

THE ROLE OF TRANSPORT AND COMMUNICATIONS IN
REGIONAL ECONOMIC DEVELOPMENT: THE CASE OF
CHAMA AND LUNDAZI DISTRICTS OF EASTERN PROVINCE

BY

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To Mum and Dad and to my brothers and sisters,
Leonard, Roy, Joe, Molly, and Margaret.

Declaration

This dissertation was written and submitted in accordance with the rules and regulations governing the award of Master of Arts Degree of the University of Zambia . I further declare that the dissertation has, neither in part nor in whole, been presented as a substance for award of any degree, either to this or to any other University. Where other people's work has been drawn upon, acknowledgement has been made.

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ABSTRACT

The conception and execution of this dissertation

The role of transport and communications in Regional Economic Development: the case of Chama and Lundazi districts of Eastern Province. This paper examines the implications of improvements in the transport and communications systems on the economic development of the two districts, which are relatively underdeveloped. Transport and communications are, among others, assumed to be a major contributing factor to this condition, especially in the case of Chama District. Alongside this assumption, the practice of regional planning in Zambia up until the Third National Development Plan, 1979 - 1983, appears to be another contributing factor. To assess these implications, data on transport and communications investment, transport plans, inter- and intra-regional transport networks, and maintenance and storage facilities, together with the help of the broad conceptual framework of the cost-benefit analysis, are used. Transport improvements, on the other hand, are assessed using data on the length and classes of roads as well as road densities. Finally, arising out of the analysis of the data relating to Chama and Lundazi districts, some policy options are considered.

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ABBREVIATIONS

CLASSES OF ROADS:

CLASS I (A, B OR C) = All Bitumen.

CLASS II = Gravel and Engineered.

CLASS III = Earth and Gravel.

Unclassified = Earth with 3.5 metres of Gravel
where **necessary**.

DC	=	District Council
DES	=	District Executive Secretary
DPA	=	Directly Productive Activities
DS	=	District Secretary
ECU	=	Eastern Province Co-operative Union
EOC	=	Economic Overhead Capital
FNDP	=	First National Development Plan 1966-1970
GDP	=	Gross Domestic Product
GER	=	Great East Road
GHR	=	Great North Road
HA	=	Hactares
HMSO	=	Her Majesty Stationery Office
IDZs	=	Intensive Development Zones
IRDP	=	Integrated Rural Development Programme
LINTCO	=	Lint Company of Zambia
MAND	=	Ministry of Agriculture and Water Development
MCC	=	Member of the Central Committee
MPTC	=	Ministry of Power, Transport and Communication

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NAMBOARD	= National Agricultural Marketing Board
NCDP	= National Commission for Development Planning
NPCU	= Northern Province Co-operative Union
PWD	= Provincial Commissioner of Works Department
RRL	= Road Research Laboratory
SNDF	= Second National Development Plan 1972-1976
SOC	= Social Overhead Capital
TAZARA	= Tanzania-Zambia Railway Authority
TBZ	= Tobacco Board of Zambia
TNDP	= Third National Development Plan 1979-1983
TVA	= Tennessee Valley Authority
UBZ	= United Bus Company of Zambia
UDI	= Unilateral Declaration of Independence
UNIP	= United National Independence Party
VPCs	= Village Productivity Committees
Ws	= Works and Supply.

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1.0 INTRODUCTION

The basic premise of this study is that an adequate and efficient transport and communications system is a necessary precondition for the economic development of Chama and Lundazi districts. It should, from the outset, be noted that the two districts have persisted being in economic depression. This is inspite of the fact that the two districts are part of the Eastern Province, which is relatively the most economically developed outside the line-of-rail in Zambia. As its aims and objectives the study will thus:

- (i) Ascertain the role of transport in development and regional economic development in particular;
- (ii) Make a comparative review of investments in transport and communication in:
 - (a) Zambia; and
 - (b) Eastern Province.
- (iii) Evaluate the evolution of regional planning in Zambia, with emphasis on the sub-regions of Chama and Lundazi.
- (iv) Make a survey and analysis, in Chama and Lundazi districts of:
 - (a) Transport plans since independence;
 - (b) Transport network, both intra-and-inter-regional;
 - (c) Maintenance facilities for roads and vehicles;
 - (d) Storage facilities for inputs and produce; and
 - (e) Communication network other than roads.
- (v) Assess the effect of transport on Chama and Lundazi districts.

1.1 THEORIETICAL FRAMEWORK

There is growing interdependence in modern society, which has its roots in the increasing awareness that endowments of places (or regions) just like talents of individuals are unevenly distributed over the earth's surface. Arising from these differences the theory of specialization based on Ricardo's "comparative advantage", was developed. Specialization is so widespread that its possible to note the presence of regional specialization. Transport and communications which are themselves the means of conveying people and goods and of transmitting information and ideas from one point to another are essential in maintaining and promoting regional specialization. Transport helps to bridge the gap between areas of production and those of consumption.

1.1.1 REGION

A region is an area within the national economy sufficiently comprehensive in structure so as to function autonomously though it has in most cases strong affiliation with the rest of the economy. Its historically determined cohesiveness makes it possible to define a region in terms of the time dimension as well as over space. Attempting to define a region in conventional terms gives rise to two views.² On the one hand, there is the subjective view which treats a region as a descriptive framework defined by criteria dependent upon purpose of the definition. The other view holds that economic regions may be objectively identified as geographic areas. This view is popularized by geographers in their efforts to delimit natural regions based on such criteria as landforms, climate, vegetation, and demographic variables.

What emerges from the objective view is the definition of formal regions as areas of homogeneous physical or economic structure.³ Another type of region, the polarized or nodal region was first coined by Perroux, one of the pioneers of regional economics.⁴ This is a preferred concept because it focuses on spheres of influence of urban areas. It acknowledges that population and economic activities are unevenly distributed in space and that in practice they agglomerate at specific locations. At all levels of spatial aggregation, agglomeration is a noticeable feature.

At the national level there are "core" regions that have higher population densities more industry and higher urbanisation than other regions. At the regional level there are dominant cities (nodes) to which flows of inputs, goods, people and traffic gravitate. Within cities there are nuclei that form business and social centres. The functional links are observable through flows of people, factors, goods and communications. Since the intensity of flows is assumed to be an increasing function of pull factors of the nodes (associated with the size of their mass) it will decay over distance due to costs of resolving spatial conflicts.⁵ Thus, the gravity model is an appropriate operational technique for making an analysis of nodal regions. The planning (or programming) region is yet another regional concept. This is most easily conceived of as an area in which economic decision and policy instruments are implemented and this is its sole unifying force.⁶

1.1.2 REGIONAL DEVELOPMENT AND PLANNING

Planning regions are characteristic of economies where the

country is divided into many parts aimed at fulfilling national economic objectives and providing an areal base for regional economic administration. The success or failure of regional planning, therefore, based on the extent to which the living conditions of the people in the respective region, have been improved. In this paper regional development is described as the "incidence of economic growth".⁷ That is, "it is ultimately the result of the location of economic activities in response to differential regional attractions". In a nutshell, "spatial organisation" being a function of activity and interaction pattern, regional development is simply an expression of these patterns". Abstracting from the foregoing definition of regional development, the function of transport and communication may be easily discerned. Together transport and communications often form a precondition for the process of economic development to take-off. Transport and communication can in this sense play a facilitative role in the development process. However, there are also some undesirable effects of transport, namely the promotion of out-migration, especially where this is not a preferred policy target. Thus, benefits are accompanied by costs and the choice of transport and communications investment strategy should be such that it maximizes the chances of providing an infrastructural basis where benefits exceed costs. In the case of Zambia which aspires to a socialist society it may be added that the provision of transport infrastructure should promote the implementation of a more balanced spatial, structure and thus, it is hoped a more equitable distribution of benefits for all.

Regional planning which appears to be the basis of Zambia's economic development, is administered through provinces. In this connection, the nine provinces of the country are its planning regions. These provinces or regions are further divided into sub-regions known as districts. In the 1970s Eastern Province which is one of the nine provinces of Zambia was divided into six administrative entities (districts) the objective of which was to strengthen local administration and probably regional planning. Chama was until then being administered from Lundazi District i.e. it was a Rural Council of Lundazi District. Another impetus towards regional planning arose in 1981 when Parliament passed the Decentralisation Bill. The objective of the Bill is to delegate more authority and responsibility to Local Authorities. It should also be realized that the success of regional planning anywhere demands an integration of national planning and regional planning. If national planning is unsuccessful it is very unlikely that regional planning will succeed. The reverse also holds. That is, there is a two-way relationship between the two levels of planning. The national plan provides the broad objectives while regional planning narrows these down to take account of local conditions. In order to set these objectives, information from the grassroots should be used by planners at the national level. Thus, for planning to be successful it is necessary that there be a top-down as well as a bottom-up approach to it. Plans should not be imposed on people; instead people through

their participation should be made to feel that they are part and parcel of the planning process.

1.2 OPERATIONAL DEFINITIONS

To determine whether or not the advanced relationship between transport and communications on the one hand and regional economic development on the other holds the conceptual framework of the cost-benefit approach has been used. That the actual technique of cost-benefit analysis is not used is due to lack of appropriate data. Use of this technique requires a lot of data pertaining to production, agricultural or industrial as well as to cost savings. If such information was available, then the evaluation exercise may be undertaken in two main ways. Either adopt the "before" and "after" projects technique or "with" or "without" projects technique. That the study does not necessarily focus on any particular road project, is another reason for not adopting the cost-benefit technique. The study is concerned with examining the possible effects of the provision of an adequate and efficient transport and communications system on the study area. Thus, the study is both descriptive and analytical in its approach.

Adequacy and efficiency of transport will in this study be measured in terms of the lengths and classes of roads available in the study area. Of course, the assumption is that the more roads are in classes I to III all-weather the better. It is also being assumed that the number of roads is a function of regional policy, transport planning, and investment strategy in the area and in the province as well as in the country. The quality of these roads will on the other hand, depend on the quality and quantity of the maintenance facilities, established for this purpose.

other
In two separate studies by W. Kariraksa and T. Patanapanich
Examination of the road densities in the area is one other measure
that will assist in illustrating the possible effects of roads on
both of which were done in Thailand and in the same year 1963.
the area. The higher the ratios the better is accessibility in the
It was found out that development roads not only do they reduce
area. It should, however, be noted that the examination of road de-
nsities is done in a comparative fashion i.e. Chama vis-a-vis Lundazi.
This comparison reveals that Lundazi District which has relatively
better accessibility enjoys a relatively higher level of agricultural
production.

1.3 REVIEW OF LITERATURE

In Zambia a study of this kind has so far not been done. The
researches that have been done have had more emphasis placed on na-
tional development rather than regional development.⁸

Studies of this nature have, however, been undertaken elsewhere
in the world. One study done by N.D.S. Smith (1959) on the West Nile
Area of Uganda shows that there is a positive correlation between trans-
port improvement on the one hand, and population, cotton acreage per
capita, and incomes from cotton on the other.⁹ In particular each of
the three variables showed relative rates of increases corresponding
to the rate of growth of mileage. In another study by R.S.P. Bonney
(1962) on North Borneo it was found that in areas not served by roads
not many small children travel to the larger towns; crops are genera-

ly poorer; there is virtually no appreciation of the benefits at-
tributable to planting higher-yield crops; the provision of schooling in
a fragmented basis virtually doubled the cost per class unit; and the
benefits of centralised well organised agricultural centres could not
be realized.¹⁰

other

In two separate studies by W. Kasiraksa and T. Patanapanich on the Friendship Highway and the East-West Highway, respectively, both of which were done in Thailand and in the same year, 1963, it was found out that development roads not only do they reduce transport costs, but they also have other effects.¹¹ By opening up new areas they promote industry expansion and dispersion and to a large extent, augmented vehicular traffic, is induced by activity external to the highway itself. In a nutshell, development roads act as a catalyst to accelerate the rate of economic progress of a region. Many more studies undertaken in East Africa, Latin America, Asia and many other places also show similar results. Notwithstanding, many studies have also shown that transport is a necessary but not sufficient pre-condition to economic development. The study by Blaike, Cameron and Seddon, (1977), "The Relation of Transport Planning to Rural Development: The Implications of Road Construction in Nepal" is a case in point.¹² The study shows that inspite^{of} the provision of three roads in West-Central Nepal, development did not take place, largely because the inherent fertility of the soil is limited. As a result the provision of the roads only helped to accentuate underdevelopment in the area as human and material resources were easily being drawn out to the neighbouring "metropole", India.

1.4 METHODOLOGY

The study covers the period from independence (1964) to (1981). This enables a retrospective examination of the problem. The examination of the advanced relationship between transport and communications and regional economic development is based on both secondary and primary data.

Library research provided the bulk of the secondary data requirements. Other secondary data sources included the annual reports of the Integrated Rural Development Programme (IRDP); Eastern Province Co-operative Union (ECU) National Agricultural Marketing Board (NAMBOARD); United Bus Company of Zambia (UBZ); and Ministries of Power, Transport and Communications, Works and Supply - Roads Department, Agriculture and Water Development (MAWD), and National Commission for Development Planning, (NCDP). World Bank reports and the national development plans also proved useful sources of secondary data.

To supplement the secondary data sources limited discussions were held with various Government and Parastatal Officials in Eastern Province. In Chipata audience was sought with officials from the Provincial Commissioner of Works Department, UBZ - Area Manager, Post and Telecommunications, Department of Information and Broadcasting Services, Provincial Agricultural Office, Planning Office - Land Use Services, IRDP Eastern Province, ECU and Water Affairs. In Chama discussions were held with the District Secretary; Officials from the Ministry of Education, IRDP, ECU, - Depot Supervisor, MAWD - Department ^{of} Marketing and Cooperatives. Finally in Lundazi some information was obtained from the District Executive Secretary (DES), the District Secretary (DS), ECU - Depot Manager, District Agricultural Officer, and the Ministry of Education - Education Officer. However, some problems of data availability and inter-pretation were encountered.

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Production data is the most adversely affected. To begin with, in some cases Districts and Provincial production figures did not add up. Usually, provincial figures were larger than district ones. It was learnt that this was due to over-estimation by Provincial Officials who wanted to impress officials in Lusaka. In other words, the figures were inflated mainly because the data collectors are far removed from the users. This problem was resolved by accepting district data as being more reasonable. Secondly, production data is prone to misinterpretation by the farmers themselves. Due to high rate of illiteracy some farmers are not able to distinguish between acres and hectares in estimating their farm areas. To some the two measures are one and same thing. Thus, land under cultivation should be treated with caution. Other data problems included the non-availability of disaggregated - district by district - transport investment data, in which case provincial data was used and inferences made for the districts. Finally, road density data is based on road statistics provided by the Roads Department in Chipata and in the respective District Councils.

1.5 RELEVANCE OF THE STUDY

Although the study does not propose to present definitive statements about transport and regional economic development, it appears to me that presentation of a number of policy options would set a framework for any future transport related project(s) in the region or in any other region. In addition, since no research of its kind has been undertaken in Zambia, it is hoped that this study which raises a number of issues relating to transport and development, would

provoke further research in the area. Furthermore, it is hoped that students of regional economics and any other scholars for that matter would find this study interesting as it raises some theoretic-practical issues in economics.

1.6 STRUCTURE OF THE PAPER

The present chapter is merely introductory, chapter two sets out the theoretical framework of the study. The first sub-section in the chapter, examines the role of transport in the development process. The chapter continues with the consideration of the importance of transport in industrial location and it concludes with a discussion on the nature of the interrelationship between the process of transport investment strategy and regional economic development.

Chapter Three sets out with a short discussion on regional planning and policy. The second sub-section, in the chapter, focuses on the regional setting of the study. The idea of doing this lies in the fact that this whole study is in regional planning or economics, as such we would like to have some perception of the study area. The chapter continues with a review of regional planning in Zambia and ends with a focus on Chama and Lundazi districts.

Chapter Four deals with capital expenditure in transport and communications sector. The first sub-section of the chapter provides a detailed review of the expenditure on transport and communications sector in Zambia as a whole. The chapter continues with an analysis of the share of this sector in Eastern Province and concludes by making some inferences about Chama and Lundazi districts, since there is no disaggregated data.

The Fifth chapter provides an empirical examination of the study area. The chapter contains four sub-sections. The first of these presents the basic characteristics of Chama and Lundazi districts under such headings as population, land resources, main economic activities and so on. The second sub-section surveys and analyses the government's road transport plans and policy between 1964 and 1981. The third sub-section deals with such topics as transport net works, maintenance and storage facilities and communications. The objective is to establish whether or not any one of them or a number of them act to compound the problem of economic underdevelopment in the study area. The fourth and final sub-section provides an impact analysis of transport on the study area. It is aimed at providing a basis for suggesting policy options. The policy options will be drawn out using cost-benefit analysis as a theoretical approach, as already indicated.

The final chapter presents a number of policy options which arise out of the analysis contained in the preceding sections.

FOOTNOTES

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9. Wilson et al (1966), The Impact of Highway Investment on Development. Chapter V, pp. 154-5.
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2.0 THEORETICAL FRAMEWORK

This theoretical chapter seeks to:

- (a) examine the role of transport in the development process;
- (b) assess the importance of transport in industrial location;
- (c) and ascertain the interrelationship between transport and regional economic development.

A discussion on each of these points will attempt to give an insight into what role transport can play in regional economic development and economic development of Chama and Lundazi districts in particular.

2.1 ROLE OF TRANSPORT IN DEVELOPMENT

Transport belongs to the wide concept infrastructure. In its broad sense infrastructure encompasses economic overhead capital (EOC) and social overhead capital (SOC).¹ This appears to explain why it (infrastructure) occupies a prominent position in the development process.² EOC is primarily geared towards the support of directly productive activities or towards the movement of economic goods. In this category, transport can be included and the other elements are electricity and water supply, bridges, to name but a few. SOC is, on the other hand, designed to enhance human capital and comprises education, public health facilities and so on.

The foregoing distinction between EOC is ascribed mainly to Hansen (1965a).³ Hirschman (1963), on the other hand, did not make a similar distinction.⁴ Rather, he combined the two and simply referred to them as SOC. The only distinction he made was between SOC and directly productive activities (DPA), but this is not a concern of this paper. This paper's concern is with Hirschman's note that SOC can be restricted to transport and power. In a similar manner,

this paper defines infrastructure as transport and communications. In fact, this is in keeping with the Zambian Government definition of the concept, reflected in all its major development plans.⁶ Furthermore, regional development as defined in this paper attaches much importance to transport and communications. To a large extent due to the emphasis being placed on spatial interaction, in the process of regional development. It is assumed that there is a substantial amount of potential factor mobility between regions as well as sub-regions within a country and a region respectively. Transport and communications therefore do not only facilitate this movement but also the movement of goods and the spread of ideas. In the case of Zambia where balanced regional development is a major objective, development of transport, given its functions, ought to form a significant part of the strategy of development.

2.1.1 EVOLUTION OF TRANSPORT

According to Owen (1962), the development of the means of transport in the now industrialised countries has gone through five distinct stages.⁷

- (i) There is what Owen calls the period of immobility and the traditional society. In this period it was extremely difficult and costly to promote trade and cultural relations on any large scale except in areas where rivers and oceans provided some forms of communication. Pre-dominance of localized agriculture and handicraft industries with a minimum of economic integration characterized this first era. Unfortunately

most of the people in the world still find themselves at this initial stage of primitive transport and their efforts to progress beyond a subsistence environment are being frustrated by the same barriers to movement that plagued so many generations before them. Bullock cart, camel, donkey, and head-loading are the transport symbols of traditional society to-day.

(ii) This was characterized by internal improvements and growth of trade. Human and animal power were rendered more effectively by the development of the wheel, turnpikes and canals, which lowered the cost from what it had been with traditional ways of moving on land and water. Falling transport costs made possible the expansion of capacity and lengthening of the radius of trade and travel.

(iii) According to Owen, this stage was marked by mechanization and industrialization. Steam power introduced both the steamship and the first railways. Heavy investments in transport and establishment of a wide spectrum of manufacturing industries are also features of this phase.

(iv) This phase involved the development of the internal combustion engine and new mobility. The stage was accordingly marked by growing dependence on trucks, buses and automobiles, and by extensive efforts to provide all weather roads. People and economic activity were no longer

subject to limited distances of fixed routes dictated by railways and water ways.

(v) The stage of the air age, about seventy years ago.

That was when the conquest of distance occurred, since from that time no place is more than a few hours from another. Thus, the world is being united by transport speeds that obliterate political boundaries.

With regard to the developing countries all the above stages are being experienced simultaneously. The coexistence of the old and new forms of communication appear to suggest that there are two different types of transport problems to be tackled in these countries. That is, while the latest technology serves main cities and major arteries of commerce, rural areas, where immobility and bare subsistence co-exist, are being served by ancient and primitive methods.

The situation in Zambia is very much similar to the one just described. Government transport policy, since independence, seems to have been in three stages, one stage for each development plan period. The First National Development Plan, 1966-1970 (FNDP), emphasized the importance of linking all provincial headquarters with tarred roads. The Second National Development Plan, 1972-1976 (SNDP), which expanded on the FNDP objective stipulated that all district headquarters ought to be reached by a tarred road from the provincial headquarters. While the FNDP objective has been fully accomplished, the SNDP objective is only partially achieved. The non-existence of a tarred road in Chama District is a case in point. What is more, the road linking

Chama District to Lundazi District, and hence to the rest of the province, is not even graded.⁸ Finally, the Third National Development Plan, 1979-1983 (TNDP), which is now in force, gives among others, priority to the development of feeder roads. Considering that rural development has since independence been a major government objective, the objective of feeder roads improvement appears to be long overdue.

