	80	*Mbeya - Arusha
Used Clothes	Bales	1	*D'Salaam - Mwanza
Threads	Cortons	1	"
Glass	Cartons	1	"
Agricultural Machines	Units	40	"
Shoes	Pairs	720	"
Women Clothes	Pieces	4,600	"
Travelling Bags	Pieces	5,000	"
Paints	Tins	656	*D'Salaam - Mwanza
Frames	Pieces	20	"
Chip Boards	Pieces	18	"

\* Transit Commodities

**Table 5:27**

Commodities Leaving Mpwapwa District Centre To Outside The District  
On Sample Day - Wet Season

Type	Unit	Quantity	To
Animals	Heads	2	Morogoro
Cereals / Grain	Tins	590	Dodoma R. Centre

**Table 5:28**

Commodities Entering Mpwapwa District Centre From Outside The District  
On Sample Day - Wet Season

Type	Unit	Quantity	From
Car Tyres	Pieces	17	Dar-es-Salaam
Oilseeds	Tins	4	"
Used Clothes	Bales	4	"
Fruits	Sacks	8	"
Salt	Bags	150	"
Cereals / Grain	Tins	600	"
Wood Blocks	Pieces	40	Dodoma R. Centre
Agricultural Inputs	Bags	150	"
Cereals / Grain	Tins	180	"

**Table 5:29**

Commodities Entering Kondoa District Centre From Outside The District  
On Sample Day - Dry Season

Type	Units	Quantity	From
Fruits	Sacks	15	Dar-es-Salaam
Assortments of Goods	Boxes	40	Arusha
Empty Sacks	Units	10	"
Water Pumping Machine	Units	1	Dodoma Centre
Agricultural Machines	Units	3	"
Used Clothes	Bales	1	"
Welding Machines	Units	2	"
Charcoal	Sack	6	"
Empty Sacks	Units	60	"
Empty Containers	Units	15	"
Soap	Cartons	100	*Arusha - Dodoma Centre
Agricultural Inputs	Bags	240	*Dodoma Centre - Arusha
Cereals / Grain	Tins	46	"
Salt	Bags	1	"
Empty Sacks	Units	18	"
Cooking Oil	Litres	5	"
Corrugated Iron Sheets	Pieces	100	"
Oilseeds	Tins	2	"
Agricultural Machines	Units	1	"

\* Transit Goods

**Table 5:30**Commodities Leaving Kondoa District Centre To Outside The District  
On Sample Day - Dry Season

Type	Unit	Quantity	To
Cereals / Grain	Tins	19	Arusha
Wax	Sacks	50	"
Cereals / Grain	Tins	54	Moshi
Cereals / Grain	Tins	2,514	Dodoma R. Centre
Oilseeds	Tins	12,000	"
Petrol / Oils	Litres	10,000	"
Soap	Cartons	100	*Arusha - Dodoma
Agricultural Inputs	Bags	240	*Dodoma - Arusha
Cereals / Grain	Tins	46	"
Salt	Bags	1	"
Empty Sacks	Units	18	"
Cooking Oil	Litres	5	"
Corrugated Iron Sheets	Pieces	100	"
Oilseeds	Tins	2	"
Agricultural Machines	Units	1	"

\* Transit Goods

**Table 5:31**

Commodities Entering Mpwapwa District Centre From Outside The District  
On Sample Day - Dry Season

Type	Unit	Quantity	From
Tea Leaves	Cartons	30	Dar-es-Salaam
Flued Tobacco	Sacks	1	Dodoma R. Centre
Used Clothes	Bales	1	"
Charcoal	Sacks	6	"
Cereals / Grain	Tins	156	"
Cooking Oil	Litres	40	"
Biscuits	Cartons	1	"
Irish Potatoes	Sacks	1	"
Sugar	Kg	25	"
Hay	Bales	4	"
Wood Blocks	Pieces	340	"
Corrugated Iron Sheets	Pieces	100	"
Furniture	Pieces	2	"

**Table 5:32**

Commodities Leaving Mpwapwa District Centre To Outside The District  
On Sample Day - Dry Season

Type	Unit	Quantity	To
Cereals / Grain	Tins	12	Dar-es-Salaam
Baobab Fruit	Sacks	4	"
Chickens	Chickens	100	"
Vegetables	Bags	12	"
Oilseeds	Tins	90	"
Cereals /Grain	Tins	16	Dodoma R. Centre
Generators	Units	1	"
Empty Bottles - Soda	Crates	6,240	"
Furniture	Pieces	1	"
Petrol / Oils	Litres	28	"

Kondoa centre has a stronger physical link with Dodoma centre in terms of the availability of transportation, than that between Dodoma centre and Mpwapwa. Although Mpwapwa centre is closer to Dodoma regional centre, lying only 85 kilometres away, as compared to Kondoa being 150 kilometres away, its physical link, in terms of the motorability of the road, especially in the wet season, as well as in the transport connections, as seen in the traffic counts study, is very weak. (see Section 4.2.2). Most villages in Mpwapwa district with high production levels of maize and beans, such as Pandambili, Hembahemba and Mlali, are located on the main Dodoma to Dar-es-Salaam road, and hence sell crops by the road side. Also, goods delivered from Dar-es-Salaam and Morogoro, owing to the location of these centres, are more effectively supplied directly to Mpwapwa centre. All these factors reduce the need for and strength of economic links between Mpwapwa and Dodoma regional centre.

Furthermore, the region lacks any degree of economic specialisation in production between its three districts. All districts mainly produce grain, cereals and oilseeds, and Dodoma regional centre, with its higher non-agricultural population, is the main market for the crops produced in the region. Although all districts move grain to Dodoma regional centre in the harvesting season, only Kondoa continues to supply the grain during the planting or lean season. This reinforces the links between Dodoma regional centre and Kondoa.

Mpwapwa district is closer (318 kilometres) to Dar-es-Salaam than is Dodoma centre (479 kilometres) or Kondoa (629 kilometres). Dar-es-Salaam is the highest order urban centre in the country, and also borders the growth regions of Tanga and Morogoro where most of the locally manufactured goods are produced. Movement of commodities from these centres with Mpwapwa directly is higher than from Dodoma centre. Most of the manufactured goods available in Mpwapwa originate from Dar-es-

Salaam. Nothing in Mpwapwa Market, except smoked fish, had been brought from Dodoma centre. Smoked fish comes mostly from the Western centres and Mtera Dam, both of which are closer to Dodoma centre. On the other hand, Kondoa, being closer to the northern industrial centres, gets some of its supplies from there directly without passing through Dodoma regional centre. Kondoa's economic links with the northern centres are stronger than Mpwapwa which is further away, and not well linked physically.

## **5.4 Commodity Flow Links Between Lower-Order District Urban Centres and Villages in their Hinterlands**

### **5.4.1 Commodity Flow Links Between Kondoa Urban Centre and Villages in its Hinterland**

Links between the district centres and the villages in their hinterlands are similar to those between Dodoma centre and the villages in its hinterland. There are movements of grain, oilseeds, fruits, milk and fuel from the villages to Kondoa urban centre (Tables 5:33 and 5:34), with the bulk of these movements occurring in the dry season. Most of these commodities came from the closest villages, especially in the wet season, with perishable products, and in particular, milk, coming from villages along Kwamtoro road. Along this road, transportation is poor, but village settlements are concentrated within walking distance of Kondoa centre. Along the other roads, in contrast, villages are not located within walking distance of the centre. Other perishable products, like vegetables, come from villages located within the average distance group along Arusha road, reflecting improved transportation along this road to the market in Kondoa. Grains come mostly from remote villages, and from villages located in areas with poorer transportation. There was nothing from remote villages

along any of Kwamtoro, Dodoma or Arusha roads. The remote villages along Dodoma road, being half-way between Kondoa and Dodoma regional centre, tend to be linked with the higher order centre so as to benefit from other services provided there, which may not be available in the lower-order centre. Similarly the remote villages along Arusha road are linked with Babati district centre and Arusha regional centre, both in Arusha region to the north. These outside centres are closer to these villages; for example, the village of Bereko, along Arusha road, lies 12 kilometres from Babati, and onl 124 kilometres from Arusha centre.

Kondoa district centre also functions as a supply centre for villages in its hinterland. There is movement of commodities like soft drinks, sugar, cooking oils, smoked fish, soap, textiles, empty sacks, match boxes and some grain to its villages (Tables 5:35 and 5:36). A clear distance decay relationship exist as most of these commodities went to the closest villages. However, the economic linkages, in terms of the movement of commodities, between Kondoa and the average and remote distance villages is stronger than those between Dodoma centre and its equivalent villages. Like in Dodoma centre, most of the commodities from Kondoa centre are moved to villages along the best roads, these being the Arusha and Dodoma roads. Lower volumes are moved along Mondo and Kwamtoro roads, reflecting their poorer quality. Although the villages along Kwamtoro road had a greater variation of commodities being transported, these were in smaller quantities, as they were usually carried by individual villagers walking to the nearest villages. Along the best roads with better transportation, fewer types of commodities, but in larger quantities, were carried on buses and lorries, and thus, even to some remote villages. There was also a significant movement of grain from Kondoa to the closer sorounding villages, even during the harvesting season (Table 5:35). As around Dodoma regional centre, the villages closer to Kondoa tend to specialise in the production of perishables, like milk and vegetables, which can be sold in the relatively close urban market quickly, and

with higher income returns. In addition, the villagers in the closest villages are also more likely to have alternative employment in the urban centre, and so are not fully engaged in agricultural production for their own food requirements. In such a situation, there is a greater dependence on food supplies from Kondoa.

**Table 5:33**

Commodities Entering Kondoa District Centre From Villages On Sample Day  
Villages Classified By Distance - Dry Season

Type	Unit	Quantity	From
Charcoal	Sacks	22	Closest D. Villages
Cereals / Grain	Tins	446	"
Local Brew	Litres	400	"
Oilseeds	Tins	1	"
Vegetables	Bags	6	"
Honey	Tins	1	Average Dist. Villages
Charcoal	Sacks	12	"
Cereals / Grain	Tins	1,227	"
Oilseeds	Tins	360	"
Cereals / Grain	Tins	492	Remote Dist. Villages
Wax	Sacks	2	"
Oilseeds	Tins	780	"
Petrol / Oils	Litres	100	"
Potatoes / Cassava	Sacks	2	"

**Table 5:34**

Commodities Entering Kondo District Centre From Villages On Sampled Day  
 Villages Classified By Distance - Wet Season

Type	Unit	Quantity	From
Cereals / Grain	Tins	44	Closest Distance Villages
Charcoal	Sacks	23	"
Empty Barrels	Unit	1	"
Wood Blocks	Pieces	23	"
Cement	Bags	14	"
Milk	Litres	15	"
Animals	Heads	4	"
Used Clothes	Bales	26	"
Shoes	Pairs	200	"
Drinks - Soda	Crates	576	"
Chickens	Chickens	40	"
Fish	Pieces	2,000	"
Empty Barrels	Units	4	Average Dist. Villages
Empty Bottles	Crates	196	"
Cereals / Grain	Tins	17	"
Charcoal	Sacks	6	"
Vegetables	Bags	1	"
Fruits	Sacks	6	"
Cereals / Grain	Tins	477	Remote Dist. Villages

**Table 5:35**

Commodities Leaving Kondoa District Centre To Villages On Sample Day  
Villages Classified By Distance - Dry Season

Type	Unit	Quantity	To
Empty Sacks	Units	100	Closest Dist. Villages
Soap	Bars	3	"
Fish	Pieces	6,000	"
Cooking Oil	Litres	87	"
Cereals / Grain	Tins	652	"
Petrol / Oils	Litres	16	"
Sugar	Kg	7	"
Plastic Buckets	Pieces	1	"
Empty Containers	Units	2	"
Salt	Bags	1	"
Match Boxes	Cartons	4	"
Flued Tobacco	Sacks	1	Average Dist. Villages
Empty sacks	Units	60	"
Empty Containers	Units	15	"
Cereals / Grain	Tins	3	"
Vegetables	Bags	3	"
Plastic Buckets	Pieces	2	"
Petrol / Oils	Litres	1	Remote Dist. Villages
Cereals / Grains	Tins	72	"
Empty Sacks	Units	350	"
Used Clothes	Bales	148	"
Soap	Bars	100	"
Plastic Buckets	Pieces	20	"
Sugar	Kg	50	"
Furniture	Pieces	7	"
Building Materials	Assortments	200	"

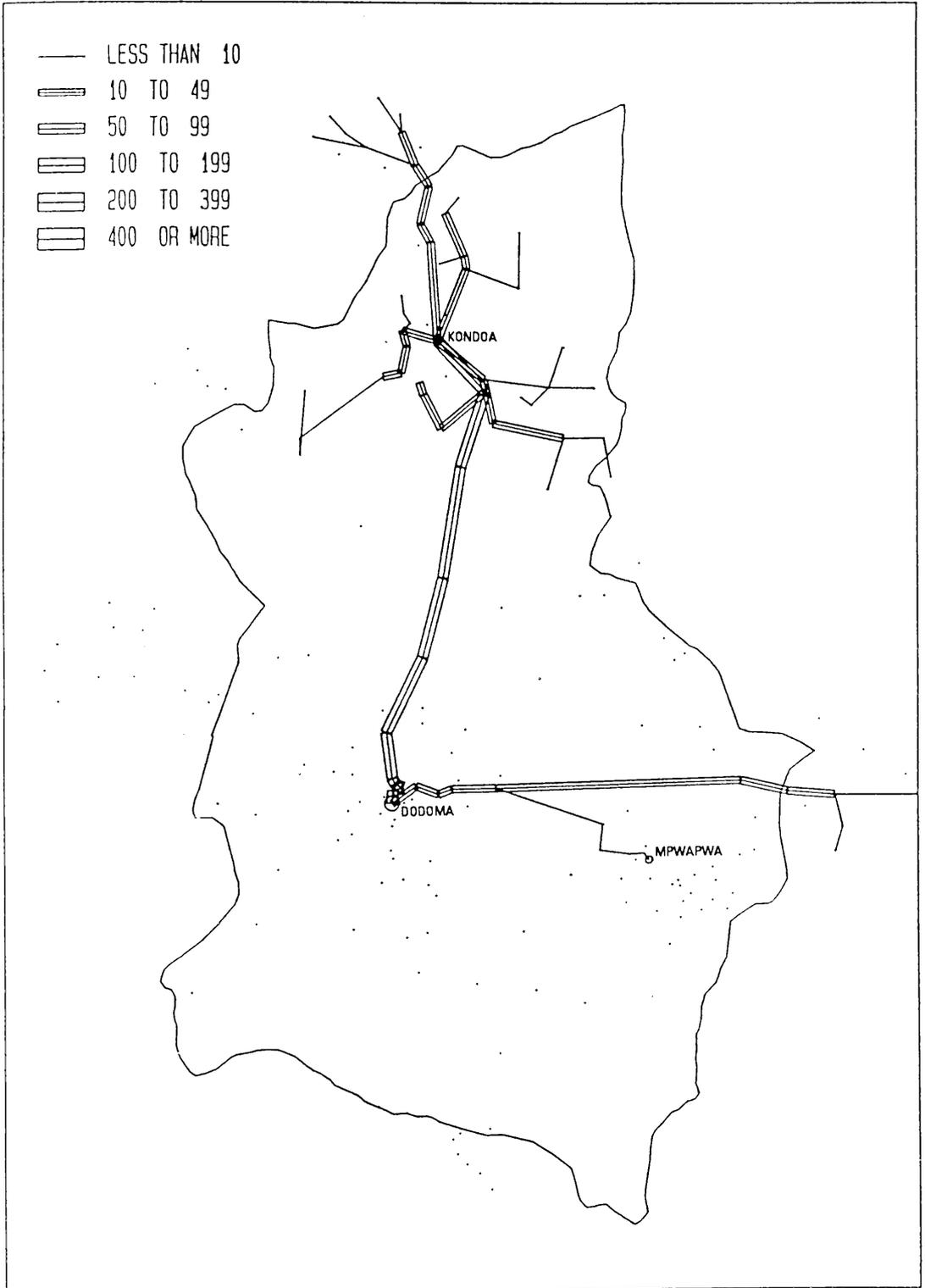
**Table 5:36**

Commodities Leaving Kondoa District Centre To Villages On Sample Day  
 Villages Classified By Distance - Wet Season

Type	Unit	Quantity	To
Cereals / Grain	Tins	22	Closest Dist. Villages
Agricultural Inputs	Bags	10	"
Furniture	Pieces	1	"
Fish	Pieces	4,000	"
Used Clothes	Bales	35	"
Drinks	Crates	360	"
Soap	Bars	100	"
Shoes	Pairs	150	"
Plastic Buckets	Pieces	48	"
Books / Papers	Boxes	2	"
Foam Matress	Pieces	5	"
Flour	Tins	70	"
Drinks	Crates	96	Average Dist. Villages
Sugar	Kg	140	"
Salt	Kg	150	"
Petrol / Oils	Litres	460	"
Cereals / Grain	Tins	10	"
Used Clothes	Bales	1	"
Caustic Soda	Bags	1	"
Books / Paper	Boxes	20	"
Cement	Bags	5	"
Wood Blocks	Pieces	62	"
Corrugated Iron Sheets	Pieces	30	"
Agricultural Inputs	Bags	1	"
Chip Boards	Pieces	1	"
Iron Nails	Kg	10	"
Sugar	Kg	300	Remote Dist. Villages
Petrol / Oils	Litres	20	"
Cereals / Grain	Tins	24	"
Agricultural Machines	Units	10	"
Tree Seedling	Seedlings	1,000	"

It has been observed that some remote villages, especially those closer to other urban centres, such as those along Arusha, Dodoma and Kwamtoro roads, tend to be linked with these other centres rather than Kondoia district centre. The remote villages along Kwamtoro and Dodoma roads are linked more to Dodoma centre than Kondoia centre. There are more and better transport connections between Kwamtoro and Dodoma, than between Kwamtoro and Kondoia Centre (Map 4:5 and 5:3). The remote villages along Arusha road are better linked with the outside centres in Arusha region. Among the remote villages, only those along Mondo road are linked to Kondoia District centre, as these villages have no real alternative urban centres. Clearly although the districts and villages in the districts function together administratively, the pattern of economic links are quite different. This raises the question as to whether the present administrative regions and districts in Dodoma specifically, and Tanzania more generally, are the most appropriate, given these spatial economic relationships.

Map 5 : 3 Volume of Traffic Entering and Leaving Kondoa Centre  
On Sample Days: Cumulative Flows



#### **5.4.2 Commodity Flow Links Between Mpwapwa Urban Centre and Villages In its Hinterland**

There was some movement of agricultural products from the villages to Mpwapwa urban centre. These included grain, fruits, vegetables, milk, sweet potatoes, cassava, animals, chickens, skins and fuel (Tables 5:37 and 5:38), and most of these commodities came from closest villages, especially along Mlali road. Very little comes to Mpwapwa centre from villages along the Dodoma/Dar-es-Salaam road. All the perishables, and in particular milk, came from the villages along Mlali road. This is slightly different from the situation around Dodoma regional centre, but similar to that observed around Kondoa district centre. Mlali road is of poor quality when compared to the Dodoma/Dar-es-Salaam road, but the closer villages along Mlali road, as with the closer villages along Kwamtoro road from Kondoa, supply the highly perishable products to Mpwapwa. This does not refute the importance of efficient and fast transportation of perishables to the market centres, but only emphasises the greater role of distance to the market, and in particular to Third World conditions. In Third World countries, transport is not always readily available, and, where it is available, it is not always very efficient. In such a situation, proximity, in terms of walking time, is a critical factor in the location of agricultural production, and especially so with highly perishable commodities, regardless of road condition. More settlements are concentrated on Mlali road and these are very close to the urban centre. Hence, people can walk from the closer villages to the urban centres (Map 3:2). This is not the case with the villages along the Dodoma/Dar-es-Salaam road.

**Table 5:37**

Commodities Entering Mpwapwa District Centre From Villages On Sample Day  
 Villages Classified By Distance - Dry Season

Type	Unit	Quantity	From
Charcoal	Sacks	57	Closest Dist. Villages
Potatoes / Cassava	Sacks	4	"
Baobab Fruits	Sacks	6	"
Fruits	Sacks	3	"
Cereals / Grain	Tins	247	"
Oilseeds	Tins	9	"
Vegetables	Bags	4	"
Agricultural Machines	Unit	1	"
Vegetables	Bags	313	Average Dist. Villages
Cereals / Grain	Tins	311	"
Charcoal	Sacks	7	"
Milk	Litres	2	"
Honey	Tins	1	Remote Dist. Villages
Oilseeds	Tins	4	"
Cereals / Grain	Tins	60	"
Charcoal	Sacks	4	"
Eggs	Eggs	25	"

**Table 5:38**

Commodities Entering Mpwapwa District Centre From Villages On Sample Day  
 Villages Classified By Distance - Wet Season

Type	Unit	Quantity	From
Cereals / Grain	Tins	55	Closest Dist. Villages
Skins	Pieces	13	"
Milk	Litres	55	"
Fruits	Sacks	25	"
Animals	Heads	9	"
Charcoal	Sacks	21	"
Vegetables	Bags	14	"
Chickens	Chickens	7	"
Potatoes / Cassava	Sacks	2	"
Cereals / Grain	Tins	12	Average Dist. Villages
Potatoes / Cassava	Sacks	2	"
Flued Tobacco	Sacks	1	"
Charcoal	Sacks	1	"
Cereals / Grain	Tins	7	Remote Dist. Villages
Vegetables	Bags	1	"
Animals	Heads	5	"
Charcoal	Sacks	10	"

The villages along the Dodoma/Dar-es-Salaam road can take their goods either to Kongwa, a lower-order centre than Mpwapwa, but closer to these villages, or to Dodoma regional centre, or even other higher-order urban centres outside the region. This again questions the efficiency of Mpwapwa district, and its villages, as an economic functional unit, as most villages, do not function economically with their district urban centre of Mpwapwa.

Besides the incoming commodities, there is also a movement of commodities from Mpwapwa urban centre to its hinterland villages (Tables 5:39 and 5:40). These included petroleum products, and in particular kerosene, salt, soft drinks, soap, sugar, shoes, cooking oils, some cereals and fruits. There was a lot of drinking water carried from the urban centre to the villages, especially in the dry season. These commodities went to all three types of the closest, average and remote distance villages along Mlali road, but along the Dodoma/Dar-es-Salaam road, commodities went only to the closest and average distance villages. This confirms further that these remote villages along this road are more closely linked to Dodoma regional centre, Dar-es-Salaam or other outside centres such as Morogoro and Tanga.

When the analysis of commodity counts for Mpwapwa centre is separated between the two main climatic seasons, much more interesting results are observed compared to either Dodoma or Kondoa centres. This is mainly because the impact of the wet season on the physical linkages is much more pronounced in Mpwapwa than elsewhere in the region. During the wet season, communication is almost totally cut, not only between Mpwapwa centre and other centres, but also between the centre and its own villages. This is reflected markedly, in the movement of commodities; in the dry season, 618 tins of grain, 9 tins of oilseeds, 317 sacks of vegetables, 3 bags of fruits and 68 sacks of charcoal moved from villages to the urban centre, but in the wet season, this was reduced to only 74 tins of grain, 15 sacks of vegetables, 32 sacks of charcoal, 55 litres of milk, 25 bags of fruits and 14 live cows. The same situation applies to goods moving from the urban centre to the villages.

