

**CHANGE IN THE ECONOMY AND THE ENVIRONMENT UNDER COLONIAL RULE:
A COMPARATIVE STUDY OF NAMWALA AND BANGWEULU, 1850-1964**

by

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requirements for the degree of Master of Arts in History,
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I, Absolom Hanka Katowa Mulongo do hereby declare that this dissertation represents my own work, and that it has not been submitted for a degree at this or another university.

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ABSTRACT

This dissertation is about economic development within the context of a changing environment under colonial rule. It is a comparative study of Bangweulu and Namwala (which covers most of the Kafue Flats) and the area immediately surrounding these two regions. In this study I argue that ecological problems in agriculture, animal husbandry, game and fishing were serious constraints in the economic development of the two regions. Colonial rulers were at first lethargic in carrying out policies to solve these problems and with their labour policies encouraged uncontrolled and accelerated exploitation of natural resources. The policies that were formulated and implemented after 1940 to deal with these problems met with partial success in Namwala and failed altogether in Bangweulu.

PREFACE

This study examines economic development under colonial rule within the context of a changing environment. It is a comparative study within Zambia of Bangweulu swamps and Namwala (which comprises most of the Kafue Flats) and the area immediately surrounding them. In this study I argue that ecological problems in agriculture, animal husbandry, game and fishing were serious constraints on the economic development of the two regions. Colonial rulers were at first lethargic in carrying out policies to solve these problems and with their labour policies encouraged an uncontrolled and accelerated exploitation of natural resources. The policies that were formulated and implemented after 1940 to deal with these environmental difficulties met with partial success in Namwala but failed altogether in Bangweulu.

The rationale for such a study is, first to demonstrate that different parts of Zambia responded in different ways to the economic impact of colonial rule despite their apparent similarities. Second, the world has been increasingly concerned with environmental issues since the 1960s. Many government policies have been devoted to the conservation of natural resources. Historians have also begun to take this issue seriously, and in African history they have started to explore the



relationship between colonial policy, and economy, and ecological change. This study is a contribution to the development of ecological change in Africa not as a sudden or recent thing but one which has deep historical roots which must be understood. Such understanding can help us to avoid the mistakes of the colonial period and therefore put us in a position to rectify them. Third, Zambia is at present facing the problem of how to best develop rural areas. A historical study of this nature looks at the development schemes and plans in the past and the reasons for their success or failure. History examines the forces that impinge on any development effort and the spirit in which development plans are conceived and carried out. History therefore can help to create intelligent planning based on an intelligent understanding of the problem. A better understanding of the colonial period as an aspect of African history is needed. Study of these two areas shows differences in the manner in which any particular region responded to colonial rule and western capitalism. In order to avoid stereotyped explanations and generalizations about the causes of underdevelopment in Africa there is need to take local case studies seriously.

Initially I chose to study these two areas because they have been important wildlife sanctuaries, especially for lechwe. I wanted to find out the reasons for the drastic reduction of animal populations. It soon however became clear to me that animals could not be studied in isolation, and that they were only one part of the total ecosystem. By expanding my focus in this way I realised that there were other equally interesting comparisons and contrasts. Some of the obvious ones are: that the two areas are flood environments, the flood regime influences the natural habitat and human activities. In both areas there is tsetse fly infestation in the surrounding country, hunting and fishing are important and both areas suffered geographical isolation from the main lines of colonial communications and urbanization. These similarities notwithstanding it appeared to me that there was great difference in economic emphasis. There was a cattle-keeping complex in Namwala and greater stress on fishing in Bangweulu. On the surface it looked as if Namwala had a more stable and prosperous economy than Bangweulu, and this became an added stimulus for me to find out why this was the case.