2.1.2 TRANSPORT AND ECONOMIC DEVELOPMENT

Hutchins (1977) notes that "transport has never been a passive force in economic development".⁹ New transport facilities generate new industrial locations, new housing developments, new wholesaling and retailing patterns, new geographic patterns of corporate organization and management, and new plans in the use of leisure time.¹⁰ Development in these several aspects of life, in their turn, lead to further demands for new transport services. In terms of theory there is as yet none that directly links transport and economic development.¹¹ However, that economic development requires adequate and effective transport services is axiomatic. Economists generally accept that a certain minimum amount of transport facilities is absolutely essential to allow development of a modern economy and to encourage economic growth. It is argued that, "a highly efficient transportation and an economic and reliable source of power are indispensable. With these available something is bound to happen, without them, we can be less sure."¹³ Thus, improved transport is certainly a pre-requisite for any type of development. For instance, the emergence of long-distance trade and

maintenance of distant supply lines, which gave people freedom to live away from self-sufficient local area were made possible by innovation of the first phoenician ships.¹⁴ Unification of the far-flung Roman Empire is another instance of road improvements. In the light of the foregoing, it is not surprising that the deterioration of the roads in the Middle Ages brought about a decline in economic and social exchange.¹⁵ That some countries are known to invest between 25 and 30 percent of their national capital formation in the transport sector is yet another demonstration of its importance.¹⁶

The functions of transport in the pursuit of development objectives are many. Its function as a factor input requirement is obvious; it enables goods and passengers to be shuttled between and within production and consumption centres. The extent of the market or the volume of demand for particular goods, that is, the ability to exchange relative surpluses is also dependent upon the size and gap separating producers and consumers and the means of transport available to bridge this gap.¹⁷ The advantages of reducing the time gap should be easy to perceive in the case of consumer services where the choice is between consumer-movement and producer-movement and also in the case of perishable commodities. Somewhat less apparent is the function of transport in shifting production possibility functions through alteration of relative factor costs.¹⁸ Improved transport reduces the travel time thereby resulting in savings of labour man-hours spent in transit. Improved transport also allows for reductions in inventory, capital, interest and obsolescence

costs. In this sense transport can be said to create internal economies for many sectors leading to promotion of external economies for all sectors.

Transport is hardly desired for its own sake; its role is largely that of a means to an end. Its objectives may be divided into economic and noneconomic. The economic ones include:-

- exploitation of natural resources;
- raising agricultural productivity;
- increasing industrial output;
- enhancing per capita consumption, and so on.

The non economic objectives on the other hand, include:-

- promotion of political cohesion;
 - strengthening of a country's defences;
 - bringing about certain socially desirable locational patterns;
- to name but a few.

With regard to developing countries the case ought not to be overstated. Most certainly some transport investment which would provide access to an area is indispensable before other economic activities can develop there.¹⁹ Chama and Lundazi districts appear to have for a long time lacked this precondition.

New methods of communication have their effects on transport problems. Taking the case of developing countries, transport is still the major instrument of spreading ideas and of making it possible for people to communicate. A century ago transport and communications were closely linked activities for the simple reason that communications were possible only through transportation of messages.²⁰ Develop-

ment of the telegraph and telephone services broke this link and the emergence of radio and television and the transistor, later, widened the gap between transport and communications. While the foregoing may be said about certain places in Zambia and elsewhere, certainly the same cannot be said about the study area. The development of transport, let alone the development of communications, in the area is still in its infancy. Researchers interested in telecommunication-transport interaction have come up with the following major types of effects, "substitution" or "replacement" "stimulation" and "modification".²¹ The ability of telecommunications to reduce distance and time barriers to communication has implications for rural travel. Not only would telecommunications provide easy and universal access to all places irrespective of distance and direction but also overcome barriers to accessibility through the provision of contact on a 24 hour basis. The time factor is quite an important consideration in rural areas where opening hours for business often do not correspond to the period when transport is available.

2.2 TRANSPORT AND INDUSTRIAL LOCATION

When reviewing the evolution of regional planning, Friedmann and Weaver (1979) note that the link between economic growth and regional planning is really the economics of location, especially industrial location.²² In his struggle to minimise distance and the cost of movement man also aims at maximizing the value of individual locations.²³ Transport costs should in this sense not be viewed as a limiting factor to productivity. Instead, transport services and the willingness of producers to use them allows for high productivity to be realised from specialising in a location.

In an attempt to develop a general theory of location, regional economists have been faced with a number of obstacles.²⁴ One such obstacle is the achievement of general equilibrium. To be meaningful a general location theory ought to be dynamic and not static.²⁵ This presupposes the inclusion of a time dimension which itself is another complication. Even if some kind of equilibrium is assumed to exist, predicting the consequences of disturbance to that equilibrium situation constitutes yet another difficulty. As a way out of these complications economists have tried to simplify the problem by constructing what Kuenne calls "inter-regional trade models."²⁶ These models take the spatial structure of the economy as given, that is, they assume:-

- constant production and consumption location;
- fixed resource patterns and transport networks, and
- unchanging technology.

The models abstract from locational influences. They are, in fact, special cases of a general theory of location for they are consistent with a location theory in which transport costs are zero and all inputs and outputs are perfectly mobile or with a theory with zero transport costs, factor immobility, but free trade in commodities.²⁷ Models of the kind are associated with Losch (1954) and Greenhut (1956), but these are not a subject of this paper.

2.2.1 SUPPLY ORIENTED THEORIES OF LOCATION

Unlike the previous models, this type of location theory emphasizes the existence and influence of transport costs on locational decisions. This type of theory is associated with Weber (1909) and Hoover (1948).²⁸ Since this paper is focussing on the importance of transport these theories will be reviewed so as to provide a better

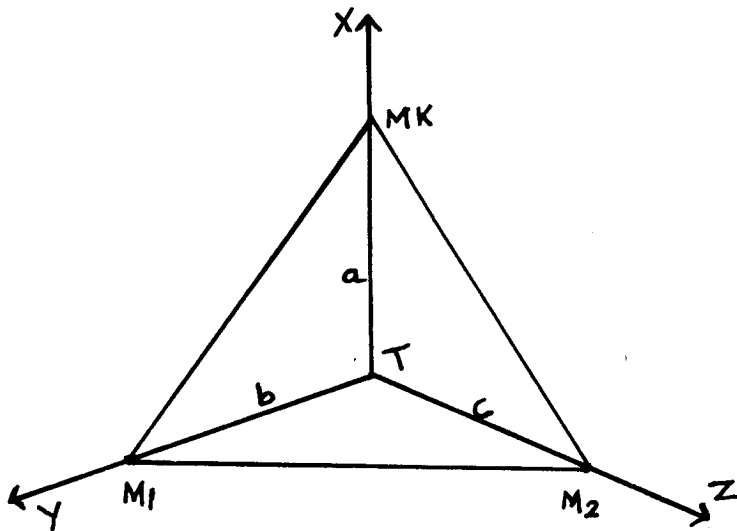
appreciation of the issues involved.

However, before proceeding with the review it is appropriate to note that there are basically three approaches to industrial location theory, namely, the least cost approach, market area analysis, and the profit maximization approach, which is a logical outcome of the first two. The theories to be reviewed fall within the least cost approach.

2.2.1.1 THE WEBERIAN THEORY OF INDUSTRIAL LOCATION

Like many other theories, this theory makes some simplifying assumptions, although these will not be pursued. Instead, factors influencing industrial location will immediately be examined. Weber notes three such factors, namely transport, labour costs, and agglomerative or deglomerative forces.²⁹ The first two are general regional factors that determine the fundamental location pattern and the geographic framework. The third factor refers to the set of local factors that determine the degree of polarization or dispersion within the general framework.

Weber singles out transport costs as the primary determinant of location. This is under the assumption that transport costs are directly proportional to the distance moved and the weight carried. The point of least transport cost is, then, one where the total weight movement of assembling inputs and distributing the output is at a minimum. To demonstrate what he means, Weber employed a locational Triangle:



Where T = Optimum Location,

M_1, M_2 = Material resources,

MK = Market,

X, Y, Z = Weights of inputs and outputs, and

a, b, c = Distances between location, inputs and market.

As a basis for deciding whether the optimum location was closer to the source of materials or to the market, Weber devised a Material Index:

$$\frac{(\text{Weight of Local Material Inputs})}{\text{Weight of Final Products}}$$

If this index worked out to be greater than unity, then the firm in question was said to be material-oriented. If, on the other hand, the index was less than unit, then the firm was demand or market-oriented.

With regard to labour costs, these were important only in as far as they rather than low transport costs, could attract a firm to a location. This was possible where saving in labour costs per unit of transport outweighed the extra transport costs per unit involved. Sometimes it might happen that a firm is diverted away from both least

transport and labour cost locations if the cost economies can be achieved through the third factor of agglomeration. A number of criticisms have, however, been levelled against the model. Notable among these are the criticisms against the assumptions of constant transport and production costs and for its disregard of institutional factors. The model is also said to be one-sided by assuming perfect competition with all firms having access to unlimited demand.

2.2.1.2 HOOVER'S THEORY OF INDUSTRIAL LOCATION

Hoover (1948), elaborates on the Weberian model, making for more realistic cost assumptions than Weber and attempting to modify some of the model's inherent weaknesses.³⁰ He divides the costs into transport (i.e. procurement and distribution) and production. Contrary to the Weberian assumption of transport costs being directly proportional to distance and weight, Hoover notes that these may vary in accordance with the length and direction of haul and the composition of the goods involved. In addition, Hoover gives more emphasis to institutional factors like local taxes, to name but one.

Hoover's model appear to be very much in tune with practice. For instance, very often in Zambia, decisions on location of certain public projects are motivated more by political factors than as a result of prudent economic rationalization. The siting of the schools of Mines and Industrial and Business Studies are two cases in point. A more rational location for the School of Mines would have been the Copperbelt where mining is actually taking place. This would have facilitated easy access to students for practicals.

There has however, been a decline in the role of transport as a factor in plant location.³¹ In a way this is a consequence of the fact that many location factors are not significantly cost-related. The substitution possibility between transport costs and the prices of other production inputs should also be taken into consideration. Isard (1956) introduced into location theory the concept of "transport input", which was according to Scharlig, (1969) a valuable contribution to location theory.³² Isard had initially called this notion "distance input" but it later occurred to him that not only "distance" but also additional factors, namely, terminal facilities which were important in site selection. Moreover, Ohlin (1933) had earlier shown that it is actually transport relations and not distance relations that have economic importance. That is, the transportability of goods and products is often more important than the geographical distance. At any rate, it is still worthwhile to set aside explicitly transport inputs, "because the study of their variations is basic to an understanding of the operations of the space-economy."³³ Furthermore, transport costs ought not to be understood in a narrow sense: many other costs, such as those related to storage, stocks, rentals and so forth, are directly related to the availability of specific transport facilities. In the final analysis, as Winkemans (1980) notes, "although the transport related factors no longer seem to play an important role in theory, in practice they continue to play - and sometimes more than ever - a very 'active' role in almost every location decision process."³⁴

2.3 INTERRELATIONSHIP BETWEEN TRANSPORT AND REGIONAL ECONOMIC DEVELOPMENT.

Most of the literature on the subject claims that the improvement in transport has important implications for regional economic development. It has been observed that in most transport projects it is usually the qualitative aspects of transport and not the reduction in transport costs that are most decisive.³⁵ Generally, the process of providing the means of livelihood, which involves division of labour, is territorially greatly divided. The main objective of regional policy is the optimization of the territorial division.³⁶ An adequate social economic and technical relationship between regional focal points is facilitated by passenger and freight transport, post and telecommunications which make it possible to overcome the spatial obstacles between them. Ka das notes that a fundamental task of regional development, and hence of regional development policy, must be the strengthening of the socio-economic well being.³⁷ Thus, transport development and transport policy ought to be an integral subsystem of regional development and regional development policy as it ensures the desirable regional division of socio-economic well being.

Referring to the Green Paper, Roads for the Future (HMSO 1969), produced by Labour Government in Britain, Peaker observes, "whenever major routes are built, they provide an economic stimulus to the areas brought into closer contact with the nation's main economic centres,"³⁸ Improving transport facilities, especially roads, in a region brings about greater accessibility, reduced transport costs, improved reliability of delivery and service, reduced storage and depot needs. That

the level of economic development does not depend on any one factor as such is well known. However, it will be appreciated that transport policies affect a number of elements including:

- the level of per capita income;
- distribution of income within the region;
- industrial structure of the region, which has the effect of varying the region's income over time thereby determining a region's growth prospects;
- level of unemployment which in itself is a measure of human suffering, resource under-utilization and a cause of migration; and
- regional balance of payments which reflect the degree of self-sufficiency.³⁹ There is also a likelihood that reducing the cost of transport in a region can raise the real standard of living of the people in that region.

In assessing the impact of transport on economic development researchers are normally guided by the "benefit-cost" framework. The evaluation may proceed in two main ways. If the evaluation concerns a particular road project the "with" and "without" approach may be preferred; otherwise the "before and after" approach is used. The measurement of economic benefits of transport projects usually poses more problems than measurement of the economic costs. First, some of the benefits though direct - such as the increased comfort and convenience from an improved road - cannot easily be expressed in monetary terms for they usually have no market prices. Second, monetary benefits like reduced transport costs accrue to a great number of people

over a long period of time, thus needing long - range forecasts, which are themselves difficult to handle. Third, the many indirect benefits like stimulation to the economy from improved transport materials appear only when investments in fields other than transport are made.⁴⁰

There are six important benefits which should accrue from transport projects, namely reduced operating costs initially to the users of the new facility as well as to those continuing to use the existing facilities; lower maintenance costs; fewer accidents; time savings for both passengers and freight; enhanced comfort and convenience; and stimulation of economic development. Not all projects have all these benefits and their respective importance is different from one project to another. The major consideration in this paper is stimulation of economic development. It should, however, be borne in mind that not all transport improvements are accompanied by economic development.

As a "rule of thumb" three conditions need to be fulfilled before a transport improvement is said to have induced economic development. Most important is the need to show that economic development would have been hampered without the transport improvement. Secondly, is the proper treatment of opportunity costs, that is, the resources used in the new development would otherwise have stayed unused or used less productively. In developing and developed countries alike, the level of domestic product is lower than it would have been if all resources were in full use. In addition, the productivity of all factors is less than it would be under full

employment. Labour and capital are often used on land where the marginal product is quite low. Shifting this labour and ~~capital~~ ^{Capital} to other and better land would result in higher marginal product thereby raising the total domestic product. The construction of the Pacific ~~Littoral~~ Highway in El Salvador is a case in point.⁴¹ In the period preceding the highway, though no evidence existed that Salvadorean cotton production was at its possible maximum, there was at least evidence that the farms were using land with inherently low fertility relative to the undeveloped land along the coast. With the Pacific ^{Littoral} Highway built, there was a relatively rapid increase in the conversion and an increase in cotton exports. Finally, there should not be substitution of a likely economic activity by the induced economic activity. Thus, when a transport facility occasions a higher level of output and these conditions are satisfied, the net value of the additional output is a measure of the economic benefit. In many situations, however, the transport facility is not the only new investment required to attain the increased production. The problem of disaggregating the benefit, then, emerges. Theoretically no ready solution exists but in practice there are three ways of solving the problem. The first is not to make any allocation and to relate the total benefit to the total investment. The second possible solution is to annualize the other investment costs and to deduct them from the benefits. The third possibility is to allocate the benefits in the same ratio which the transport investment has to the other needed investment. Each of these approaches

may be appropriate for a particular situation.

In developing countries the use of benefit-cost analysis, the most commonly used technique, is faced with a number of additional obstacles, the most pressing being the dearth of appropriate data. The instruments of data collection are not well developed in these countries. However, in spite of these problems benefit-cost analysis is still attempted. For instance, when assessing the impact of feeder roads in West Africa, Cornwell (1978) noted that road user cost and producer surplus methods were the two theoretical frameworks available for the economic evaluation of rural road schemes.⁴² Both methods are variants of benefit -cost analysis/project appraisal. The former assumes user cost savings to be proper reflections of project benefits but ignores the mechanisms by which these savings are converted into output and income. It is in this respect more appropriate for evaluating roads carrying substantial traffic. However, it is well known that roads in developing countries carry little traffic, in which case the producer surplus method is thought to be more suitable. This method considers costs and benefits at the level of the producer, in this case, the farmer.

Another popularly used measure of the benefits of transport improvements is the national income measure. This is to be compared with three other measures and each of them gives the same answer i.e. measure A = Measure B = Measure C = Measure D. They differ only in their treatment of some variables.⁴³

Measure A
National Income
Approach

- (A) Increase in national income is due to investment in transport and complementary activities.

Measure B
Cost savings
Approach

- (B.1) Transport cost savings on present traffic and traffic which would develop without transport improvement

Plus

Increase or decrease in economic efficiency of employed resources due to increase of feasible plant scale and improved technologies.

- (B.2) Near the transport facility

- (B.3) and elsewhere in the economy

Plus

Employment ~~of formerly~~ idle resources in areas.

- (B.4) Adjacent to transport facility.

- (B.5) and elsewhere in the economy.

Measure C

- (C.1) Increased profits to transport carriers
plus

- (C.2) Savings to shippers located near the transport facility

plus

- (C.3) Savings to shippers located elsewhere but shipping over the given facility.

Measure D

(D.1) Element (C.1) as above

Rents or Land
Value Approach

plus

(D.2) Increase in income accruing to owners
of land and other realty near the transport
facility as rents. (This is the decapita-
lized increase in the value of land and
other realty near the facility)

~~Comparison~~ of these measures in this manner helps to cast some light on why partial measures, such as transport cost savings, shippers savings, profits and land value changes, can be misrepresented in estimates of benefits of transport investments. Omission of some effects in these measures will tend to under-state the real increase in the national income. On the other hand there may be some double counting, in which case the national income would be over-stated.

Instances of transport having contributed to economic development are many, in developing as well as developed countries. Airey, when assessing the role of feeder roads in promoting rural change in Eastern Sierra Leone, made some interesting observations about the road and non-road using communities.⁴⁴ First, there was a channelling of externally organized inputs into road side communities as evidenced by the provision of improved water and activities of the integrated Agricultural development Project. Second, road side communities demonstrated a higher propensity to use cement in home-building. This is a reflection of their greater accessibility and ease of transporting a bulky commodity and perhaps greater wealth. Third, road side communities were found to be

more cash-oriented. Specially, there was a significant difference in occurrence and size of local farms between road and non-road communities. In Ghana, Addo noted that areas with good roads later achieved agricultural development and roads affect the agriculture structures as well as crops produced.⁴⁵ Economic development of Tanzania is yet another case in point. Hofmeier (1973), Maro (1977), and Mkama (1969) came to the conclusion that the economic development of Tanzania has been helped by improvements in transport. To quote Hofmeier, "only after the provision of such basic transport facilities was it possible that more general development process with their long-run effects could be set in motion."⁴⁶ Referring to railways, Mkama also noted that they reduced travelling time and costs, in particular between the coastal and up-country stations.⁴⁷ Finally on Tanzania, Maro noted a strong statistical relationship between road density and Gross Domestic Product (GDP) per capita in various districts, though no causal relationships are implied.⁴⁸ In so far as developing countries are concerned, Latin America is another sub-continent whose development has benefited greatly from transport improvements.⁴⁹ In developed countries the situation is even more pronounced. The United States is outstanding in this respect. New Jersey, Appalachian Upland, Ohio to name but three owe much to transport for their economic growth.⁵⁰ The Hungarian case is another classic ~~exchange~~ example.⁵¹ The 1968 transport policy was aimed at raising the economic efficiency of the inter-modal division of labour and cooperation to the highest possible level, and at reducing the associated costs to the lowest possible level. For the most part this has been realized. In the process, the utilization of economies of scale in the frame work of railway operation has also

been a success. Finally, in the intermodal cooperation between road and rail transport, the marked decline in transport costs in this manner greatly stimulated regional development.

In this chapter a case has been established that:

- a) there is a positive relationship between transport and the development process,
- b) transport is an important element in industrial location,
- c) and there is a strong relationship between transport and regional economic development.

In the light of these observations, it is apparent that the development of Chama and Lundazi districts, especially the former, requires prior development of the transport and communications system. Development in Chama District is still very low such that it acts as a bottleneck to further economic development of the area. It is only in the Third National Development Plan, now, that efforts are being made to develop rural feeder roads which are necessary stimuli to economic development of an area.

FOOT NOTES

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3.0 REGIONAL PLANNING IN ZAMBIA

In this Chapter let us digress a bit from the major **theme** of the paper: relationship between transport and communications and regional economic development of Chama and Lundazi districts; to examine in general the implications of regional planning in Zambia. It is assumed that the status of regional planning in Zambia has not been enviable. This has given rise to problems of the type we are examining in Chama and Lundazi districts. To establish this fact this Chapter will

- a) tackle the problem of regional planning and policy,
- b) put the study in a regional perspective or context, and
- c) analyse the evolution of regional planning in Zambia.

3.1 REGIONAL PLANNING AND POLICY

Regional planning as a field of study is a recent development. In the **Pre-World War Two** period, regional planners were much too concerned either with philosophical issues or broad questions of social policy. (1) After the war one would have expected a greater interest in regional planning. However, the problems of reconstruction and rapid economic growth concentrated the minds of policy makers.

It was not until the establishment of the Tennessee Valley Authority(TVA) that regional planning began to occupy an important place in policy making. This underscores the belief that regional planning is largely American in origin.⁽²⁾ Regional planning according to Friedmann and Weaver(1979) is a "conscious direction and collective integration of all those activities which rest upon the use of the earth as site, as resource, as structure, and as theatre."⁽³⁾ By inference regional planning is multi-disciplinary. This helps to explain the difficulty faced by economists in defining regional economics as a part of conventional economic theory. By noticing that regions were similar to countries in their relations it was thought that regional economics evolved from the theory of international trade, adjusted to take account of inter-regional factor mobility. As it turned out, regional economics draws little from international trade theory and much of it has evolved through attempts by geographers and economists to define economic regions.⁽⁴⁾ Although now included in regional economics, the theory of location of industry as developed by Weber, Lösch, and Von Thunen, evolved outside the mainstream of economic theory.⁽⁵⁾ In addition, the input-output technique and mathematical programming are also not products of regional

economics as such. While the origins of regional economics may be easily traced, its definition is not that straight forward. It is very often referred to as all economics reduced to a level needed to analyse and forecast economic activity in a given region. Hoover, has, thus defined regional economics as "what is where, and why, and so what?"⁽⁶⁾

3.2 REGIONAL DIMENSION OF THE STUDY

Zambia as earlier indicated is divided into nine regions and a number of sub-regions(districts). Each of these nine regions is headed by a Member of the Central Committee(MCC) who is a political figure appointed by the President of the ruling party, the United National Independence Party(UNIP) as well as the Republic. In addition, there is in each province a Permanent Secretary, a top civil servant, who **actually** is in charge of the day-to-day running of the Provincial Administration.