**Table 5:39**

Commodities Leaving Mpwapwa District Centre For Villages On Sample Day  
 Villages Classified By Distance - Dry Season

Type	Unit	Quantity	To
Water	Litres	1,940	Closest Dist. Villages
Cereals / Grain	Tins	239	"
Petrol / Oils	Litres	124	"
Salt	Bags	1	"
Soap	Bars	25	"
Cooking Oil	Litres	40	"
Tea Leaves	Cartons	1	"
Empty Bottles	Crates	122	"
Fruits	Sacks	40	"
Cigarettes	Cartons	1	"
Drinks	Crates	24	"
Water	Litres	60	Average Dist. Villages
Cereals / Grain	Tins	85	"
Shoes	Pairs	120	"
Salt	Bags	1	"
Petrol / Oils	Litres	750	"
Foam Matress	Pieces	1	"
Water	Litres	140	Remote Dist. Villages
Drinks	Crates	97	"
Salt	Bags	3	"
Petrol / Oils	Litres	280	"
Soap	Bars	125	"
Cereals / Grain	Tins	56	"

**Table 5:40**

Commodities Leaving Mpwapwa District Centre For Villages On Sample Day  
Villages Classified By Distance - Wet Season

Type	Unit	Quantity	To
Cereals / Grain	Tins	124	Closest Distance Villages
Animals	Heads	1	"
Salt	Bags	1	"
-	-	-	Average Dist. Villages
Petrol / Oils	Litres	20	Remote Distance Villages
Cereals / Grain	Tins	16	"
Animals	Heads	12	"
Sugar	Kg	100	"

In addition to the physical limitations of poor roads and inadequate means of transport in the wet season, there are also seasonal variations in agricultural production, with most of the products being harvested in the dry season. Hence, villagers have an income with which to purchase other commodities from urban centres and villages, and so the volume of commodities being moved up and down the urban hierarchy increases during the dry or harvesting season.

## 5:5 Summary

In terms of movement of commodities, strong economic linkages exist between Dodoma regional centre and Dar-es-Salaam city, with less well-developed links with other regional centres in Tanzania. Generally, the linkages are stronger with the industrial growth centres, and in particular Arusha, Morogoro and to a lesser extent Tanga, Mbeya and Mwanza. Transit goods, (mostly manufactured and imported) from Dar-es-Salaam to the western centres and the neighbouring countries on the western side of the country are also significant. Besides soft drinks, few other manufactured goods originate from Dodoma bound for other regions, indeed, the region supplied mostly agricultural products like grain and oilseeds, and mainly during the harvesting season. More commodities entered Dodoma centre than went out to other regions, reflecting Dodoma centres' weak position as an industrial growth centre as compared to the other national growth centres, and in particular, Dar-es-Salaam. The national policy of decentralising industries away from the traditional areas of the coast and northern centres to the other growth and regional centres has not been successful as exemplified by Dodoma, despite its central location in the country with communication links with other growth and regional centres.

The effect of climate on economic activities and the motorability of the roads and transport links is also reflected in the movement of commodities. In the wet season, local supplies are limited and Dodoma region heavily depends on supplies from other regions. These economic links are stronger with Arusha and Morogoro regions, both higher productive capacities and better developed transport links with Dodoma. In the dry season, local supply improves, but supplies from other regions are still nevertheless important. During this time period, economic links become a little stronger with the southern and western centres, reflecting the improved motorability of the roads and hence transport links.

Vertical economic links seem to be stronger than horizontal links, and both types of link tend to weaken at lower levels of the urban hierarchy. At these lower levels, economic links are mainly maintained by institutional marketing channels, although with increased trade liberalisation, Dodoma centre's economic links with other centres in the region might be seriously weakened, thus reducing the centre's role as a regional centre. Currently, although the regional and district centres and villages function together administratively, they do not do so economically, raising questions as to whether the present administrative structures are the most appropriate given the prevailing spatial economic linkages.

There is a sharp distance decay in terms of economic links between the urban centres and villages in their hinterlands. Accessibility to the urban markets is seen as a basic factor for the further commercialisation and development of agriculture. Economic links are stronger with those villages closest to the urban centres, or linked to the urban centres by higher quality roads and transport. Given transport problems in the region, distance to the urban centres plays a greater role in forging stonger economic linkages between the urban centres and villages in their hinterlands.

## Chapter 6

### Market Survey in Dodoma Region

#### 6.1. The Markets and Market Channels

##### 6.1.1 Types of Markets

In Dodoma's regional and district centres, there are centrally located markets operating every day. These sell vegetables, fruits, cereals, grain, fish and meat, and also manufactured and processed and semi-processed products such as salt, sugar, soap, cooking oil, carrier and storage bags. Parallel to these markets are cattle markets, dealing mostly with animals and animal products, although some traders come to these markets to sell consumer goods, processed and unprocessed agricultural products, textiles, smoked fish, fruits, and drinks. These are located in most regional and district centres, and in particular those areas where livestock keeping and marketing is common, and operate mostly on only one day of the week. Below the district level are village markets, most of which are cattle or grain markets. These markets usually operate on one day each month, and often constitute the main centre for the supply of rural needs, such as textiles, and other basic needs like salt, sugar, cooking oil, smoked fish and meat. Most villagers, especially those in remote villages, depend on these markets for all their supplies.

In this study, the analysis is limited to the regional and district market towns of Dodoma region. It was not possible to cover in detail the periodic village livestock markets. First, resources in terms of time and finance were limited to the researcher. Besides this, it was difficult to plan to visit these markets as they are run on only one day of the month, and the days and dates are very localised and differ from village to

village. The situation was further complicated by the fact that some groups of villages shared one such market; information on the days and dates for particular village market days, as well as which group of villages shared which particular market location, was also not readily available. However, an overview of these markets was obtained by observations on three of such markets, namely, Hombolo in Dodoma district, Nghambi in Mpwapwa district and Mondo in Kondoa district.

### 6.1.2 Types of Traders

The nature of the traders also differ with the market types. The permanent markets, are dominated by traders stationed permanently at one point within a fixed infrastructure. In village markets, and in particular with livestock markets, there is no permanent infrastructure, and so traders are more itinerant.

In the daily central markets, the mobility of traders from one market to another selling commodities is very limited; the majority of traders ( 87.9 per cent ) operated only in the markets in which they were found during the time of survey (Table 6:1). For those selling in other markets, most used only a small stall located in residential areas, selling items like tomatoes, onions, and some fruits and smoked fish sometimes. The volumes were usually very small (Table 6:2). In Dodoma region's central markets, most trade is dominated by traders whose sole occupation is either only trading (44.3 per cent ) or combined farming and trading (43.1 per cent ); very few (12.6 per cent ) were purely farmers or producers coming to the market to sell their products directly (Table 6:3). This is supported by the fact that the majority (77.6 per cent) of the traders interviewed had not themselves produced what they were selling, but had purchased from a third party (Table 6:4).

From this it can be concluded that Dodoma region's central markets are not places where the majority of the rural farmers come into direct contact with the market in exchange. There are few rural producers, mostly those living closer to the centres, who come to these central markets to exchange their products themselves for other desired goods.

**Table 6:1**  
Dodoma Region's Central Markets: Traders' Locations

Selling Markets / Where Found	Dodoma		Kondoa		Mpwapwa		Total	
	No.	%	No.	%	No.	%	No.	%
Present Market Only	62	83.8	51	91.1	40	90.9	153	87.9
Sell In Other Markets Also	12	16.2	3	5.4	4	9.1	19	10.9
Not Indicated	-	-	2	3.6	-	-	2	1.2
<b>Total</b>	<b>74</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>44</b>	<b>100.0</b>	<b>174</b>	<b>100.0</b>

**Table 6:2**  
Dodoma Region's Central Markets: Location Of Other Selling Places

Selling Markets / Market Found	Dodoma		Kondoa		Mpwapwa		Total	
	No.	%	No.	%	No.	%	No.	%
Present Market Only	62	83.8	51	91.1	40	90.9	153	87.9
Markets Outside Region	1	1.4	2	3.6	1	2.3	4	2.3
Small Stalls In District	11	14.9	1	1.8	3	6.8	15	8.6
Not Indicated	-	-	2	3.6	-	-	2	1.2
<b>Total</b>	<b>74</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>44</b>	<b>100.0</b>	<b>174</b>	<b>100.0</b>

**Table 6:3**

Dodoma Region's Markets: Main Occupation Of Traders

Selling Market / Occupation	Dodoma Regional		Kondoa District		Mpwapwa District		Total	
	No.	%	No.	%	No.	%	No.	%
Farmer Only	1	1.4	3	5.4	18	40.9	22	12.6
Trader Only	51	68.9	13	23.2	13	29.5	77	44.3
Trader/Farmer	22	29.8	40	71.5	13	29.5	75	43.1
<b>Total</b>	<b>74</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>44</b>	<b>100.0</b>	<b>174</b>	<b>100.0</b>

**Table 6:4**

Dodoma Region's Central Markets: Procurement of Commodities by Traders

Selling Market / Procurement	Dodoma Regional		Kondoa District		Mpwapwa District		Total	
	No.	%	No.	%	No.	%	No.	%
Produced	10	13.5	25	44.6	1	2.3	36	20.7
Purchased	63	85.1	29	51.8	43	97.7	135	77.6
Not Indicated	1	1.4	2	3.6	-	-	3	1.7
<b>Total</b>	<b>74</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>44</b>	<b>100.0</b>	<b>174</b>	<b>100.0</b>

### 6.1.3 Marketing Channels

Commodities are generally sold in small quantities on a retail basis, and it is possible that the commodities sold have gone through many hands before they eventually reach the final consumer. Very few of the traders were selling what they had produced themselves; of the 77.6 per cent of the traders who had purchased the commodities from other sources, 40.9 per cent had purchased them from producers directly, and an

equally significant percentage (36.6 per cent) had purchased the commodities being sold from other traders (Tables 6:5). Moreover, although most customers were consumers (69 per cent), a significant percentage were themselves traders who were going to resell the commodities (Table 6:6). Such marketing links are likely to result in higher handling costs, as each person in the link is trying to make some profit. Due to limited marketing outlets in the rural areas, farmers do not have strong bargaining powers, and have to take prices offered by traders even where they are very low. Such a market system is likely to be very inefficient and it is feared that it does not benefit the producer nor the consumer. If this is the case then, the marketing system is not likely to stimulate the development of the region nor the nation at large.

**Table 6:5**  
Dodoma Region's Central Markets: Source of Traders' Goods

Markets Purchased From	Dodoma Regional		Kondoa District		Mpwapwa District		Total	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	10	8.1	13	12.7	3	3.2	26	8.1
Not Purchased	11	8.9	29	28.4	6	6.4	46	14.4
Producers	54	43.5	42	41.2	35	37.2	131	40.9
Other Traders	49	39.5	18	17.7	50	53.2	117	36.6
<b>Total Commod.</b>	<b>124</b>	<b>100.0</b>	<b>102</b>	<b>100.0</b>	<b>94</b>	<b>100.0</b>	<b>320</b>	<b>100.0</b>

**Table 6:6**

Dodoma Region's Central Markets: Types Of Customers

Customers / Market	Dodoma		Kondoa		Mpwapwa		Total	
	No.	%	No.	%	No.	%	No.	%
Consumers	39	52.7	44	78.6	37	84.1	120	69.0
Smaller Traders	32	43.2	11	19.6	6	13.6	49	28.2
Bigger Traders	2	2.7	-	-	-	-	2	1.1
Not Indicated	1	1.4	1	1.8	1	2.3	3	1.7
Total No. Traders	74	100.0	56	100.0	44	100.0	174	100.0

## 6.2 Dodoma Central Market as a Regional Market

### 6.2.1 Inter-Regional Market Links

Commodities in Dodoma market were supplied mainly from Dar-es-Salaam, Morogoro, Arusha, Mbeya, Iringa, Singida, Mwanza, Kigoma and Shinyanga. There were also local supplies especially in grain and cereals, vegetables, root crops, fish and chickens (Table 6:7 and Figure 6:1). Differences in the strengths of the economic linkages between Dodoma regional centre and other regional centres, especially between the wet and dry seasons, is also reflected in the market survey. In the wet season, the supply of commodities was very limited in the markets. Most stalls were empty or had small quantities of a few items only. Most commodities still came from outside centres, notably Iringa (17.3 per cent), Morogoro (11.5 per cent), Tanga (3.9 per cent) and Mbeya (3.9 per cent) (Table 6:8 and Figure 6:2). Fewer commodities came from the western centres of Singida or Mwanza, and those which did were generally commodities like smoked fish, groundnuts, onions and dry sardines, items

which might have been supplied the previous dry season before the rains isolated these centres from the central and coastal centres (Table 6:9).

During the wet season in 1989, the direct road link between the Southern Centres and Dodoma Centre was totally closed, and goods had to be rerouted through Morogoro, a much longer and more expensive route. As a result, goods from the southern centres still found their way into Dodoma regional market centre at this time of the year, despite the greater expense involved. Given the greater distances from the southern centres to the main Dar-es-Salaam market, the southern centres cannot compete well with other highland areas as Lushoto and Moshi, and in particular from Morogoro which is very close to Dar-es-Salaam, in the supply of commodities such as vegetables. Consequently, Dodoma regional centre is a more viable market for southern centres, especially for vegetables.

Harvesting of most crops grown in Dodoma region takes place in the dry season. Yet, the supply of agricultural products from outside the region is still important (50.7 per cent) (Table 6.9 and Figure 6:3). There are greater varieties and volumes of commodities at this time of year, and most stalls are full. The supply of agricultural commodities from the coastal and southern centres still prevails. Interestingly, despite the good road link with the northern centres, none of the traders in Dodoma regional centre market indicated having purchased the commodities being sold directly from the northern centres. However, this does not mean that no commodities from northern centres are sold on the markets in Dodoma regional centre, especially as the commodity counts survey in Chapter 5 indicated a very heavy movement of commodities from northern centres, and, in particular, from Arusha to Dodoma regional centre. The difference can be explained by the types of traders who brought the commodities to Dodoma centre. Trade in grain between the Dodoma and Arusha centres is dominated by big traders, producing companies and village cooperatives, all of whom have their own means of transport and use it in moving the products for sale

in Dodoma regional centre. Here, they sell to other trading organisations, wholesalers or individual traders. As public transport connections between these centres are weakly established, it is not easy for individual small traders from Dodoma to travel and purchase directly from Arusha, for example. It is the same for other inter-regional linkages, although perhaps not as marked. Consequently, some commodities sold in Dodoma's regional market, even originating from the northern centres, might not be indicated as having been bought there, as traders selling commodities in the markets were asked to indicate the place where they had personally purchased the commodities they were selling.

During the dry season, there were a greater proportion of commodities (20.3 per cent) from the western centres, compared with the wet season with only 7.7 per cent. This is a reflection of improved physical links between the outside centres and Dodoma centre as the roads become passable again. The results of the market survey confirm further that the existence and strengths of physical links, in terms of transportation, influence the existence and strengths of economic market links between centres. To a great extent, therefore, economic links are a function of physical distances, the availability of bus, lorry and train connections, and the condition or motorability of the roads in all seasons.

**Table 6:7**  
**Dodoma Regional Central Market**  
**Places Traders Purchased Commodities Found Selling**

Place / Type	Cereal/ Grain	Vege- tables	Fruits	Root Crops	Oil Seed	Chic- ken	Fish	Sugar Soap	Cook Oil	Herbs	Total
Dar-es-Salaam	-	-	5.9	-	-	-	-	-	-	-	0.8
Morogoro	4.2	5.3	47.0	-	-	-	-	20.0	-	-	10.0
Tanga	-	-	-	-	25.0	-	-	-	-	100.0	1.6
Iringa	20.8	31.6	-	21.4	-	-	-	-	-	-	16.5
Mbeya	4.2	-	-	35.7	-	-	-	-	-	-	5.0
Singida	4.2	7.9	-	14.3	-	-	-	-	-	-	5.0
Mwanza	-	-	-	-	-	-	45.4	-	-	-	4.1
Kigoma	4.2	-	-	-	25.0	-	27.3	-	50.0	-	5.0
Shinyanga	4.2	-	-	-	-	-	-	-	-	-	0.8
Dodoma Centre	16.6	2.6	-	-	-	20.0	9.1	20.0	50.0	-	7.4
Villages	16.6	36.8	35.3	14.3	-	80.0	18.2	20.0	-	-	27.3
Kondoa	25.0	-	-	-	25.0	-	-	-	-	-	5.8
Mpwapwa	-	-	-	-	-	-	-	-	-	-	-
Not Indicated	-	7.9	-	-	-	-	-	-	-	-	2.5
Not Purchased	-	7.9	11.8	14.3	25.0	-	-	40.0	-	-	8.2
<b>Total Percentage</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

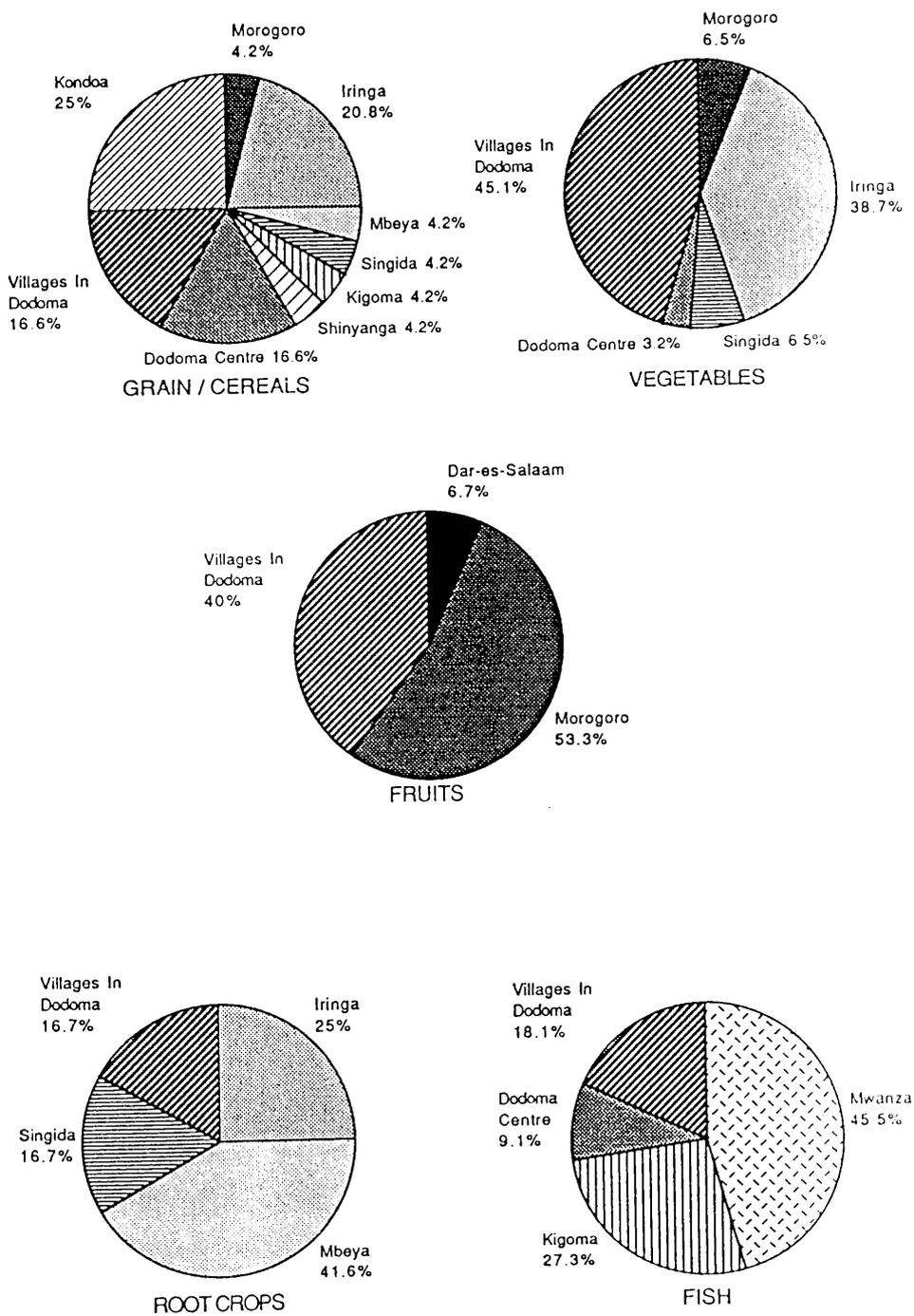


Figure 6.1 Places Traders Purchased Main Commodities Found Selling.