The Provincial Planning Unit, consisting of technocrats from the National Commission for Development Planning (NCDP) is, however, the main body responsible for regional planning. The regional planning unit is then responsible to the national planning division at NCDP, in Lusaka. At the district level, the District Governor, also a political appointee, is the overall head of the District (Local) Administration.

The District Executive Secretary(DES) is then the government representative for the day-to-day functioning of the District Council. As regards planning, the district planning unit yet to be established, is supposed to undertake this responsibility. In terms of accountability, the district planning unit is accountable to the provincial planning unit. In a nutshell, there are supposed to be three tiers of planning in Zambia, namely sub-regional, regional and national.

With regard to transport, the Provincial Commissioner of Works Department(PWD) is the major government body responsible for the construction and maintenance of the provincial main roads. District Councils are on the other hand supposed to take care of all feeder roads within their respective areal boundaries. Very often, however, the District Councils get some financial material as well as labour assistance from Village Productivity Committee(VPCs). These (VPCs) are composed of villagers in a particular locality who cooperate to solve their common problems. Ventures undertaken in this manner are what are referred to as self-help projects.

This paper is focusing on Chama and Lundazi districts of Eastern Province. In all the province is made up

of six districts with a total land area of 69,100 square kilometres, and the two districts account for almost one-half of this area. The two districts occupy the Northern part of the Province.

On the Eastern side they share borders with one of Zambia's neighbours, Malawi, on the Western side they have common borders with Mpika and Chinsali districts, in the Northern Province; and on the Northern side they have a common boundary with Isoka District, also in the Northern Province (see Figure I, at the back of the text). It is common knowledge, in Zambia, that Eastern Province is the most economically developed off - the - rail province. As a matter of fact it is, however, also noted that amid this prosperity, the two districts of Chama and Lundazi, especially the former have persisted being economically underdeveloped. This paper contends that, among others, transport and communications are the most dominant causes of the underdevelopment.

However, it is worthwhile to note that making transport policy suggestions can be a difficult exercise. To begin with transport investments are very lumpy and have a long gestation period. Lumpiness has the additional problem, that of making transport

investment not easily reversible. This then calls for a very careful consideration of all available alternatives before committing the available funds to this purpose. Another problem peculiar to transport investments is that, if transport improvements are undertaken in one part of a country this might lead to traffic diversion, away from other parts of the country to this area. While this might be beneficial to the area concerned the benefits accruing to the country as a whole might be minimal and sometimes even nil. Care must therefore be taken to take account of this problem. Finally, it ought to be remembered that transport has a many faceted role; in the same way that it can attract people it can also lead to out-migration. This might be particularly vexing to a government striving to curb out-migration such as rural - urban migration. Under such circumstances transport may be not the only investment that should be considered. Investments into other areas of human endeavour (such as production, welfare, etc) may be necessary.

Given that the study area has remained underdeveloped inspite of its being part of the most prosperous region, calls for special attention towards its internal and external problems alike. Thus, it is befitting to call the study area a special problem area. It is here then being suggested that the

problems of the area may be better appreciated through an evaluation of the history of regional planning in the whole country.

3.3. REGIONAL PLANNING IN ZAMBIA (7)

Regional planning in Zambia did not start until the Second World War when in February, 1943 the colonial office sent two documents to the Provincial Commissioners. The two documents were statements of policy entitled, respectively (i) "Colonial Development and Welfare", and (ii) "Native Development in Northern Rhodesia"(as Zambia was then called). In these documents it was stipulated that all Provincial Commissioners were to make arrangements with District Commissioners for the preparation of district and provincial development plans. The drafting of these plans was supposed to involve all concerned parties(that is, Africans, Missionaries and others) in each province. This initial attempt at regional planning was included in the Ten-Year Development Plan for the period 1947 to 1956, and was the first major effort towards long-term planning. Towards the end of 1943 the co-ordinated provincial plans were ready for submission to the Government. These plans laid the groundwork for the preparation of the report entitled "Memorandum on Post-War Planning in Northern Rhodesia",

published two years later. Almost at the same time the Departments of Social and Economic Services produced comprehensive development plans and capital estimates for the decade, 1945-1955, which were approved in 1947 by the Legislative Council of Northern Rhodesia. The plans laid emphasis on the concentration of socio-economic activities in selected focal points rather than spreading them thinly over the country. Such an approach is consistent with the growth centre strategy as well as with the definition of a functional region. The objective of this strategy was that, once implemented, it would ensure that the people in the country received reasonable health, education and agricultural services not far from their homes. The focal points were for that reason divided into three main types, namely, development centres, development areas, and development districts.

3.3.1 DEVELOPMENT CENTRES

It was intended that each development centre would have a high grade staff in its service departments including a senior District Officer. In addition it was intended to provide the following facilities in each development centre:

- Hospital with 100 beds;
- Normal school for the zone;
- Combined agriculture and veterinary research station of not less than 300 acres, serving as a seed farm and later as a stock farm for increasing

and distributing improved crops and stock;

- Model rural community centre with native treasury, native court, central village school, dispensary, etc.

The plan envisaged the establishment of five development centres in areas deemed to have similar social and ecological characteristics. The following sites were then proposed:

- Monze, serving the Southern and Central Provinces;
- Mongu, covering both Western and North-Western Provinces;
- Kalindawalo in Petauke District, to serve the Eastern Province;
- Malole or Kasama, serving the whole Northern Plateau; and
- Luapula, to serve Kawambwa, Fort Roseberry (Mansa), and possibly Ndola District.

3.3.2 DEVELOPMENT AREAS

Using the criteria of tribal affinity and ecological homogeneity, the country was divided into ten development areas. These development areas, actually, formed the basis for regional planning. It should be noted, however that the division of the country into development areas bears little resemblance to the present districts and provincial boundaries of Zambia. The demarcated development areas were:

1. Bemba plateau: Comprising Abercorn(Mbala), Kasama, Isoka, Mporokoso, Chinsali and North Mpika districts - all found in the present Northern Province;
2. Luapula and Bangweulu: Luwingu, Fort Roseberry (Mansa), and Kawambwa districts - all in Luapula Province;
3. Serenje Area: South Mpika, Serenje and Mkushi districts - all found in Central Province except South Mpika located in Northern Province;
4. Eastern Province: Petauke, Fort Jameson(Chipata) and Lundazi (then including Chama) districts;
5. Ndola Area: Ndola(in Copperbelt Province), Solwezi and Kasempa(both in North-Western Province);
6. North-West Area: Balovale (Zambezi) and Mwinilunga districts - both in North-western Province;
7. Southern Area: Lusaka(Lusaka Province), Mazabuka, Gwembe and Livingstone districts (Southern Province);

8. Central Area: Broken Hill (Kabwe), Mumbwa (both in Central Province) and Namwala District in Southern Province;
9. North-Barotse Area: Western Province; and
10. South Barotse Area also in Western Province.(see figure II).

3.3.3 DEVELOPMENT DISTRICTS

In each development area a suitable locality, very often an administrative district was chosen for intensive development. For the first few years of the plan, development work was to be concentrated within this district; only later would it spread to the neighbouring areas. "Demonstration effect" or "spread effect" were the main guiding principles in this particular endeavour. For either principle to be generalized or to be practised on a wide scale requires, among others, the provision of an efficient transport and communications network. The importance of this lies in easy diffusion of ideas and movement of people and goods.

It, however, soon became apparent to planners that a ten-year period was far too long for any detailed planning. Accordingly, the original Ten Year Development Plan was reviewed and revised three times, in 1948, in 1951 and again in 1953.

3.3.4 FIVE YEAR DEVELOPMENT PLAN

Two years later, in 1955, the Five Year Development Plan 1955 - 1959, was launched. This plan followed the pattern of its predecessor in laying emphasis on the

development of economic services, especially transport, power and communications. In the roads sector, it was proposed that all roads, depending on the traffic requirements, should be raised to Class I (tarmac) or class II (gravel) standard. Roads included in the plan were such main lines as Livingstone - Kafue Bridge road, Kapiri-Mposhi - Ndola road as well as the widening of the main Copperbelt through-road, Kapiri-Mposhi - Tunduma road, connecting Lusaka and the south. Others included the widening of part of the Lusaka - Chipata road and some other minor maintenance works.

3.3.5 FOUR YEAR DEVELOPMENT PLAN

The 1955-59 five year plan was replaced by the Four Year Development Plan 1961-1965, which was a development from its predecessor. In particular, it was a revision and forward projection of the 1959-63 plan. In this new plan five broad categories of capital allocation were delimited; (i) rural economic development, (ii) crown land settlement, (iii) urban economic development (rural and townships), (iv) African education and Government Staff training, and (v) administrative and general services.

1. The major aim of rural development was to increase the prosperity and well-being of the people on as a wide scale as possible. Agricultural development was to act as a basis for the expansion of the rural economy. In the initial

stages

stages, investment was to be concentrated in areas of greatest potential.

"Trickle down" effects were expected eventually to lead to the spread of the benefits on a large scale. During the plan period it was proposed that regional planning teams should be established in Central, Eastern, and Southern Provinces.

These teams were to be charged with the responsibility of preparing land use plans and to supervise their execution. Apparently, this idea appears to have re-emerged in the Third National Development Plan 1979-83, where emphasis is being laid on the establishment of regional planning units both at the provincial and district levels.

- ii. The Crown land settlement programme was aimed at establishing forty farmers on new agricultural holdings and sixteen holdings for tenant farmers. Unfortunately the forty farmers turned out to be settler farmers, i.e. white farmers. Mkushi was then chosen to be location of the majority of the forty new holdings.

- iii) The Urban economic development programme emphasized, among others, the development of new townships and communications. The construction of Siavonga and Sinazongwe townships are features of this programme. In as far as the communications programme was concerned, development of road communications other than cross country roads, was ranked first. At the same time the programme also covered the improvement of communications at lake Kariba and the improvement of water transport in Lake Bangweulu area and the Barotseland Protectorate (Western Province).
- iv). As for African Education and Staff Training, the Government long-term aim was to expand African education facilities until there was a system of ~~universal~~ primary education ensuring eight years of schooling for every child and technical and vocational training was to be ~~made~~ available to all Africans.
- v). The Administration and General Services group included such sectors as; social welfare - courts, police, depots and ~~set~~ stores, staff housing, and miscellaneous and minor works. Among others, promotion of economic development was a basic criterion for making the capital allocations.

That is, sectors considered development - oriented were to be given priority as regards investment funds. One might offer the following observations on the colonial attempt at regional planning. The growth centre strategy while economically attractive has its own shortcomings. It will be recalled that such a strategy is based on the major assumption of "spread effects". This presupposes that concentrating on leading sectors in an economy would promote spatial diffusion of growth and development through backward and forward linkages. Unfortunately in Zambia both in the colonial era and presently the domestic economy is characterized by weak interindustry linkages. The result of which has been spatial and sectoral imbalances.

The Zambian economy is a classic example of a monoculture; copper mining and export being the principal activities of the economy. This is not accidental, it is attributed mainly to the country's colonial past. During the colonial period all efforts were being made to develop the copper industry, almost to the neglect of the other sectors of the economy. The only railline at that time was constructed to serve the mines. This railline once constructed attracted population concentration all along its course; usual effect of a rail-line on people's behaviour. Apart from migration to Kabwe and the Copperbelt people tended to move to the areas along the rail-line in a bid to seize the new economic opportunities provided by it (rail-line) (8)



Over time, all the provinces traversed by the rail-line emerged as the most prosperous in the Country, hence the concept of the "line-of-rail" provinces. Thus, the economic development of the Central, Copperbelt, Lusaka, and Southern regions was stimulated by the development of transport and the availability of fertile lands and copper. As regards Eastern Province, it is only the plateau area because of its inherent fertility and areas close to the trade routes to East Africa that developed. The rest of the Eastern Province including Chama District and a substantial part of Lundazi District remained underdeveloped. In fact, colonialism played a big role in the underdevelopment of Chama District. Due to the imposition of a poll tax people were forced to migrate. As a result animal population increased and consequently people's crops were endangered. That animals harbour tsetse flies explains the low domestic animal population in the area.

At this point it may also be reiterated that development of other modes of transport apart from the railways were either directly or indirectly designed to serve the mines. Even the development of agriculture was, by and large, meant to be a source of food supplies for the work force on the Copperbelt and Kabwe (Broken Hill Mines). Other drawbacks of the colonial

attempt at regional planning include:

(i) a planning period of ten years given the ever changing circumstances, seems unrealistic, (ii) the plan was too detailed, and (iii) the development oriented criteria in allocating capital expenditure tends, in my view, to favour already developed areas. Because how are you to know that inaccessible area, like Chama, has some development potential? Here-in lies the need for providing access to an area before other developmental factors are called into action.

3.3.6 POST COLONIAL DEVELOPMENT PLANS

Plans formulated after the colonial period were expected to take note of the problems identified in these colonial plans. In the early 1960s with the imminent break of the Federation, a new spirit was introduced into planning. United Nations specialised agencies were invited to assist in planning the economic development of Zambia, after acquiring her political independence. Thus, immediately after the dissolution of the Federation in 1963, various additions, were made to certain sections of the 1961-1965 plan, to cover different immediate administrative requirements as well as allowing for carrying out some technical work.

3.3.6.2 TRANSITION DEVELOPMENT PLAN

3.3.6.1 TRANSITIONAL DEVELOPMENT PLAN

This is the official name given to the intermediate plan covering the period January, 1965 to June, 1966, after which the First National Development Plan (FNDP) was expected to go into operation. The objectives of the transitional plan included the development of certain basic services such as defence and internal security, further development of transport and communications, and laying the foundations of long-term development of the educational and agricultural sectors.

This plan took a sectoral approach to planning. It left-out sector-spatial dimensions which would have tackled the spatial imbalances in the economy. This was in spite of the recognition that most rural areas, Chama District included, were neglected and hence were in need of investment funds.

3.3.6.2 FIRST NATIONAL DEVELOPMENT PLAN 1966-1970

At the end of the FNDP plan it became clear to the Government that a sectoral approach towards planning was on its own bound to fail. Against this background it is not surprising that a critical examination of the FNDP spatial distribution of investment reveals a heavy concentration of resources along the line of rail, with urban areas being allocated most of the projects. Furthermore, about 90 percent of the industries set up during the plan period were located on the line of rail and 80 percent of these were concentrated on the

Copperbelt and Lusaka. Overall the plan only helped to widen further the rural-urban gap.

Just before the term for the FNDP was concluded a policy document entitled "Zambia's Guideline for the Next Decade" was published.⁽⁹⁾ In this document a new strategy to deal with the issue of regional planning was introduced. The new strategy involved the establishment of service centres in the rural areas. These service centres were to be of two types: primary and secondary service centres and each such centre was intended to have certain recommended minimum facilities.

A primary Centre was to cater for a place of about 10,000 people within a radius of approximately 15 kilometres. Such a centre was to have facilities such as a health centre, a well-stocked shop, an agricultural depot, an extension office (for crops, livestock or fishing), a community development office, a local Government office, and social amenities.

A secondary Centre, on the other hand, was to cater for the district headquarters and other places in areas of heavy population. It was proposed that a centre of this magnitude should have a hospital, a wholesale facility, manufacturing and construction enterprises, and Government administrative and maintenance services. However, for most areas these proposals were mere theorizing. For instance in Chama

District apart from the local Government Administration all the items delineated for a secondary centre are nonexistent.

3.3.6.3 SECOND NATIONAL DEVELOPMENT PLAN(SNDP) 1972-76

In spite of the fact that the service centres were not a reality at the end of the FNDP period, the concept was still adopted in the SNDP. These actually later became the framework for regional development.

Moreover, the objective of rural development was further strengthened in the Second National Development Plan (SNDP) through the formulation of a regional development strategy specifically for the rural provinces. It was hoped that such a strategy would curb rural-urban migration. Implementation of this regional development strategy was to be through measures such as the establishment of selected Intensive Development Zones (IDZs), development of service centres, development of the Tazara Corridor, and provincial intensive programmes. In terms of regional planning, priority was given to IDZs as an instrument in alleviating the prevailing social and economic maladies in rural areas vis-a-vis urban areas. In line with this approach a number of areas were to be chosen. These were to be situated in rural areas, endowed with some potential for intensive development. The intention was to channel relatively

more investment funds into these areas than into any others. Provision of services in an IDZ area, it was emphasized, was to be in a coordinated fashion. Every effort was to be exerted to make the population in these areas produce beyond subsistence levels.

Five indicators were pinpointed as the criteria for selection of IDZ areas:

- a. good agricultural potential;
- b. already existing "community structure";
- c. "sufficient" population;
- d. existing agricultural "aptitude" with the local population; and
- e. existing or expected "propulsive factors", for example paved roads, industry, etc.

Relying on the criteria just outlined, a total of 22 IDZs were chosen. There were differences between them in terms of the quantity and quality of natural resources as well as in terms of their populations.

As far as implementation was concerned, IDZs, were firmly established only in Eastern, Northern and North-Western Provinces. In the first two provinces IDZs were fully initiated during the SNDP period while in North-Western Province, IDZs were not introduced until 1977. Restricting the discussion

to IDZs in Eastern Province, it will be noted that these were to be established in all districts except in Chama District, perhaps because it was still part of Lundazi District. Kalichero, in Chipata District was the first (both at the national and provincial level) of the IDZs to be established in 1973. Later they spread to Kalunga, Luangwa Valley, and Chanje areas within the same district. Investments by 1978 included the establishment of two Village Development Centres (Kalichero and Kalunga), one Vocational Training Centre, Mechanization and Ox-Training Centre (Kotopola), about 40 kilometres of new roads, maintenance and upgrading of about 300 kilometres of access roads, construction of eleven marketing sheds.

Generally, while the economic principle behind the IDZ policy might have been reasonable, in practice they lacked popular support and participation by the local people - possibly because in the initial stages, they were restricted to few areas of the country. Besides being unpopular, the policy was also constrained by shortage of skilled manpower and lack of funds.

Nevertheless, some positive results were achieved. Within a short period of its inception, agricultural production within the IDZs increased tenfold while in other areas of the same provinces production rose only marginally.

However, the IDZs did not succeed in narrowing the rural urban gap to any significant extent.

The setting up of service centres during the SNDP was another measure aimed at creating employment opportunities for the people in the surrounding areas as well as acting as population concentration centres (including village regrouping) for scattered communities. In this regard, regional studies were carried out for Central, Luapula, North-Western and Western Provinces. However, although a hierarchy of rural service centres appears to have been planned, for a variety of reasons these plans were not implemented.

The third measure, that of developing the Tazara corridor was successfully carried through; the multi-million Kwacha Tanzania-Zambia Railway was completed and this opened up the areas along its line to new economic opportunities.

Finally, the SNDP succeeded in promoting regional development through the introduction of provincial programmes. Under these programmes the provinces have been given a large measure of autonomy in planning and implementing their own development programmes.

3.3.6. THIRD NATIONAL DEVELOPMENT PLAN (TNDP) 1979-83

This plan which was designed to start in 1979 became operative only in 1980. It therefore covers the

period 1980 to 1984. The main instruments of regional development strategy in this plan were:

- Growth places or Development Centres;
- Rationalisation of settlements; and
- Decentralisation.

(i) The Growth Places are a Zambian variant of Christaller's "Central Places"; the objective being an optimum trade-off between economic efficiency and socio-political equity. As regards their configuration, the Growth places are to be arranged within a hierarchy of four sizes, reflecting the four proposed tiers of planning in the country. The first category includes the urbanized regions of the Copperbelt and Lusaka, which already have some dynamism for further growth. The second tier in the hierarchy consists of all the provincial capitals and a few other big towns. These are designed to act as the main foci of development in the provinces. Next in the hierarchy are fifty sub-centres of development, at the district level. The last tier in the hierarchy consists of a group of 425 places which will include Village Development Centres. These will constitute the nuclei of rural development. Since the last three categories, do not yet have an inbuilt dynamism of their own, they will receive major development attention, during the plan period. At the same time it is clear that this is all part of a long-term development strategy and therefore it will continue to play a role in future plans.

In selecting the Growth Places the following general criteria will be employed. The first consideration is the availability of adequate population, although this concept may be difficult to operationalize. Second, is the availability of an adequate transport network. On this score the study area especially, Chama District would score badly since the transport network in this district is still very underdeveloped, refer to Fig 1. Third, is the availability of natural resources and in as far as the selection of development centres is concerned, historical or geo-economic reasons would also have to be taken into account. The TNDP also recommended some minimum social facilities for certain development centres. Meanwhile, during the TNDP the existing IDZs programmes are being integrated into the growth places, under the new strategy of Integrated Rural Development Programmes (IRDP). The IRDP, are also being extended to other areas and provinces. For instance, in the Eastern Province, Chama District has been brought into the IRDP fold with the development of rice schemes at Katangalika and Nganjo.

(ii) Rationalisation of the settlement patterns in its turn involves the regrouping of very scattered individual rural households into what is described as socially viable community groups. The people to whom this policy-measure is directed are expected to move voluntarily

into such communities in the expectation that the government and Local Authorities will give them some form of assistance. These regrouping schemes will be situated in areas with some agricultural potential and not far from service centres so that they can avail themselves of the facilities being offered in these centres. The sizes of these villages will range from 20 to 50 families and they will be provided with communal water supply and access roads.

(iii) Another aspect of the TNDP is that adoption of decentralisation as a major policy in the task of nation-building. To this end a policy of administrative decentralisation will be pursued in order to improve the country's planning machinery. To strengthen plan preparation and implementation at the provincial level, the provinces will identify and select feasible projects and development programmes. In selecting such projects and programmes the following criteria will be used:

- (a) Difficulties in implementation experienced in the SNDP period;
- (b) Availability of technical staff and suitability for provincial control of the particular projects; and
- (c) Backward and forward linkage effects of the project in the particular province and

the extent of local participation.

In major move towards matching policy with action, Parliament debated and passed the "Decentralisation Bill" in 1981. The Bill, among others, gives more responsibilities and authority to the Provincial and District Administration. In the realm of planning, the National Commission for Development Planning is charged with the duty of co-ordinating all planning in the country. To this end the NCDP is setting up a number of Provincial and District Planning Units. In each province there is to be a Regional Planner whose main duty will be to co-ordinate all the economic activities undertaken in his province. The Regional Planner will, from time to time prepare and submit progress reports to NCDP Headquarters. In addition, the Regional Planner will also assist the Provincial Heads of Departments in preparing their estimates of expenditure. These together with the progress reports will be forwarded to the Ministry Headquarters for scrutiny and inclusion in the National Annual Plans.