**Table 6:8**

Dodoma Regional Central Market

Places Traders Purchased Commodities Found Selling - Dry Season

Place / Type	Cereal / Grain	Vege- tables	Fruits	Root Crops	Oil Seeds	Chic ken	Fish	Sugar Soap	Cook Oil	Herbs	Total
Dar-es-Salaam	-	-	-	-	-	-	-	-	-	-	-
Morogoro	-	-	46.2	-	-	-	-	-	-	-	8.7
Tanga	-	-	-	-	-	-	-	-	-	-	-
Iringa	27.3	38.1	-	-	-	-	-	-	-	-	15.9
Mbeya	9.1	-	-	37.5	-	-	-	-	-	-	5.8
Singida	9.1	9.5	-	25.0	-	-	-	-	-	-	7.3
Mwanza	-	-	-	-	-	-	42.9	-	-	-	4.3
Kigoma	9.1	-	-	-	-	-	42.9	-	-	-	7.3
Shinyanga	9.1	-	-	-	-	-	-	-	-	-	1.4
Dodoma centre	-	-	-	-	-	33.3	-	-	-	-	1.4
Villages	27.3	23.8	38.4	12.5	-	66.7	14.2	33.3	-	-	26.1
Konoda	9.1	-	-	-	50.0	-	-	-	-	-	3.0
Mpwapwa	-	-	-	-	-	-	-	-	-	-	-
Not Indicated	-	14.3	-	-	-	-	-	-	-	-	4.3
Not Purchased	-	14.3	15.4	25.0	50.0	-	-	66.7	-	-	14.5
<b>Total Percentage</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>-</b>	<b>100.0</b>

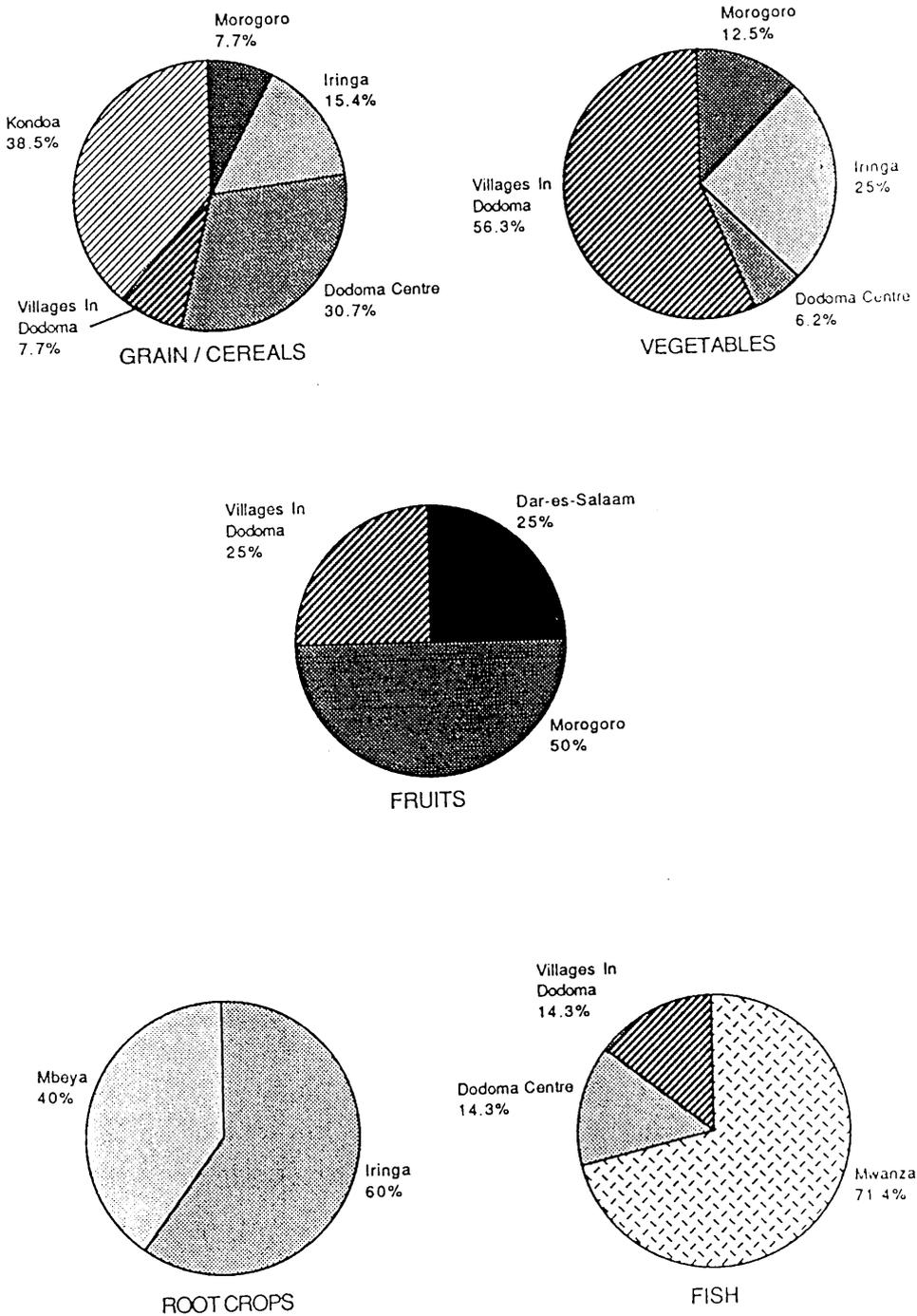


Figure 6.2 Places Traders Purchased Main Comodities Found Selling: Wet Season Only

Table 6:9

Dodoma Regional Central Market

Places Traders Purchased Commodities Found Selling - Wet Season

Place / Type	Cereal/ Grain	Vege- tables	Fruits	Root Crop	Oil	Chic- kens	Fish	Sugar Soap	Cook Oil	Herbs	Total
Dar-es-Salaam	-	-	25.0	-	-	-	-	-	-	-	1.9
Morogoro	7.7	11.8	50.0	-	-	-	-	50.0	-	-	11.5
Tanga	-	-	-	-	50.0	-	-	-	-	100.0	3.9
Iringa	15.4	23.5	-	50.0	-	-	-	-	-	-	17.3
Mbeya	-	-	-	33.3	-	-	-	-	-	-	3.9
Singida	-	5.9	-	-	-	-	-	-	-	-	1.9
Mwanza	-	-	-	-	-	-	50.0	-	-	-	3.8
Kigoma	-	-	-	-	50.0	-	-	-	-	-	1.9
Shinyanga	-	-	-	-	-	-	-	-	-	-	-
Dodoma Centre	30.8	5.9	-	-	-	-	25.0	50.0	100.0	-	15.4
Konoda	38.4	-	-	-	-	-	-	-	-	-	9.6
Mpwapwa	-	-	-	-	-	-	-	-	-	-	-
Total Percentage	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

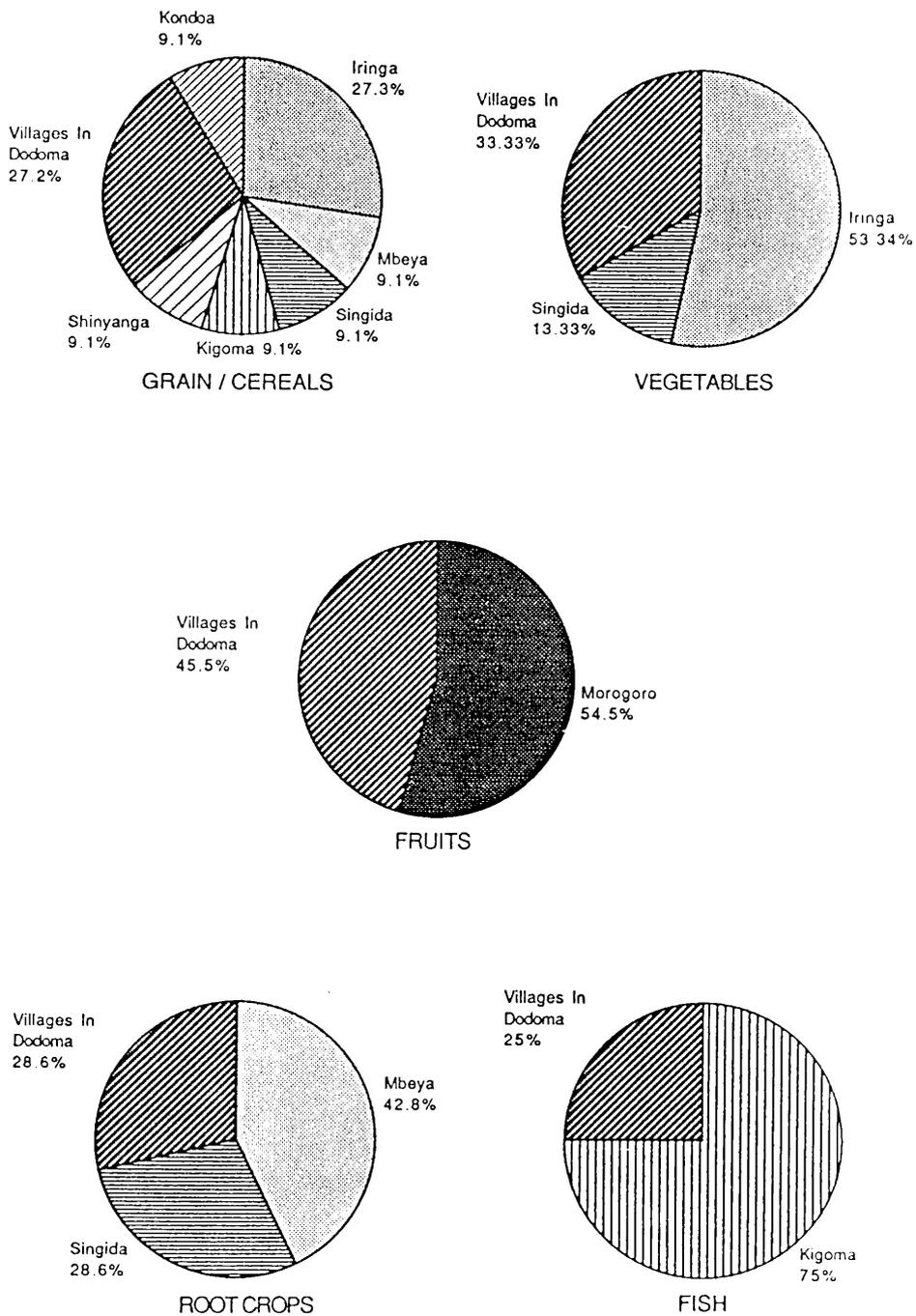


Figure 6.3 Places Traders Purchased Main Comodities Found Selling: Dry Season Only

## 6.2.2 The Supply of Commodities in Dodoma Regional Market From Other Centres

Commodities sold in Dodoma Central market are sold by traders, who, in most cases, purchase the commodities from either institutions or wholesale private or individual traders in Dodoma regional centre. Some traders purchase commodities directly from either villagers or fisherman in villages around Dodoma centre. A few other traders even go out of the region to other regional centres, such as Dar-es-Salaam, Morogoro, Tanga, Iringa, Mbeya, Singida, Mwanza, Kigoma and Shinyanga, to purchase particular commodities such as grain, vegetables, fruits, root crops, fish and cooking oil (Table 6:7). Grains and cereals sold in the market are mostly from Kondoa, a lower order centre, although some are from Iringa regional centre in the south. Few traders purchase grain and cereals from wholesalers in Dodoma centre, or from villages around Dodoma centre. Still fewer purchase them from Mbeya, Morogoro, Kigoma, Shinyanga and Singida centres (Table 6:7 and Figure 6:1).

Oilseeds are purchased from Tanga (coconuts), and Kigoma and Kondoa (groundnuts). This is interesting as the region itself produces large quantities of oilseeds, and in particular groundnuts, but still imports oilseeds, even though groundnuts from outside the region are mostly large and of a lower fat content. Dodoma groundnuts, however, sell better in the streets of urban centres, and in particular Dar-es-Salaam, the main market. Dodoma groundnuts are good for local roasting and packing in small packets for selling in streets and fetch better prices than the large ones, which are less attractive and less tasty after roasting. Consequently, many Dodoma farmers prefer to sell all their good quality groundnuts, and buy in coconuts for their cooking requirements. Coconuts from Tanga are not very expensive, and are particularly important during the wet/planting season when local supplies of groundnuts are exhausted and more expensive. This increases demand for

coconuts in the region, while much of local groundnut production is sold in higher urban centres for higher returns. Groundnuts from Kigoma are supplied more to Dodoma central market in the wet or lean seasons. In the dry season, after harvesting their own groundnuts, few traders purchase oilseeds from outside the region, and some farmers offer their groundnuts themselves on the market to consumers (Tables 6:8 and 6:9).

Fish are purchased mostly from Kigoma (sardines) and Mwanza (smoked fish). Fewer traders purchase from villages in Dodoma region, and in particular, from Mtera Dam on the border with Iringa region, although in the wet season, when the physical link with western centres is frequently broken, local supply areas can become relatively more important. Vegetables, as highly perishable commodities, are purchased mostly from villages near Dodoma regional centre, especially in the wet season. Significant number of traders (31.6 per cent) purchase from as far as Iringa (Table 6:7). There are even fewer traders who purchase from Singida (7.9 per cent) and Morogoro (5.3 per cent) (Table 6:7 and Figure 6:1).

It is interesting the way vegetables are purchased from as far away as Iringa and in both the wet and dry seasons, despite transport problems during the wet season. This is because Dodoma regional centre is one of the main markets for vegetables from the southern centres. In Dar-es-Salaam, the main national market, Iringa supplies have to compete with supplies from Lushoto, Moshi and Morogoro. Taking tomatoes as an example, the main suppliers in the Dar-es-Salaam market are Lushoto (39.4 per cent), Iringa (31.7 per cent), Morogoro (27.9 per cent), Moshi and Dodoma (1 per cent), with Dodoma region supplying very small quantities. Each of the three main suppliers of tomatoes dominates the Dar-es-Salaam market at specific periods of the year in terms of volumes of tomatoes supplied. This is to avoid competition, to maintain constant supply, and because of climatic conditions, which favour the production of tomatoes at those specific times of the year in those areas. Iringa dominate in the May

to July period, with the peak being in June. Between October and February, however, there are virtually no local supplies of tomatoes in Dodoma, and thus it provides a potential market for other regions with surpluses at this time. During August to November, Iringa faces stiff competition in the Dar-es-salaam market, and so Iringa producers focus more sharply on the Dodoma market. Furthermore, Iringa produces vegetables, such as cabbages and green peas, which cannot be easily produced in Dodoma region, and also can withstand the long distance haulage. It should also be said that Iringa tomatoes are relatively small in size with hard, resilient skins, and so they are not easily destroyed in transport. Besides this, they can be kept longer in houses without refrigerators without being spoilt, and finally they have better colour results upon food on cooking. Many households thus prefer tomatoes from Iringa to those produced in Dodoma. Tomatoes produced in Dodoma are round and larger in size, with a delicate skin and are better for salads.

Fruits are purchased mostly from Morogoro (47 per cent), but a significant number of traders (35.3 per cent) purchase fruits from villages around Dodoma (Table 6:7). This results from specialisation in production owing to the differences in climate, most citrus fruit is produced along the coastal areas. Very few types of fruits are produced in Dodoma, the exceptions being pawpaws and grapes under irrigation (Table 6:7).

Root crops are mostly purchased from Mbeya (35.7 per cent) and Iringa (21.4 per cent), those being mainly Irish potatoes, which do not grow well in many parts of Dodoma due to drier climatic conditions. Other root crops from Dodoma and Singida regions include cassava and sweet potatoes. These are mostly seasonal and dominate the market in the dry season; in the wet season, the supply of Irish potatoes from Mbeya and Iringa dominates the market (Tables 6:8 and 6:9).

### **6.2.3 Market links Between Dodoma Regional Central Market And Villages in Its Hinterland.**

There is a steady supply of commodities from the villages closest to Dodoma regional market; 36.8 per cent of traders buy vegetables from those villages, and 80 per cent buy chickens and eggs, for example (Table 6:7). Most goods are purchased from the closest villages, and, in most cases, from the best roads in terms of road condition and availability of transport. Most of these commodities tend to be the more perishable like milk, vegetables and fruits. It seems from Table 6:10 that 33.4 per cent of the traders purchased commodities from villages within 35 kilometres of Dodoma centre, only 9.1 per cent from average distance villages, lying 35-90 kilometres from Dodoma centre, and none from remote distances of over 90 kilometres. Of the 30.3 per cent who had produced themselves the commodities they were now selling, came in general from the closer villages, from where they can walk to the market centre. As well as walking, it is also the case that the availability of transport is better between villages within 35 kilometres from Dodoma centre, than with more distant villages. Consequently, these villages have the advantage of stronger economic links. It should however be noted that 18.2 per cent of the traders did not indicate the names of villages from which they purchased the products, and these appear as villages not classified (Table 6:10). Based on these results, it can be seen that although an economic link exists between the Regional Central Market and villages in its hinterland in terms of commodities supplied to the market, the link is much stronger with the closest villages, so confirming a strong distance decay factor.

The economic links between the villages and Dodoma regional centre are relatively constant all the year round, although with slightly stronger links in the dry season. In the dry season, there are more grains and fruits, whilst in the wet season there are more vegetables. The lower supplies in the wet season can be explained by the fact

that the wet season coincides with the cultivation of most crops in the region, and so farmers in the villages have little to offer to the market at that time. Another possible explanation is that most of these roads are impassable during the wet season. Thus, the weaker physical linkage, as well as the low or non-availability of marketable commodities in the villages during the wet season, explains why only a few traders in the regional central market indicated that they bought commodities from villages around Dodoma during the wet season.

Given the importance of accessibility, it is not surprising that most traders purchase commodities from those villages closest to the Dodoma - Arusha and Dodoma - Dar-es-Salaam roads, as these are the best roads in term of motorability and all year round traffic. No traders, however, indicated that they had bought what they were now selling from villages along the Iringa road (Table 6:10). This is not only as a result of the poor physical links with villages along this road, but also because households along Iringa road have specialised in the production of low value grains like maize. Both Singida and Iringa roads are poor in terms of quality and of availability of transport, but commodities with high value, like rice, are purchased from as far away as 60 kilometres (on the Kintinku-Singida road for example) from the regional centre. On the other hand, products with a low value, like maize, are not purchased by traders directly from villagers along Iringa road. This confirms the importance of the value of products in terms of the impact of distance decay from the central market. This is further supported by the fact that no traders in the survey had indicated purchasing commodities from any of the remote villages, along either the Dar-es-Salaam or Arusha roads, even with the best transportation system. Not only do these villages have the option of selling by the roadside, they also have easier access to alternative markets in urban centres outside the region, but which are closer to them than regional market centre of Dodoma. These include Babati, along the Arusha road, and Arusha itself, and Gairo and Morogoro along the Dar-es-Salaam road.

**Table 6:10**

Dodoma Regional Centre Market: Origins of Commodities from Hinterland Villages

Village Group	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Not Purchased	6	40.0	4	22.2	10	30.3
Not Indicated	1	6.7	2	11.1	3	9.1
Close Distance -Dar-es-Salaam Rd.	1	6.7	3	16.7	4	12.1
Close Distance - Arusha Road	2	13.3	3	16.7	5	15.2
Close Distance - Singida Road	-	-	2	11.1	2	6.1
Average Distance - Singida Road	1	6.7	2	11.1	3	9.1
Villages Not Classified	4	26.6	2	11.1	6	18.2
<b>Total</b>	<b>15</b>	<b>100.0</b>	<b>18</b>	<b>100.0</b>	<b>33</b>	<b>100.0</b>

### 6.3 The District Markets.

The level of the district market centres is below that of the regional centre market in terms of size, range and volume of commodities offered for sale. As an example, there are fewer shops in the district centres selling consumer goods (84 in Kondoa and 72 in Mpwapwa districts), compared to Dodoma regional centre with 974 shops (compiled from trading licences issued 1988/89 year). Further, shops selling specialised goods such as spare parts for vehicles, pharmacies for medicine, book shops, photocopying services, electrical and construction equipment, whilst being available in the regional centre, are not available in the district centres. However, these district markets still operate on a daily basis, and the level of services in these markets is still high compared to that which exists in the lowest level of the village and their associated periodic markets. Periodic markets, like at Hombolo in Dodoma rural district, Nghambi in Mpwapwa and Mondo in Kondoa districts, are typically held once a month and are dominated by livestock sales and purchases, although meat, fish and some textiles are also traded. There are usually no other

services provided. These periodic markets are located within villages, and sometimes shared by two or more villages, and so, in terms of distance, periodic markets may be the most efficient place for rural villagers to interact in the market economy.

The main limitation of periodic markets at the village level is that they operate only once a month, and that they provide only a limited range of goods and services. This leaves the district markets, especially for grains, cereals, oilseeds, vegetables and fruits, as the main centre for commercial interaction. Unfortunately, given the low levels of accessibility of many villages to their district urban markets, most villages do not reach their full potential for economic exchange. The accessibility index for the villages has been calculated in terms of average straight-line distances from the villages to their district urban centre. The indices are 40 and 43 kilometres for Kondoa and Mpwapwa districts respectively. For the Dodoma urban and rural districts, the indices are 16 and 49 kilometres respectively to Dodoma centre.

The position of villages in Kondoa and Mpwapwa districts to the higher-order regional market of Dodoma centre is even worse, with indices of 137.5 and 92 kilometres for Kondoa and Mpwapwa respectively. The chances for farmers to participate fully in the market economy are further reduced by the fact that most of the crops produced in the region are sold through Village Cooperative Unions, and purchased only in the harvesting season. There is thus a gap between the time the farmer receives an income to spend, and the time commodities for purchase are available. It might be necessary to wait for a whole month for the next market day to purchase only a limited range of goods available in that periodic market. Thus, given the low accessibility of the urban centres, the limited range of goods available for purchase, and the time lapse between the time cash is available to the time it is possible to spend it, there is a disincentive for farmers to increase output or to commercialise their agricultural production.

The majority of the traders selling in the district markets (53 per cent), combined trading and farming, although significant percentages were either purely traders (26 per cent) or farmers (21 per cent) (Table 6:3). Although most of those found selling were also farmers, many had purchased some or most of the things they were selling from other farmers. This is different from the regional centre market, where the majority of the traders were purely traders, instead of combining trade and farming (Table 6:3). Clearly, the district central markets serve more of a local market function, where not only can farmers earn an extra income in trading, but where farmers come directly to exchange their products and purchase the required goods and services. District market centres are still the places where most villagers come into contact with the market economy.

However, there are variations to this. Kondoa central market provides more opportunities for farmers to sell directly in the district central market, than either Dodoma regional central market or Mpwapwa central market. In Kondoa centre, a greater proportion of traders (71.5 percent) combined farming and trading, with only 23.2 per cent doing trade alone, and more traders (44 .6 per cent) in Kondoa centre indicated that they produced themselves what they were selling (Tables 6:3 and 6:4). In Mpwapwa district, although 40.9 per cent indicated being farmers or herders by occupation, with 29.5 per cent as purely traders and 29.5 per cent combining trading and farming, only 2.3 per cent had produced themselves what they were selling (Tables 6:3 and 6:4). This is possibly a reflection of the weaker physical linkage between Mpwapwa centre and its villages compared to Kondoa. The volumes of vehicles serving the villages was higher in Kondoa district, with 107 vehicles, compared with only 68 in Mpwapwa district. Also, more villages were served by vehicles from Kondoa, (38 (23.8 per cent), than were from Mpwapwa, where only 24 (20.2 per cent) of the villages were served. This makes Kondoa urban centre more accessible to its villages than Mpwapwa urban centre, making it possible for more households in Kondoa to dispose of their products

more directly in the district urban market.

### 6.3.1 District Market Links

The regional centre, in terms of sources of commodities, was not an important point of supply for the district markets, with only 1.3 per cent of traders using this supply line (Table 6:11). However, some basic items, like sugar, moved from the regional to the district centres in the commodity counts survey. These are usually from the national distribution system, and the regional centre simply transfers the shares for the districts, as a link in the state-controlled distribution channel. However, both district markets had good links with outside centres like Dar-es-Salaam, Arusha and Morogoro. Of the two, Mpwapwa centre is supplied more from the outside centres, with 43.8 per cent of traders in Mpwapwa market depending on these sources, compared to only 22.2 per cent in Kondoa. Conversely, whilst most traders in Kondoa centre (50.8 per cent) relied on village sources in its hinterland, only 25.8 per cent of Mpwapwa's traders relied on a similar source area around Mpwapwa (Table 6:11).

**Table 6:11**  
Dodoma Region's Markets: Source Of Commodities

Source / Market	Dodoma		Kondoa		Mpwapwa	
	No.	%	No.	%	No.	%
Outside The Region	59	48.8	14	22.2	39	43.8
From District Centre	7	5.8	16	25.4	20	22.5
From Regional Centre	9	7.4	-	-	2	2.2
From Villages	43	35.5	32	50.8	24	27.0
Not Indicated	3	2.5	1	1.6	4	4.5
<b>Total</b>	<b>121</b>	<b>100.0</b>	<b>63</b>	<b>100.0</b>	<b>89</b>	<b>100.0</b>

The district markets have economic functions with other outside centres, although their strength and nature vary considerably. Based on the origin of the commodities sold in the markets, Kondoa is strongly linked to the northern centres of Arusha (14.3 per cent) and Moshi (1.6 per cent), and, to a smaller extent, the metropolitan city of Dar-es-Salaam (3.1 per cent), and, more weakly, the western centres of Mwanza (3.2 per cent) in both manufactured goods, and in processed and unprocessed agricultural products. On the other hand, Mpwapwa was more strongly linked to the metropolitan city of Dar-es-Salaam (25.8 per cent) and other centres of Morogoro (13.5 per cent) and Tanga (1.1 per cent) with very little from Arusha (1.1 per cent) or Mwanza (2.3 per cent). Neither of the district centres had any direct market links with the southern centres of Iringa or Mbeya, as opposed to their regional centre of Dodoma (Tables 6:12 and 6:13).

The existence, or absence, of these economic links, and their spatial patterns, is not only influenced by the location of these centres, but also by the existence or absence of direct physical links in terms of roads and transport to these other places. However, the existence or absence of production specialisation, and hence opportunities for trade and exchange between areas, can not be underestimated. Kondoa centre is closer, in terms of distance to the northern manufacturing and importing centres than it is to Dar-es-Salaam.

Based on the results of the traffic counts study, Kondoa is strongly linked by road and transportation to these northern centres. The same principle applies to Mpwapwa with its direct links with the manufacturing and importing coastal centres of Dar-es-Salaam and Tanga, and also with Morogoro centre. The connection of these two district centres to the western centres is more on the basis of specialisation of production. Despite the poor physical links between these districts and the western centres, the western centres, and in particular Mwanza, are the main suppliers of the smoked fish and dried sardines to Dodoma region and its districts.

As an example, a piece of Nile perch in Mpwapwa fetches T.Shs. 20-30 and a handful of sardines costs 5 T.Shs. Given the high market value for these fish and sardines, they can offset the high transport costs to these districts. Agricultural products from the northern centres, and in particular Arusha, are mainly wheat and wheat products, as well as grains such as maize in the wet season. Arusha region has greater comparative advantages in the production of these crops, and in particular wheat, whilst Dodoma region has a high demand for these crops, especially wheat and maize in the wet season. Kondoa has its own maize supplies throughout the year.

The lack of market links between the district markets and the markets in the southern centres can be explained by the weak physical links in terms of distance, road quality and transport connections. There are no direct transport links between the southern centres of Iringa and Mbeya with Mpwapwa. All goods from the southern centres have to pass through Dodoma centre, due to the location of these centres and the nature of their transport links, increasing the distance involved and therefore transport costs. Mpwapwa centre lies 336 kilometres from Iringa whilst Kondoa lies 401 kilometres from Iringa. Besides this, the southern centres currently supply Dodoma regional centre mostly with cereals, grains and vegetables. However, demand for these products can be met locally in the districts, due to its more rural nature in comparison to Dodoma city.

It is thus clear that the existence or absence of economic links between places is to some extent a function of the location of those places and, in turn, the physical distances involved, the existence of physical links in terms of road connections, the condition or motorability of these roads, the type and availability of transport along these roads, as well as the existence of specialisation in production and exchange between places.

The economic linkages between the regional centre and its two district centres in the region, as well as between the districts themselves are poorly developed. Meanwhile, all three urban centres of Dodoma, Mpwapwa and Kondoa have economic linkages with outside centres. This puts into question the present demarcation of Dodoma region and its districts, and, indeed, the effectiveness of the whole decentralisation exercise undertaken by the nation in 1972. However, the successful decentralisation of the economic activities remains questionable, given the weak or non-existent economic linkages between the district centres themselves, and between the district centres and the regional centre. It is clear that the decentralisation process, and, in particular, the decentralisation of economic activities, did not take into account the spatial economic functional units within the region and the country at large in the demarcation of regions, districts and villages.

**Table 6:12**  
Kondoa District Central Market: Places Traders Purchased Commodities Found Selling

Place /Type	Cereal Grain	Vegetable	Fruits	Root Crops	Oil Seed	Chickens	Fish	Sugar Soap	Cooking Oil	Herbs	Hand Crafts	Cloth Shoes	Total
Dar-es-Salaam	-	-	-	-	33.3	-	-	20.0	-	-	-	-	3.1
Moshi	-	-	20.0	-	-	-	-	-	-	-	-	-	1.6
Arusha	42.8	4.5	20.0	-	-	-	25.0	20.0	-	-	20.0	100.0	14.3
Mwanza	-	-	-	-	-	-	25.0	-	-	-	-	-	1.6
Shinyanga	14.3	-	-	-	-	-	-	-	-	-	-	-	1.6
Kondoa District	28.6	22.8	-	100.0	-	16.7	25.0	60.0	100.0	-	20.0	-	25.4
Villages in Kondoa	14.3	68.2	60.0	-	66.7	83.3	25.0	-	-	100.0	60.0	-	50.8
Not Indicated	-	4.5	-	-	-	-	-	-	-	-	-	-	1.6
<b>Total Traders</b>	<b>100.0</b>												

**Table 6:13**  
Mpwapwa District Central Market: Places Traders Purchased Commodities Found Selling

Place / Type	Cereal / Grain	Vege- tables	Fruits	Root Crops	Oil Seeds	Fish	Sugar Soap	Hand Crafts	Cloth Shoes	Pans Lamps	Agric Imple	Empty Bottles	Total
D'Salaam	14.3	-	8.3	-	33.3	-	20.0	33.3	100.0	100.0	66.7	-	25.8
Morogoro	42.8	4.4	41.8	-	16.7	-	-	33.3	-	-	-	-	13.5
Arusha	-	-	-	-	-	-	10.0	-	-	-	-	-	1.1
Tanga	-	-	-	-	-	-	-	-	-	-	33.3	-	1.1
Mwanza													
Dodoma Centre	14.3	-	-	-	-	-	10.0	-	-	-	-	-	2.3
Mpwapwa Centre	-	34.8	8.3	-	-	25.0	60.0	33.3	-	-	-	100.0	22.5
Villages in													
Mpwapwa	28.6	47.8	33.3	100.0	50.0	-	-	-	-	-	-	-	25.8
Villages in													
Dodoma	-	-	-	-	-	25.0	-	-	-	-	-	-	1.1
Not													
Indicated	-	13.0	8.3	-	-	-	-	-	-	-	-	-	4.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

### 6.3.2 Market Links Between District Urban Centres and Villages in their Respective Hinterlands.

The economic relationship between the district centres and the lowest-order centres, the villages, was not very different from that observed between Dodoma regional centre and its immediate hinterland villages. In both district markets, 72 per cent of the traders had not themselves produced the commodities they were now selling. Most of the vegetables, and, to a certain extent, fruits, oilseeds, cereals and root crops, were originally purchased from the nearest villages (Tables 6:4; 6:12 and 6:13), with 25 per cent of Kondoa traders buying from villages within 20 kilometres of Kondoa town. Fewer (14.3 per cent) had purchased the commodities from average distance villages, lying between 20 and 40 kilometres from the centre, and only 8.9 per cent purchased from remote distance villages, lying over 40 kilometres from the centre. In Mpwapwa market 31.8 per cent of traders purchased from closest distance villages lying, 10 kilometres from the centre, with only 11.4 per cent purchasing from distances of beyond 10 kilometres (Tables 6:14 and 6:15).

**Table 6:14**  
Kondoa Central Market: Sources Of Purchased Commodities

Village Group	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Not Purchased	10	76.9	15	35.0	25	44.6
Not Indicated	1	7.7	1	2.3	2	3.6
Closest Distances	1	7.7	13	30.2	14	25.0
Average Distance	-	-	8	18.6	8	14.3
Remote Distance	-	-	5	11.6	5	8.9
Villages Not Classified	1	7.7	1	2.3	2	3.6
<b>Total</b>	<b>13</b>	<b>100.0</b>	<b>43</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>

**Table 6:15**

Mpwapwa Central Market: Sources Of Purchased Commodities

Village Group	Wet Season		Dry Season		Total	
	No.	%	No.	%	No.	%
Not Purchased	1	4.2	-	-	1	2.3
Not Indicated	4	16.7	2	10.0	6	13.6
Closest Distances	5	20.8	9	45.1	14	31.8
Average Distances	3	12.5	2	10.0	5	11.4
Remote Distances	-	-	-	-	-	-
Villages Not Classified	11	45.8	7	35.0	18	40.9
<b>Total</b>	<b>24</b>	<b>100.0</b>	<b>20</b>	<b>100.0</b>	<b>44</b>	<b>100.0</b>

An interesting difference between Kondoa and Mpwapwa markets concerns the differences in the ethnic composition of the two districts. The people in Kondoa district are predominantly Rangi, while those in Mpwapwa are predominantly Gogo. As observed in the field, the Rangi people are more aggressive in trading than Gogo, and it is thus more likely that the Rangi will more readily come to the market to offer their products for sale where possible, rather than selling them through middlemen. This can be supported by the results of the market survey, whereby the traders in Kondoa market were overwhelmingly Rangi people (91.1 per cent), with almost no other tribes from outside the district. In Mpwapwa on the other hand, the traders were predominantly from tribes from outside the district and region (68.2 per cent), who have settled in the urban centre primarily to trade. Even in Dodoma regional central market, there was quite a significant percentage (27 per cent) of Rangi people whilst this is an area predominantly occupied by the Gogo (Table 6:16). However, further sociological studies are required on this aspect before conclusive statements can be drawn.

**Table 6:16**

Dodoma Region's Central Markets: Ethnic Composition of Traders

Ethnicity / Market	Dodoma		Kondoa		Mpwapwa		Total	
	No.	%	No.	%	No.	%	No.	%
Rangi	20	27.0	51	91.1	1	2.3	72	41.4
Gogo	19	25.7	-	-	11	25.0	30	17.2
Kaguru	-	-	1	1.8	-	-	1	0.6
Others From Outside	35	47.3	4	7.1	30	68.2	69	39.7
Institutional	-	-	-	-	2	4.5	2	1.1
<b>Total</b>	<b>74</b>	<b>100.0</b>	<b>56</b>	<b>100.0</b>	<b>44</b>	<b>100.0</b>	<b>174</b>	<b>100.0</b>

#### 6.4 Summary

The dominance of Dar-es-Salaam, Morogoro and the northern centres is evident in the market links. The effect of climate on economic activities and transport links is reflected by weaker market links in the wet season, with improved links in the dry season. A significant distance decay in the supply of commodities from rural hinterlands to the urban markets is also confirmed. Market links are strongest with those villages closest to the urban centres and located along the best roads, especially in the supply of perishables like vegetables. Although accessibility, in terms of distance and quality of the roads and transport links, are still the basic factors influencing economic links between rural areas and urban centres, the market value of the products exchanged seems to play a role in the market links. Areas producing products with a high market value, for example rice, are more strongly and directly linked to the urban markets, regardless of distance, road quality and transport links, as opposed to those producing products with much lower market values such as maize.

Periodic markets at the village level are seen as the most efficient places for rural households to interact with the market economy, as they are relatively easily accessible in terms of distance to most rural households. However, these markets are usually limited to only one day in a month and typically have a much smaller range of goods and services available. This means that the district markets are still the places where most villagers come into contact with the market economy. The use of the district markets, however, is limited, as they are not accessible to most rural households in terms of distance and transport. The poor accessibility of rural households to the urban centres, the limited range of goods available and the time lapse between the time cash is available to the time it is possible to spend it all act as a disincentive for farmers to increase output or to commercialise further their agricultural production. As rural households rarely have alternative marketing outlets, the bargaining power of farmers over prices is much reduced. Farmers' chances of participating effectively in the market are reduced, and it is feared that such a marketing structure cannot stimulate agricultural production and rural development.

## Chapter 7

### Household Survey In Dodoma Region

#### 7.1 Commercial Crop Production

As well as evaluating the effectiveness of the urban hierarchy in facilitating the flow of goods, services and information between the rural and urban sectors of the country, there is also a need to measure the extent to which farmers participate in commercial production, the sale of agricultural products and, indeed the subsequent purchase of incentive goods is a vital link in the marketing system.

The household survey shows that the priority crops produced in the study region are maize, millet, groundnuts and beans, with smaller amounts of finger millet, root crops, vegetables and fruits (Table 7:1). There were variations between village groups in the types of crops produced; 54.7 per cent of households in the villages closer to Dodoma regional centre produced millet as their first main crop, with maize as their second crop (39.7 per cent) (Table 7:2). Whilst most households (41.8 per cent) in the average distance village group produced maize as their first crop, with an equally significant percentage (34.7 per cent) producing millet as their first crop (Table 7:3). The villages from the remote distance group predominantly produced maize (94.4 per cent) as their first crop, (Table 7:4).

**Table 7:1**

Types of Crops Produced in Order of Priority of Farmers in The Nine Villages Surveyed

Crop Type	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	16	5.2	78	25.2	178	57.4	261	84.2
Maize	168	54.2	60	19.4	12	3.9	3	1
Millet	92	29.7	64	20.6	4	1.3	3	1
Finger Millet	27	8.7	16	5.2	4	1.3	3	1
Ground Nuts	2	0.6	32	10.3	49	15.8	5	1.6
Beans	-	-	10	3.2	9	2.9	2	0.6
Beans (others)	-	-	13	4.2	10	3.2	3	1
Others	5	1.6	37	11.9	44	14.2	30	9.7
<b>Total</b>	<b>310</b>	<b>100</b>	<b>310</b>	<b>100</b>	<b>310</b>	<b>100</b>	<b>310</b>	<b>100</b>

**Table 7:2**

Types of Crops Produced in Order of Priority of Farmers in Closest Villages

Crop Type	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	8	7.5	19	17.9	42	39.6	81	76.4
Maize	27	25.5	42	39.7	5	4.7	1	0.9
Millet	58	54.7	20	18.9	-	-	-	-
Finger Millet	11	10.4	1	0.9	-	-	-	-
Ground Nuts	-	-	12	11.3	36	34.0	3	2.9
Beans	-	-	-	-	-	-	-	-
Beans (others)	-	-	-	-	-	-	-	-
Others	2	1.9	112	11.3	23	21.7	21	19.8
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

**Table 7:3**

Types of Crops Produced in Order of Priority of Farmers in Average Distance Villages

Crop Type	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	4	4.1	27	27.6	69	70.4	91	92.9
Maize	41	41.8	16	16.3	7	7.2	2	2.0
Millet	34	34.7	26	26.5	2	2	1	1
Finger Millet	16	16.3	11	11.2	1	1	-	-
Ground Nuts	1	1	8	8.2	7	7.2	1	1
Beans	-	-	-	-	1	1	-	-
Beans (others)	-	-	-	-	1	1	-	-
Others	2	2.1	10	10.2	10	10.2	3	3.1
<b>Total</b>	<b>98</b>	<b>100</b>	<b>98</b>	<b>100</b>	<b>98</b>	<b>100</b>	<b>98</b>	<b>100</b>

**Table 7:4**

Types of Crops Produced in Order of Priority of Farmers in Remote Distance Villages

Crop Type	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	4	3.8	32	30.2	67	63.2	89	84.0
Maize	100	94.4	3	2.8	-	-	-	-
Millet	-	-	18	17.0	2	1.9	2	1.9
Finger Millet	-	-	4	3.8	3	2.8	3	2.8
Ground Nuts	1	0.9	12	11.3	6	5.7	1	0.9
Beans	-	-	10	9.4	8	7.5	2	1.9
Beans (others)	-	-	13	12.3	9	8.5	3	2.8
Others	1	0.9	14	13.2	11	10.4	6	5.7
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

Statistically, there is a significant difference between the first two main types of crops grown between the three village groups, at the 0.0001 confidence level. Millet tend to dominate in the villages closer to the regional centre, gradually giving way to maize in the average distance villages, and to overwhelmingly maize in the remote distance villages.

Areas under each crop are relatively small, with most farmers growing crops in areas of less than three acres (Table 7:5). There is not much variation between the three village groups. Reliable figures on yields per acre, total agricultural production and marketed volumes are notoriously difficult to obtain in Tanzania and the study region. A very significant percentage of farmers was reluctant to indicate at all how much was produced (Table 7:6). However, it seems that yields per acre of most of the crops were generally very low. For the first main crop, 38.7 per cent produced below five sacks per acre, 10 per cent produced between five and ten sacks per acre, and only 3.8 per cent produced more than ten sacks per acre (Table7:7). Given such low yields per acre, along with the low total acreage, levels of household production are relatively low.

**Table 7:5**

Acreage Under Production of The Four Main Crops in Order of Farmers Importance In All Villages Surveyed

Acreage	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	44	14.2	109	35.2	200	64.5	267	86.1
Below 3 acres	169	54.5	176	56.8	104	33.5	43	13.8
3 - 6 acres	65	21.0	19	6.1	5	1.6	-	-
6 - 9 acres	17	5.5	2	0.6	-	-	-	-
Above 9 acres	15	4.8	4	1.3	1	0.3	-	-
Total	310	100.0	310	100.0	310	100.0	310	100.0

**Table 7:6**

Total Production in Sacks of The Four Main Crops Produced in All Villages Surveyed

Yields in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	42	13.3	110	35.5	210	67.7	275	88.7
Below 5	153	49.4	173	55.8	95	30.6	33	10.7
5 - 10	53	17.1	18	5.8	4	1.3	-	-
10 - 20	29	9.4	6	1.9	1	0.3	2	0.6
20 - 30	11	3.5	2	0.6	-	-	-	-
30 - 40	5	1.6	1	0.3	-	-	-	-
40 - 50	2	0.6	-	-	-	-	-	-
Above 50	15	4.8	-	-	-	-	-	-
<b>Total</b>	<b>310</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>

**Table 7:7**

Yields In Sacks Per Acre For Four Main Crops Produced In All Villages Surveyed

Yields in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	147	47.4	190	61.3	241	77.7	280	90.3
Below 5	120	38.7	105	33.9	64	20.6	25	8.1
5.0 - 10.0	31	10.0	12	3.9	4	1.3	5	1.6
10.0 - 20.0	11	3.5	-	-	1	0.3	-	-
Above 20	1	0.3	3	1.0	-	-	-	-
<b>Total</b>	<b>310</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>

There are differences in the yields per acre between the three village groups, statistically significant at the 0.0001 confidence level, with yields tending to be higher in remote distance villages. For the first main crop, 66 per cent of the households in the closest distance villages produced below five sacks per acre, compared with only 22.6 per cent producing below five sacks per acre for the remote distance villages (Tables 7:8 and 7:9).

There is also a statistically significant variation in the amounts of crops produced between the three village groups (at the 0.0001 confidence level). The quantities of the crops produced, in particular with the first main crop, increased with increased distance from Dodoma regional centre. Most of the households (59.4 per cent) in the closest distance villages produced below five sacks in total, with 22.6 per cent producing between five and ten sacks. Only 1.9 per cent of households produced over fifty sacks. This contrasts with the remote distance villages, where only 19.8 per cent of households produced below five sacks, but 43.3 per cent produced more than ten sacks, out of which 11.3 per cent produced over fifty sacks (Tables 7:10 and 7:11).

**Table 7:8**

Yields per Acre in Sacks for the Four Main Crops Produced in the Closest Distance Villages

Yields in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated/Produced	26	24.5	37	34.5	62	58.5	86	81.1
Below 5	70	66.0	65	61.3	41	38.7	17	16.0
5 - 10	8	7.5	3	2.8	2	1.9	2	1.9
10 - 20	2	1.9	-	-	1	0.9	1	0.9
Above 20	-	-	1	0.9	-	-	-	-
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

**Table 7:9**

Yields per Acre in Sacks for the Four Main Crops Produced in the Remote Distance Villages

Yields in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated/Produced	52	49.1	72	67.9	85	80.2	96	90.6
Below 5	24	22.6	24	22.6	19	17.9	8	7.5
5 - 10	20	18.9	8	7.5	2	1.9	2	1.9
10 - 20	9	8.5	-	-	-	-	-	-
Above 20	1	0.9	2	1.9	-	-	-	-
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

**Table 7:10**

Total Production in Sacks for the Four Main Crops Produced in the Closest Distance Villages

Yields in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated/Produced	9	8.5	22	20.8	50	47.2	84	79.2
Below 5	63	59.4	77	72.6	55	51.9	20	18.9
5 - 10	24	22.6	5	4.7	-	-	-	-
10 - 20	7	6.6	2	1.9	1	0.9	2	1.9
20 - 30	1	0.9	-	-	-	-	-	-
30 - 40	-	-	-	-	-	-	-	-
40 - 50	-	-	-	-	-	-	-	-
Above 50	2	1.9	-	-	-	-	-	-
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

**Table 7:11**

Total Production in Sacks for the Four Main Crops Produced in the Remote Distance Villages

Yields in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated/Produced	23	21.7	50	47.2	84	79.2	100	94.3
Below 5	21	19.8	38	35.8	20	18.9	5	4.7
5 - 10	16	15.1	12	11.3	2	1.9	1	0.9
10 - 20	19	17.9	3	2.8	-	-	-	-
20 - 30	8	7.5	2	1.9	-	-	-	-
30 - 40	5	4.7	1	0.9	-	-	-	-
40 - 50	2	1.9	-	-	-	-	-	-
Above 50	12	11.3	-	-	-	-	-	-
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

There is no doubt that there is a direct relationship between distance from Dodoma city and agricultural production, in terms of yields per acre and of total quantities of crops produced in the study area. The advantage of villages being closer to Dodoma regional centre, and thus being more accessible to the services available there, is not reflected in the quantities of crops produced. Both agricultural productivity and total yields are seen to be lower in the closer villages and higher in those villages at greater distances from Dodoma regional centre, quite contrary to von Thunen's theory of agricultural location, which suggest that the villages closer to the urban centres will produce and sell more crops, because of advantages of cheaper transport costs. It is also cheaper for the closer villages to purchase inputs for production, as well as other consumer goods, than the villages lying at greater distances. In the study region, however, this is not the case.

Farmers in the closer villages, due to the advantage of accessibility to Dodoma city, tend to go and sell their products in the urban markets themselves. Although they might get slightly better prices, it is an opportunity lost in agricultural production, in terms of labour hours lost. The households in closer distance villages also purchase some food requirements from the urban markets, and so do not have to depend solely on agricultural production within the household for their food requirements. Furthermore, people in the closest villages are attracted to the urban centres to seek alternative forms of employment, away from agriculture.

In the urban centres, there is an increasing demand for rural products, and, in particular, for charcoal. This has made charcoal production and selling an attractive alternative economic activity to farming for the villages closer to the urban centres. This not only reduces labour available for agricultural production, but also contributes to land degradation, reducing land productivity, thus reducing agricultural production. Due to high demands for charcoal, and excessive tree felling without replacement, large tracts of land are left open to the attack of both water and wind erosion. Charcoal making and selling is carried out by many rural households, although it did not appear to any great extent in the household survey. This arises from the fact that, due to environmental degradation arising from deforestation in the study region, charcoal burning has been restricted, and so many villagers are reluctant to admit openly that they engage in this activity.

Proximity to urban centres appears to have a negative effect on agricultural production in the study region, with the closer villages producing lower quantities of agricultural crops. On the contrary, the villages less accessible to the urban centres, and in particular to Dodoma regional centre, tend to produce higher quantities. For the villages at greater distances from Dodoma regional centre, the lack of alternative non-farming economic activities rather forces farmers to concentrate more on agriculture.

In Tanzania and in particular in the study region, farmers' agricultural decisions seem to be based less on higher economic returns, and more on survival. Most farmers are still operating at subsistence levels and are not highly commercialised. Besides this, the government-controlled monopoly marketing institutions for cereals and grains purchased crops at uniform prices throughout the region, regardless of distance in terms of transport costs. The absence of a free market economy, where real market prices are paid in terms of selling and buying, and where the transport costs are to be absorbed by the farmers directly, means that no systematic location of agricultural production has developed in relation to the location of the main markets. With increased trade liberalisation in the country since 1985, and competition for the marketing institutions, transport costs will increasingly be reflected in the prices for crops. This will make it difficult for crops with low value from great distances to find a market in the main urban centres. This will in turn affect production decisions, in terms of which crops are to be grown in particular locations in relation to available markets. However, the location of agricultural production in the study region is influenced more by environmental conditions, in terms of rainfall and soils, than by relative economic returns. This makes specialisation in agricultural production difficult, and so may partly explain the poorly developed trade links between the rural areas and the urban centres in the region. Indeed, it may explain why links between the villages and higher order centres outside the region, especially directly with Dar-es-Salaam, appear to be stronger, thus strengthening further the dominance of the more developed regions of Tanzania, and, in particular, Dar-es-Salaam, as the main supplier of manufactured goods and the main market for rural products over the other poorly developed regions.

## 7.2 Marketing

### 7.2.1 Sale of Agricultural Products

All the main crops grown in Dodoma region are both consumed within the household, and sold for cash. However, only 39.9 per cent of farmers indicated selling their first crop. For the second crop, only 17.7 per cent indicated selling, and for the third and fourth crops, this dropped to 8.4 per cent and 3.2 per cent respectively (Table 7:12).