So far, annual plans for 1980 and 1981 only have been prepared and published. Of the two, the 1981 Annual Plan is more comprehensive. With a view to reinforcing the regional approach as expressed in TNDP, President Kaunda recently launched "Operation

Food Production, 1980 - 1990" (10) The main aim of this programme is self-sufficiency in food production along side the creation of agro-industries. Under this programme, each province will have two commercial state-farms averaging 20,000 hectares each. These should act as pivots for each province's take-off. In each district, in every province, major agricultural schemes (improved National Service Production Units and Units and Rural Reconstruction Co-operative Centres) will be established. This initiative, it is hoped, will act as a motor of development for each district. For these major schemes to operate efficiently, each of them is to be provided with such essential services as storage facilities, fuel depots, repair workshops, processing facilities, schools and other social amenities.

In addition to these state controlled production units an incentive scheme is to be provided for the co-operatives and to the private sector operators such as the peasant farms, family farms and private commercial farms. In relation to peasant and family farms the programme is to involve village regrouping aimed at boosting production. The regrouping exercise is to be accomplished through the provision of common dip tanks, marketing facilities, a common fund, a machine tool centre, schools, clinics and other amenities. In the language of the TNDP this is described as a "Village development Centre". In the selection of sites in the state farms, the

the following criteria were used:

- nearness to power;
- abundant water supply
- nearness to social services;
- rich soils: and
- avoiding areas where land is in great demand.

While the state farms have since been identified, 50 per cent of them are located in or near Village Development Centres, three of them are located near sub-centres of development and the other five are very far away from any one of the designated types of development centres. Both state farms in Eastern Province fall within the third type. Specifically they are located at Mtirizi and Kapeya in Petauke and Katete districts, respectively.

It is not yet possible to comment on the likely degree of success of the regional development strategy adopted in the TNDP since it still has two years to run.

However, in comparison with previous plans, its objectives, in terms of regional development, are much more ambitious and specific and therefore more measurable in terms of ultimate results.

So far the conclusion reached in this chapter is that both Colonial and post colonial development plans have not done much to improve the living conditions of the people in the study area, especially Chama District.

In particular, the colonial plans only helped to underdevelop the study area as human resources especially, were being drawn out, through the tax instrument, to serve the mines. With regard to the post colonial plans it has been observed that while recognizing the shortcomings of the previous plans they have also tended in practice, to do little to alter the situation. Thus, regional planning has not only been unsuccessful in Zambia but has also contributed to the misery of the people in the study area, especially in Chama District.

FOOTNOTES

1. Winkelmanns, W., "Evolution of transport and Location" in Polak + Van Der Kamp(Ceds)(198), CHANGES IN THE FIELD OF TRANSPORT STUDIES P. 206
2. Ibid! P. 207
3. Friedmann + Weaver, Op. Cit P. 92.
4. Byrne, S. (1977), Unpublished M.A. Thesis, University College, Dublin.
5. Friedmann + Weaver, Op. Cit P. 37
6. Byrne S. Op. Cit.
7. Unless otherwise stated the remaining part of the Chapter is acknowledged to Professor Michal Chilczuk (1980), Regional Planning Attempts in Zambia, National Commission for Development Planning, Lusaka (Forthcoming).
8. Note that imposition of pole tax was also instrumental to people's migration into urban areas.
9. Republic of Zambia, Zambia's Guideline for the Next Decade. Zambia Information Services, Lusaka, 1980.
10. Project: "Operation Food Production" 1980-1990, State House, Lusaka, 23rd. May, 1980.
11. OTHER REFERENCES FOR THIS CHAPTER
11. Northern Rhodesia, Development Plan for the Period 1st. July, 1961 to 30th June, 1965 Government Printer, Lusaka, 1962.
12. REPUBLIC OF ZAMBIA, FIRST NATIONAL DEVELOPMENT PLAN 1966-1970
13. _____, SECOND NATIONAL DEVELOPMENT PLAN 1972-76
14. _____, THIRD NATIONAL DEVELOPMENT PLAN 1979-83
15. _____, ANNUAL PALN 1980
16. _____, ANNUAL PLAN 1981

4.0 INVESTMENTS IN TRANSPORT AND COMMUNICATIONS

It has been shown in Chapter Two that transport and communications and regional economic development are closely linked. In the same chapter it has also been observed that transport acts, in many instances, as a precondition to economic development. Chapter Three examined the impact of regional planning in Zambia on the study area. The chapter has established that regional planning in Zambia has been one of the major contributing factors to the underdevelopment of the area, especially Chama District. Having made these observations we now wish to examine empirically the actual amounts of investments made in transport and communications in (i) Zambia and (ii) in Eastern Province, of course including Chama and Lundazi districts. Another issue to be examined in this chapter is road maintenance facilities.

Examination of the above issues, it is hoped, will throw more light on the question of whether or not development of transport and communications has been afforded a high place in Zambia's economic development efforts. This will in turn help us assess the probable influence of transport and communications on the study area.

4.1 TRENDS IN ZAMBIA

Investments in transport and communications in Zambia have been quite high. This is mainly due to her geo-political position. Until fairly recently, Zambia shared borders with unfriendly and sometimes even hostile neighbours. The hostility of some neighbours resulted, shortly after her independence (in 1964), in a very costly

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re-routing exercise. Details of this operation will become clear when focusing on the First National Development Plan, which is related to the affected period.

4.1.1. FOUR YEAR DEVELOPMENT PLAN JULY, 1961 - JUNE, 1965.

This plan made a total allocation of £3 million for communications.¹ The £3 million represented only one-tenth of the development plan's total outlay. Considering that the capital requirements for the complete road and water communications programme totalled nearly £4.8 million, which is almost 16 percent of the total plan outlay, it would appear that the £3 million was an underestimation. At any rate, of this £4.8 million, almost £2.55 million was earmarked for the main network and secondary roads, £2 million for feeder roads, and £0.25 million for depots and camps. The policy of the Government then was to provide communications:

- (i) for existing general traffic;
- (ii) for present requirements of transporting large quantities of agricultural produce in the rural areas;
- (iii) to anticipate the needs arising from immediate programmes of economic development, especially in the rural areas; and
- (iv) to establish a good road system which was essential for these purposes and for the maintenance of efficient administration.

Whereas the policy of the Government appears to have been quite fair, but in reality there was a tendency to favour peri-urban areas at the expense of rural areas. It was, therefore, evident at independence that the prevailing communications networks were there merely to strengthen the Colonial Administration and boosting the mining industry.

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4.1.2. TRANSITIONAL AND FIRST NATIONAL DEVELOPMENT PLANS

Up until independence in 1964, Zambia was heavily dependent on the southern route, for all her exports and imports. The only alternative route then was the Benguela Railway via Zaire to Lobito Bay in Angola. Such a situation was therefore potentially dangerous for the young nation. Thus, both the Transitional and First National Development Plans gave priority to the need for diversification of the country's communication links. In this connection, the First National Development Plan 1966-70 set aside 42.7 percent of the gross fixed capital formation for the development of services and infrastructure. This figure includes the 9.3 percent which was designated for transport and communications. As a result, during the plan period two major roads, the Great North Road (GNR) to Dar-es-Salaam in Tanzania and the Great East Road (GER), which would link with the Malawian railway system and subsequently link with Beira, were to be developed and bitumenized. That the GNR was parallel to the proposed Tanzania-Zambia railway (TAZARA-completed in 1975) gives it a special characteristic reminiscent of East Africa where the rail-line from Mombasa to Kampala ran parallel to a first-class road which acted as a feeder for the railway.² However, hardly had the FNDP been drawn up than all theorizing about transport strategies in Zambia became irrelevant as the GNR was needed most urgently after the Unilateral Declaration of Independence (U.D.I) by Rhodesia in November, 1965.³ Consequently, the road was labelled the "Hell Run" as heavy-duty vehicles ploughed up the 1,500 kilometres of untarred

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surface between Dar-es-Salaam and Kapiri Mposhi. The subsequent imposition of sanctions against Rhodesia brought about serious economic problems for Zambia whose transport routes were oriented south-wards and whose supplies of consumer and capital goods were also at that time largely obtained from either Rhodesia or South Africa. The situation was later exacerbated by the Rhodesian closure of its border with Zambia in January, 1973. Zambia then, was as a matter of urgency forced to embark on the massive re-routing exercise and completely stopped using the southern route through Rhodesia. This exercise was very expensive in human and financial terms alike. Both consumers and industries had, until the transport situation improved, to suffer delays in certain of their essential supplies resulting from the re-routing operation. By the end of 1975 it was estimated that the exercise had cost Zambia a total of K186.7 million.⁴ In an event that the border had not had to close the FNDP would otherwise have allocated approximately K40 million for transport during its entire period. The K40 million included K26 million for inter-regional roads, about K6 million for main and district roads, and the other K8 million for the development sector roads.⁵

Finally to conclude the discussion on the FNDP - at least in relation to transport and communications - its achievements were mixed. That the country was to diversify its communications links was, anyway, well known from the very beginning, but UDI and the border blockade took the country unawares. These externally induced "shocks" disrupted the earlier intentions of the Government. It is not surprising therefore that at the end of the FNDP most of the local transport projects were not implemented.

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4.1.3 SECOND NATIONAL DEVELOPMENT PLAN 1972-76

The plan was, among others, formulated with above factors in mind. Transport and communications sector, in particular, included such objectives and priorities as:

- (i) completion of the construction of new roads which would enable opening up of new areas. Conscious of the scarcity of capital resources, it was suggested that people in all areas should be encouraged to contribute in kind and in money towards the construction of feeder roads; and
- (ii) development of postal and telecommunications services, especially in rural and sub-urban areas where these were inadequate. This would contribute towards improved living conditions for the majority of the people.⁶

In all, the SNDP made a provision of 47.9 percent of total gross fixed capital formation for services and infrastructure. Out of this total allocation (which represented a figure of 3.4 percent over and above that of the previous plan) 12.7 percent was designated for development of transport and communications. With regard to the former more insight may be gained by referring to Table 1, which gives data for capital and recurrent expenditure on transport for the different provinces for the 1971-74 period.

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TABLE 1. AGGREGATED CAPITAL AND RECURRENT EXPENDITURE ON TRANSPORT BY PROVINCE FOR THE PERIOD 1971-74

PROVINCE	RECURRENT EXPENDITURE		CAPITAL EXPENDITURE		TOTAL
	MAINTENANCE OF ROADS & AIRFIELDS	CYCLE MAINTENANCE* & ROAD BETTERMENT	ROAD CONSTRUCTION	BRIDGE CONSTRUCTION	
CENTRAL	2,953,147	1,296,517	3,568,923	52,595	7,871,182
COPPERBELT	948,654	908,296	3,757,589	8,133	5,622,672
EASTERN	1,333,914	209,262	5,279,240	854,148	7,676,564
LUAPULA	1,293,782	285,019	3,107,396	18,385	4,704,582
NORTHERN	1,902,427	688,342	1,781,988	485,068	4,857,825
N. WESTERN	1,102,173	418,673	3,310,238	87,160	4,918,244
SOUTHERN	2,098,718	796,083	5,696,603	-	8,591,404
WESTERN	1,489,845	485,019	8,279,293	50,326	10,304,483
GENERAL	1,346,865	112,010	368,549	-	1,827,424
TOTAL	14,469,525	5,199,221	25,149,819	1,555,815	56,374,380

SOURCE: Calculated from Annual Reports of the Roads Department, Lusaka, for the years, 1971, 1972, 1973 and 1974.

* Under normal circumstances it is desirable that paved and gravelled roads are re-sealed or regravellled every fifth year.

From Table 1 it is apparent that Northern Province had the smallest allocation for road construction followed by Luapula and North-Western Provinces. It is not clear why Northern Province was given such a low allocation, but it may have been because of the construction of the TAZARA which was under construction at that time.

TABLE 2. 1974 ROAD INVENTORY BY PROVINCES

(KM)

MAINTAINED BY ROADS DEPARTMENT⁽¹⁾

MAINTAINED BY RURAL

PROVINCE	CLASS I	CLASS II	CLASS III	UNCLASSIFIED	TOTAL	COUNCILS ⁽¹⁾ (UNCLASSIFIED ²)
CENTRAL	1,204.9	172.4	1,357.4	1,163.1	3,897.5	2,139.6
COPPERBELT	680.1	515.5	145.8	32.7	1,374.1	459.1
EASTERN	397.8	48.0	843.9	723.5	2,013.2	3,021.3
LUAPULA	98.9	116.5	818.9	468.2	1,502.5	781.1
NORTHERN	568.4	592.3	493.5	1,303.2	2,957.4	3,423.4
N. WESTERN	89.8	852.6	108.4	1,156.7	2,207.5	1,598.3
SOUTHERN	631.1	393.7	224.6	1,648.0	2,897.4	1,587.0
WESTERN	348.2	3.0	704.7	711.2	1,767.1	2,890.3
TOTAL	4,019.2	2,693.7	4,697.2	7,206.6	18,616.7	15,900.1

SOURCE: Roads Department, 1974 Annual Report, Lusaka, 1975.

- NOTES:
- (1) There^s are the two main road maintaining authorities in Zambia. All Inter-territorial, Territorial, and District main roads are maintained by the Roads Department. Feeder roads and other unclassified District Roads are a responsibility of the respective Rural Councils. Sometimes the Rural Councils solicit resources from village productivity committees (VPCs).
 - (2) Estimated lengths by Roads Department, Chipata.

While the above table gives valuable information concerning the road situation in the provinces in 1974, it falls short of providing a good basis for evaluating the effectiveness of the SNDP transport policy in inducing rural development. It is therefore necessary that the basis of the table be changed from "Road Inventory by provinces" to "Road Inventory by Classification". This new basis has at least some functional meaning attached to each class of roads and it is then possible to infer something about the effects on rural development.

It is evident from Table 3 that rural areas, during the SNDP period, were served mainly by unclassified roads. Going by the definition of unclassified roads these range from a mere foot-track to an improved earth road and they are usually impassable during the rainy season. Unless there is some alternative routes the areas served by such roads are inaccessible during the rainy season with

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consequent hardship for the local populations. Bearing in mind that 1974 was in the middle of the SNDP and that between 1974 and 1979 Zambia continuously registered deficits in her balance of payments, it is unlikely that the transport situation showed any improvements for the rural population during the rest of the plan period. Besides, Government policy relating to transport appears to have been geared towards the improvement of roads linking District headquarters.

TABLE 3. 1974 ROAD INVENTORY BY CLASSIFICATION
(in KM)

CLASSIFICATION	MAINTAINED BY ROADS DEPARTMENT				MAINTAINED BY RURAL COUNCILS	
	CLASS I	CLASS II	CLASS III	UNCLASSIFIED	TOTAL	UNCLASSIFIED*
INTER-TERRITORIAL MAIN	2705.7	150.2	-	241.9	3097.8	-
TERRITORIAL MAIN	1043.4	1709.1	826.8	65.2	3644.5	-
DISTRICT ROADS	350.0	834.4	3870.4	6765.8	12020.7	10185.8
RURAL ROADS	-	-	-	-	-	5714.3
TOTAL	4099.1	2693.7	4697.2	7072.9	18763.0	15900.1

SOURCE: Roads Department, 1974.

*Estimated lengths by the Roads Department, Chipata.

4.1.4 THIRD NATIONAL DEVELOPMENT PLAN 1979-83.

Aware of the short comings of the preceding plans, the TNDP was designed in such a way as to take corrective measures. It should, however, be noted that the TNDP, which was intended to be implemented as soon as the term for the SNDP came to an end, was for various reasons delayed. In spite of belated implementation, the plan incorpora-

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ted a balanced growth strategy. This is in keeping with the country's philosophy of Humanism which emphasizes at least in theory, equitable distribution of resources. Otherwise one of the major tenets of Zambian Humanism is that through a socialist approach to planning, a Humanist society would obtain where an equitable distribution of benefits is a central objective.

In the transport and communications sector it is only in the TNDP that, for the first time, priority is, among others, being given to the construction of feeder roads. Naturally the allocations for investments in transport and communications had to be increased, from 12.7 percent in the SNDP to 23.7 percent in the TNDP. Another interesting aspect of the TNDP is the introduction of national Annual Plans which are, in effect progress reports for their respective years. The first of these was the 1980 Annual Plan which made its appearance in 1981. Unfortunately it was not as comprehensive as the 1981 Annual Plan which gives an elaborate account of the regional development strategy. With regard to transport and communications the 1980 Annual Plan concentrated mainly on investment projects undertaken by the parastatal sector. Even then, some parastatals did not submit data relating to actual investments in all cases. With the available information it is only possible to show that in transport and communications, the parastatal sector had, in 1980, made an allocation of K74.721 million, but by the end of the year only K47.3 million had actually been expended.⁷ In 1981 there was more emphasis on regional development and to enhance this policy provincial investment plans were made in the transport and communications sector.

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TABLE 4 1981 PLANNED SECTORAL CAPITAL EXPENDITURE BY PROVINCE

<u>PROVINCE</u>	<u>SECTOR</u>
	<u>P.T.C. & W.S</u> ⁽¹⁾ (K'000)
CENTRAL	8,153
COPPERBELT	5,036
EASTERN	569
LUAPULA	3,257
LUSAKA	3,373
NORTHERN	1,076
N. WESTERN	5,804
SOUTHERN	1,569
WESTERN	6,662
TOTAL	35,498
%	23.7

SOURCE: TNDP, Annual Plan 1981. p196.

NOTE: P.T.C. = Power, Transport and Communications; W.S. = Works and Supply.

The Ministry of P.T.C. solicits funds while the Ministry of W.S. undertakes the construction and maintenance of roads, bridges, and so on.

It is apparent from Table 4 that Eastern Province had the smallest allocation. This is not easy to explain on economic grounds since the province is by no means best provided with accessibility. Though

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it was estimated that in 1978 about 25.5 percent of the population in the province was within 7.5 kilometres of an all-weather road, doubts can be expressed about the accuracy of these estimates since the calculation of this percentage is based, in large measure, on the territorial and inter-territorial main roads which may not be an appropriate measure.

4.2. INVESTMENTS IN TRANSPORT AND COMMUNICATIONS IN EASTERN PROVINCE.

Eastern Province, being one of Zambia's rural provinces, has significant problems associated with access. Unlike the other rural provinces, the province is one of the nation's granaries which adds another dimension to its transport requirements. The province also forms Zambia's eastern gateway to outside markets. The Great East Road not only links the province with foreign markets but also links it with the line-of-rail markets, within Zambia itself. Recently, tarring of the Katete-Mozambique border road was completed and this forms another major outlet for Zambia in general and the province in particular. Already, plans have been drawn up for the construction of a rail-line between Mchinji (in Eastern Province) and Malawi. However, although the feasibility studies have long been completed funds have not yet been made available to carry out the project. The recent tarring of the Chipata-Lundazi road is yet another achievement. The road is the only major connection between the northern districts of Lundazi and Chama and the rest of the province.

Since the launching of the TNDP, much emphasis has been placed on the development of feeder roads in the province (see Table 5).

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TABLE 5. CAPITAL EXPENDITURE IN EASTERN PROVINCE AS AT 20.9.80.
(in Kwacha)

PROJECT/ PROGRAMME	AUTHORISED EXPENDITURE	AMOUNT RELEASED BY FINANCE MINISTRY	ACTUAL EXPENDITURE	BALANCE UN SPENT
	K	K	K	K
Grants to Rural/ Local Authorities	76,000	57,000	32,500	24,500
Minor Works	20,000	15,000	8,803	6,197
Provincial Workshop	7,000	7,000	4,722	2,278
Development of Feeder Roads	424,000	318,000	208,884	109,116
Road Maintenance Camps	20,000	15,000	4,332	10,668
Marketing & Co-ops Development	40,000	30,000	28,444	1,556
Provincial Extension and Training	100,000	75,000	60,258	14,742
Co-op and Village Water Supply	110,000	82,500	83,208	(708)
Catchment Conser- vation & Planning	120,000	90,000	83,974	6,026
TOTAL	917,000	689,500	515,125	174,375

SOURCE: Calculations derived from various District Progress Reports.

While feeder roads were emphasized in the capital allocation for 1980, actual amount expended fell far short of such allocations. Underspending was due, not to over-generous budgeting but rather to excessively rigid accounting procedures, a feature not unique to Eastern Province.

Capital estimates for 1981 are illustrated in Table 6.

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TABLE 6. 1981 CAPITAL ESTIMATES FOR EASTERN PROVINCE
(in Kwacha)

<u>PROJECT/PROGRAMME</u>	<u>ALLOCATION</u>
Purchase of Vehicles	95,000
Grants to Rural/Local Authorities	80,000
Minor Works	20,000
Provincial Workshop	15,000
Development of Feeder Roads	480,000
Road Maintenance Camps	20,000
Marketing & Co-operatives	90,000
Provincial Extension & Training	120,000
Co-op. Village Water Supply	100,000
Catchment Conservation & Planning	96 ,000
TOTAL	1,116,000

SOURCE: Adapted from Eastern Province Capital Estimates for 1981 (Chipata).

Except for allocations to "Co-operative, Village Water Supply" and "Catchment Conservation and Planning" which registered declines, all other sectors/headings either remained constant or increased. Overall there was an increase of almost 22.6 per cent over the 1980 estimates. In 1982 out of a total of about K3 million requested by Eastern Province, a mere K1.3 million has actually been granted by the Ministry of Finance. This amount is hardly half of the estimated capital expenditure in the province.⁸ The K1.3 million will then have to be shared among the six districts in the province and this entails hard

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bargaining by each district. Changes are that the hard-bargainers and influential district officials will win the day.

4.3. INVESTMENTS IN ROAD MAINTENANCE FACILITIES

Road maintenance is an important accompaniment to almost any road construction work. Unfortunately in Zambia, road maintenance tends to be given a low priority.

In 1971 there was on average an increase of 7 percent in the number of vehicles on the roads. Further, the weights of vehicles also continued to increase, but maintenance facilities were far from being adequate.⁹ It was noted that special road maintenance problems occur in North-Western and Western provinces due to long distances and sparse population between centres and poor quality of natural materials for road building. As already indicated, in this chapter, normally it is desirable that paved and gravelled roads are re-sealed and re-gravelled respectively on a five-year interval.