The quantities of crops sold for cash are small. As an example, for the first main crop sold, among the 28.7 per cent who indicated the amounts of the crop sold, the majority (24.8 per cent) sold below five sacks, with only 3.9 per cent selling more than five sacks. From the 12.8 per cent who indicated the amounts of the second crop sold, most (9.9 per cent) sold below five sacks with only 2.9 per cent selling more than five sacks. Those who indicated the amounts of the third and fourth crops sold were negligible (Table 7:13).

**Table 7:12**

Households Indicating Selling Crops (By Village Group)

Village Groups		Crop 1		Crop 2		Crop 3		Crop 4	
		No.	%	No.	%	No.	%	No.	%
Indicated	Closest	26	24.5	18	17.0	13	12.2	7	6.6
	Average	14	14.3	8	8.2	2	2.0	1	1.0
	Remote	65	61.3	29	27.4	11	10.4	2	1.9
	All	105	39.9	55	17.7	26	8.4	10	3.2
Not Indicated	Closest	80	75.5	88	83.0	93	87.7	99	93.4
	Average	84	85.7	90	91.8	96	98.0	97	99.0
	Remote	41	38.7	77	72.6	95	89.6	104	98.1
	All	205	66.1	255	82.3	284	91.6	300	96.8

**Table 7:13**

Quantity in Sacks of the Four Main Crops Sold in order of Priority of Farmers  
In All Villages Surveyed

Quantity in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	221	71.3	270	87.1	293	94.5	301	97.1
Below 5	77	24.8	31	9.9	17	5.4	8	2.5
5 - 30	7	2.3	9	2.9	-	-	1	0.3
30 - 50	1	0.3	-	-	-	-	-	-
50 - 60	-	-	-	-	-	-	-	-
Above 60	4	1.3	-	-	-	-	-	-
<b>Total</b>	<b>310</b>	<b>100</b>	<b>310</b>	<b>100</b>	<b>310</b>	<b>100</b>	<b>310</b>	<b>100</b>

The percentage of households selling crops varies between the village groups. More households in the remote distance village group sold crops, than in the closest and average distance village groups (Table 7:12). The average distance village group has the lowest percentage of households indicating selling crops, with only 14.3 per cent of households selling the main crop, whilst 24.5 per cent and 61.3 per cent of households sold crops from the closest and remote distance village groups respectively. The quantities of crops sold by households, especially of the first main crop, are significantly different between the different village groups at the 0.0001 confidence level. Not only do more households in the remote distance village group sell crops, but also more households in this village group sell larger amounts of crops than in the closest or average distance village groups. In the remote distance village group, among the 59.4 per cent who indicated the quantity of crops sold, 50.9 per cent sold below five sacks with 8.4 per cent selling more than five sacks. On the other hand, among the 12.3 per cent indicating quantities of crops sold in the closest distance village group, the majority (11.3 per cent) sold below five sacks with only 1

per cent selling over five sacks. In the average distance village group, among the 13.3 per cent who indicated quantities of crops sold, the majority (11.2 per cent) sold below five sacks with only 2 per cent selling over five sacks (Tables 7:14, 7:15, and 7:16).

**Table 7:14**

Quantity in Sacks of the Four Main Crops Sold In Priority of the Farmers in Closest Distance Villages

Quantity in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not in Indicated/ Produced	93	87.7	100	94.3	100	94.3	101	95.3
Below 5	12	11.3	6	5.6	6	5.7	5	4.7
5 - 30	1	1.0	-	-	-	-	-	-
Above 30	-	-	-	-	-	-	-	-
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

**Table 7:15**

Quantity in Sacks of the Four Main Crops Sold In Priority of the Farmers in the Average Distance Villages

Quantity in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated/Produced	87	86.7	93	94.9	98	100	97	99
Below 5	11	11.2	4	4.1	-	-	1	1.0
5 - 30	22.0	1	1.0	-	-	-	-	-
Above 30	-	-	-	-	-	-	-	-
<b>Total</b>	<b>98</b>	<b>100</b>	<b>98</b>	<b>100</b>	<b>98</b>	<b>100</b>	<b>98</b>	<b>100</b>

**Table 7:16**

Quantity in Sacks of the Four Main Crops Sold In Priority of the Farmers in the Remote Distance Villages

Quantity in Sacks	Crop 1		Crop 2		Crop 3		Crop 4	
	No.	%	No.	%	No.	%	No.	%
Not Indicated/Produced	43	40.6	78	73.6	95	89.5	103	97.2
Below 5	54	50.9	20	18.9	9	8.5	3	2.8
5 - 30	4	3.7	8	7.5	2	1.9	-	-
30 - 50	1	0.9	-	-	-	-	-	-
50 - 60	-	-	-	-	-	-	-	-
Above 60	4	3.8	-	-	-	-	-	-
<b>Total</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>	<b>106</b>	<b>100</b>

In all villages surveyed, 36 per cent of the households purchased back similar food crops which they had themselves produced and sold earlier. There was a difference between the village groups, with 37.7 per cent of households in the remote distance villages purchasing back, compared with only 26.4 per cent purchasing back in the closest distance village group (Table 7:17).

**Table 7:17**

Households Purchasing Back Products Harvested And Sold Earlier by Village Groups

Whether Purchased	Closest		Average		Remote		Total Villages	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	38	35.8	24	24.5	12	11.3	74	23.9
Yes Purchased	28	26.4	45	45.9	40	37.7	113	36.4
Did Not Purchase	40	37.7	29	29.6	54	50.9	123	39.7
<b>Total</b>	<b>106</b>	<b>100.0</b>	<b>98</b>	<b>100.0</b>	<b>106</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>

Although the percentage of households purchasing back products produced and sold is slightly lower than those who did not purchase back, it is still relatively high. The main problem with purchasing back products harvested and sold earlier is that they are initially sold at low prices and bought back later at higher prices, sometimes nearly twice the selling price. This greatly reduces a household's disposable income, which could be spent on other needs. It also reduces farmers' incentives for cash crop production. What is sold for cash is thus not necessarily surplus production over household needs, as it may be purchased back for consumption later. Frequently, crops are sold to meet immediate cash needs, due to a lack of alternative means of earning cash, or perhaps because of poor storage facilities. Farmers sell to avoid spoilage and purchase back when needed at a later date. Another strategy is for farmers to sell their crops, which may be of higher quality, at higher prices, and purchase back similar products, but of lower quality and hence at lower prices. This last possibility is uncommon in the study region, as there appears to be no significant difference in the quality of the grains and cereals sold and purchased back. As an example, in one of the villages surveyed, in the last harvesting season a tin of maize was sold for T.Shs. 100 -150. In the following growing season, an equivalent tin of maize cost T.Shs. 350-400. The situation is even worse in the isolated villages in a year when there are severe food shortages.

### **7.2.2 Purchase of Incentive Goods**

The supply of consumer goods is conducted through government marketing institutions and increasingly through private traders. It can be argued that the supply of these goods down the urban hierarchy in the country is poor and inefficient. Increasingly fewer types and smaller amounts reach down to each level of the urban hierarchy, especially through government marketing institutions, which tend to finish at the district level. Villagers, through their cooperative village shop representatives,

are supposed to go for their supplies to the district centres, but as quantities of incentive goods are usually small, and not even sufficient for the urban demand, the supply from the district centres to the villages becomes highly inefficient, as very little reaches the village level. Some private traders intercept the official distribution channels and buy the products supposed to go to the villages, reselling them at higher prices in the urban centres. The little which gets through to the village level, mostly through private traders and individuals with contacts, is sold at high prices which most farmers cannot afford. The same applies to the supply of production inputs. Although these are supplied through the same marketing institutions which purchase farmers crops, in most cases, these inputs do not reach the farmers in sufficient amounts; and where they do, they frequently arrive when the season/time required is over. The inefficiency of the marketing institutions in distributing production inputs, like seeds, in the country is reported by the government paper, *The Daily News*:

"Farmers from Dar-es-Salaam and its hinterlands continue to experience erratic seeds supplies. There were large crowds of anxious farmers at the Kariakoo market shop and Arnautoglo Hall where the City Council agricultural offices also sell seeds. For most of the morning yesterday the City Council offices (KILIMO) were closed because the office key was locked inside. At the BSC "Duka la Wakulima" (farmers shop) at Kariakoo, the shop had closed because of rent problems. When later in the day the shop was reopened, some of the customers who got information rushed back and got some supplies. Those who knew of the reopening rather late were refused service when they reached late. Some of the farmers who called at the Kariakoo shop only five minutes late, came from areas outside Dar-es-Salaam city. Their pleas to the shop attendants to save them from the trouble of coming back to the city this morning drew no sympathy. The Temeke District Kilimo Office said yesterday that they were no longer selling seeds this year saying the Arnautoglo office is the only outlet." (*Daily News*, April 4, 1989).

The government paper also reports the inefficiency of the cooperative unions in distributing farming implements and inputs as commented by the official of the ministry of Local Governments, Community Development, Cooperatives and Marketing as:

"Availability of farming implements and inputs to the Co-operative Unions for the 1988/89 season is not very good. By March 15, only 46,118 out of the 234,352 tonnes of fertilizer needed by the Co-operative Unions were supplied leaving a deficit of 198,699 tonnes. Out of 183,326 tonnes powdered and 2,344,003 litres of liquid pesticides needed, only 2,103 tonnes and 1,476,930 litres respectively, were supplied leaving a deficit of 181,319 tonnes and 1,612,096 litres. Out of those pesticides supplied to co-operatives, only 1,287 tonnes and 613,828 litres, respectively had been distributed to peasants. Some 6,425 tonnes of seeds so far have been supplied out of a target of 11,488 tonnes, and the shortfall is 5,063 tonnes. Only 99,335 pieces of hand hoes have been provided, compared to the estimated 1,435,615 pieces required. Out of the 48,846 units of plough required, only 5,307 units have been supplied. On the other implements, only 107,836 units had been provided compared to the targeted 472,279 units leaving a gap of 398,557 pieces." (The Daily News, April 14, 1989).

### **7.3 Problems In Marketing**

Among the many problems rural farmers are likely to face in marketing their crops included access to market information on prices, the efficiency of marketing channels, and accessibility to the urban centres where the markets are located. Most households seemed to be aware of market prices. As an example, in all villages the majority of farmers (54.2 per cent) indicated being aware of seasonal price changes, with only 5.8

per cent being unaware, the prices being higher in the wet season when the new farming season begins (Table 7:18). The majority of the households who sold their crops, sold their harvests in the wet season when prices are at their best; only a few of these households (23.5 per cent) sold their crops immediately after harvesting, when prices are at their lowest. There is a difference between the village groups; more of the households (40.6 per cent) in the remote distance village group sold crops when prices were at their lowest, compared with only 12.3 per cent for the closest and 17.4 per cent for the average distance village groups (Table 7:19) This again supports the view that, as the remote distance villages lack alternative sources of income, they are under pressure to sell their crops, even when prices are low. It is important to note here that although the remote distance villages sold more crops, providing the vital link upward in the flow of the marketing system, they are not well served by a strong downward link in the marketing system in terms of urban products being readily available for village consumers.

**Table 7:18**

Farmers Awareness of Seasonal Price Differences by Village Groups

Awareness	Closest		Average		Remote		Total Villages	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	70	66.0	32	32.6	22	20.8	124	40.0
Yes Aware	30	28.3	60	61.2	78	73.6	168	54.2
Not Aware	6	5.7	6	6.1	6	5.7	18	5.8
<b>Total</b>	<b>106</b>	<b>100.0</b>	<b>98</b>	<b>100.0</b>	<b>106</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>

**Table 7:19**

Households Selling Their Produce Immediately After Harvesting by Village Groups

Selling Period	Closest		Average		Remote		Total Villages	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	39	36.8	20	20.4	19	17.9	78	25.2
Sell Immediately	13	12.3	17	17.4	43	40.6	73	23.5
Sell Later	54	50.9	61	62.2	44	41.5	159	51.3
Total	106	100.0	98	100.0	106	100.0	310	100.0

### 7.3.1 Marketing Channels

The main marketing alternatives available to farmers in the study region are either the Primary Societies, acting on behalf of the Central Co-operative Union (CRCU), or the National Milling Corporation (NMC), a government agent. Significant amounts are, however, also sold to well-off farmers or herders, and, increasingly these days, private traders now. Most households (71.3 per cent), however, were not prepared to indicate whether they were satisfied with these official marketing institutions (Table 7:20). This is understandable, as it was government policy until 1987 that farmers sell all their crops (cereals and grains) to these institutions. As such, farmers are still unwilling to indicate their dissatisfaction, as they possibly think that by doing so would indicate being anti- government. However, among those (28.7 per cent) who indicated, the majority (20 per cent) were not satisfied, with only 8.7 per cent being satisfied with current marketing institutions.

Interestingly, there is no statistically significant difference between the three village groups in terms of farmers satisfaction with the marketing institutions, although more

households (18.9 per cent) in the remote distance village group were satisfied with marketing institutions, compared with only 2.8 per cent of the households in the closest villages group. This is because the remote distance villages, by the fact that they are far away from their regional market centre, tend to make more use of these marketing institutions, because of the lack of other marketing alternatives. Discussions with households and observation in the study region indicate that most households actually prefer the idea of government marketing institutions to private traders, but dislike the way the NMC and CRCU operate, even though the NMC and CRCU frequently pay better prices than the private traders. As an example, maize in 1989 was purchased at T.Shs. 960 per 90 kilogram sack, an equivalent of 5 tins of 18 kilograms each. This price is uniform in all villages, regardless of the differences in distances from the regional centre, the central collection point of all crops purchased. The private traders, during the same time period, purchased maize from remote villages like Chifutuka at T.Shs. 600 per 108 kilogram sack, which is equivalent to six 18 kilograms tins (1989 prices). During the same time, in closer villages, like Mbabala, a sack of maize was sold to private traders at T.Shs. 1,200-1,500. In Dodoma central market the same sack of maize fetched 1,800-2,000 T.Shs. All the same, more traders went to purchase crops in remote villages, as the close villages have fewer crops to sell and at the same time they can also sell themselves in the urban markets. The private traders deal in full sacks as a basic unit, and not weight. They bring their own sacks to be filled, and these normally take six 18 kilograms tins to fill. The NMC and CRCU, however, operate by weight and not by volume. When farmers purchase back food from the NMC and CRCU, prices are generally lower, compared to those offered by private traders. The problem with the NMC and CRCU is that, due to their inefficiencies, they are not able to start purchasing the crops early enough when farmers need cash badly. Further, they are not capable of purchasing all crops sold by farmers, especially in a good harvest season as they do not have enough cash. Besides this, at times, they purchase farmers' crops on credit, and do not pay the farmers their money early enough. These inefficiencies reduce the monopoly of NMC and CRCU in purchasing farmers' crops, as farmers increasingly look to private

traders. The farmers receive less for their crops, but they do at least receive their cash money instantly for use. The inefficiency of the NMC and CRCU in purchasing farmers crops in the study region has been reported thus:

"Over 5,000 tonnes of maize are piled up in various villages in Kondoa District awaiting to be purchased by the Dodoma Regional Cooperative Union (CRCU) or the National Milling Corporation (NMC), who apparently have no money. Traders now buy the grain for T.Shs. 500 per bag of 100 kilograms as compared to prices of T.Shs. 1,100 at the NMC. The NMC Branch Manager K.R.A.Nondo says that the estimated amount is just nominal. The possibility is that there could be up to 10,000 tonnes of maize around there, following the national campaign to rescue the crop whereby NMC was allocated to buy 15,000 tonnes of maize in Dodoma region. Nondo pointed out that the situation in Kondoa was well known as his office had made a request to the government for T.Shs. 232 million for the purchase of the maize. But the money was not forthcoming." (Business Times, June, 1, 1990).

**Table 7:20**

Households Satisfaction With Government Institutional Marketing by Village Groups

Satisfaction	Closest		Average		Remote		Total Villages	
	No.	%	No.	%	No.	%	No.	%
Not Indicated	74	69.8	82	83.7	65	61.3	221	71.3
Satisfied	3	2.8	4	4.1	20	18.9	27	8.7
Not Satisfied	29	27.4	12	12.2	21	19.8	62	20.0
<b>Total</b>	<b>106</b>	<b>100.0</b>	<b>98</b>	<b>100.0</b>	<b>106</b>	<b>100.0</b>	<b>310</b>	<b>100.0</b>

The selling of crops between households within the village depresses producers' incomes even further. Households which normally purchase other farmers' crops are usually the better-off farmers or herders who do not themselves engage much in crop production. These well-off households use their cash to purchase quickly after harvesting from poorer farmers at low prices, of about T.Shs.100-150 per tin (1989 prices). They either use the crop for food themselves or stock it for reselling to the same farmers later at higher prices (T.Shs 250-400 per tin, 1989 prices). They sell in cash, barter for animals, which are later sold at market, or exchange food for farm labour. The fact that the poor farmers, who form the majority, mostly purchase back the food crops in exchange for farm labour, has other negative implications. First, it reduces the farmers' alternatives for earning cash. This, in turn, puts the farmers under greater pressure to sell their crops, even if they have not produced enough for their own consumption. As they sell at lower prices (about T.Shs. 100-150 per tin, 1989 prices), they have to sell larger amounts to get the badly needed cash. This way they not only reduce their food reserves, but expose themselves to greater exploitation, at selling and buying. In some villages, there is still some barter trade whereby traders from the urban centres may exchange a pair of *khanga* for a sack of unshelled groundnuts. Once shelled, a minimum of three tins is likely to be generated which would sell at about T.Shs. 3,000 or more in Dar-es-Salaam. A pair of *khanga* costs T.Shs. 1,500 (all 1989 market prices).

The market structure, especially at rural village level, exploits farmers, hindering their development. It is true that the CRCU and NMC suffer heavy losses, resulting from absorbing transport costs, as these are not incurred by the farmers. From remote villages like Chifutuka, it costs about T.Shs. 200-400 to transport a sack of maize to the regional centre on a private lorry, when available, a cost carried by the NMC and CRCU. The real market value of the sack of maize in these villages is about T.Shs 600 as offered by the private traders. As the NMC and CRCU have to buy at T.Shs. 960 for a sack, they thus lose especially as they still have to absorb costs. However,

bigger losses occur through poor management, corruption and inefficiency. Not all cash provided for the purchase of the crops is used for that purpose. It is rumoured that some officials show ghost figures of tonnes of crops purchased, whilst perhaps only half of the amount has really been purchased. The officers assembling the crops, in turn, do not always pass on all the amounts bought, but may divert some of it to private markets. Eventually there are big gaps between the amounts shown to have been purchased in villages, the amounts of crops collected from villages, and the amounts received in the central godowns in Dodoma regional centre. This is evident even in the statistics of the CRCU. For example, out of the T.Shs. 8,831,729.00 given to Kongwa branch to purchase crops from its 25 Primary Societies, about half (T.Shs. 4,405,100.75) was eventually unaccounted for (Table 7:21).

Due to the inefficiency of the marketing institutions, sufficient cash is frequently unavailable to purchase farmers' crops. Crop purchasing may start late and sometimes farmers are not paid on time, even though farmers need their cash as they sell the crops. It was observed in one of the villages (Pandambili) that when farmers had their crops ready for sale, the NMC and CRCU had not yet released the money for purchasing. They had actually only allocated T.Shs. 100.000 according to the village leadership for the opening of the purchasing season in that year (1989). This amount was sufficient only to purchase crops sold by 10 average farmers in this village, each selling ten 90 kilogram sacks. In this village there are some exceptionally big farmers, some of whom do not live in the village itself. At the same time, the researcher witnessed villagers being harassed to pay their development levy tax, scheduled to coincide with harvesting season when farmers are expected to have an income. Given such a situation, the farmers had no choice but to succumb to the private traders' low prices to raise the money to cover the tax. Given the location of this village, being on the main road from Dodoma to Dar-es-Salaam, farmers could have sold little by little along the main road at higher prices, if they had not been under pressure to raise the cash quickly for tax payments.

**Table 7:21**

Loss Incurred By CRCU In Crop Purchases and Delivery - Kongwa Branch

Cash / Crop Transactions	Quantity of Crops (tonnes)	Value In T.Shs.	Loss In T.Shs.
1. Cash Issued For Purchases			8,831,729.00
2. Crop Purchases	443,397	5,076,405.00	
3. Crops Delivered	391,326	4,426,628.00	
4. Crops Not Delivered	52,071	649,777.65	649,777.65
5. Cash Balance Not Returned		3,755,323.10	3,755,323.10
6. Total Loss			4,405,100.75

Source of Figures: CRCU Head Office Dodoma - Crop Purchases and Delivery Balances, February, 1989.

Market structure inefficiencies are influenced by the kind of marketing system current in Tanzania. Different market structures exist for different commodities; co-operatives can buy farmers' products at fixed prices and supply production inputs, whilst another structure supplies incentive goods for farmers without proper control of prices. A further variation is the idea of uniform prices, regardless of transport costs incurred. The introduction of uniform prices for agricultural products was meant to stimulate agricultural production in even the remote areas, far from the market, as a means of redistributing incomes in all regions, rather than favouring those regions with higher comparative advantages only. But this has only encouraged farmers to produce crops with low market values, although with high transport costs, these high transport costs making it difficult for the marketing institutions to operate economically.

As institutional marketing is inefficient, an increasingly larger part of its activities performed by individual traders who are not controlled nor monitored in their activities. This squeezes incomes, and may be a disincentive for increased production, and, in particular, the commercialisation of agricultural production, pushing farmers

further back to subsistence production. As farmers' incentives for commercial production are limited, they sell small quantities of crops, and hence have a limited cash income. As a result, the vital upward and downward links in the marketing flow system become ill-defined and inefficient, discouraging the development of economic links between the rural villages and the urban centres in which the markets are located. As villagers have little to offer to or purchase from the urban markets, it reduces their need to visit and use the services available in the urban centres. This in turn make it difficult for the urban centres to supply services and incentive goods efficiently to rural households. Under such conditions, the urban centres can not stimulate development nor the commercialisation of agriculture in their hinterlands.

### **7.3.2 Accessibility to Urban Centres**

Most of the marketing, especially the selling of crops, is undertaken within the villages, to either private traders or agents of the NMC and CRCU. The selling of vegetables, fruits and milk, the highly perishable products, and other products not marketed through the NMC and CRCU, have to be sold in the markets in the urban centres or in the periodic livestock markets operating at the village level. The supply of incentive goods, and in particular processed agricultural products and manufactured goods, is mostly supplied through the urban centres. The supply in terms of quantities and varieties of these goods decreases lower down the urban hierarchy, and for the study region, almost ends at the district market level. Very little is provided in the monthly markets at the village level, as seen in the market survey study. As such, accessibility to these urban markets, at district and regional levels, by farmers is very important.

It was not possible to measure accurately farmers' accessibility to urban centres in terms of transport, transportation and frequency of visits. It was possible, however,

to collect information on whether farmers had visited the district, regional and other urban centres outside the region. Over the last year, most households (63.9 per cent) had visited their district market towns and 60 per cent had visited their regional market centre. Another 43.2 per cent had visited market centres outside the region. However, a significant percentage of farmers had not visited any of these urban market centres at all; 23.2 per cent of the households had not visited the district market centre, 32.6 per cent had not visited the regional centre, whilst 152 (49 per cent) had not visited any other urban centre outside the region (Table 7:22).

There are also differences between the village groups in the percentage of households visiting these urban market centres. There is a statistically significant difference at the 0.0001 confidence level between the closest and average distance villages, and at the 0.0001 confidence level between the closest and remote distance village groups. The closest villages are more accessible to both the district and regional market centres than the average and remote distance village groups. In the closest distance village group, only 3.8 per cent of the households had not visited either the district or regional centre; in the average distance village group, 26.5 per cent had not visited the district centre and 43.9 per cent had not visited the regional centre; and in the remote village group, 39.6 per cent had not visited the district centre, whilst 50.9 per cent had not visited the regional centre. However, there is no statistically significant difference in the percentage of households visiting the district and regional centre between the average and remote distance village groups (Table 7:22). There is no statistically significant difference between the three village groups in terms of their visit to other centres outside the region, although the closest distance villages to Dodoma regional centre are more accessible even to these other centres outside the region. However, the remote distance villages seem to have better access to urban centres outside the region than to urban centres within the region (Table 7:22), this accessibility to urban centres outside the region being influenced by the location and distance to the other urban centres, in relation to the distance of the urban centres within Dodoma region. The remote village group goes to the urban centres which are closer to them, although outside the region.

It is thus clear that villagers do not have loyalty to their regions.

**Table 7:22**

Households Accessibility To Urban Centres By Village Groups

Market / Groups		Closest Distance		Average Distance		Remote Distance		All Villages	
		No.	%	No.	%	No.	%	No.	%
District	Not Indicated	11	10.4	24	24.5	5	4.7	40	12.9
Market	Visited	91	85.8	48	49.0	59	57.7	198	63.9
	Not Visited	4	3.8	26	26.5	42	39.6	72	23.2
Total		106	100.0	98	100.0	106	100.0	310	100.0
Regional	Not Indicated	11	10.4	6	6.1	6	5.7	23	7.4
Market	Visited	91	85.8	49	50.0	46	43.4	186	60.0
	Not Visited	4	3.8	43	43.9	54	50.9	101	32.6
Total		106	100.0	98	100.0	106	100.0	310	100.0
Markets	Not Indicated	13	12.3	6	6.1	5	4.7	24	7.8
Out of	Visited	58	54.7	28	28.6	48	45.3	134	43.2
Region	Not Visited	35	33.0	64	65.3	53	50.0	152	49.0
Total		106	100.0	98	100.0	106	100.0	310	100.0

#### 7.4 Summary

The majority of the farmers, produced crops primarily for their household food requirements. Of those few who sold their crops, they only sold small quantities, hence only a small amount of village produce found its way upward to the market

centres. This in turn weakens the vital upward link in the marketing flow system. As most households sell little, they in turn have only a limited cash income with which to purchase other agricultural and manufactured goods supplied down through the urban hierarchy, thus, in turn, reducing the effectiveness of the downward link in the marketing flow system. As most households have little, or nothing, to sell in the markets located in the urban centres, farmers have little reason to go to these urban centres, in turn making it difficult for the urban centres to function efficiently in their role as suppliers of incentive goods and services to the households in their hinterlands.

The monopoly purchasing system of farmers' crops, enjoyed up until 1986 by the NMC and CRCU, only reduced farmers' visits to and use of other services located in the urban centres. Not only did farmers have few incentives to go to these urban centres, but the supply of consumer goods there was not good, especially in the lower-order centres closest to the villages. Moreover, accessibility of villagers to these lower-order urban centres is difficult, as transport is both poor and expensive. This is important as accessibility by rural households to these urban centres is crucial for their development.

The use of the facilities in the urban centres by rural households appears to be influenced by the spatial location of the urban centres more than the hierarchy of these urban centres. Households in rural villages especially those at remote distances from Dodoma centre (Bereko and Pandambili), use alternative lower-order urban centres, Babati and Gairo respectively, and rarely travel to the higher-order urban centre of Dodoma. Thus, the location of one high-order urban centre, like Dodoma, which is distant from many rural villages, is not likely to stimulate the development of the region as such. The development of more lower-order urban centres, which are more accessible to the rural villages in their immediate hinterlands, is likely to improve marketing and commercialisation of agriculture, a meaningful contribution towards rural development.

## Chapter 8

### Discussion

#### 8.1 Spatial Development Theories In Developing Countries

A review of the spatial development theories, and the case studies of countries which have attempted to put into practice these theories, as well as a close examination of Tanzania and the study region of Dodoma, indicate that Western theories can not be applied uncritically to developing countries. This is because the level of economic development of Third World Countries is relatively low, and the resources for the development of growth poles are as yet limited. A higher level of economic development is desirable for the stronger spread effects of development to be achieved (Berry, 1970:45-46). The spatial economic organisation of most developing countries is substantially different from that currently in developed countries; for example Third World Countries typically have primate cities, with an overwhelming economic influence, which attract important change-inducing activities to single locations, creating dual economies within the country. The more developed regions are dominant, partly because of their magnitude and partly because some of these regions may have extraordinarily growth potentials. This complicates the spatial allocation of the meagre capital and skills (Rodwin, 1964:40-42). The rapid increase in productivity which marked the early development of the Developed Countries, together with the concomitant release of productive factors, especially labour from rural areas, took place at a time during which industry was still labour intensive. As population growth was relatively slow (at least compared with present day standards), displaced rural labour found employment in the towns which grew as a result of local diversification and sustained development (United Nations, 1970; Kuznets, 1966). In

the present Third World countries, industry is not labour intensive, and so has a low capacity for creating non-farm employment. Agriculture, on the other hand, is still labour intensive and is likely to remain the dominant activity for a long time to come. Rural-urban migration in Africa is likely to continue to have negative impacts on the destinations (urban centres), as well as on the origins (rural areas), especially those with available agricultural land, but suffering from capital and labour shortages, as is the case in the Dodoma study region. In such a situation, if underemployment is driving people from the countryside to the primate city, a different policy mix is in order, combining measures to provide employment in agriculture, and to develop small centres of rural-urban integration, thus strengthening alternatives to primate cities (Thompson, 1972:16).

## **8.2 The Evolution of the Tanzanian Spatial Structure and Its Implications For Contemporary Spatial Planning.**

The pre-colonial period witnessed the emergence of a number of important trading networks. There is evidence of trading links between the Swahili coast and the Zimbabwe plateau before the arrival of the Portuguese (Sheriff, 1972:13). The coast and the interior, as observed by Alpers (1969:40), were spatially integrated in terms of the development of long-distance trade in ivory and later slaves, and there were also exchanges in salt and iron between the coast and the interior. With the increased power of Oman in the Persian Gulf, its East African base on Zanzibar began to play a very active role in exploiting the wealth of the interior, primarily ivory and slaves. The role of the coastal towns was to act as entrepôts for the developing trade with the interior. This period witnessed the extension of the spatial structure through various routes, such as from Ujiji and Tabora to Bagamoyo, Lake Malawi to Kilwa, and from Kilimanjaro to Pangani. By the nineteenth century, salt from Uvinza in Tabora was

traded from the south end of Lake Nyanza to the southern end of Lake Tanganyika, and from eastern Congo right across the Ruaha valley. Copper from Katanga was traded in northern and western Tanzania (Map 8:1). Through the growth of these routes the coast and the interior were gradually being brought closer together economically and there was a slowly evolving process of regional integration, including some specialisation of skills and diffusion of new products like maize and rice.

The positive features of pre-colonial development were considerably disrupted, first by the trade in slaves and ivory based in Zanzibar town, and then by the imposition of colonial control, which subsequently created an uneven and internally disintegrated spatial structure. The introduction of plantation agriculture by the colonial power led to some parts of Tanganyika coming under the capitalist mode of production. The transportation system was established to serve the needs of the plantations. Labour reserves were also created, further disrupting the indigenous economy. The general spatial orientation of transportation, in the form of railways, was west to east in accordance with the export-oriented nature of the colonial economy (Map 8:2), and internal economic expansion only took place in those areas with potential for agricultural production for the world market. The major effect of capitalist penetration on the pre-colonial space economy of Tanganyika was to destroy the relatively well-developed coastal economy and ruin the many small ports.

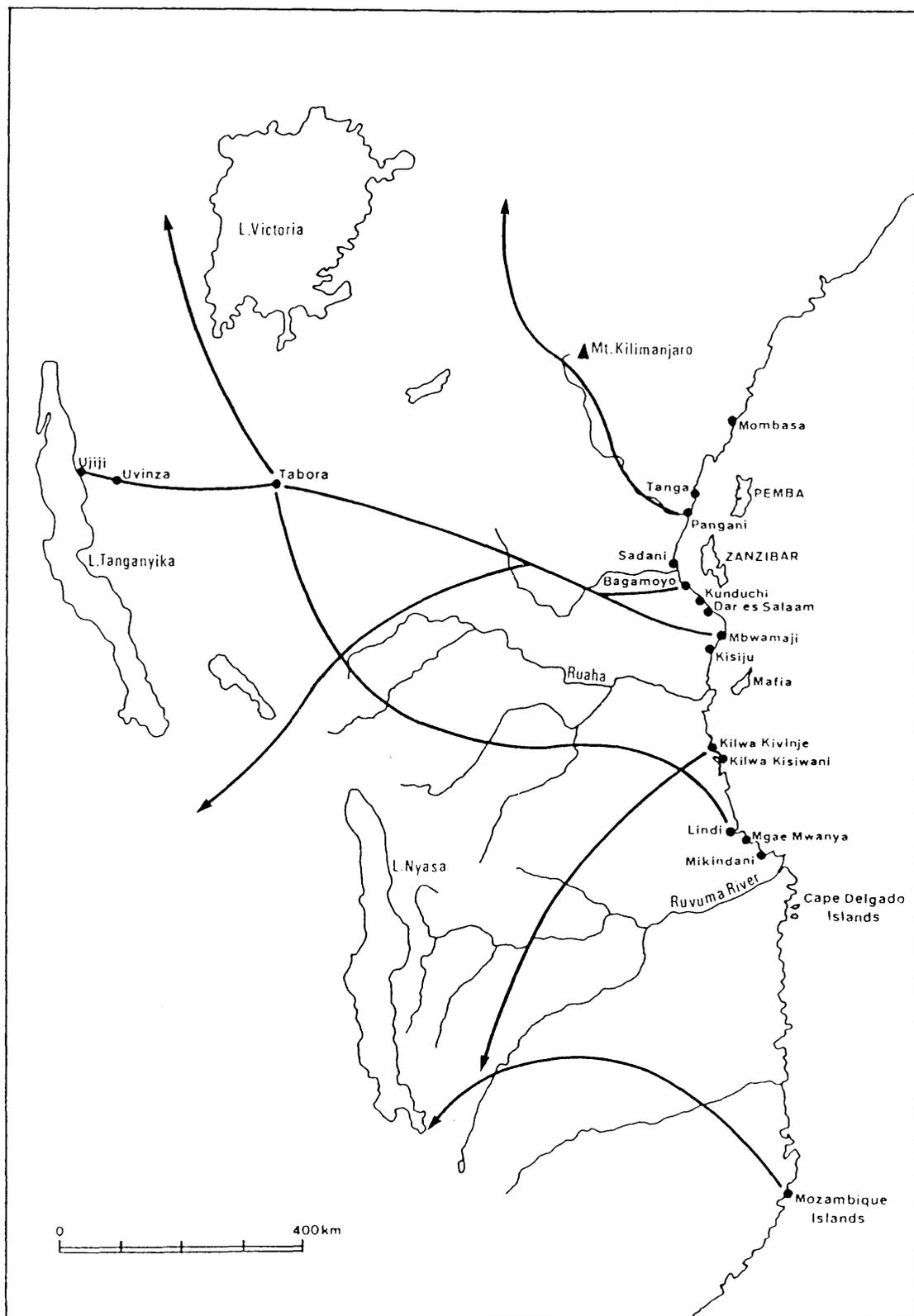
Dar-es-Salaam as an urban centre became the dominant focus of colonial exploitation in Tanganyika, whilst other coastal ports greatly diminished in importance. These changes within the coastal economy can best be understood in terms of a re-direction of the spatial circulation of surplus which took place in Tanganyika consequent upon its integration within German, and later, the British empire, with a small part of this surplus being in Dar-es-Salaam, the coordinating centre (Harvey 1973:240-284; Funnel, 1976:80). In spatial terms the country was clearly demarcated into three zones

as early as 1930s. These zones were an export cash crop zone; a food crop production zone; and a migrant labour supply zone (Iliffe, 1971:30). Trade existed in agricultural and artisan products, the manufacture of which was already specialised, and also in commodities which had a scarcity value. The appearance of the capitalist sector broke these circuits, and instead of having an integrated whole, in which trade in agricultural and artisan products was multilateral and inter-regional, there was created a bilateral system of trading relations which was limited to unequal exchange.

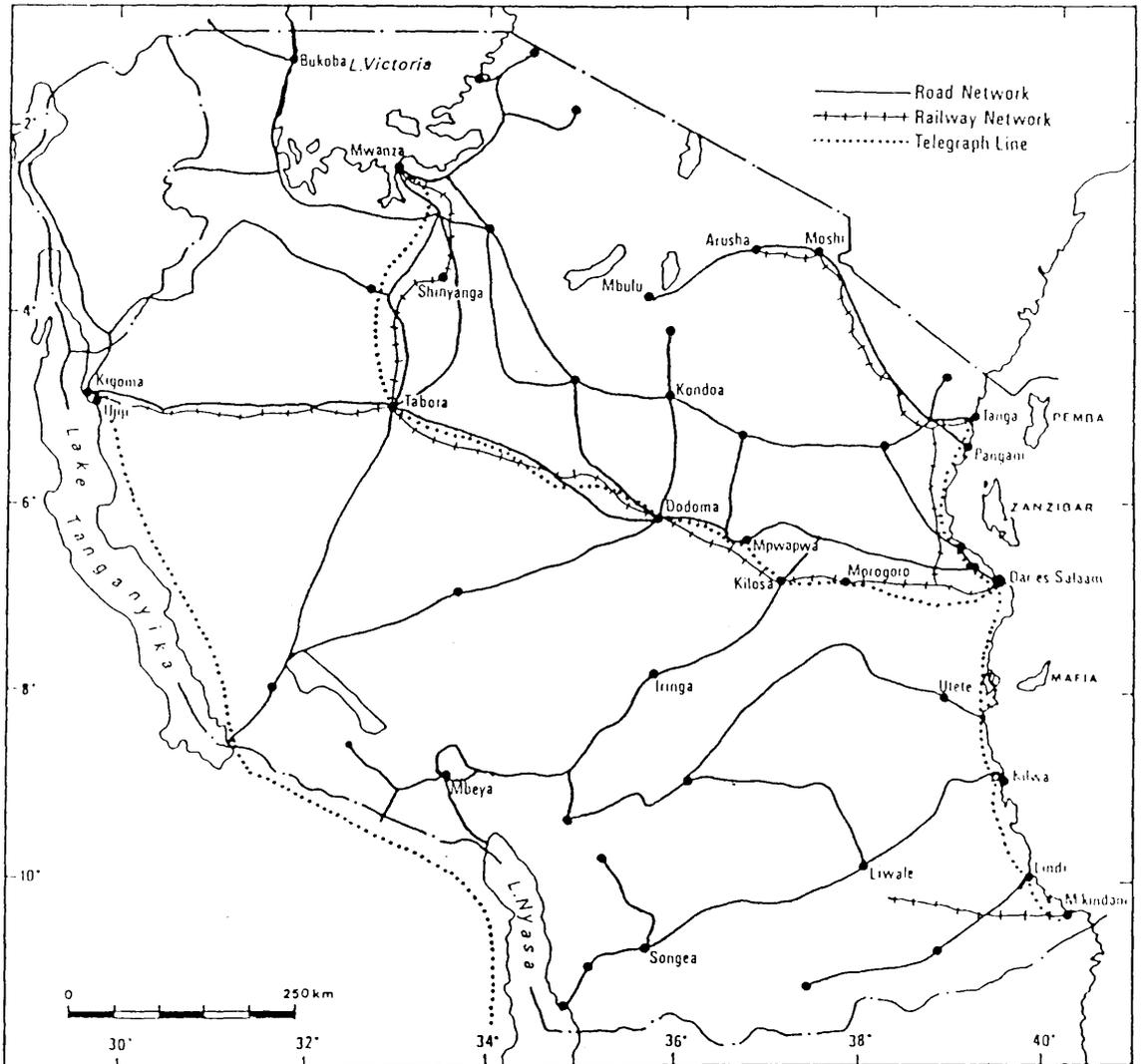
The Tanzanian spatial economic structure after Independence was basically still colonially structured, with a spatial pattern which was very much externally-oriented. With the maintenance of the west-east axis in the railway system, there was a marked deficiency of links between regions within the interior. As an example, there were no direct rail nor road links between Mbeya region in the south and Mwanza in the north; between Mtwara and Dar-es-Salaam; between Kigoma and Mbeya, and even more areas at the local level. The coastal centres, such as Dar-es-Salaam, Tanga and Mtwara, played the primary role of organising nodes for the shipment of surplus extracted from the interior rural areas, and interior centres such as Iringa, Dodoma and Tabora. These centres also had an important role to play in maintaining control over their respective hinterlands and policing the countryside (Rodney,1972). However there have been some additions and improvements to the Tanzanian transport system since then. There is now a road and railway line linking Dar-es-Salaam with Zambia through Makambako in Iringa, Tunduma in Mbeya and Ndola in Zambia. Mtwara is now connected to Dar-es-Salaam by a seasonal road through Lindi and Kilwa, and finally across river Rufiji by pontoon. The roads from Songea, Makambako, Mtwara to Masasi, and Dar-es-Salaam to Dodoma have now been improved to all weather surfaced roads (Map 8:3).

The emerging spatial structure has resulted in a highly uneven spatial pattern of economic activity and incomes, with the five export crop growing regions being relatively wealthy, whilst other regions remained in poverty. It has also resulted in economic imbalances between the urban and rural areas, the latter being disadvantaged. Iliffe (1971:30) noted that the economic spatial pattern of the country, inherited from colonialism, as well as the overriding emphasis on export production, contribute greatly to the existing underdevelopment. Alonso and Meyer (1972:378) suggest that a crucial issue in regional planning relates to whether a region should continue to be closely integrated in the international capitalist economy or alternatively ought to be integrated into the national economy of which it is an essential geographic part. For Tanzania it is difficult to reconcile socialist transformation with a continuing orientation of the society towards the international capitalist system.

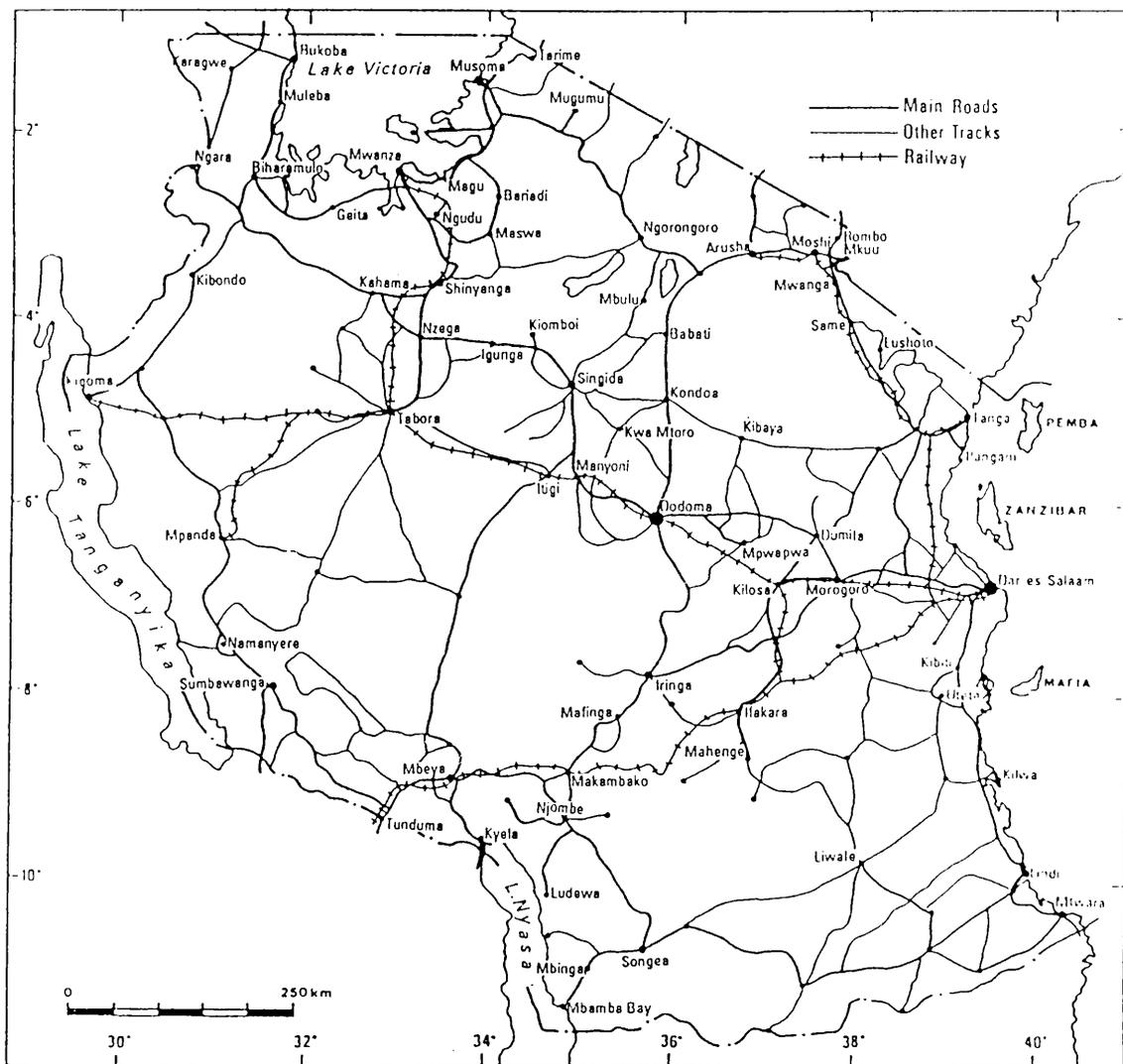
Map 8 : 1 Tanzania : Early 18<sup>th</sup> Century Trade Routes



Map 8 : 2 Tanzania : Transport and Communication Network During Colonial Period



Map 8 : 3 Tanzania : Present Transport Networks



For the regions and districts in Tanzania to become self-reliant, local resources must be utilised so as to meet the needs of the people as a whole. As Thomas (1974) has argued, if a Tanzanian type of economy is to be transformed out of its present day underdevelopment, an organic link must be forged between the structure of production and the structure of needs of the society as a whole. He cites achievements of countries like Cuba, North Korea, Vietnam, and China. These countries experienced a disintegration of their pre-colonial spatial economic structure, but have since been able to replace it by a system of spatial organisation which utilises the full range of resources of all the various zones of their territories so as to satisfy internal needs. As a result, inter-regional interdependencies and exchanges have evolved and matured as an important solidifying agent of the national economic integration. For him, so long as a space economy is internally atomised and externally tied, such development is not possible (Thomas, 1974). However, it is not easy for a country like Tanzania to isolate itself totally from external international economies.

Many attempts have been undertaken by the Tanzanian government to tackle the problem of underdevelopment of the country since Independence. Among the early development policies include the growth pole policy of the 1960s. Through this policy, the concentration of industrial activities in the major urban centres, and in particular, Dar-es-Salaam, was to be distributed to the nine growth centres of Tanga, Moshi, Arusha, Morogoro, Mwanza, Mtwara, Mbeya, Tabora and Dodoma.