During 1972 the situation hardly improved as the Roads Department was seriously affected by a shortage of all types of vehicles in the areas of design, maintenance and construction.¹⁰ In that year it was necessary for all the provinces to hire vehicles at high costs with consequent effects on availability of finance for other activities including road maintenance. Although the 1972 traffic census showed a relatively steady increase in the volume of traffic on the line-of-rail, and to the east and north of it, the volume was constant or even falling in large areas of North-Western.

Southern, and Western provinces.¹¹ The rise in the east and North was caused by the construction of both the Great East Road and the Great North Road. Since the maintenance facilities could not cope with this rise in the volume of traffic, restrictions were imposed on the use of heavy drawn bar trailers on all gravel roads during the 1972/3 rainy season. The same pattern of volume increases and of decreases in expenditures on both road construction and maintenance in 1973.

In a bid to keep pace with the ever increasing volume and weight of traffic on the roads expenditure on road maintenance was in 1974 raised by almost 21 percent; part of this increase being needed for carry-over projects.¹² Because of increases in the volume of traffic and the continued need to hire vehicles, earlier restrictions on the use of draw bar trailers remained in force. In future more funds will be needed to cope with the backlog of maintenance work. The TNDP clearly states that maintenance of roads will be given top priority in planning and allocation of funds to avert deterioration of roads. The TNDP also stipulates that a Road Research Laboratory is to be established to carry out research into problems relating to road construction and maintenance. This whole programme is estimated to cost K146.8 million which includes K116.8 million for carry-over projects. These funds are in addition to those already allocated under provincial programmes. While we cannot prejudge the TNDP, considering that we are in the middle of its term, we can say that progress in this area has been very sluggish. In fact, in the study area, especially Chama District there has hardly been improvement both in road construction and maintenance.

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From the discussion in this chapter it is evident that although the intentions of both the First and Second National Development Plans were quite good, these could not be realised owing to Zambia's geo-political position which was not stable during this period. UDI and the border closure of 1973 were really a blow to the Zambian economy as many domestic projects could not be implemented because money earmarked for them had to be diverted to carrying out the re-routing exercise. Another issue that emerges from this chapter is that for most of the domestic projects that were implemented they were either located in the urban areas or in per-urban areas.

That is there is a conspicuous urban-bias in the allocation of resources such that rural areas have tended to suffer. Very remote areas like Chama have tended to suffer most because allocation of developmental resources is very often done according to the criteria that an area must have an already developed infra-structural base. Finally, the TNDP has fortunately taken note of the predicament of places like Chama and efforts are being made to take some remedial measures. The only worry is that the rate at which the remedial measures are taken is very slow indeed. Chances are that they may even be overtaken by events and be forgotten about altogether.

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FOOTNOTES

1. Northern Rhodesia, Development Plan for the period 1st July, 1961 to 30th June, 1965. p34.
2. Arnold G. & Weiss R. (1977), Strategic Highways of Africa, p.73.
3. Ibid. pp67-85.
4. Ibid. p79.
5. Republic of Zambia, FNDP 1966-70. p39.
6. Republic of Zambia, SNDP 1972-76. pp107-112.
7. Republic of Zambia, TNDP 1979-83.
8. Ministry of Finance, Lusaka, 1982.
9. Republic of Zambia, Annual Report of the Roads Branch for 1971, Ministry of Power, Transport and Works. p1.
10. Republic of Zambia, Annual Report 1972, Ministry of Power, Transport and Communications.
11. Ibid.
12. Republic of Zambia, Annual Report 1974, Ministry of Power, Transport and Communications; Lusaka 1977.

5.0. EVIDENCE FROM CHAMA AND LUNDAZI DISTRICTS

The discussion thus far has tended to focus on the general issues of transport and communications and their relationship with regional economic development. There has also been some discussion on regional planning in Zambia and we have observed that because of the way it has been practiced it has really not been a positive factor in the development of most rural areas, including Chama and Lundazi districts, especially the former.

It is now opportune in this chapter to empirically examine the extent to which transport and communications have been mitigating factors in the economic development of Chama and Lundazi Districts. In making this investigation the two districts will be analysed in terms of:

- a. transport plans since independence;
- b. transport network both intra - and inter-regional;
- c. maintenance facilities for roads and vehicles;
- d. storage facilities for inputs as well as for produce; and
- e. other forms of communication apart from roads.

Immediately after discussing the above issues an attempt will be made to assess the effect of transport and communications on the development of the two districts.

As earlier indicated, in

Chapter One, cost-benefit conceptual framework is employed in making this assessment.

However, before going into any detailed discussion of the above points it is necessary that the basic characteristics (i.e. population, land resources and main economic activities) of the two districts are highlighted. This enables us to ascertain the relative size of the study area and its economic potential.

5.1 BASIC CHARACTERISTICS

5.1.1 POPULATION⁽¹⁾

Eastern Province, which incorporates the two districts of Chama and Lundazi, has according to the latest (1980) census, a population of 658,381.

This makes Eastern Province the fifth populous province in Zambia. Expressed as percentage of Zambia's total population, in 1980, Eastern accounted for 11.6 percent. However, this reflects a steady decline in the population that is accounted for by the province, since the 1963 census. In that year, the proportion stood at 13.7 percent and it fell to 12.6 percent in the 1969 census and, of course to 11.6 percent in 1980. This steady decline is largely attributable to out-migration mainly to Central, Copperbelt and Lusaka Provinces.

Chama and Lundazi districts account for nearly 24 percent of the total provincial population. Interestingly, the two districts account for almost 50 percent of the province's total land area. For further details on the

Population characteristics of the two districts and of Eastern Province, refer to tables 7(a) and 7(b) here below.

Table 7(a). DISTRIBUTION AND INTERCENSAL GROWTH OF POPULATION IN CHAMA AND LUNDAZI DISTRICTS AND EASTERN PROVINCE.

	YEAR OF CENSUS			AVERAGE ANNUAL RATES OF GROWTH	
DISTRICT:	1963	1969	1980	1963	1969-80
CHAMA:	30,686	30,887	36,843	0.1	1.6
LUNDAZI:	91,646	92,247	117,961	0.1	2.3
EASTERN PROVINCE:	479,866	509,515	656,381	1.0	2.3

Zambia's total population is growing at an average annual rate of 3.1 percent. Since Eastern Province's average annual growth rate is lower than the national average, it would seem that the province is losing people. That is, people are migrating, as indicated above, to other areas, in particular Copperbelt and Lusaka Provinces where the average growth rates are above the national average. Within the province population movements tend to gravitate towards Chipata and to some extent Chadiza which act as transitional staging-posts for later migration to the line-of-rail towns of the Copperbelt area and Lusaka. In Chama District, low economic activity coupled with lack of social amenities, act as strong push-factors (this will become clear as we proceed with the discussion, in this Chapter).

Table 7(b). 1980 DISTRIBUTION OF POPULATION IN CHAMA AND LUNDAZI DISTRICTS AND IN EASTERN PROVINCE.

POPULATION			
DISTRICT/PROVINCE	MALES	FEMALES	TOTAL
<u>CHAMA DISTRICT</u>	<u>16,557</u>	<u>20,286</u>	<u>36,843</u>
Township	1,985	1,037	3,022
Rural Areas	14,572	19,249	33,821
<u>LUNDAZI DISTRICT</u>	<u>54,945</u>	<u>63,016</u>	<u>118,044</u>
Township	2,044	2,039	4,083
Rural Areas	52,901	60,977	113,961
<u>EASTERN PROVINCE</u>	<u>308,618</u>	<u>347,663</u>	<u>656,381</u>
Urban*	29,880	29,363	59,343
Rural	278,738	318,300	597,038

Source: Adapted from, 1980 CENSUS OF POPULATION AND HOUSING: PRELIMINARY REPORT, CSO, LUSAKA, 1981.

* Includes all small Urban Townships.

As the above table shows there is a preponderance of females over males in the two districts as well as in the province. In fact, during the 1969 census the male/female ratio stood at 850/1000 and in 1980 the ratio rose to 888/1000, reflecting a slight improvement in sexual imbalance. In contrast to developed economies, the above ratio is atypical. A typical situation in these economies is that there are more males than females in these

countries's rural areas.⁽²⁾ The explanation, generally, is that the females migrate to towns to take up jobs in service industries. However, with regard to developing economies the opposite situation obtains: males migrate to towns much more than females. The reasons appear to be many and varied, but social controls over women in traditional societies is often taken to be the major reason. Apart from the sexual imbalance obtaining in the two districts and the province, more people live in rural areas than in urban areas. This is a typical situation in Zambia where until the 1980s almost 70 percent of the population was rural-based. In 1980 urban population increased to 43 percent, making Zambia one of the most urbanized African developing countries. Zambia is also characterized by an extremely low population density, about 7.5 persons per square kilometre in 1980. This has often posed problems for rural development and hence the policy of Village Regrouping Schemes in the INDP. Population density for Chama and Lundazi districts combined worked out to be nearly 4.5 persons per square kilometre, in 1980, which is far below the national average.

5.1.2 LAND RESOURCES

5.1.2.1. QUANTITY AND LAND OWNERSHIP TYPES

Eastern Province has a total area of 6 910 000 hectares

making it the sixth largest province after Northern, Western, North-Western, Central (including Lusaka Province), and Southern Province, in Zambia. As earlier indicated, Chama and Lundazi districts together take up approximately one-half of the province's total land area. It is estimated that the Luangwa Valley, which makes up almost 50 percent of Chama District and another 33 percent of Lundazi District covers 4 000 000 hectares of the province. Table 8 gives a clear description of land apportionment in the province.

TABLE 8. LAND APPORTIONMENT IN EASTERN PROVINCE

DESCRIPTION	AREA (HA)	PERCENTAGE
State Land	240 000	3.5
Reserve and Trust Land:		
Cultivated	1,262 000	18.0
Uncultivated with Agricultural potential	2,446 000	35.4
National Parks	410 000	6.0
Escarpment and Hilly Country	1,617 000	23.0
Flooded Areas and Swamp	48 000	0.7
OTHER	887 000*	13.7
TOTAL	6,910 000	100.0

Source: DEPARTMENT OF AGRICULTURE, ASSISTANT PROV. AGRIC. OFFICE, CHIPATA, 1982.

*This figure is not specified. It is included here merely to enable the total to add up to 6 910 000 hectares.

5.1.2.2 SOIL TYPES AND DEVELOPMENT POTENTIAL AREAS

Generally, Zambia has in the region of 706 000 hectares of arable land⁽³⁾. About one-third (30.5 percent) of this arable land is found in the Eastern Province. With regard to Eastern Province's agricultural potential, over half (about 58 percent, (cf Table 12) of the province's land area is suitable for a whole range of temperate and tropical crops as well as for livestock production.

(1) CHAMA DISTRICT

Nearly half of the district is characterised by valley soils.⁽⁴⁾ Soils of this type are derived from grits and sandstones that constitute the majority of the karroo sediments. In official circles there has been a long standing view that these soils have very low agricultural potential, if they have any at all. This view arose from an inadequate information base which itself is due to non-surveying of the area in the last 30 or so years. It has, however, recently been established that there are some deposits of alluvial soils in the valley, the fertility of which can hardly be overemphasized. Of the remaining 50 percent of the district, the largest portion is covered by Escarpment

which consists of rock and rubble as well as skeletal soils. These soils are known to be of low agricultural crop potential for their natural or inherent fertility is extremely low. In spite of that, the soils are still capable of supporting forest, natural or plantations, which is vital for watershed protection. It should be noted also that in the north-east of the district there is a small stretch of the Nyika Plateau which is an area of high agricultural development potential. With more concerted research efforts, additional discoveries would most probably be made concerning the potentiality of Chama and of the Luangwa Valley in general. Thus, the proposed survey of the valley by the IRDP, to be undertaken during 1982, is very timely.

(ii) LUNDAZI DISTRICT

This district is divisible into three basic soil types. Interestingly, the soil types divide the district into three strips of more or less equal size, one for each soil type. On the eastern side there is the plateau, representing the area of highest agricultural potential. In the middle is the Escarpment which represents an area of unknown potential. Finally, on the west there is the valley with an indeterminate potential. Recent research developments in the district, as in Chama, have however shown that the potentiality of the valley had been under-estimated.⁽⁵⁾ The valley it would appear

has in the past often been relegated to an area "where everyone knows where it is but nobody wants to tread there". Table 9, gives information on the cultivated land in the province since the 1975/6 agricultural season.

TABLE 9: LAND-AREA UNDER CULTIVATION IN EASTERN PROVINCE
BY DISTRICT FOR CROPPING SEASONS 1975 - 1981.
(in Ha)

DISTRICT	1975/6	1976/7	1977/8	1978/9	1979/80	1980
CHADIZA	5 482	7 937	19 424	18 728	24 744	25 3
CHAMA	103	563	1 881	2 657	3 596	3 6
CHIPATA	20 481	80 557	28 274	45 481	55 225	55 7
KATETE	11 402	11 011	14 097	18 470	19 182	19 2
LUNDAZI	7 759	25 509	26 795	27 419	26 863	27 0
PETAUKE	28 391	40 894	14 464	45 842	63 430	63 4
TOTAL	73 618	166 471	104 935	158 587	193 040	194 5

Source: M.A.W.D., PLANNING DIVISION, LUSAKA, 1981.

Comparing this table with Table 8 indicates that there is still a great scope for increasing land undercultivation in all districts. Cultivable land as such is not a problem; what is required is the means to bring more land under cultivation.

5.1.3. MAIN ECONOMIC ACTIVITIES

Eastern Province is essentially an agricultural province. Indeed, it is already noted as one of the country's granaries. Maize is the leading cash crop as well as

leading food crop. Mining is hardly practiced in the province. There is very little industry, the only major one being the Chipata Bicycle Plant, which was out of operation until it was revitalised towards the end of 1981. As for the two districts of Chama and Lundazi maize milling is the only notable processing activity, otherwise the districts are purely agricultural. Due to prevalence of tsetse flies in Chama District livestock production is virtually impossible, but in Lundazi where the fly is not very common both livestock and crop production are actively pursued. , The breakdown of crop and livestock production in each of these districts is as follows:-

(i) CHAMA DISTRICT

Given the soil types outlined above, there is great scope for a variety of crops in the district, though attention has so far been concentrated on a few of them. The crops grown include maize, rice, cotton, sunflower, finger millet/sorghum, burley tobacco and some vegetables.

(ii) LUNDAZI DISTRICT

Since the soil types are virtually the same as those in Chama District, the nature of crops that can be grown is also basically the same. Specifically the district is capable of supporting maize, groundnuts, cotton, sunflower, beans, rice virginia and burley tobacco, citrus fruits and vegetables. In addition, the fact that Lundazi District has a relatively larger portion of the plateau makes it better placed to

rear some livestock. The animals reared include cattle, pigs, sheep and goats.

It is worthwhile at this stage to exemplify the actual production of crops and livestock in the two districts. This helps to illustrate the magnitude of the contribution these districts are making towards provincial and even national production. For this purpose the 1980/81 cropping season is chosen mainly because it was a year of bumper harvest.⁽⁶⁾ Implicit in the foregoing is the assumption that early planting arrangements during that year were followed. Table 10, below shows the estimated production and actual sales to the Eastern Co-operation Union(E.C.U.) for 1980/81 season and Table 11 shows livestock production in Lundazi District for the period 1971 - 1979.

TABLE 10. FINAL CROP FORECASTS IN CHAMA AND LUNDAZI FOR 1980/81 AND ACTUAL SALES TO ECU IN OCTOBER, 1981

DISTRICT	CROP	NO. OF FARMERS	AREA (HA)	ESTIMATED PRODUCTION (BAGS)	ESTIMATED SURPLUS	SALES TO ECU (BAGS)
CHAMA	Maize	1,780	247	5,889	3,900 (x90kg)	2,303
"	Rice	1,186	494	7,700	4,800 (x90kg)	1,838
"	Groundnuts	645	209	1,700	800 (x80kg)	715
"	Sunflower	370	161	3,100	3,000 (x50kg)	3,854
"	Cotton	40	30	8,880 kg	8,889 kg	6,245 kg
LUNDAZI	Maize	19,722	31,141	265,500	235,100 (x90kg)	283,879
"	Beans	3,285	1,234	2,400	180 (x90kg)	58
"	Groundnuts	2,100	800	2,400	400 (x80kg)	4,078
"	Cotton	290	185	37,000 kg	37,000 kg	45,131 kg
"	Sunflower	270	310	2,000	2,000 (x50kg)	6,452
"	Rice	180	170	1,360	1,360 (x90kg)	62
"	Soya beans	24	8	20	20 (x90kg)	32

Sources: 1. Eastern Province, Final Crop Forecast 1980/81, Chipata, April, 1981.

2. ECU, Produce Purchases for Week-ending 23.10.81, Chipata, 1981.

* Crop forecasts are done three times a year (1) just before planting based on the amount of fertilizers and seeds bought or sold, (2) after planting, based on land cultivated and types of crops grown, and (3) sometime in April just before harvesting taking account of the weather conditions during the agricultural season.

As a matter of interest comparing the last two columns in Table 10 one may get the magnitude of the divergence between estimated sales(surplus) and the actual sales. This then becomes the basis for assessing the reliability of the projections. In the 1980/81 season most of the projected figures were underestimates of the actual production and sales. A variety of factors were, responsible, but these are not a subject of discussion of this paper. Of interest here is the fact that by October, 1981 24.2 percent (286,180 bags of the maize) bought in the province was from Chama and Lundazi districts. It should further be mentioned that by December of the same year the number of bags of maize from Lundazi District alone rose to 300,000, giving the district an income of over K4 million. Another point of interest is that during the same period slightly more than one-quarter of the rice bought in the province was from the two districts, Chama being the main supplier(24.5 percent). That the two districts accounted for 41.7 percent of the purchased groundnuts in the province during the period under-review is yet another interesting point. Lundazi District is one of the leading districts in the province in terms of cattle production. Between 1974 and 1978, the district accounted annually, on average, for 24 percent of provincial cattle production. However, for some reason the district's relative share dropped to 14 percent in 1979 and there has been no ready information since then. Other livestock in the district as mentioned already, include pigs, sheep and goats. Table 11 gives details of livestock production. in the district between 1971 and 1979, the last year for which data is available.

TABLE 11 LIVESTOCK PRODUCTION IN LUNDAZI DISTRICT, 1971 - 1979

TYPE	YEAR								
	1971	1972	1973	1974	1975	1976	1977	1978	1979
Cattle	-	-	34,142	14,755	37,833	17,175	34,729	34,748	37,315
Sheep	N/A	2921	5,069	4,711	5,304	5,412	5,163	3,864	N/A
Pigs	N/A	N/A	6,962	2,245	2,226	5,825	4,964	5,171	6,529
Goats	832	-	2,867	2,970	2,033	2,815	2,535	3,054	3,264

Source: Baseline Project: Eastern Province Study, First Draft of the Report, NCDP/UNZA,
LUSAKA, 1981.

Finally, at Chama Boma and Kanyerere, IRDP Eastern Province has introduced trained oxen at the Farm Training Centre, on an experimental basis. This follows the discovery of a vaccine against trypanosomiasis, a disease transmitted by tsetse flies. The objective of the exercise is to introduce draught power in a district where the hoe is the predominant method of tilling the land.

5.2. SURVEY AND ANALYSIS OF TRANSPORT PLANS SINCE INDEPENDENCE.

This section examines Government transport plans in the two districts in order to highlight current transport problems in the area. To aid presentation, a district-by-district approach is adopted.

5.2.1 LUNDAZI DISTRICT

In Zambia there are four categories of roads: Class I(A, B or C) which are all bitumen, class II gravel and engineered; Class III earth and gravel, and unclassified roads which are earth with 3.5 metres of gravel where essential.⁽⁷⁾

Construction of the Chipata - Lundazi road, with a total length of 178.2 Km, started in 1962 and by June, 1965 a mere 34.4 Km had been constructed. Apart from that, the Transitional Plan which came into force immediately after independence proposed that a 72 km section of this road and the 16 km

Lundazi - Malawi road be raised to class III standard. Neither of these projects was completed by the end of the end of the Transitional Plan period. In both cases only survey, design and staking were undertaken. Upgrading of the 77.3 km long Diwa Hill - Lundazi road to class III was yet another Transitional Plan project. Although completed during the plan period only 5.6 km had been done by June, 1965. In the FNDP three transport projects were proposed for the district.⁽⁸⁾ Construction to class III of the 80 km long, Lundazi - Manda Hill road going towards Chama District was the first project. However, by the end of the plan period only survey, design, staking and documentation had been undertaken. The second project, to be completed by the end of 1968 was the regravelling of a 30.4 km stretch of the Diwa Hill - Lundazi road. Unfortunately, due to financial constraints, completion was delayed until 1969. The third project was minor involving the regravelling of a 5.1 km section of the Chipata - Lundazi road and it was completed on schedule. In the SNDP period, a number of transport projects were also proposed. Specifically, in 1972, it was proposed that 33 km of the Chipata - Lundazi

road be improved through regravelling and these betterment works were completed by the end of the year. Two other road projects were the construction to class IC of 174 km of the Chipata - Lundazi and 111 km of the Lundazi - Chama roads. By the end of the SNDP period both design and documentation of the former were completed, but this stage is still proceeding in the case of the latter project.⁽⁹⁾

The intervening period between the SNDP and the implementation of the TNDP saw the complete bitumenization of the Chipata - Lundazi road.

Tarring of this road started in March 1976 and was completed in 1978.⁽¹⁰⁾ The contribution of the road to the improvement of the lives of the people of Lundazi and Chama can hardly be overemphasized.

In line with the renewed vigour of rural development and development of agricultural feeder roads associated with the TNDP, a large number of transport projects have been proposed. These include the improvement to class III of the 112 km long, Lundazi - Isoka road, improvement of 15 km of the Nsefu road and construction of a bridge over the Msandile River, improvement of bridges and culverts on the Chipata - Luambe/Lundazi road, construction of a bridge over the Lumezi River on the road to Kazembe's Headquarters, and grading of roads in -

settlement schemes.⁽¹¹⁾ A total of 84 rural feeder roads have been completed through vpc programmes. Six roads with a total length of 101 km have also been graded. The roads include:- Mwase - Sangwani(32km), Emusa - Chama Turn - Off (5 km); Emusa - Egichikeni(6km); Chinkolonga - Lundazi Turnoff (6km); Emusa - Kasela (i.e. Munyukwa road, 5 Km); and Bulete - Kazembe's Headquarters (47 km). Another 35.4 km of feeder roads has been stumped and potholes have been filled. The roads in question are the Mutyocha Turn-off - Mateyo Village (12 km) and the Mateyo Village - Mwase's Headquarters (23.4) km. The completion of the Khulukuli, Munyukwa, Luambwa on Mulwalo roads, Mutyengu on Mbenje road, Lusila on Kanzoolo road, and Lundazi near Nthembwe Sub-centre drifts are examples of other important projects promoted in the district. Finally, by December, 1981 construction of the bridge on the Lumezi River in chief Kazembe's area was almost complete. The bridge lies along the Lundazi - Valley road which joins the main Chama Valley road. Apart from being a bus route, **the** road is also the main one used to transport produce from and agricultural requisites to Kazembe's Area and chief Chifunda's area in Chama District.

5.2.2. CHAMA DISTRICT

Neither the FNDP, nor its predecessor the Transitional Plan, paid any attention to Chama District, with respect to transport projects. This is largely due to the fact that the district was not, until 1970 granted district status; having up to that time been administered from Lundazi Boma. Indeed, neglect of the ~~area~~ ~~was one~~ of the major factors that prompted the granting of district status to the area. Up until then, whatever ~~transport~~ project was designed for Lundazi District, irrespective of its location, was assumed to cater also for the people of Chama, since they belonged to the same district of Lundazi. However, the reality, as we have seen above, was different. This sort of arrangement tended and still tends to put the district in a dependent relationship with Lundazi District. For instance, supplies of all descriptions come via Lundazi. Even for petrol and other petroleum products, Chama relies on Lundazi which is over a hundred kilometres away and the road is not even graded. It is not surprising therefore that the Roads Department moved in quickly in 1971 to implement a number of road projects in the district. (12) Implementation began with the improvement to class III of the Chama Lundazi road from Manda Hill to Chama Boma, a distance of 66 km, although, by the end of the year, only design

and documentantion had been completed. Design of the improvement to class III A the Chama - Sitwe (54 km) and Sitwe - Isoka (61 mkm) roads was in progress during 1971. The Sitwe - Isoka road, when completed will provide a vital link between the district and the Northern Province where both the TAZARA and Great North Road may be joined. At present Isoka can only be reached via Malawi, which means that one has to go southwards for about 33 km from Chama Boma to join the Nyika plateau road which joins with the Malawi main road and which, in turn, joins the Great North Road. In the same year it was also proposed that there be an outlet to the west of the district via the Chama-Matumbo road (144 km) which cuts across the Valley to Chinsali District in the Northern Province. Although by the end of the year only design and documentation had been completed, the intention was to have it constructed to class III, all-weather standard.

The SNDP did not provide for any additional road projects for the district.⁽¹³⁾ As regards carry-over projects only the Chama - Matumbo road was to be undertaken. The intention was to have the road constructed to a class III standard but by the end of the plan period only design and documentation had been completed.

The Chama-Matumbo road is among the many carry-over projects in the TNDP and is one of the many for which the

N.C.D.P. is soliciting funds. In 1981 Chama District with the help of Village productivity committee (VPCs) had started on staking and stumping of the road but work stopped temporarily when money was no longer forthcoming from the Government. However, a donor has since emerged and work on the road is expected to start again soon. Plans are also afoot to improve bridges and culverts along the Chifunda - Chama road (120 km) which is the alternative to the Chama-Lundazi road. Since the road passes through the valley it is therefore popularly known (in the Province) as the Valley Road. However, at present the road is impassable during the rainy season. Lack of funds has also delayed the upgrading of the Chama-Lundazi road to class IC. In 1981 it was estimated that the project would cost K25 million (about \$ 32.31 million, U.S.).⁽¹⁴⁾ The final cost will probably be higher, however, since topographic problems are significant and inflation will also have to be taken into consideration. So far, though not graded, stumping has almost been completed on the Sitwe-Kanyerere road, in Chief Kambombo's area⁽¹⁵⁾. Finally, completion of the Lundazi - Nyembe road in Chief Chibale's area has been reported.

5.3 SURVEY AND ANALYSIS

5.3.1 TRANSPORT NETWORKS BOTH INTRA-AND INTER-REGIONAL

In the province, Lundazi District has the largest inventory of tarred roads, of those maintained by the Provincial Works Department, namely 115.1 km. Though this is wholly accounted for by the Lundazi section of the Chipata-Lundazi main road. While Chipata District has the largest inventory of gravel roads (306.5 km), Lundazi District has the least (16.1 km) and Chama District has none at all. With respect to earth roads Lundazi District has again the largest inventory (161.4 km). (Also see Figure III).

TABLE 12 1981 ROAD INVENTORY BY DISTRICT (km)

CLASSIFICATION			
DISTRICT	TARMAC*	GRAVEL	EARTH
CHADIZA	-	184.0	109.2
CHAMA	-	-	-
CHIPATA	58.9	306.5	68.8
KATETE	7.2	45.0	58.3
LUNDAZI	115.1	16.1	161.4
PETAUKE	5.8	153.8	97.4
CHADIZA/CHIPATA	-	18.3	-
CHADIZA/KATETE	-	49.6	-
CHAMA/LUNDAZI	-	-	141.6
CHIPATA/LUNDAZI	-	-	90.7

SOURCE: Derived from Provincial Commissioner
of Works Department, Chipata, 1981.

* Does not include the G.E.R.

(i) Inter-regional links for the study area are as follows:-

In the south the Chipata-Lundazi road provides the major access to Lusaka and other line-of-rail towns via Great East Road (GER). In addition, the Chipata-Lundazi road connects the study area to the rest of the province. Finally, by joining the GER in Chipata, the Chipata - Lundazi road also gives the study area access to East African and other foreign markets. Eastwards, the 15.9 km gravel road from Lundazi to the Malawian border provides another outlet to East African markets. In the north, no direct route exists at present to Isoka District in Northern Province except via Malawi, which^h lengthens the journey accordingly. The present route involves going South-wards from Chama Boma for a distance of 33 km, along a meandering earth road, to join the Nyika plateau gravel road which joins up with the Malawi main road to Tunduma. Beyond Kanyerere (in Chama District) the Malawi road is also joined by a road which goes to Isoka and joins the G.N.R. at the Boma. Lastly, the western outlet is to be provided by the proposed Chama-Matumbo road.

Matumbo actually lies along the GNR in Chinsali District in Northern Province.

(ii) Intra - regional links

(a) Lundazi District. In the southern part of the district apart from the main Chipata-Lundazi road accessibility is provided by two roads of a relatively low standard. These are the Chikomeni-Mwanya road which cuts across Lukusuzi Game Reserve and the Mwanya - Chitungulu - Lundazi road cutting through Luambe Game Sanctuary. The latter is often referred to as the Valley Road, as it follows the Luangwa Valley between Chipata and Lundazi, but the rainy season almost always renders it impassable. Western Lundazi is mainly reached using the Lundazi-Kasembe road. Until 1981 there was, however, no bridge over the Lumezi River and this has had adverse effects in terms of access for the population relying on this route. Chiefs Kazembe and Chifunda (in Chama District) areas are served by this road. Eastern Lundazi, apart from the Lundazi-Matambwe road, is also served by two access roads, namely, the Lundazi-Kapichila-Mwase and the Lundazi- Mkomba -Mwase roads. Northern Lundazi on the other hand is served by the Lundazi-Mwata-Chama road and the Lundazi - Emusa road off the Chama - Lundazi road.

(b) Chama District: It should be noted from the outset that Chama District does not have any graded roads except of course for the Chama-Lundazi road. The Chifunda-Chikwa-Tembwe-Ng'anjo-Chama road, an extension of the Lundazi -Valley road, provides dry-weather accessibility in the South-West of the district. Chikwa-Manga and Tembwe-Emusa roads serve the South -Eastern part of the district. In the west, in addition to the proposed Chama -Matumbo road, there is the Chama-Katangalika road. The latter and the Chama-Ng'njo stretch of the valley road were improved and are being maintained by the IRDP. It will be recalled that the IRDP operates some rice schemes at Katangalika and Ng'anjo. Africare Limited also operates rice schemes at Kapilingizya 28 km north-east of Chama and at Simulemba, and the roads to these places are being maintained by the Company. The northern part of the district is supposed to be served by Chama-Sitwe -Isoka and Sitwe -Mulilo-Chibale access roads but for the most of the year these roads are impassable. During the rainy season Sitwe, Mulilo and Chibale are cut off from the rest of the district unless the journey is made via Northern Province, and the alternative route naturally lengthens the journey. For instance, the direct route to Chibale is only 90 km long, but the alternative is 315 km. It should also be noted that because of the distance involved and the hilly terrain, a truck can carry

a load of only 200 bags of fertilizer.⁽¹⁶⁾ Produce from Chief Lundu's area is, sometimes collected by the Northern Province Co-operative Union(NPCU), that is, the ECU requests NPCU to collect the produce on its behalf.⁽¹⁷⁾

Thus, it can be concluded that the study area and especially, Chama District is at an extremely low level of development with respect to transport.

5.3.2 MAINTENANCE FACILITIES FOR ROADS AND VEHICLES

As earlier mentioned, there are two main bodies responsible for the maintenance of roads, in Zambia, namely, the Roads Department in the Ministry of Works and Supply and the District Councils. Maintenance of any road by either body depends on the class of road: all inter-territorial, territorial-main- and some unclassified roads are a responsibility of the Roads Department. District Councils, on the other hand, maintain feeder roads of all description and some earth roads not covered by the Roads Department.) Sometimes the District Councils get assistance from Village Productivity Committees(VPC) though conflicts at times emerge between these two bodies. The source of such conflicts is usually political; the VPCs may wish to construct a road for campaign purposes and such roads may not be necessary in the view of the Roads Department and hence a conflict arises.⁽¹⁸⁾ This conflict is usually resolved

by the withdrawal of the Roads Department which then leaves the whole work to the VPCs. Although it is desirable that paved and gravel roads should be re-filled or regravelled in a five-year cycle financial constraints often prevent this from happening.

In Eastern Province the Roads Department established ten road camps which are responsible for the maintenance of roads within a specified radius.⁽¹⁹⁾ These camps are actually called zones, and there is at least one zone in each district. Apart from Chipata and Petauke districts which have four and two zones respectively, the rest of the districts have one each. Note that zone ten which is now to be established in Chama District was originally at Lunzi in Lundazi District. For its operations each zone is supposed to have a grader and a tipper, the latter being for both collecting gravel and transporting workers. As of December, 1981 there were, however, only four graders and six tippers in operation and these were supposed to be shared among the ten zones.⁽²⁰⁾ However, the distances between the camps made the sharing job extremely difficult. Besides once a grader or any vehicle is broken down lack of spares makes it difficult to have it back in operation within a short period.⁽²¹⁾

United Bus Company of Zambia(U.B.Z.) which operates passenger transport in the area has problems with maintenance of their buses. Its depot in Lundazi (serving Chama as well) is capable of undertaking minor repair works only, largely due to shortage of skilled manpower.⁽²²⁾ Problems relating to repair facilities is however the most pressing on the Company in the area. In this regard plans are underway and facilities have already been acquired to set up repair workshops at Petauke, Chipata and Lundazi (serving Chama as well). The Company is just awaiting the Commission of Lands and Title Deeds to grant it land on which to build the workshops. Plans are also underway to establish some mobile workshops in addition to permanent ones. For this purpose a number of field engineers will be employed.

5.3.3 STORAGE FACILITIES FOR INPUTS AND PRODUCE

Storage, processing, and preservation of agricultural products can also alter the demand schedule for transport. The predominance of agriculture in developing countries implies that demand for transport is highly seasonal and that peak tonnages at harvest time create unusual pressures on transport facilities.⁽²³⁾ Availability of storage facilities is one way of reducing these peaks.

In 1969, the Gambian Government established the National Marketing Board (NAMBOARD) and charged it with responsibility for purchasing (including importation), distributing and selling of seeds, fertilizers, farm tools, small implements and insecticides. However, for carrying out some specialized functions such parastatals as Tobacco Board of Zambia (T.B.Z) and Lint Company of Zambia (LINTCO, 1978) were created. Whereas TBZ handles all tobacco-related functions LINTICO takes care of all supporting services to cotton production including the purchase and distribution of necessary inputs such as seeds and insecticides. Namboard was, among others, required to carry out the major tasks associated with transport and storage of commodities. To this end, NAMBOARD established a number of depots in all provinces. In Eastern Province, until it handed over (in 1981) some of its functions to the Eastern Co-operative Union (ECU), NAMBOARD operated 156 rural depots, 22 of which operated all year round, while the remainder were functional only during the 6 - month farming season.⁽²⁴⁾ The take-over by the ECU and Co-operative Union in general was necessitated by the increased importance the Government is attaching to the Co-operative movement as an engine of rural development. Besides there have often been conflicts

between NAMBOARD and the Unions, each alleging that the other's actions impaired its operations. The new arrangement was designed to streamline the operations of these organizations with a view to minimizing the overlap in their functions. Under the new arrangement the Unions is charged with the responsibility of selling, transporting, and storing agricultural requisites as well as produce. NAMBOARD's role was, on the other hand, reduced to intra-provincial and internal trade in these items. Transportation of agricultural inputs is done in two stages. The first stage involves the transportation of the requisites from Lusaka to the Board's main depot in Chipata or to a provincial depot. The second stage involves transporting these items to rural sheds where farmers can easily reach them. Under this arrangement the Union is charged further with responsibility for transporting the requisites from the Board's main depot to its rural depots and in some cases, where no permanent depots exist, the Union provides a mobile sales service. This is particularly necessary in Chama where the number of permanent depots is minimal. Similarly, crop transportation is in two phases, namely, Crop movement from district depots to main depots in Chipata

and/or crop movement from the main depots to Lusaka, while NAMBOARD is responsible for movement of the purchased crops from its district depots to its main depots in Chipata or Lusaka. It is not directly responsible for movement of the crops from the villages to ECU buying posts, for movement of the crops from ECU buying posts to NAMBOARD district depots, and for crop movement from its main stores to millers. Efficiency in transporting these commodities has repercussions for all NAMBOARD's operations, accordingly. Moreover its principal tasks include ensuring optimum of its own or hired vehicles, achieving effective utilization and cost control of the available vehicles, negotiating for transport hire costs as well as ensuring timely and adequate truck availability, and scheduling of crop movements from district depots to main depots and from there to Lusaka.

(i) INPUTS STORAGE

To begin with NAMBOARD depots were of three types, namely, Corrugated iron roofed (60 percent), poles and tarpaulins (30 percent) and mud and wattle with thatched roof (10 percent). To supplement its permanent storage depots NAMBOARD has had to rent other facilities; in some cases school rooms and agricultural staff houses have had to be used. An examination of 1976 sales levels reveals that 40 percent of the stores had adequate capacity for one season's stock and of the

remaining 60 percent, nearly 22 percent had sales of more than double their installed capacity; almost 10 percent had sales of percent had sales of 15 percent over their capacity; and 18 percent had through put of between 100 and 150 percent of the installed capacity. In absolute terms, Eastern Province had(1976) a total of 8,000 tonnes covered storage capacity and the breakdown per district is as follows:

TABLE 13. STORAGE CAPCITY BY DISTRICT, 1976

DISTRICT	CHADIZA	CHAMA	CHIPATA	KATETE	LUNDAZI	PETAUKE	TOTAL
CAPACITY(TONS) (TONNES)	200	200	4,600	800	1,500	700	8000

SOURCE: MAWD, PLANNING DIVISION, LUSAKA, 1981

1978, NAMBOARD increased the number of rural depots to 162 in Eastern Province, though most (128) of them were still of a temporary type(cf Table 14).

TABLE 14. NAMBOARD RURAL DEPOT DISTRIBUTION IN EASTERN PROVINCE, 1978

DISTRICT	CHADIZA	CHAMA	CHIPATA	KATETE	LUNDAZI	PETAUKE	TOTAL
. OF DEPOTS	24	11	37	28	33	29	162
. OF PER- MANENT DEPOTS	7	1	8	6	6	6	34

SOURCE: MAWD, PLANNING DIVISION, LUSAKA, 1981

It is obvious from Table 14 that Chama District had the least number of both depots and permanent structures which has implications for transport demand in the district.

The ECU, to facilitate its own operations, had a total of 63 stores in 1978, of varying capacities spread all over the province. Reference to Table 15 sheds more light on the distribution and capacities of these stores.

TABLE 15 ECU RURAL STORAGE PROGRAMME, 1978

DISTRICT	CAPACITY (IN 50 KG BAGS)					TOTAL
	1000	1500	2000	2500	3000	
CHADIZA	8	4	1	1	-	14
CHAMA	-	-	-	-	-	-
CHIPATA	5	6	8	5	6	30
KATETE	5	-	-	-	-	5
LUNDAZI	3	1	1	1	1	7
PETAUKE	5	1	1	-	-	7
TOTAL	26	12	11	7	7	63

SOURCE: MAWD, PLANNING DIVISION, LUSAKA, 1981.

- * Until May, 1981 Chama was not recognized as an agricultural district by ECU. A depot supervisor was deployed there only in May, 1981.

TABLE 17. ECU RURAL STORAGE PROGRAMME IN AREAS WHERE PRESENT PROVISION IS INADEQUATE. 1978

DISTRICT	AV. SALES OF PRESENT		PROPOSED CAPACITY				TOT. PROP.	
	FERT. 1977/78	STORE CAP.	1000	1500	2000	2500	3000	CAP.
CHIPATA	47,118	26,600	4	4	+6	+4	+6	+50000
ATETE	4,337	2,650	3	-	-	-	-	+ 3000
UNDASI	9,445	2,900	2	-	+2	-	+1	+7000
ETAUKE	11,626	6,710	+5	-	1	-	-	+7000

SOURCE: MAWD, PLANNING DIVISION, LUSAKA, 1981.

inspired of these efforts both by NAMBOARD and ECU, to overcome the problem of storage, the facilities are still far from being satisfactory. That the facilities are inadequate is evidenced by the amount of fertilizers sold in the districts, for some selected years, since 1971/2 farming season(cf Table 18).

TABLE 18. SALES OF FERTILIZER BY DISTRICT, IN EASTERN PROVINCE 1971-79
(IN 50 KG BAGS)
FARMING SEASON

DISTRICT	1971/2	1972/3	1975/6	1976/7	1977/8	1978/9
CHADIZA	243,700	508,850	47,900	163,600	40,400	128,000
CHAMA	33,900	42,950	-	-	-	-
CHIPATA	1,521,600	3,386,350	119,100	649,950	378,450	267,650
ATETE	208,950	1,719,200	54,600	206,150	223,350	34,700
UNDASI	618,950	430,100	50,850	346,150	450,800	90,740
ETAUKE	184,000	359,000	72,550	311,000	562,200	145,500

SOURCE: MAWD, PLANNING DIVISION, 1981 AND ECU, CHIPATA, 1981.

NOTES: (1) 1971/2 and 1972/3 figures reflect NAMBOARD's sales.

(2) 1975/6-1978/9 figures reflect ECU's sales.

It may be added here that the switch over to hybrid maize in the province occurred in the 1970/71 season. Since then, fertilizer sales have gone up although they fluctuate from year to year depending on the climatic conditions and other factors.

(ii) CROP STORAGE

Provision of storage for crops between the time of purchase and time of processing is one of NAMBOARD's principal functions. This, among others, requires effective stock control, provision of adequate storage at district and national levels, good storage management and hygiene, and prompt as well as reliable information on stock movements. As of 1978, NAMBOARD had depots in each district and many of these were "openair". The Board also had provisional depots in Chipata. At that time the Board's hardstanding storage capacity amounted to 13600 tons which was only 18.6 percent of the Board's total purchases in 1977. The distribution of the storage capacity in Eastern Province, in 1978 was as follows:-

TABLE 19. DISTRIBUTION OF STORAGE CAPACITY BY DISTRICT, 1978.

AGRICULTURAL DISTRICT	MAIZE PURCHASES 1977('000Tons)	EXISTING HARDSTANDING STORAGE('000 Tons)	EXISTING CAPACITY A % OF PURCH SES OF MAI
CHADIZA	7.1	0.9	12.7
CHAMA	0.1	nil	nil
CHIPATA	32.9	4.1	12.5
KATETE	11.1	3.9	35.1
LUNDAZI	15.8	0.9	5.7
PETAUKE	11.3	1.8	15.9
SINDA	6.6	2.1	31.8
TOTAL	73.8	13.7	18.6

SOURCE: MAWD, PLANNING DIVISION, LUSAKA, 1981.

"Open air" depots render effective control difficult as well as placing large demands on storage management. It further calls for timely and reliable transport to avert spoilage of produce by rains.

The Eastern Co-operative Union acts as an agent for NAMBOARD in physically handling the purchase of crops from farmers. In 1981, ECU had 58 primary societies and almost 450 buying markets⁽²⁵⁾. In the same year, there were 18 storage sheds with a total capacity of 193000 ninety-kilogramme bags(cf Table 20).

TABLE 20. STORAGE SPACE AT OPERATING DEPOTS IN 1981

DEPOT	ALIMI CHADIZA CHAMA KATETE LUNDAZI LUTEMBE PETAUKE SINDA								TOTAL
H OF SHEDS	2	1	1	4	1	2	4	3	18
CAPACITY (1'000 90 KG BAGS)	20	15	10	43	15	30	37	23	193

SOURCE: ECU, CHIPATA, 1981.

These sheds were inadequate and as a result the Union intends to build sixteen additional covered sheds with a total capacity of 330 000 ninety - kilogramme bags

It was estimated that at 1981 market prices, the sheds would cost K1.8 million.⁽²⁶⁾

To augment these storage sheds, the Union also intends to build small sheds of 10 000 to 15 000 capacity at all Society Headquarters, at an estimated cost of K256 000.

On average, 1.3 million bags of maize are retained in Eastern Province each year for local consumption. If the programme embarked upon by the Union succeeds it should accommodate approximately 1.2 million bags and, given that many farmers stock their own food requirements the problem of storage would be greatly alleviated.