In developing countries, where the recent urban history is part of colonial experience, views have been strongly expressed as to whether growth poles or growth centres, as investments or urban agglomerations, will not further serve to siphon off rural surpluses by metropolitan countries, increase rural-urban antagonisms, deepen the extent of the neo-colonial, and hence class, exploitation, and thereby reinforce the contradictions of underdevelopment (Doherty, 1974). As observed by Darkoh (1977:20), the critical objection raised by many scholars in developing countries

concerns the structural context within which growth pole and growth centre strategies are implemented. So long as this context is one of continuing dependency any such strategy can only serve to intensify further underdevelopment. To be useful for developing countries, growth pole and growth centre concepts have to be employed to achieve specific objectives within the framework of socio-political, economic and historical realities and characteristics. These concepts can only have relevance as an operational strategy for developing countries if planned systematically and geared towards the following objectives:

1. Fostering internal spatial integration and lessening external dependency (Amin, 1971; Slater, 1975).
2. Providing an organic link between the structure of production and the needs of the society, i.e. bridging the gap between the pattern of resource use and domestic demand (Thomas, 1974).
3. Providing a production structure which is both capable of transforming growth from the modern sector to the non-modern sector (Santos, 1976).
4. Strengthening the inter-sectoral and spatial linkages of the regional and national economy (Hermansen, 1971; Darkoh, 1977).
5. Inducing multiplier effects which initiate growth for the sector producing for the local and domestic markets (Hermansen, 1971).
6. Establishing new patterns of diffusion of information and innovation, i.e., functioning as social interaction points (Misra, 1971).
7. Reinforcing the local service sector and the generation of external economies and thereby making the entire regional economy more conducive to growth (Misra, 1971; Hermansen, 1971).

Darkoh (1977) concludes that if planned in this manner, growth pole and growth centre strategies could directly be related to development (as opposed to mere economic growth) in developing countries and serve these countries instead of being

alien or parasitic to them. A growth pole or growth centre which is planned to achieve the above mentioned objectives, if successfully implemented, is likely to be successful in stimulating the development of a region, as these objectives are actually the very mechanisms which, when triggered, make possible the "trickle-down process" of development from the growth centres. The various case studies of growth pole policies referred to in the literature, indicate that the failure of the growth pole policy resulted from the failure of the "trickle-down effect" which allows the "polarisation" effect to be stronger. Such mechanisms will make it possible for stronger "trickle-down effects" to be established from the beginning. The above objectives, indicated by the various growth pole theorists, provide a guideline for the identification of appropriate mechanisms which allow stronger "trickle-down effects" in the place of "polarisation" effects, a condition which is necessary for the development of developing countries.

Based upon the seven objectives outlined for a growth pole strategy in Third World Countries like Tanzania, there is a need for the reorganisation of the spatial economy. The major reorganisation necessary in the economy entails a much more inward looking economy, in terms of demand for and supply of food and manufactured products, i.e. in both agriculture and industry. This will necessitate a greater emphasis on food crops than is so currently, so as to meet the food requirements locally instead of the dependency on imported foodstuffs. This does not mean that cash crops have to be neglected, as these remain important to earn foreign reserves for the purchase of capital goods necessary for development. Improved cash crop production, especially in the areas of comparative advantage in production, will give these areas a chance to improve their incomes if better prices are offered and demand for these crops is increased. This will in turn reduce the existing spatial income disparities. Demand and incomes can be improved through increased marketing alternatives located in the demand areas. This will in turn necessitate improved linkages with the demand centres through improved transportation and communication networks. An approach to spatial

reorganisation has been outlined by Nurul Islam (1974); instead of price support programmes, he argues that it may be more efficient to improve marketing and distribution channels for output, as well as to establish more economical handling, storage and warehousing facilities throughout the country. Such improvements reduce costs, and can, as experience has shown, raise the incomes of the farmers by at least 15 per cent to 20 per cent (Nurul Islam, 1974:xix).

Studies on agricultural policies in Developing Countries indicate that efficient marketing functions, including handling and transportation, increase in importance as agricultural development gets underway (Nurul Islam, 1974). The internal distribution and transportation system requires adjustment and re-orientation as a nation moves from a state of dependence on food imports to their replacement by domestic production. They cite an example of a country like Bangladesh, where the flow of the imported food crops was from the ports to the deficit areas in the country, especially to those areas which are under statutory rationing and where the government has the responsibility of distributing food at subsidised prices. As a result of the replacement of imports by domestic production, the composition of the surplus and deficit regions changes. The marketable surplus has to move from new internal centre of production to the urban areas and to the deficit rural areas. The transportation system has to be re-oriented and expanded in new directions to correspond with the changed direction of the movement of the food. Also, the price policy for food grains, as well as the terms of trade between rural-produced food products and urban-produced consumer goods, has to be balanced in a way that it induces the necessary marketable surplus. Dodoma region is different from Bangladesh in that it does not solely depend on imported food supplies unless in years of severe shortages. However, Dodoma depend heavily on food supplies from other regions of the country. Similarly, marketable surplus has to move from these other regions to Dodoma. Although attempts have been made to re-orient the transport system from its coastal alignment, transport links between the regions is still poorly developed, making the movement of food between the regions

difficult and expensive. Due to the inefficiency in the marketing structure, the terms of trade between rural-produced products and urban-produced consumer goods, has not been balanced to induce marketable surplus in the rural areas. In the Tanzanian situation, if the current food imports are to be replaced by a domestic supply, the same type of spatial re-organisation of marketing and distribution, as that observed in Bangladesh, will be necessary. This demands an understanding of the spatial distribution and the national spatial integration of the service centres, which act as marketing and distribution centres, as well as centres for the provision of other technical and social services required by the population.

The development objective of Tanzania is to achieve rural development with equitable development between places and between individuals, although resources available for development are very limited. There is a spatial inequality in natural resource endowments, which in turn influences the spatial economy. The northern belt between Lake Victoria and Tanga, is physically and economically relatively well-developed. Although covering less than 10 per cent of national territory, this area has 25 per cent of the population, generates 40 per cent of Tanzania's GDP and 70 per cent of its electric power. As a result many industries are located here. The second belt, Dar-es-Salaam to Mbeya (Southern Highlands) has a potential for strong agricultural and mineral production. The road and railway link between Tanzania and Zambia through the Southern Highlands is likely to provide a second belt of development in the country, with nucleated growth in towns like Morogoro, Iringa and perhaps Songea. The central part of the country, Dodoma and Singida, are less favourably endowed, and the same applies to Mtwara and Lindi in the South East. The South-Western part, Tabora, Kigoma and Sumbawanga, in particular, although not very poor in natural resources, especially agriculture, suffer greatly from its remoteness.

Inter-regional equity is desired. This can best be achieved by a dispersed urban system with secondary cities in each region. The scarce resource investments would best be concentrated in secondary cities and small rural-urban centres so that both the urban and rural population can benefit from rural development efforts. Agriculture, as seen, is likely to remain dominant for many years, and industry is unlikely to absorb surplus agricultural labour. This coupled with the high rate of population increase make deconcentrated urbanisation appropriate, as this entails the creation of more employment in agriculture and the channelling of any migrants to alternative urban centres to relieve the primate city of Dar-es-Salaam.

### **8.3 Evaluation of the Present Tanzanian Urban Spatial Structure**

The choice of nine centres, as growth centres to stimulate a more equitable distribution of development, was realistic in terms of the geographical size of Tanzania and the lack of medium-sized urban centres in the country. "There is a dearth of centres of medium size. Capital cities are of order of 250,000-500,000 people, whereas there are very few places in the range of 2,000-20,000 people (Funnel, 1976:78). The choice of nine was also necessary for regional equity purposes. However, based on the limited resources available for their development, the nine centres were rather too many. Funnel (1976:104) again notes that: "Having chosen a larger number of centres in the interests of regional equity it may turn out that the growth centres strategy fails and with it the possibility to achieve regional equity".

The locations of the nine growth centres, considering the need for national equity between places, were well-chosen (Map 8:3). The average distance from Dodoma growth centre to the others is about 579 kilometres, and the greatest distance between Dodoma and the furthest growth centre is that between Dodoma and Mtwara, lying

1044 kilometres apart, while the shortest distance between the growth centres is between Dodoma and Morogoro lying 283 kilometres apart. The location of the growth centres in relation to their hinterland, however, taking Dodoma centre as an example, leaves much to be desired. The lower-order centres are poorly linked to Dodoma regional centre. Based on the results of the traffic counts, Mpwapwa district was poorly linked to Dodoma centre, especially in the wet season. In the wet season, Mpwapwa was totally isolated from the rest of the urban centres as seen. Although Dodoma regional centre has economic links with its district centres, in terms of commodities moved between these centres, especially in the distribution of manufactured and processed and semi-processed products and the assembling of agricultural crops, these links are very vulnerable as these functions can be performed more efficiently from the district centres themselves. With increased economic liberalisation and competition in Tanzania, Dodoma regional centre might seriously be weakened in terms of its economic links with its district centres, thus reducing Dodoma's role as a regional centre. The results of the commodity counts indicated the existence of direct economic links between the lower-order district centres with other outside higher order regional centres, as well as with the metropole, without necessarily going through the regional centre of Dodoma. Even some villages in Dodoma region, especially those on the borders and closer to these outside centres, communicated directly with these outside centres more than they did with their regional centre of Dodoma. Similar results have been observed from the market surveys. As in the commodity counts, there are no direct economic interactions between the district markets, while both district markets had strong economic links with higher-order urban centres outside the region, especially in terms of goods supplied. Lastly, the household survey results indicated that accessibility in terms of distance of rural households to the urban centres is a key factor in determining which centres the households use; households used urban centres which are closer to them, disregarding their loyalty to their region. This reduced the need for such villages to interact with other urban centres in Dodoma region and with Dodoma regional centre itself. The

direct physical and economic links between the lower-order centres, and some of the villages, with outside centres questions the location of Dodoma as a growth centre in relation to its lower-order centres and villages in its hinterlands. It also questions the demarcation of the districts and the villages in relation to Dodoma regional centre, and it seems that the demarcation of the regional, district and village boundaries was not based on existing functional areas. It is possible that these units do function together administratively, but economically this is not the case.

There are 20 regional urban centres, 58 district urban centres and 12 other lower centres in mainland Tanzania (1978 National Census). These, together with the metropolitan city of Dar-es-Salaam gives a total of 90 urban centres. Mainland Tanzania, with an area of 931,082 square kilometres, and a total population of 22,533,758 million people, means that each urban centre on average, serves an area of about 10,345 square kilometres and a population of about 250,375 people. Considering the low accessibility levels (by foot) and the low level of services available in these urban centres, it can be argued that Tanzania does not have a sufficient number of urban centres. This is in line with other earlier findings (Funnel, 1976:78). The situation is no better in Dodoma region. The region has a total area of 41,311 square kilometres with a population of about 1,267,886 people (Economic Conditions in Tanzania, 1990:125), and the whole region is served by only four urban centres. On average therefore, each urban centre serves 10,328 square kilometres and a population of about 316,971 people. Accessibility, in terms of distance to these, was seen to be poor (See Sections 4.2.3 and 4.2.4). The ratio between the urban centres and the villages to be served is also very high; Dodoma as a regional centre has to serve 179,443 registered and non-registered villages. Based on the results of the traffic counts, Dodoma regional centre serves 59 villages directly, located mainly in Dodoma urban and rural districts; Kondoa centre serves only 30 villages directly, whilst Mpwapwa serves only 19 directly.

The growth centres, as demonstrated by the case of Dodoma regional growth centre, are not strongly linked to their lower order urban centres. The physical links, in terms of transport, are weak, especially with Mpwapwa, which is isolated in the wet season. The economic links, in terms of market exchanges and movement of commodities, are weak in general, and worse still with Mpwapwa district centre. Dodoma regional centre also had stronger direct links with villages in its immediate hinterland, lying within 34 kilometres from the centre, in all of the traffic, commodity, market and household surveys. For Dodoma region, the district urban centres are taken as the lowest centres in the urban hierarchy, as there are no other centres below them from which basic services are provided centrally. Besides the sale and purchase of livestock and few other commodities, the periodic market centres below the district markets rarely provide other services. It can thus be argued that Dodoma growth centre is not effectively linked to its hinterland, and that the accessibility of most rural households to these district urban centres is poor. Given the poor transport and transportation conditions in Dodoma region, as evidenced in the traffic counts survey, it is no wonder that Dodoma as a growth centre is poorly linked to its hinterland. This is in line with earlier findings, like Funnel (1976:105) who observed that: "There is little interaction between the towns and their hinterlands. As the functional specialisation is weakly developed, there is very little interaction between these centres, and most transactions are directed to the capital city". The situation, it seems, has not improved in the fourteen years since that was written.

The four urban centres in the study region have basic administrative, social and economic services. However, the use of these services is limited by the poor accessibility of most rural households to these urban centres. The need to use these urban centres is further reduced by the existence of institutional marketing systems in the distribution and assembling of agricultural products, in particular crops. Production inputs and implements are distributed by government institutions. Until

recently, the marketing of agricultural products and the distribution of incentive goods was also done through government agencies down to the village level. This seriously limited the growth and development of the urban centres, as household members had no need to go to these urban centres. Households did not have crops to sell in the urban centres, and the supply of incentive goods in these urban centres was again at times in short supply.

It can be seen that further down the urban hierarchy, the weaker the vertical and horizontal linkages become. This is partly due to the lack of products or incentive goods reaching these lower centres. Few seem to be distributed beyond the higher-order centres. The market survey showed that the variety and volume of commodities supplied at the market are greater in the regional market, and becomes less at the lower-order district and periodic markets. Further, when the regional centre is compared with the district markets, the district markets serve more of a local market function, where more farmers come directly to the market to sell their products and purchase goods and services required.

From this study, it can be seen that what is more important is the accessibility of rural households to these urban centres, rather than the existence of a hierarchy of urban centres. Households use lower-order centres, which are closer to them, than higher-order urban centres which are further away even though the level of service provision may be less. This is because the choice of administrative centres to act as economic growth centres is inappropriate. This is especially so of the regional centre of Dodoma. Marketing can be achieved more efficiently through the district centres, as far as rural households are concerned, and this is likely to be more so with increased economic liberalisation, as the currently weak economic functional hierarchy will become seriously weakened.

In terms of traffic counts, there were direct links between Dodoma regional centre and 11 other regional centres in the west, north, south and coast. Out of the nine national growth centres, Dodoma growth centre was directly linked by road with 5 centres. Dodoma growth centre was also linked by road to its district centres as well as to some villages in its immediate hinterland. Based on the results of the commodity, market and traffic counts, vertical links are stronger, particularly with the metropolitan city of Dar-es-Salaam, and horizontal links are weaker. However, the horizontal links do appear to be stronger with the more developed regional centres in the north of Tanzania and with Morogoro compared with horizontal links with the western and southern centres. At the district level, vertical links are stronger with the regional centre of Dodoma, the metropolitan city of Dar-es-Salaam and other neighbouring regional centres, whilst horizontal links between the district centres themselves are largely absent.

Regional specialisation in production is important to provide the basis for exchange. It has been observed that there is lack of specialisation in production between the many centres and between the rural areas of Tanzania. The lack of specialisation between the rural areas results not only from climatic factors, but also from the fact that farmers' agricultural production decisions are not primarily based on high economic returns, but on food self sufficiency. Moreover, the monopoly in marketing and marketing policies, which prevailed earlier, established uniform prices regardless of transport costs, and there was thus no systematic location of agricultural production in relation to comparative advantages of particular regions. This makes regional specialisation of production difficult to achieve. However, this is likely to change as increased liberalisation in marketing and more competition challenges the institutional marketing and pricing policies, and, in particular, different transport costs are likely to be reflected in the prices of similar products purchased at different distances from the main markets.

There is nevertheless some specialisation between areas in certain crops, resulting from differences in climatic factors. The best example is that between the western centres with Dodoma region, whereby the western centres supply grains in the dry season mostly. The northern centres supply wheat throughout the year and maize in the wet season. There is no specialisation in production between the district centres of Dodoma region, and so they had little to exchange between them. This is reflected in the fact that no commodities were moved between the two district centres in the commodity counts survey. This is further reflected in the near absence of traffic movement between the two centres.

However, although specialisation in production is important for regions to interact economically, specialisation in production alone may not be sufficient. There is a need for physical linkages to exist in terms of transport and transportation between the centres for the physical movement of the products for exchange. Further, it is not enough to have a mere road link; it is important to consider the quality of the road in terms of its motorability, especially in the wet season. The cases of the Singida and Iringa roads justify this, as in the wet season, vehicles had to be rerouted along long and inefficient routes. This renders potential economic interactions uneconomic, and so makes the forging of economic links between such areas difficult.

Nevertheless, some weak complementary economic relationships do exist between agricultural and industrial sectors in the study region. Imported and manufactured goods, as well as processed agricultural products, go down the urban hierarchy, whilst unprocessed agricultural products, go up the urban hierarchy to supply the processing industries, as well as the urban population in the higher urban centres. The agricultural sector, in particular, supplies products like oilseeds and grapes for processing industries. However, based on total production and marketed values, as indicated in the household survey, the amounts supplied are small. The households,

in turn, have limited cash with which to buy the products produced by the urban industries. There is also a low demand by the processing industries for crops for processing (due to low production capacity and limited demand for the finished products, like wine). As a result, although such a complementary economic relationship exists, it is poorly developed, and so agriculture in the region has been unable to commercialise to a significant extent. In Dodoma region, there are no industries located in the lower-order urban centres nor in its rural areas.

Tanzania's agricultural policy has not provided incentives for the small holder to increase productivity, or even production. The government policy served to extract a surplus from agriculture in order to finance the expansion of the state sector and industry. Klein (1989) notes that "the principal mechanisms in this appropriation process were a declining producer share in total product value, an over-valued foreign exchange rate, and a consequent deterioration in the relative prices for agriculture" (Kleemeier, 1989:407) The agricultural sector declined further and inter-and intra-regional differences in terms of income increased. The main limitation of the government's agricultural policy is that it depressed prices, thus reducing farmers' income. The policy also encouraged farmers more to produce food crops for their household requirements, reducing them more to subsistence producers.

The regions periodic markets are the ones most accessible to rural households, but they operate usually only once a month and have a very limited range of goods. The district markets are daily, and with a greater range of goods and services, but they tend to be less accessible to most rural households. There is also a time gap between when farmers earn an income (sale of crops in the harvesting season) and when they can spend it, due to either poor accessibility to the urban markets or poor supply of these incentive goods. This acts as a disincentive for farmers to increase production, and makes it difficult for the urban centres, and the growth centre in particular, to stimulate agricultural development and the commercialisation of agriculture.

The rural households, as indicated in the household survey, especially those in isolated areas with poor transportation, lack market outlets for their products. The supply of incentive goods to these isolated villages is also poor. It is also the case that most of the households in the remote distances from the growth centre tended to purchase back more of the similar products produced and sold earlier, possibly within the same area. This shows little economic integration with urban markets and highlights the poor supply of incentive goods down the urban hierarchy. Villagers have to purchase from these centres even though accessibility is poor.

The main crops produced in Dodoma region answer both food and cash income needs, and so households have to produce above their food requirements, otherwise they remain subsistence producers. Yields per acre and total production levels are low. Few households sell their crops, and where they do, sell only small quantities. Also, it was observed that what farmers sell is not necessarily surplus, as some purchased it back later in the season. Based on this, the urban structure, and in particular Dodoma Regional centre as a growth centre, has not been particularly successful in commercialising and developing further agricultural production in its hinterland.

It is in fact difficult to identify direct investments made by Dodoma growth centre in its hinterland. The few development projects which do exist, like health centres and dispensaries, water projects, and re-forestation programmes are basically national aid-related projects. The little surplus which is generated from agriculture is spent in the urban centres, both inside and outside the region, and is not reinvested on any great scale in economic infrastructure.

Besides villagisation and the decentralisation of the decision-making process, other strategies were adopted to reduce urban primacy and regional inequalities in Tanzania. These included, firstly, the promotion of secondary cities to act as centres for regional

administration and service provision, and, at the same time, to act as countermagnets to the old established concentrations of development on the coast and in the northern parts of the country; and secondly, the decentralisation of industrial location, aimed at expanding job opportunities outside agriculture in all areas of the country. The decentralised industries were to be located in the secondary cities which were to act as focus points. Nine such towns were established as commercial and manufacturing centres, These being Tanga, Arusha, Moshi, Mwanza, Mbeya Mtwara, Morogoro, Tabora and Dodoma. The central and southern parts of the country, as observed by Appalraju and Safier (1976:163), "are areas of extreme poverty and underexploited resources, where the promotion of urban growth will provide a much needed stimulus and, if successful, will reorient the existing system of cities towards a more equitable national coverage."

Further radical measures to reconstruct the space economy of the country, in line with socialist principles, were proposed at the end of the Third Five Year Plan (TFYP) 1974-1978. In 1975, the functions of the administrative and political capital started to be moved from Dar-es-Salaam and sited at Dodoma. This move was to take place over a ten-year period. Although Dodoma was chosen because of its location as the most central of the regional growth centres, it was nevertheless observed by Appalraju and Safier (1976:163) that Dodoma was one of the poorest regions of the country. As was the case with Arusha, where the establishment of the administrative headquarters for the then East African Community and its related organisations doubled the target population within a decade, the establishment of national government authorities in Dodoma was expected to double its 1974 population by 1980. Along with the construction of the Tanzania-Zambia rail and road connections (it is more than 10 years now since they were completed), it would further strengthen the new system of regional centres as countermagnets to the old established concentrations of development on the coast and in the north of the country. These ideas had followed on

from those proposed in the SFYP (1969-1974), chief among its objectives had been the restructuring of the spatial economic pattern of Tanzania through the promotion of growth centres to act as foci for development. Indeed the Second, Third, Fourth and the just ended Fifth Five Year Plans (1969-1988) have all promoted the implementation of these growth-pole policies. Clearly there is doubt over the achievements of these ambitious strategies. Proponents of these policies argue that time given for their implementation has not been sufficient, although they fail to indicate what would be an adequate time-period. As early as 1976, Appalraju and Safier had argued that:

"the creation and still more the execution of growth centre policies have been relatively recent in most countries. Significant changes in spatial structure are likely to take longer to mature than the period covered by one or two five-year plans. Nevertheless, if what is being attempted is more than small incremental adjustments to established economic and geographic patterns of activity, it should be possible to identify movements away from these patterns at a quite early stage in the production of an alternative economic and spatial formation. The signs are still few and far between" (Appalraju and Safier, 1976:144).