Two silos of about 10 000 bags capacity are being awaited from Australia which will improve the storage situation significantly.⁽²⁷⁾

However, more silos are essential because many existing sheds are of a temporary type.

Other development constraints include water supply.

The Water Affairs Department which undertakes the work of drilling boreholes, sinking wells and constructing dams in the Province, is faced with transport problems, as well as big financial constraints⁽²⁸⁾. The Provincial

Engineer contends that transport problems reduced their efficiency by 75 percent. According to him, his

Department had five drilling rigs, one lorry and one Land-Rover per rig, and two Land-Rovers for supervisors in 1972. By 1981 the number of rigs fell to four with one working, again due to financial constraints.

5.3.4 COMMUNICATION NETWORKS OTHER THAN ROADS

In developing countries transport plays a major role in the spread of ideas, achievement of political unity and general communication.⁽²⁹⁾

(1) NEWSPAPERS AND JOURNALS⁽³⁰⁾

Due to the long distance between Lusaka and Chipata both the Times and Daily Mail newspapers circulate a day later. Kingstons which is the main delivering agent for these papers does not operate in the Province. An arrangement has therefore been made between the newspaper Companies and U.B.Z. coach services for transporting the papers to the Province. However, the coach doesnot arrive until after 17.00 hours and sometimes a break-down is suffered on the way in which case the papers are further delayed.

Circulation of two other current affairs papers, Z Magazine and Tsopano is equally bad. The former is supposed to be a monthly magazine but often two months elapse before a new issue appears. The situation was particularly bad in 1981 when only 3 issues appeared. Notwithstanding, the magazine is very popular among the

working people. As for circulation only 100 copies are despatched to each district except Chipata where 200 copies circulate. The other paper, Tsopano, is actually a regional-verneacular paper. Since 1979 the paper has been produced monthly but prior to that it was bi-monthly. The paper started with a circulation of 12 000 copies but due to financial problems circulation has been reduced to 9000 copies an average 1000 copies per district. The paper is quite popular in schools where it is used as a text for teaching Nyanja. For circulation, the producers(Department of Information and Broadcasting) rely on some sales agents scattered in the districts. The agents are given 13 ngwee commission for every 10 copies they sell and the paper is itself sold at 4 ngwee per copy. Until the problem of funds became critical in 1979 the papers were delivered directly to the sales agents. Since 1979 the papers are posted to the agents. This has resulted in many losses to the Department as sales agents sometimes do not acknowledge receipt of the papers. The Department however, hopes to overcome this problem through the resumption of the delivery service in 1982 as K100 per month is to be allocated to each district for fuel

(ii) POSTAL SERVICES⁽³¹⁾

The study area has three Post Offices, one at Chama Boma, one at Lundazi Boma, and the third one at Mwanja in Lundazi District as well. In addition, the study area has seven Postal Agencies, six being Class A and the remaining one Class B. Class A postal agencies operate more services than class B ones, and are allocated funds⁽³²⁾. Items dealt in include money orders, postal orders, savings bank and stamps. With Class B, the agent uses own money and engages in sale of stamps and postal orders as well as delivery of registers only. To augment his income the agent is also given undisclosed monthly allowance. Location of the Postal Agencies in the study area is as follows: Class A offices are located at Emusa, Manga, Chimalilo and Lumezi, and a Class B office is located at Malandula in Lundazi District. In Chama District, Class A offices are located at Kalinkhu and Tembwe.

Since early 1970s no new Post Offices have been built and there appears to be no plans to do so in the near future. Plans are, however, underway to provide better allowances for people to operate Postal Agencies, especially of the Class A type. In spite of the fact that Class A Postal Agencies are under close supervision their allowances are extremely low.

(iii) TELECOMMUNICATIONS

With the exception of Lundazi Boma there are no telephone services in the study area. Telegraph provides the only telecommunication link. Plans are underway to instal a telephone exchange of 100 lines in Chama.⁽³³⁾ Even then this will not be the usual type of telephones found in the country as the exchange will operate on a radio principle since no telephone lines will actually be mounted on posts. There are also no telex facilities in the area.

5.4 IMPACT ANALYSIS OF TRANSPORT ON THE STUDY AREA

5.4.1 ADEQUACY OF EXISTING ROADS IN REACHING AREAS WITH GROWTH POTENTIAL

Most road projects in the study area have not been completed on time. The practice has been to roll over these projects into the next planning period and before these carry-over projects are completed new ones are started.⁽³⁴⁾ This tendency is attributed to shortage of funds, but it is questionable whether this practice is economic.

Many road plans in the area were designed to reach areas of growth potential. At any rate, this objective was not always achieved in practice. Constraints of the type outlined above have been commonplace thereby diluting the likely impact of these roads on the areas they were intended to serve. In addition, the majority of the roads in the study area, especially in Chama and

District, are of a poor quality. In the case of the Valley Road which runs from Chipata through Lundazi to Chama and which is supposed to be a Class III gravel and all-weather road, in effect, is an earth road. Furthermore, the culverts and drifts are not of good standing so that they are swept away during the rainy season rendering the roads impassable. In Chama District the IRDP is making concerted efforts to improve roads leading to areas of agricultural potential such as Katangalika, Ng'ango and Kanyerere. When IRDP's term comes to an end in the District conditions may deteriorate as the Council is faced with a critical problem of funds. Chama District Council is not so fortunate as its counterparts in the province to have local sources of revenue. This problem is not accidental; rather there is a historical precedent to it. It will be recalled that during the colonial era there was forced rural-urban migration from the area⁽³⁵⁾. Even after independence, the Government has not succeeded in curbing rural-urban migration, to any significant degree. This phenomenon has affected Chama more than any other district in the Province and much land has remained uninhabited. By 1970 when Chama was granted district status there was not much economic activity apart from game-hunting in the district. However, this is no longer legal. Since there is limited economic activity in

the District the Council is faced with the problem of how to raise revenue to finance its projects. This has forced the Council to be very dependent on grants from the Provincial Administration and loans from the Central Government. In the case of the Provincial Administration, it also relies on the Central Government for its income in which case it has to compete for limited resources with other provinces. Almost always the Provincial Administration does not receive its total requests from the Government. The same applies to the District Councils. Given all these problems Chama District Council finds itself faced with serious financial constraints in trying to initiate developmental projects especially transport projects whose gestation period is very long. It is however worthwhile to note that the few roads in the district have helped quite considerably in the spread of modern methods of farming. That agricultural extension staff is small in number makes their mobility vital. Involvement of the IRDP in the district coincided with increased agricultural production. Though no causal relationship is necessarily being assumed, at least there is a noticeable positive relationship between increased agricultural production and provision of feeder roads which the IRDP among others has provided in the district.

The case of Lundazi District is even more interesting. Unlike Chama, the district is better off financially enabling the council to initiate its own development projects. In 1980/81 the Council took measures to improve about ninety of its feeder roads.

5.4.2 ROAD DENSITIES OF CHAMA AND LUNDAZI DISTRICT

The basic assumption here is that a higher road density figure for a district is an indication of better accessibility for that particular district. Better accessibility in turn affords the district an opportunity to acquire modern techniques of farming as well as acquisition of agricultural inputs relatively faster. This however ignores a number of other factors such as condition of the roads, effective demand, and availability of inputs to mention but a few. Notwithstanding the foregoing statement, Lundazi District had, except for district main roads, a better picture than Chama District of road densities, in 1981 (Refer. to Table 21 below).

It was also in the same year without necessarily assuming causal relationship, that Lundazi District had a far superior crop output, especially in maize about 300 000 ninety kilogramme bags. (For more details refer to Table 10 in this Chapter. Furthermore, in that very year, as indicated in 5.4.1, Lundazi District was the only district in the Province which took measures to upgrade most of its feeder roads.

TABLE 21. ROAD DENSITIES OF CHAMA AND LUNDAZI DISTRICTS, 1981⁽¹⁾

ROAD DENSITY

DISTRICT	DISTRICT MAIN ROADS(2)		DISTRICT ROADS		RURAL ROADS(3)	
	LENGTH	DENSITY	LENGTH	DENSITY	LENGTH	DENSITY
CHAMA	213 900m	5.8 INHABI- TANTS/m	64 400m	1.7 IN- HABITANTS/m	86 400m	2.3 IN- HABITANTS
LUNDAZI	555 800m	4.7 INHABI- TANTS/m	265 500m	2.3 IN- HABITANTS/m	297 600m	2.5 INHA- BITANTS/m

SOURCE: Derived from, ROADS MAP, Roads Department. Chipata 1981; and the population figures used are from the 1980 CENSUS OF POPULATION AND HOUSING PRELIMINARY REPORT, CSO, LUSAKA, 1981

1. Note that Lundazi District has a 1980 population of 117 961 while Chama District has for the same year 36 843 people. However, in terms of land area Chama District appears to have a bigger area(see Map).
2. This excludes the Chipata - Lundazi tarred road which is classified as inter-territorial main road.
3. This refers to rural feeder roads which are primarily a responsibility of the District Councils. However, sometimes village productivity committees (VPCs) assist the Council by carrying out some self-help road projects. The Council took measures to improve about 90 of its feeder roads.

5.4.3 BUS SERVICES

Although Chama Boma was created in 1970, actual cession from Lundazi as a Council occurred in 1977. UBZ had started bus operations in the area a year earlier. A daily bus service operates between Chama and Lundazi, one bus operating in each direction with local trips being operated before the return journeys are made.⁽³⁶⁾ UBZ operates three other routes in Chama and seven in Lundazi District, on selected days. Table 22 indicates the distribution of buses since 1970 in the Province.

TABLE 22 DISTRIBUTION OF BUSES IN EASTERN PROVINCE SINCE 1970

YEAR

BRANCH/ DEPOT /	'70	'71	'72	'73	'74	'75	'76	'77	'78	'79	'80	'81
CHIPATA	21	21	21	21	21	26	22	22	22	22	22	22
PETAUKE	2	2	5	5	5	5	5	5	5	5	5	5
LUNDAZI							2	2	3	5	5	7
CHADIZA							2	2	2	3	3	5
CHAMA							2	2	2	3	3	5

SOURCE: UBZ, CHIPATA, 1981

There were plans to increase the number of buses in Chipata and Katete from May/June, 1982. However, as at December, 1981 there were only 23 operative buses in the Province.

TABLE 23. BUS ROUTES IN CHAMA AND LUNDAZI DISTRICTS. 1981

<u>DISTRICT/ROUTE</u>	<u>DISTANCE(KM)</u>	<u>DISTRICT ROUTE</u>	<u>DISTANCE(KM)</u>
<u>CHAMA DISTRICT:</u>		<u>LUNDAZI DISTRICT:</u>	
LUNDAZI	308	MWANYA	402
CHIEF TEMBWE	260	CHIKAWA	224
KATANGALIKA	64	KAZEMBE	178
THOKO SCHOOL	60	CHIKOMENI	148
		EMUSA	88
		MWASE	58
		BORDER	34

SOURCE: UBZ, CHIPATA, 1981

5.4.4 AIR SERVICES.

There is only one aerodrome in the study area, situated in Lundazi District, at the Boma. Air Services to and from the area are, however, hardly existent(cf Table 24). The few aircraft movements in the area are mainly restricted to Government helicopters which usually transport Government Officials on Government business.

TABLE 24. CHARACTERISTICS OF LUNDAZI AERODROME AND AIRCRAFT MOVEMENTS, 1963 - 74

<u>YEAR</u>	<u>CATEGORY</u>	<u>NO. OF AIRCRAFT MOVEMENTS</u>	<u>RUNWAY LENGTH(M)</u>
1963	Minor	34	1000
1964/5	"	179	"
1965/6	"	158	"
1969	Secondary	86	1100
1971	"	84	"
1972	"	84	"
1973	"	94	"
1974	"	n/a	"

SOURCE: Derived from Annual Reports of Roads Department LUSAKA, for the years 1963 to 1974.

NOTE: Improvement to secondary category of the aerodrome took place in 1968 and operations only resumed in 1969. Also from 1974 to the present date information on the aircraft movements in the area is not readily available.

It has been observed in this chapter that transport plans in the study area were biased towards Lundazi District. This is mainly because Chama District was until 1969 being administered from Lundazi i.e. it was a rural Council of Lundazi District. As a result any transport

plans made for Lundazi District were also supposed to cater for Chama, but as we have seen reality was far different from the plans. Lundazi District tended to benefit at the expense of Chama District. Consequently even up to date Chama District is very much dependent on Lundazi District for her outlets to the rest of the of the province and ultimately to the rest of the country. This as a matter of fact happens to be the second point that has been explored in this chapter.

The third point that has been investigated pertains to the maintenance facilities both in roads and vehicles.

The conclusion reached here is that not only are facilities numerically inferior compared to the size of the study area, but they are also poorly equipped to be able to undertake any meaningful maintenance work. The condition of most roads, especially in Chama District, are to say the least deplorable.

The forth factor examined in this chapter, storage facilities for inputs and produce, shows that while some efforts have been made both by NAMBOARD and ECU to put up a number of storage sheds in most rural areas, the work is far from being satisfactory. Many storage sheds are of a temporary nature such that produce is constantly threatened with destruction when rains set in. As a result some hurried measures have to be made to evacuate the produce before the rains set in. This sometimes

results in unnecessary costs of transportation being incurred as even produce meant for domestic use has to be transported twice or so due to lack of permanent storage facilities. These unnecessary expenses can also arise if stock management is not properly handled, perhaps due to unskilled personnel.

As regards the other forms of communication apart from roads, these, too, need improving. For instance, in the whole study area only Lundazi Boma enjoys some telephone facilities, newspapers and other information media are very irregular, bus services are inadequate so are postal services.

Finally it can be stated that in those areas where transport facilities are underdeveloped, backward life - styles still persist. An example of this is in the remote areas of Chama District where people still do not appreciate the presence of schools, instead they desert them on the suspicion that they bring along government officials who would tell on their poaching activities. On the other side of the coin, some areas are gradually seizing the opportunity of applying modern techniques of production which are occasioned by the improvement of transport facilities there. Development of most roads has also stimulated some other economic activities in their (roads) neighbouring areas. The development of the Chipata-Lundazi road is a case in point. The road has, among others, succeeded in introducing a money economy thereby enlarging the size of the national market.

FOOTNOTES

1. Unless otherwise state all information pertaining to population is obtained from, 1980 CENSUS OF POPULATION AND HOUSING: PRELIMINARY REPORT, CSO, LUSAKA, 1981 .
2. Rep. of Zambia, EASTERN PROVINCE: BASELINE STUDIES, NCDP, LUSAKA, 1981 (Draft Report).
3. Zambia Geographical Association, 1973.
4. All information pertaining to soil types is obtained from the Soils Map of Zambia, 1969. (SURVEYOR GENERAL.)
5. By IRDP EASTERN PROVINCE.
6. MAWD, PLANNING, DIVISION, LUSAKA, 1981.
7. These specifications are the ones used by the Ministry of Power, Transport and Communications.
8. FNDP and annual reports of the Roads Department.
9. SNDP and annual reports of the Roads Department.
10. Annual Reports of the Roads Department.
11. TNDP and Lundazi District Council, 1981.
12. 1971 Annual Report of the Roads Branch, Government Printer, Lusaka, 1973.
13. SNDP, 1972 - 76.

14. NCDP, Lusaka, 1981.
15. Chama District Council, 1981
16. ECU - Chama Depot, 1981.
17. Ibid.
18. Provincial Commissioner of Works Department,
Chipata, 1981.
19. Ibid.
20. Ibid.
21. Ibid.
22. UBZ - Area Manager's Office, Chipata, 1981.
23. FROMM, G.(ed), Transport Investment and
Economic Development, 1965. P. 85.
Also in HAEFELE, E.T.(ed.), Transport and
National Goals, 1969. P 101.
24. MAWD, Planning Division, Lusaka, 1981.
25. Ibid.
26. ECU, Chipata, 1981
27. Minutes of the Provincial Council Meeting held
on 30th September, 1981, Chipata.
28. Department of Water Affairs, Chipata, 1981.
29. FROMM, G.(ed.), Transport Investment and
Economic Development, 1965, p. 86
30. Department of Information and Broadcasting Services,
Chipata, 1981.

31. Office of the Head Postmaster, Chipata, 1981.
32. The Head Postmaster declined to disclose the amounts involved.
33. Chama Post Office, Chama, 1981.
34. This is indicated in the Development Plans and Annual Reports of the Roads Department.
35. W. VAN SPENGEN, "Rural Development in the Northern Luangwa Valley: A Micro-Regional Synthesis", in Zambia Geographical Journal, No. 31-32, 1976-77.
36. UBZ - Office of the Area Manager, Chipata, 1981.

6.0 POLICY OPTIONS

6.1 GENERAL REMARKS

Before outlining some policy options we wish to make a few general remarks about this study. To begin with, I believe, an a priori case has been made, in chapter two, that economic development of Chama and Lundazi Districts will to a large extent be dependent upon a prior development of the transport and communications system there. This results from the observation that there is a strong positive relationship between transport communications and regional economic development.

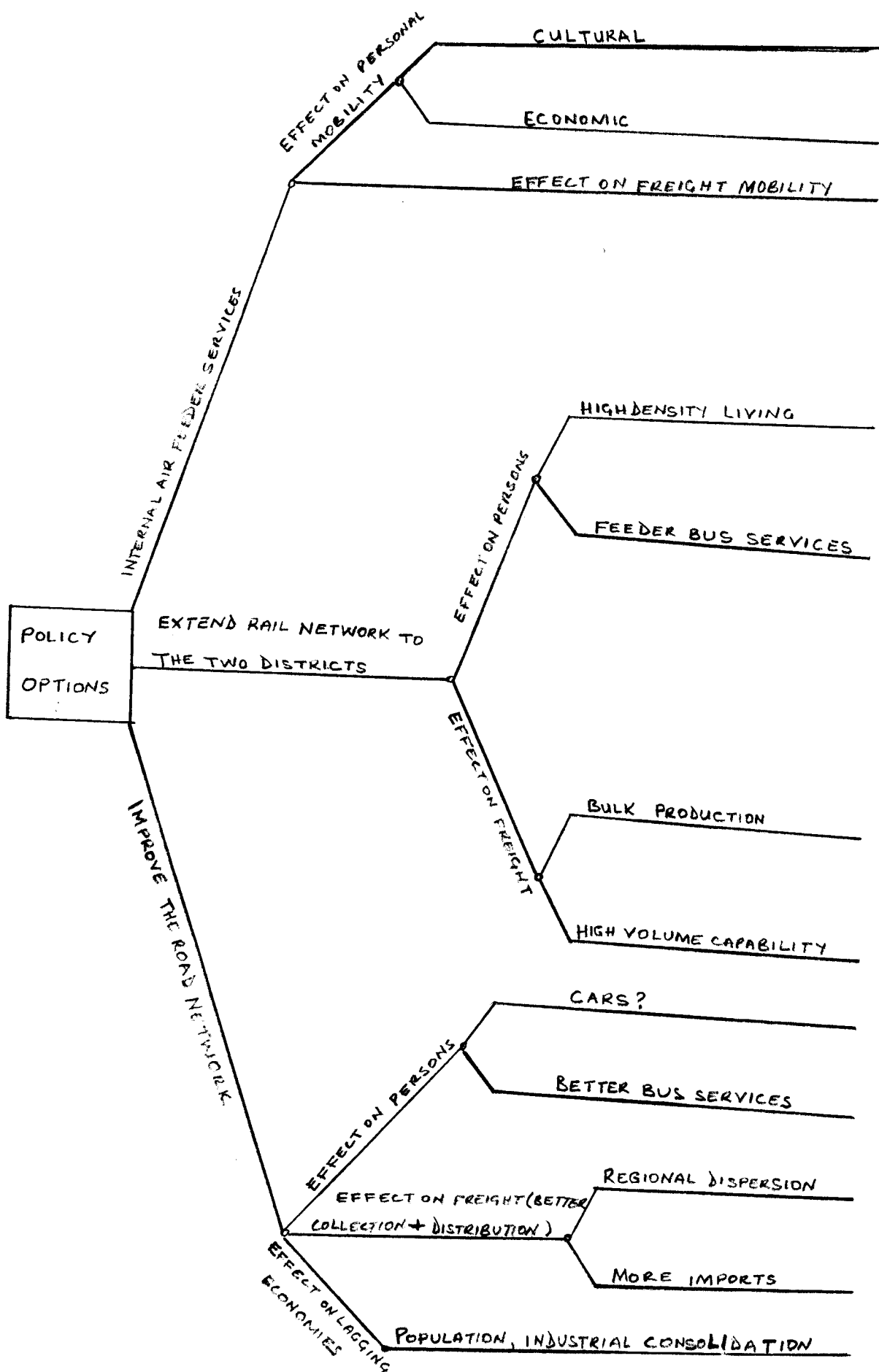
A retrospective analysis of regional planning in Zambia (chapter three) has shown that the manner in which regional planning has been practiced in the country, has also played a major role in the relative under-development of the study area, especially of Chama District. Chama District only began to receive some attention from policy makers in 1969, when it was granted some district status.

Chapter Four has shown that while investments in transport and communications have been quite high, in the country, these tended to have an urban bias or geared towards external markets. It is only the TNDP, which is for the first time putting more emphasis on the development of rural feeder roads. It is not surprising, therefore, that the study area, particularly Chama District, have not quite benefitted from the transport investments of the previous plans. In particular the SNDP made no new allocations towards transport and communications sector in Chama District.

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The fifth chapter has made a critical analysis of the existing situation in Chama and Lundazi districts, in terms of transport and communication networks, maintenance and storage facilities. The analysis has revealed that the two districts, especially Chama District, have not been fairly catered for with transport and communications. As regards maintenance facilities, not only are they numerically inadequate, but they are also poorly equipped. As a result most of the few roads in the area have suffered accelerated deterioration. The storage facilities are equally bad. Often, this has resulted in unnecessary transport costs, as produce has had to be sold for fear that it would be destroyed by impending rains and only to be re-purchased later when the little that was stored within ran out. Finally, it has also been observed that in areas with relatively easy access, modern techniques of production are being applied and concomitantly agricultural output has risen. However no causal relationship is necessarily being assumed between improved transport and the increased output. Increase in output is not only a function of transport, but also of other factors.