Based on the results of the traffic counts, commodity counts and market surveys, the continuing dominance of the metropolitan city of Dar-es-Salaam, and the centres of Arusha, and Morogoro over other centres in Tanzania is still clearly evident. In terms of traffic counts, Dodoma region had its strongest links with Dar-es-Salaam, the northern centre of Arusha, and Morogoro. The traffic links with the western and southern centres were very weak. Similarly, transit traffic links between the southern and northern centres were weak, although the transits between the southern and western centres were weaker still. In the commodity counts survey, most goods entering Dodoma centre from outside, were mainly from Dar-es-Salaam and Morogoro and the northern centres. Of these goods moving from Dodoma to the west, most were transit goods from Dar-es-Salaam, with almost nothing originating from Dodoma

centre itself. This reflects the weak position of Dodoma as an industrial growth centre, especially compared to the performance of the other eight growth centres, and in particular Dar-es-Salaam, Arusha and Morogoro. In the market survey, a similar pattern of dominance occurs, with Dar-es-Salaam, Arusha and Morogoro again clearly in the powerful positions. Although most commodities in the markets were supplied from these centres, there were also some supplies from the southern centres, mostly agricultural products and in most cases highly seasonal. In the wet season, transportation has to be rerouted along long and inefficient routes, making it difficult for the goods from these centres to compete better in these other markets. Clearly, the poor physical links, in terms of road condition and lack of transportation, further augments the advantages and the prevailing dominance of Dar-es-Salaam and the Northern centres with their better physical links with Dodoma centre. So far, the growth centre strategy has not been able to reduce the dominance of the metropolitan city of Dar-es-Salaam and the more developed Northern centres and Morogoro centre over the other growth centres of Tanzania. Industries, employment and income have been increasingly concentrated in Dar-es-Salaam, Arusha, Moshi, Tanga, Morogoro, Mwanza and Mbeya recently (Table 8:1). In spite of government efforts to promote Dodoma as the capital, its growth has remained moderate. In terms of urban population, Dodoma was in fifth position in 1952, but was ninth in 1988. A big gap in population still exists between Dar-es-Salaam and the second town of Mwanza. While Mwanza, Mbeya and Tabora have been growing at a faster rate since 1967, Tanga and Arusha have been growing at much lower rates. Tanga's second position has been taken by Mwanza, and Arusha's fourth position has been taken by Mbeya (Table 8:2)

It is evident, therefore, that the growth centres established so far, have not been able to act as countermagnets to the old established urban concentrations of the developed coast and north of the country. The volumes of traffic and flows of commodities

between the Dar-es-Salaam and the western centres are much higher than that between Dodoma and western centres, even though Dodoma is much closer to those western centres. Similarly, the link between Dar-es-Salaam and Dodoma centre is stronger than that between Dodoma centre and Morogoro, although Morogoro is closer to Dodoma centre than Dar-es-Salaam. This clearly shows the continuing dominance of the metropole over the other growth poles, incapacitating any chances for these centres to act as countermagnets between the metropole and the remote centres on the western side of the country.

The fact that the dominance of the old established concentrations of Dar es Salaam, the northern centres of Arusha and Morogoro still prevail today in terms of the supply and production of industrial products, as indicated by the traffic, commodity and market surveys, questions the effectiveness of the 1972 policy on industrial decentralisation. It can be argued that it has not been effective, as there was very little relocation of manufacturing of these products from the other growth centres to Dodoma regional centre. This argument is further strengthened by the fact that, even within Dodoma region, economic linkages between the region's urban centres is missing or at best weakly developed, whilst all these same urban centres have better developed economic links with outside centres, especially Dar-es-Salaam and Arusha. If economic decentralisation, and in particular the decentralisation of industries, had been successful, more industries would have been located in Dodoma, giving stronger economic links between the region's urban centres, as well as between the urban centres and villages in their hinterlands, but this is not the case.

**Table 8:1**

Distribution Of Industries, Employment And Income Generated By The Industries In Tanzania By Regions, 1988.

Region	Industries		People Employed		Income (Salaries)	
	No.	%	No.	%	No.	%
<b>Arusha</b>	<b>65</b>	<b>9.3</b>	<b>10,638</b>	<b>9.4</b>	<b>280.1</b>	<b>9.5</b>
Coast	4	.6	534	.5	7.5	.3
<b>Dar-es-Salaam</b>	<b>264</b>	<b>37.7</b>	<b>41,243</b>	<b>36.6</b>	<b>1,496.4</b>	<b>50.8</b>
Dodoma	2	.3	97	.1	2.2	.1
Iringa	21	3.0	4,727	4.2	64.3	2.2
Kagera	9	1.3	1,297	1.2	22.9	.8
Kigoma	1	.1	102	.1	.5	.0
<b>Kilimanjaro</b>	<b>49</b>	<b>7.0</b>	<b>6,336</b>	<b>5.6</b>	<b>166.7</b>	<b>5.7</b>
Lindi	7	1.0	1,403	1.3	12.3	.4
Mara	12	1.7	1,684	1.5	34.3	1.2
Mbeya	31	4.4	2,860	2.5	70.7	2.4
<b>Morogoro</b>	<b>48</b>	<b>6.8</b>	<b>21,876</b>	<b>19.4</b>	<b>316.8</b>	<b>10.8</b>
Mtwara	5	.7	392	.4	6.3	.2
Mwanza	47	6.7	5,718	5.1	90.7	3.1
Rukwa	2	.3	42	.0	.1	.0
Ruvuma	9	1.3	1,684	1.5	11.6	.4
Shinyanga	19	2.7	2,049	1.8	59.7	2.0
Singida	8	1.1	266	.2	4.4	.1
Tabora	14	2.0	503	.4	13.4	.4
<b>Tanga</b>	<b>84</b>	<b>12.0</b>	<b>9,212</b>	<b>8.2</b>	<b>284.1</b>	<b>9.6</b>
<b>Total</b>	<b>701</b>	<b>100.0</b>	<b>112,663</b>	<b>100.0</b>	<b>2,944.0</b>	<b>100.0</b>

Data Source - United Republic Of Tanzania, Department Of Statistics, 1990.

**Table 8:2**

Urban Population Growth For Regional Urban Centres In Mainland Tanzania

Town	1967		1978		1988	
	No.	Rank	No.	Rank	No.	Rank
Dar-es-Salaam	272,821	1	757,346	1	1,234,754	1
Mwanza	34,861	3	110,611	2	182,899	2
Tanga	61,058	2	103,409	3	138,274	3
Mbeya	12,479	10	76,606	4	135,614	4
Morogoro	25,262	6	61,890	6	117,760	5
Arusha	32,452	4	55,281	8	117,622	6
Moshi	26,864	5	52,223	9	96,838	7
Tabora	21,012	9	67,392	5	93,506	8
Dodoma	23,559	7	45,703	12	88,473	9
Iringa	21,746	8	57,182	7	84,860	10
Kigoma			50,044	10	77,055	11
Mtwara			48,510	11	76,632	12
Musoma			32,658	13	63,652	13
Shinyanga			21,703	17	63,471	14
Songea			17,954	19	54,830	15
Sumbawanga			28,586	15	47,878	16
Lindi			27,308	16	41,587	17
Singida			29,252	14	39,598	18
Bukoba			20,430	18	28,702	19

Data Source: Bulletin of Tanzanian Affairs, No. 37, September 1990.

## Chapter 9

### Conclusions

The main objective of this study was to establish whether the Tanzanian spatial economic structure reduced both the primacy of Dar-es-Salaam and Tanzania's regional inequalities, and attracted industrial growth away from Dar-es-Salaam, thus bringing about a more equitable spatial development across Tanzania. The study has focused particularly on the economic interrelationships between the growth centres and urban centres in Dodoma region, the strengths and geographic patterns of economic linkages between the growth centres and their hinterlands through the small rural service centres, and interrelationships between the centres within Dodoma region with those outside.

Since Independence, Tanzania has embarked on a number of strategies to bring about rural development and to reduce regional inequalities. Among these strategies have been the reorientation of the country's urban spatial structure through the promotion of growth centres, and the decentralisation of decision making processes and economic activities, both of particular interest in this study.

Based on the results of this study, the growth centre strategy so far has been able to reduce neither regional inequalities nor urban primacy, and in particular the primacy of Dar-es-Salaam. The old well-established concentrations of development on the coast and in the northern parts of Tanzania still remain unchallenged. Transport links and availability of transportation, as revealed by the traffic survey, are still strongest between the study region of Dodoma and these dominant centres, than with other centres in the western and southern parts of Tanzania. This is also the case with

economic links, in terms of the supply of manufactured, processed and semi-processed agricultural products, as indicated by both the commodity counts and market surveys.

Industries have not located to the other growth centres to any significant extent despite the policy of decentralisation introduced in 1972. Non farm employment and incomes are also still concentrated in the same traditional areas. Moreover, the economies of the urban areas, dominated by industry, and the rural areas, dominated by agriculture, are not complementary. Industry is poorly integrated with agriculture, especially in using rural resources, as exemplified by the case study on Morogoro region (Lundqvist, 1973). Some industry in Dodoma (DOWICO) has at least attempted to utilise rural products (grapes) in wine processing, but the problem is that DOWICO's productive capacity is still limited, and in any case is faced with a limited market for its products. Consequently, its own capacity to purchase farmers' produce in the region remains limited. The urban centres also compete with the rural agricultural areas for labour and the loss of labour to the urban centres, especially from the closest villages, can have a negative effect on agricultural output. As industries are not labour intensive, the migrants attracted to the urban centres are not likely to be fully absorbed in the urban economy. Rural - urban migration is, therefore, a problem to both the source and destination areas in the region and the country.

It can be argued that, the application of the growth centre policies in Tanzania, and the study region, were not adapted to the prevailing socio-economic, political, ecological and spatial conditions. Tanzania is a large country, with great distances to be covered, made worse by the poorly developed transport network. Hilly or mountainous areas and rivers render the construction of transport links difficult and expensive. Some roads are soon made impassable as bridges are destroyed by flooding rivers, or the unmade roads become too muddy. Parts of both the country and the region are too

frequently totally isolated. As a result linkages between functional areas are vulnerable, and this is a major problem for sustainable and successful development. The results of the traffic counts survey indeed show a decline in the volumes of traffic along these roads in the wet season, and in some situations, as between Dodoma region and the western and southern centres, vehicles have to be completely re-routed.

Tanzania, as a developing country, has few resources available for development. Consequently, the choice of nine centres as growth centres was very ambitious considering the resources available for their development. The location of these growth centres may be appropriate in terms of attaining national equity, but in some situations, like Dodoma centre, the location may not be appropriate in relation to the hinterland expected to be served; some parts of its hinterland, especially Mpwapwa, are quite isolated, especially in the wet season. For a country like Tanzania, with a large number of scattered villages and with poor transportation, a greater number of smaller, lower-order urban centres, located within closer reach of the rural villages, would have had a greater developmental effect on the rural areas. This is supported by the finding that rural households in the study region choose to use lower-order urban centres with fewer facilities, but which are geographically closer to them, rather than the more distant higher-order urban centres with a better range of facilities available. The results of the traffic counts study also showed that the availability of transport declines sharply with distance from the urban centres. Finally, economic links, in terms of the supply of agricultural products to the urban centres, as well as the supply of consumer goods, is also stronger with those villages closer to the urban centres, than with those located at greater distances.

Proximity to the urban centres, and hence the services located in these urban centres, is considered necessary for the development and commercialisation of agriculture. The study showed, for example, that distance and availability of transport influence agricultural production, especially the production and supply to the market of

perishable products like milk and vegetables. However, although the closest villages, especially those within walking distance, and with access to readily available transport, enjoy this advantage, this proximity to the urban centres also has a negative impact on agricultural production, and, in particular, on the nearest villages ironically. The increased urban influences on these villages means that households in these villages do not have to depend solely on agricultural production for their survival, as they are more accessible for urban non-farm employment, and can also purchase their food requirements from the urban centres.

The growth centres, and especially Dodoma growth centre, has not been very successful in establishing themselves as markets for products produced in their hinterlands. Most rural households in the study region indicated problems in marketing produce, to the urban centres where the main markets are located. As a result, Dodoma as a growth centre has had little impact on further commercialising agricultural production. Rural households still market small quantities of crops, and only a small part of that actually reaches the market. At the time of the survey, there were piles of crops, like maize, piled up in villages, waiting to be purchased, whilst the institutions, assigned for their purchase, had no funds with which to purchase the crops.

In Tanzania and the study region, a system of towns or urban centres arranged in a functional hierarchy to the village level does exist. The same system serves both administrative and economic functions. From the results of this study, it has been observed that the location of these centres, and the demarcation of their respective hinterlands, did not take into consideration the economic functions to be performed by these centres, as the administrative and economic patterns and links associated with the centres are different. Centres expected to function together administratively under one region or district administrative unit do not necessarily function together economically.

Most of the economic functions carried out under the present hierarchical structure are mostly institutional and inefficient, and these are likely to be increasingly challenged from private traders, companies and organisations with further trade liberalisation in the country and region.

The urban centres, as is the case with Dodoma region, are not sufficiently interlinked to promote the commercialisation of agriculture in the rural areas. Dodoma centre is linked directly by road to only some of the other regional centres of Tanzania. Its links with its lower-order district centre within the region are also weakly developed, in particular with Mpwapwa, and the two lower-order district centres are themselves poorly linked with each other by direct transport. The strengths of the physical links are clearly reflected in the economic links; stronger economic links prevail where strong physical links exist.

Economic functions in the urban centre hierarchy in the study region end at the district urban centres. Very few urban centres exist below the district urban centres. The supply of incentive goods and production inputs also finishes at the district level in most cases, rendering increased agricultural production and its commercialisation in the rural areas very difficult, even though service centres are expected to locate and function at the village level. In the study region, this role is fulfilled by periodic market, although, as seen, the functions of these periodic markets are mostly limited to livestock exchange. Few other supplies are provided, and rarely are other services offered. Moreover, they tend to operate only once in a month, and so this leaves the district urban centres as the main market and supply point for most rural villages. Even so, services available in these centres are mostly limited to those villages closet to the district centres because of accessibility problems. There is thus a need to have another level of urban centres, below the district level, as service centres, and these could profitably be the existing periodic market centres. These, if developed in terms of service provision, and linked physically and economically to the higher district and

regional urban centres, inside as well as outside the region, might have a more effective developmental impact on the rural villages than the present arrangement. Most rural households in the study region are relatively accessible to these periodic market centres, and can thus use the facilities available in these centres.

To counter "back-wash" effects and to facilitate "spread effects", there is a need for specialisation in production to promote and expand economic links. Few attempts have been made in Tanzania and the study region to promote specialisation in production, and in particular, of agricultural production. Pricing policies, (uniform prices for similar products throughout the country irrespective of transport costs) have encouraged the production of bulky products with low market value in even very remote places, thus reducing the need to specialise between areas. With increased trade liberalisation, it is going to become more difficult for some households to market such crops at competitive prices, and regional specialisation in crop production in Tanzania is going to develop. This should, therefore, provide a stimulus to inter-regional trade, and may provide new economic opportunities for regions like Dodoma.

Having recognised the importance of regional specialisation, it is crucial to recognise that the availability of good transport links are of considerable importance, especially in the early stages of development, so as to facilitate the movement of goods and to promote further specialisation and increased production. The physical linkage of rural villages to the main roads and urban centres is crucial for the commercialisation of agriculture and increased agricultural production. Villages located off the main roads, and not linked by efficient transportation to the main roads, have greater marketing problems than those located on the main roads with efficient transportation. The government's current emphasis on improving the trunk roads, linking regional centres without accompanying measures to improve feeder roads to link the rural villages to these trunk roads, is not likely to have a significant developmental impact on rural villages and nor on rural development in particular. This has been demonstrated by the recently constructed Dar-es-Salaam to Dodoma road; traffic along this road bypasses

most of the villages in the area, especially those lying at greater distances from Dodoma regional centre. Also, further improvement of trunk roads linking the regional centres to the metropolitan city of Dar-es-Salaam, without improving the transport links between the other regional centres, will further concentrate development in the coastal areas, Morogoro and the northern centres, which are closer to Dar-es-Salaam and with better existing transport links.

It can be concluded that, although Tanzania's development goals have changed since Independence in 1961, the spatial organisation of towns and service centres, the pattern of communications and transportation networks, and the pattern of economic links have not been changed in line with those development goals. Both the urban structure and the resulting marketing system have continued to be a disincentive to increased agricultural production and the commercialisation of agricultural output. However, rural-urban linkages, in terms of purchases of agricultural products and the supply of incentive goods, continue to maintain an exploitative relationship by the urban areas over the rural, and such an economic relationship is likely to widen further the rural-urban gap in incomes and inequality between the rural and urban centres. Consequently, the present urban spatial structure of Tanzania, and the study region, is not appropriate for the nation's current development goals, and has not so far been able to bring about the much desired rural development and equity between regions, as well as between the rural and urban areas of the country.

## Appendix

### Household Questionnaire.

University of Dar-es-Salaam, Department of Geography

Thesis Research: Rural Urban Economic Linkages: A Spatial Analysis of Dodoma Region, Tanzania.

Name of Village: -----Name of Respondent :----- Sex of Respondent:-----

Tribe of Respondent:----- Main Occupation: ----- Minor Occupation: -----

#### Demographic Characteristics:

1. Age group:
1. 15 - 24 years ( )
  2. 25 - 34 " ( )
  3. 35 - 44 " ( )
  4. 45 - 54 " ( )
  5. 55+ " ( )

#### 2. Education / Literacy Levels:

1. No formal education. ( )
2. Primary education. ( )
3. Middle School. ( )
4. Vocational / Commercial / Technical ( )
5. Secondary School. ( )
6. Post secondary education ( )
7. Non - Formal (adult education). ( )

#### 3. Household Size:

1. No. of wives: ----- 2. No. of own children: -----
3. No. of other dependants: ----- 4. Total household size:-----
5. No. of family members working on the farm ( above 15 years): ---
6. No. of family members away from village (above 15 years):-----

## Resources available for Production (land)

### 4. Characteristics of farm plots owned by households:

No. of Plot.	Size of Plot (acreage)
Plot 1	-----
Plot 2	-----
Plot 3	-----
Plot 4	-----
Total No. of Plots -----	Total Acreage -----

5. Did you cultivate all your land last season ? Yes ----- No. -----

6. If did not cultivate all farm land, how much was not cultivated ?  
----- acres. Not Applicable -----

7. Can you get more land in the village if you want to expand your farm ? Yes ----  
No -----

## Production

8. Indicate the production of 4 main crops in the order of priority of the farmers.

Use table below.

The Main Crops	Acreage under production	Total Yield Last season	Yield Per Acre
1. -----	-----	-----	-----
2. -----	-----	-----	-----
3. -----	-----	-----	-----
4. -----	-----	-----	-----

9. Are you visited by Agricultural Extension Officer ? Yes ----- No -----

10. If yes, how often ?

1. 1 - 4 times a month. ( )
2. 1 or 2 times in six months. ( )
3. Once in a year. ( )
4. Once after several years. ( )
99. Not Applicable ( )

## Marketing

11. Indicate the quantity of crops sold and value ( last season).

Crop Type	Quatity sold	Price Per Unit	Total Income
1. -----	-----	-----	-----
2. -----	-----	-----	-----
3. -----	-----	-----	-----
4. -----	-----	-----	-----

12. Do you sell your produce immediately after harvest?    Yes -----    No -----

13. Are there any price differences between selling immediately after harvesting and later when farming season begins ?    Yes -----    No -----

14. If yes, give examples below:

Type of Crop	Price per Unit Farming season	Price per Unit Harvesting season	Price Differences In T. Shs.
1.-----	-----	-----	-----
2. -----	-----	-----	-----
3. -----	-----	-----	-----
4. -----	-----	-----	-----

99. Not Applicable ( )

15. To whom do you sell most of your produce ?

Crop type	Government	Cooperative	Pvivate traders	Selling place	Price per unit
1. -----	-----	-----	-----	-----	-----
2. -----	-----	-----	-----	-----	-----
3. -----	-----	-----	-----	-----	-----
4. -----	-----	-----	-----	-----	-----

16. For those selling most of their produce to government / cooperatives, are they happy with these dealers ?    Yes -----    No -----

17. (1) If No, why ? -----

(99) Not Applicable ( )

18. (1) For those who are not happy with government / cooperative buyers but still sell to them most of their produce, what are the circumstances which forces them to do so ? -----

(99) Not Applicable ( )

19. (1) For those selling most of their products within the village, do they have a desire to sell in other markets outside the village ? Yes ----- No ----- (99) Not Applicable ( ).

20. In the last farming season did you have to buy back any of the crops / crop products you had harvested and sold ? Yes ----- No -----.

21. For those who say yes. indicate the products, amounts, from whom, price per unit, and place from which purchased. Use table below.

Crops / Products	Quantity	Price per unit	From whom	Place purchased
1. -----	-----	-----	-----	-----
2. -----	-----	-----	-----	-----
3. -----	-----	-----	-----	-----
4. -----	-----	-----	-----	-----

(99) Not Applicable ( )

**Households Accessibility to the Urban Centres:**

22. Have you ever visited the District market town ? Yes ----- No -----.

23. Have you ever visited the Regional market town ? Yes ----- No -----.

24. For those who say yes for question 22 and 23 complete table below.

Market centre visited	Common purpose of visiting	Frequency of visits
1. District	-----	-----
2. Regional	-----	-----

25. Have you ever visited any other town outside this region ? Yes ----- No -----

26. For those who say yes, complete the table below:

Town visited	Purpose of visit	Frequency of visit
1. -----	-----	-----
2. -----	-----	-----
3. -----	-----	-----

(99) Not applicable ( ).

## **Note on Methods**

### **Data Collection**

#### **1. Traffic and Commodity Counts**

The survey was conducted with the help of the Traffic Police in Dodoma Region and research assistants using a questionnaire. A road block was set outside all the main three urban centres in the study region for one day in the wet season, and one day in the dry season, starting from 6.00 in the morning and lasting until 6.00 in the evening. For Dodoma regional centre and Mpwapwa district centre, the counts were undertaken on a Saturday, and for Kondoa district centre on a Friday. These are the appropriate market days for each of these centres, and most traffic and commodity movements occur on these days. The vehicles stopped included all trucks, buses and taxis. People walking with goods, or using animals, were also stopped. The drivers of the vehicles were asked the origin and destination of their journeys, and they were also asked to show all goods they were carrying and to indicate their quantities. The same questions were asked to people crossing the road blocks by foot. The research assistants estimated the quantities of the different goods carried, as a check on the drivers' responses.

#### **2. Market Surveys**

The survey was undertaken in the three main urban centres of the study region. Trained research assistants were used to complete in the questionnaire. The survey was conducted for one week in the wet season and one week in the dry season, both from 6.00 in the morning to 4.00 in the afternoon, and included traders both selling and buying. Traders selling were asked to indicate whether they had produced themselves the goods they were now selling, or whether they had in fact bought them themselves. For those who had purchased the goods they were now selling, they were asked to indicate the location of purchase, the source of purchase, purchasing

price, transport and storage costs, as well as re-selling prices. The traders selling were also asked to indicate their main customers and other markets they sold at. Traders buying were asked to indicate the disposal of the goods they purchased. For those who were going to re-sell the commodities, they were asked to indicate how and where they were to be re-sold. Response rates were higher with traders selling than those buying. The responses were particularly poor on purchasing and re-selling prices.

### **3. Household Survey**

Nine villages were selected for the survey by the use of criteria related to their accessibility to Dodoma regional market centre. Accessibility was measured in terms of distance, nature of the road and volume of the traffic. Distance factor was divided into close distances of between 5-10 kilometres, average distances of between 30-50 kilometres, and very remote distances of above 80 kilometres from Dodoma centre. The nature of the road was based on the motorability levels. These are: highly motorable (asphalt surfaced and all weather) as first class road; average motorability (without asphalt surfaces but used in all weather) as second class road; and poor motorability (without asphalt surfaces and used with less difficulty in dry season only) as third class road. The volume of traffic was classified according to the number of vehicles (buses, lorries and all other cars) per day. Over 50 vehicles passing in a day was considered as very heavy volume; between 10-50 as average; and below 10 vehicles as very low volume. In these villages, the 310 households interviewed were selected randomly from the Village Tax Register, consisting of all adults above 18 years of age. The response rate was high in general, but low on those subjects which touched on income, in particular on quantities of crops sold. The figures given on farm acreage are based on farmers' estimation, and no actual measurement of the acreage was done in the villages.

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