At this stage we wish also to make some general observations about transport. Economic and social development can be viewed as the process of integrating society, where integration is the degree to which people and resources can move and change thereby enabling them to achieve their full potential.¹ Transport and communications are among the principal instruments for integration and to the extent that they are costly this makes them major transaction costs



in operating the system which hinder its perfect integration. There are three other conclusions that can be made about transport investment in general.² First, is the conclusion that has already been made that transport investment by itself cannot lead to significant new economic activity in less-prosperous regions. The second conclusion is that where some economic resource, such as a source of raw materials or supply of skilled manpower is not fully utilized in a region, provision of transport facilities may be a necessary precondition to its full utilization. The third is that the policy of locating new industrial activity in regions outside industrial and production centres, usually, entails increasing production costs (although net benefits to society might be still possible). This cost of regional policy can be minimized through provision of improved transport services to the regions. This observation is, actually very much applicable to the study area.

6.2 TRANSPORT SCENARIOS

Arising from the discussion in this paper, there would appear to be three transport scenarios from which decision-makers can make their selection. Decision-makers may opt for improving air services, extending the rail network, or strengthening the road network. The final choice is, however, dependent, among others, on the type and magnitude of output from the area in question. For the purposes of this paper, a "decision-analysis" approach is adopted.

6.2.1 INTERNAL AIR FEEDER SERVICES

The development of air transport has truly created "one world" in the geographic sense, because one location is no more than a few hours from another. Because air transport is most economical on time, it is to be preferred to the other modes of transport wherever the time factor is the crucial element in deciding which mode of transport is to be used. Thus, air transport has great scope of inducing social or business interaction.

It is apparent from the diagram above that air transport may affect people in two main ways, namely, cultural and economic. Since air travel enables world-wide interaction of people from varying backgrounds, it speeds up the diffusion of ideas. The free mixing of people and the interchange of ideas can alter attitudes and values of local communities. Adoption of new ideas and modern techniques of production affords an opportunity to communities of improving their level of living. However, being aware of an opportunity is one thing and availing oneself of the new opportunity is another; hence the importance of the economic aspect of air transport. For an airport to be of benefit to the surrounding communities, it is required that these communities should be in a position to afford the services provided by it. If the majority of the people cannot afford its services, which is true for most people in Zambia including those in the study area, then the airport will not be an economic proposition and thus will probably not promote economic development. It will, instead, be a drain on local resources as the people will, either directly or indirectly, have to pay for its maintenance.

As noted already, air transport can also affect freight mobility. To begin with, air freighting is based on the principle of "low weight and high value." This is due to the fact that air transport is the most expensive mode of transport, both because of the high cost of construction and maintenance of an airport and also because of the high cost of purchasing aircrafts. On the same principle of "low weight and high value", bulky commodities are often not air freighted.

Zambia Airways co-operation, established in 1967, has a near monopoly of both airfreight and air passenger travel in Zambia. Although private air services are also available, their contribution is quite minimal. While it is government policy to establish one airfield at every district capital in Zambia, operational and financial difficulties encountered by Zambia Airways have prevented the company from providing services to all these places.

Presently, Zambia Airways provides services only to major cities along the line-of-rail and to some towns in outlying provinces as well as to game reserves or parks. With regard to the study area, only Lundazi has an aerodrome and available information indicates that flights to the area were last made in 1973. Further, from the discussion in the previous chapter, it is clear that air transport is not suitable for the study area, at least not until the incomes of the people are raised to a higher level than at present. In addition, production is dominated by agricultural produce which is too bulky, thus uneconomic to airfreight. Finally, the population is not only numerically small but also sparsely distributed.

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6.2.2 EXTENTION OF RAIL NETWORK TO THE TWO DISTRICTS

In contrast to air transport, railway transport although slower has the capability of conveying both high volume and bulky commodities. In spite of its slowness compared to air transport, however, it is certainly cheaper. In addition, whereas air and road transport encourage population dispersion, but rail-roads tend to attract population concentrations along their routes. This stems from their not being flexible and this happens to be their greatest disadvantage. People, then, have to move and settle in areas closer to the rail-roads in order to avail themselves of the services provided by them. It will have been noticed from the diagram above that railway transport may have two possible effects on people, namely, high density living and provision of feeder bus services. The former has just been explained. In the case of the latter, it has often been observed that even if people migrate to areas near rail-roads they still demand some form of transport to facilitate their movement within the localities and to and from railway stations. To cater for such movements, feeder bus services, among others, appear to be the most appropriate, especially in terms of economising on travel expenses. In order to facilitate fast conveyance of people, improvement of feeder roads and of course, availability of the buses themselves are necessary. In a nutshell, construction of a rail-road, eventually necessitates provision of feeder bus services which in turn demand construction of roads of good quality.

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Availability of railways is also relevant to goods production. Railway transport generally has greater capacity than either air or road transport. For that reason it is viewed as an inducement to large scale production and subsequently a major factor in inter-regional trade. Similarly, railway transport by accommodating bulky commodities lays a good basis for large scale production in agriculture which is especially important to a country, like Zambia which experiences food shortages.

To date two major railway lines have been constructed in Zambia, namely, the South-North and the TAZARA. The history of these railroads has been discussed in chapter 3; they were built to facilitate mineral production and export. The Mulobezi feeder railroad, which joins the South-north railroad at Livingstone, though apparently built to serve agriculture, infact serves the mines on the copperbelt. The timber, from Mulobezi Saw Mills, which is ferried along this route is, in effect, destined for the mines. Apparently, there is no deliberate government policy to build railways that would serve the agricultural sector perse. Most likely, this stems from the fact that agricultural production is essentially a seasonal activity in Zambia; hence building a railroad might not be economic since in all probability such a railroad would be underutilized. It may be concluded that construction of a railway line should be demand-led and demand-creating. This approach holds good even for the study area. As shown in the preceding chapter, both population density and current levels of production do not warrant construction of a railway line. This action should perhaps be left to the future. At present road transport would appear to be the most suitable for the area.

6.2.3 IMPROVING THE ROAD NETWORK

Road transport has advantages over the other modes of transport because it is flexible and adaptable. Roads are capable of being disaggregated into networks that can reach very remote areas. It is apparent from the diagram that improvements in road transport have significant impacts on both people and on the production of goods.

Improvements in road transport resolve the issue of accessibility, which plays a significant role in personal mobility. Diffusion of ideas, which has implications for economic development, is also made possible through the provision of improved road transport. It has been noted in chapter 2, that improved road transport is particularly important in less-developed countries where other forms of communication are still underdeveloped. Road communication, therefore, remains the principal means of conveying information and new ideas. Car or vehicle ownership also derives much impetus from provision of good roads. However, no causal relationship is necessarily being assumed. The presence of other factors, such as, purchasing power and vehicle availability is equally important in the actual acquisition of a vehicle, but this does not concern us in this paper. What this paper is concerned with is that, whereas car ownership might be an important development indicator, but it only comes at a certain stage in the development process. The point is that for a place or region just embarking on development, car ownership is certainly not an appropriate indicator. For such places or regions a good public transport system would be more relevant.

Freight mobility is also one aspect of life that can be affected by improvements in road transport. To begin with, the possibility of better collection and distribution is greatly enhanced through provision of good road infrastructure. In an agricultural area, such as the study area, it is necessary that agricultural requisites are delivered well before the onset of rains and collection of produce needs to be completed before rains set in, especially in areas where there is a shortage of storage capacity. The study area is certainly one of such areas. Similarly, if road networks are in poor condition, they are liable to lead to problems in the industrial sector. For instance, delivery of raw materials may be delayed thereby creating artificial shortages of certain products.

Another aspect of improved roads is their effect on regional dispersion. It is argued that regional dispersion is feasible if improvements in roads are undertaken, since movement of people and flows of both goods and information are facilitated. People are in this case given an opportunity of choosing whether or not they want to remain in their original residential areas. However, owing to limited resources, it is usually desirable that people do not live in individual and isolated settlements. Instead, they are being encouraged to live in groups and hence, the notion of Village Regrouping Schemes, in Zambia. This is aimed at rationalizing the nation's limited resources. Living in these villages means that certain facilities like roads, health to name but a few can be provided on a communal basis.

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The diagram also shows that improved roads could have an effect on the volume of imports. The assumption is that an improved road network would lead to a high volume of imports. The same argument can, of course, actually be extended to volume of exports. That is, improvements in the road network can promote inter-regional or even international trade. Although there is no data to back this argument in the study area, at least an impression is there that inter-regional trade has not been growing fast. Among others, due to the underdeveloped transport network in the area. However, it is not necessary that imports and exports are of the same magnitude, though, it is usually preferred that exports exceed imports. The advantage of having a favourable trade balance, as this is known, lies in the fact that it widens the scope of expanding the domestic economy. Unfortunately, in many developing countries favourable trade balances are diluted by other items of trade, resulting in balance of payments deficits. The latter is also applicable to lagging regions within countries. For instance, Zambia has had balance of payments deficits every year since 1974 with the exception of the year 1979.

In relation to lagging economies (regions) it is argued that improved road networks lay the basis for population and industrial consolidation. This hinges on the assumption that existence of good road communication leads to increased interaction between households and industry. The implication here is that improved roads help to set the process in motion and other things being equal, this should eventually lead to ever closer links between households and industry.

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With regard to the government's road transport policy, it has been noted (in chapters 2 and 3) that this has for a long time been biased towards urban areas. To correct this imbalance, the TNDP as already noted, has given priority to construction of rural feeder roads. This implies that many rural areas, including Chama in the study area, were, heretofore, virtually inaccessible, thereby creating much hardship for the local population. Agricultural production, the main occupation of the rural population, has remained depressed, as modern techniques of production could not be communicated to these people. Another consequence of lack of improved road infrastructure in the study area has been the disruption of smooth distribution of agricultural inputs as well as the collection of produce. The situation in the area has as noted also been compounded by low storage capacities. It will be recalled, storage is an important element of demand for transport since it acts as a cushion in the intervening period between production and consumption. For any transport system to operate efficiently, also, presupposes an existence of adequate maintenance facilities. In relation to road transport it is required that maintenance facilities for both roads and vehicles are adequately provided. The provision of such facilities in the study area and in Zambia as a whole, however, is very inadequate. While the volume and weight of vehicles has been continuously rising, maintenance facilities, on the other hand, have remained constant and in some cases have even deteriorated. The end result has been further deterioration of the roads and many vehicles have been forced off them. It might be added that the

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Province ensured that roads to these areas were improved; only then did investments in production and other fields follow. Because of the need to spread technological know how on as a wide scale as possible it is desirable that the entire communications system is improved.

In conclusion, transport improvements are urgently required in the study area to open it up, but thereafter investments in other fields, such as production, manpower training, storage, maintenance, to name but a few, are necessary.

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FOOTNOTES

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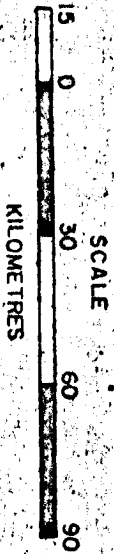
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EASTERN PROVINCE

ROADS



Class I Roads (Torred)

Class II Road (Grovel)

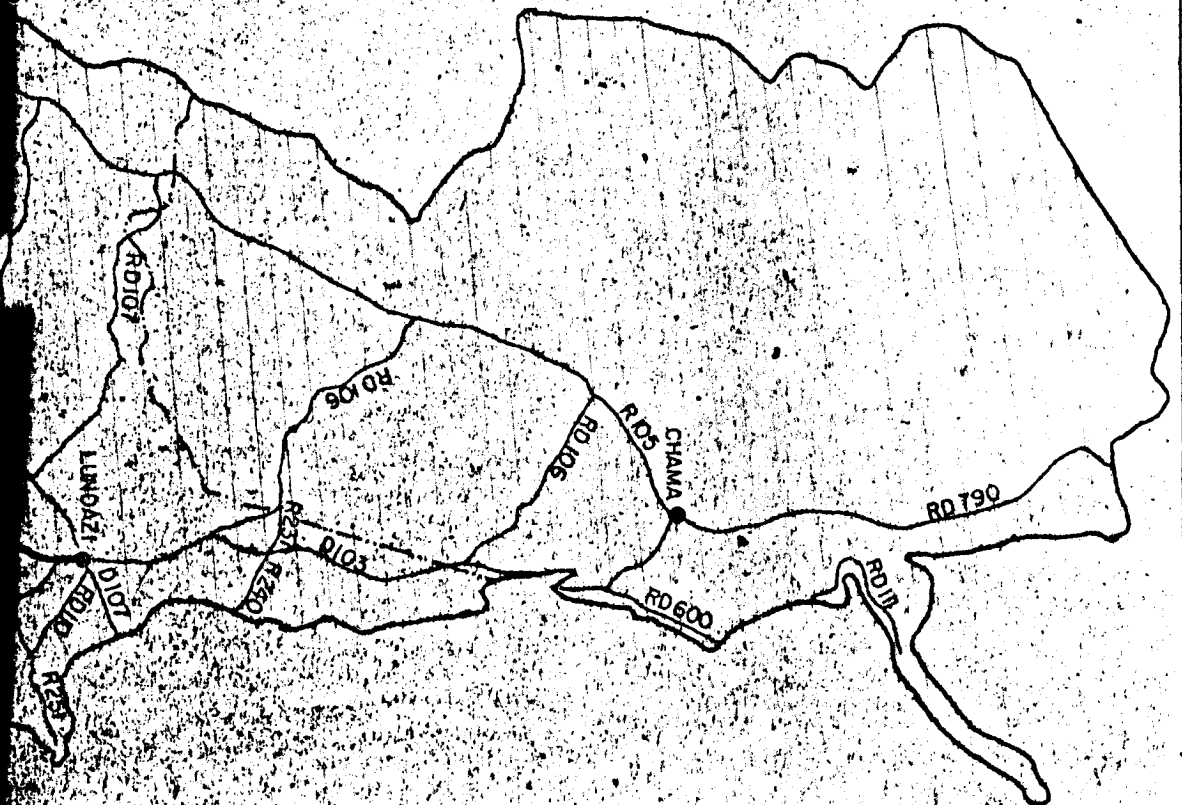
Cross II and Other Roads

District Boundary

District Centre

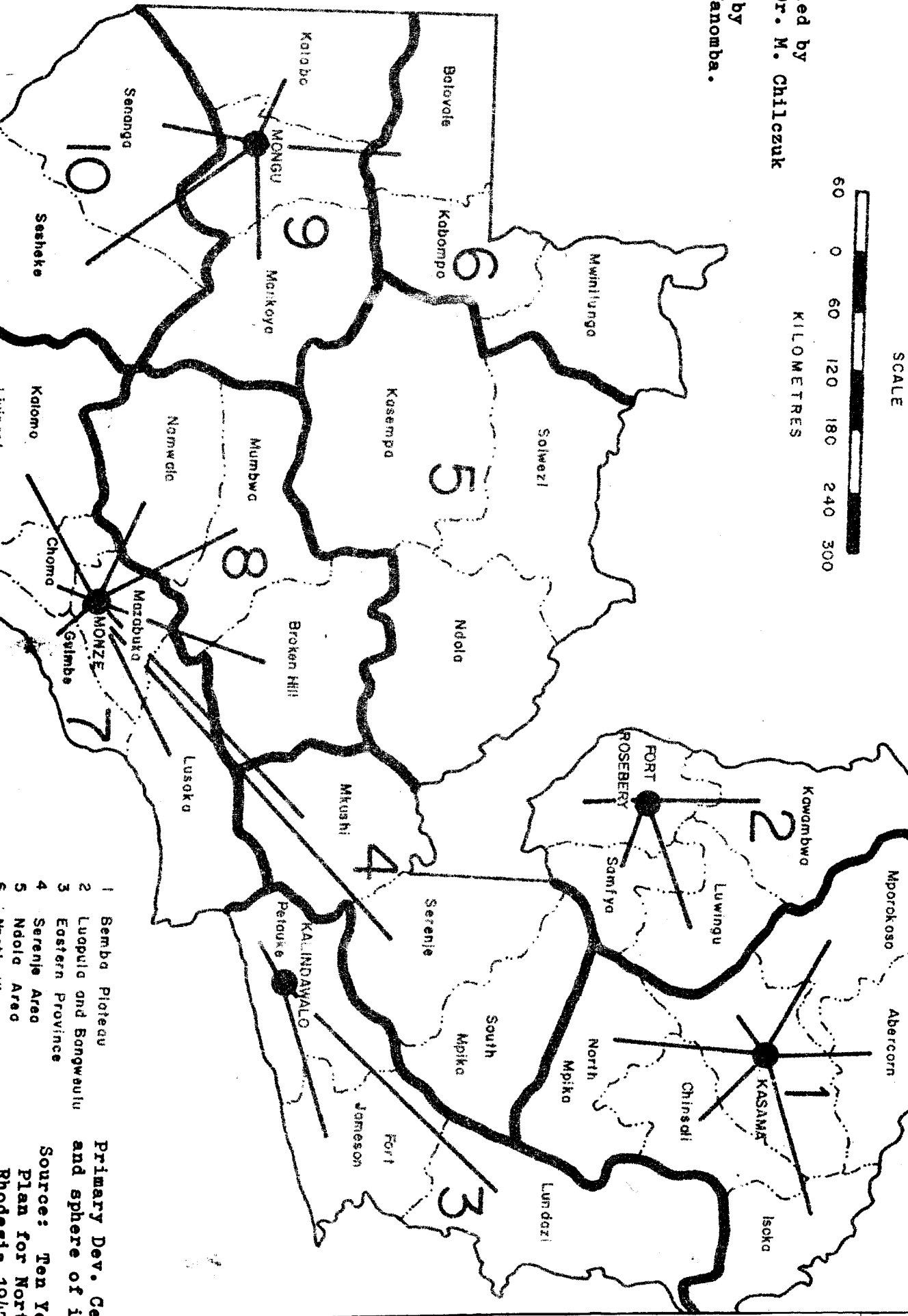
Provincial Headquarters

THE STUDY AREA



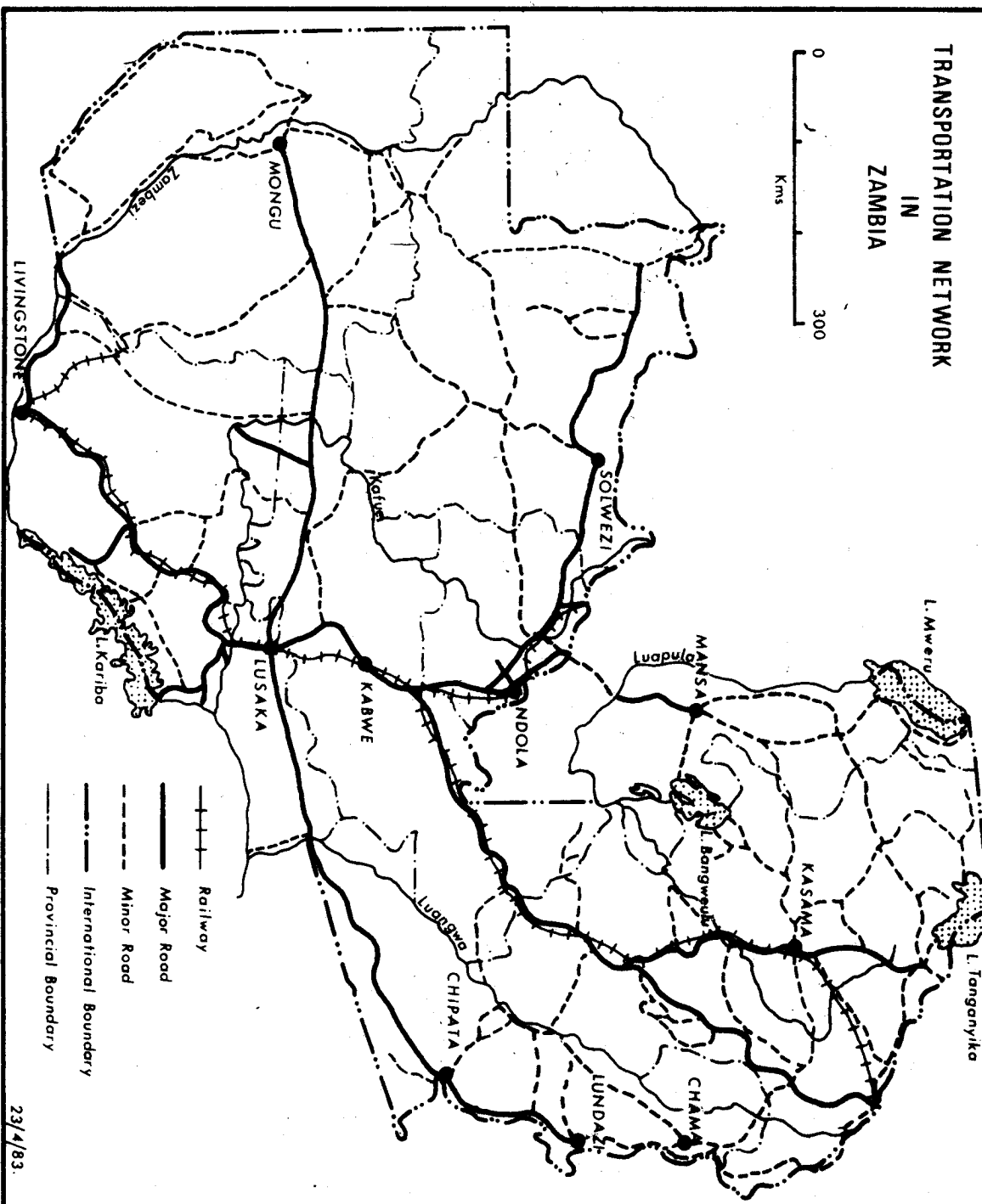
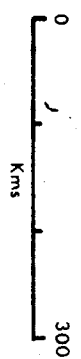
Compiled by
Prof. Dr. M. Chlczuk

Drawn by
B.M. Nanomba.



- 1 Bemba Plateau
 - 2 Luapula and Bangweulu
 - 3 Eastern Province
 - 4 Serenje Area
 - 5 Ndola Area
- Primary Dev. Ce
and sphere of i
- Source: Ten Ye
Plan for North
Rhodesia 1967

TRANSPORTATION NETWORK IN ZAMBIA



- +—+— Railway
- Major Road
- - - - Minor Road
- · - · - International Boundary
- - - - Provincial Boundary