This initial inquiry led to a more precise set of questions which became more clearly formulated as the

research progressed. What was the 19th century ecology like? Was this ecology changing and if so how by the time colonialism was established? Were concepts of a man-controlled ecology and equilibrium in the ecosystem applicable to Bangweulu and Namwala in the 19th century? Was Guy's postulate of environmental deterioration in Zululand because of an increased population possessing limited natural resources relevant to Zambia? To what extent did colonial political and administrative decisions adversely affect man and his environment and therefore cause rural poverty? Was expanding western capitalism beneficial to traditional economies and the people in the two areas? Were there any colonial policies designed to meet development problems? If so how far were they successful? What changes occurred in economic activities during the period, especially in fishing, hunting, agriculture and livestock? To put the investigation in its proper perspective I started off my analysis with a theoretical framework. This involved reading material on historical studies of the 19th and the early 20th century ecology and economy in Central, Southern and East Africa. I also was forced to examine the nature of colonial rule in Southern and Central Africa and the way it impinged on traditional economies and the environment.

This led me to look at the way Bangweulu and Namwala reacted or responded to the new changes and the adjustments that occurred to accommodate these changes. In the analysis it also became clear that climatic irregularities, soil deterioration, game and pests were important variables in propelling economic development in certain directions at various times. In the last part of the period covered we find a government trying to respond to development problems of the regions by implementing development plans. Here I found myself showing why such schemes achieved partial success in Namwala and failed altogether in Bangweulu. Broadly speaking my chapters will follow this type of analysis.

The period chosen is therefore intentionally long so as to give me a complete sweep of the changes from pre-colonial times to the end of the colonial period. The starting point gives me the opportunity to look at the nature of pre-colonial ecology and economy. We can then study the changes that occurred in the early colonial era, and during the apogee and demise of colonial rule. I must however admit that availability of evidence influenced this time span. Before 1850 it is difficult to find records left by travellers, explorers and

missionaries; nor are there many people alive today who would give a reliable account of the history of the areas in question. 1850 onwards marks a point in time when Zambia increasingly started to interact with the outside world. 1964 is a natural cut-off point as it heralded the end of colonial rule. In fact from 1964 onward continuity in the documents becomes rare.

The first part of my research was devoted to reading published and unpublished materials at the University of Zambia Library, the National Archives of Zambia, the Game and Tsetse Control Library and Mt. Makulu Research Libraries at Chilanga. My attention was first concentrated on 19th century travellers', explorers' and missionaries' reports and books. I then spent a lot of time consulting district annual and tour reports for Luwingu, Samfya, Mansa, Mpika and Namwala from the beginning of colonial rule to 1964. I found the Game and Tsetse Control Library at Chilanga most useful for changes in the game population, distribution of animals and animal ecology in general. I also used material appearing in various journals, especially the Northern Rhodesia Journal.

I then went for field work in October, 1978 and spent a month at each of the two areas. At these places I interviewed a total of 57 old people who could give me

a good account of the history of the area in which they lived. Most of the interviews were tape recorded, but this was not possible in the last half of my work in Namwala because the tape recorder broke down. During my visits to the two areas I also made use of archival material at the bomas.

During the period of analysis I was faced with the problem of how best to present the material of a comparative study. Comparing all the way through would make it difficult to show the main themes for each area in any one given period. For this reason I decided to study one area first then the other and in the concluding section to look at the contrasts and similarities for chapters 2-4 which formed the main body of my findings. The advantage here was that I could get a complete picture of the trends in the topics dealt with in each period before proceeding to compare them. The result of such an arrangement is that I was examining economic, historical and environmental developments between two specified dates rather than each topic in turn, such as agriculture, within a particular era. Comparing topics all the way through would distort the overall picture of the way things developed in each region and the inter-connections between different phenomena. To put my

study in proper context I decided to devote the first chapter to a review of the literature that has addressed itself to environmental issues as they relate to economic development. This gave me ideas which I tried to apply in my study and showed me in what ways I was to contribute to the existing body of knowledge on environment and man. After chapter I my work was divided into three broad periods: 1850-1910, 1911-1940 and 1941-1964, each one being discussed after the other and comparisons and contrasts made within each period. The concluding chapter five will try to tie together the implications of the study and put it in overall perspective.

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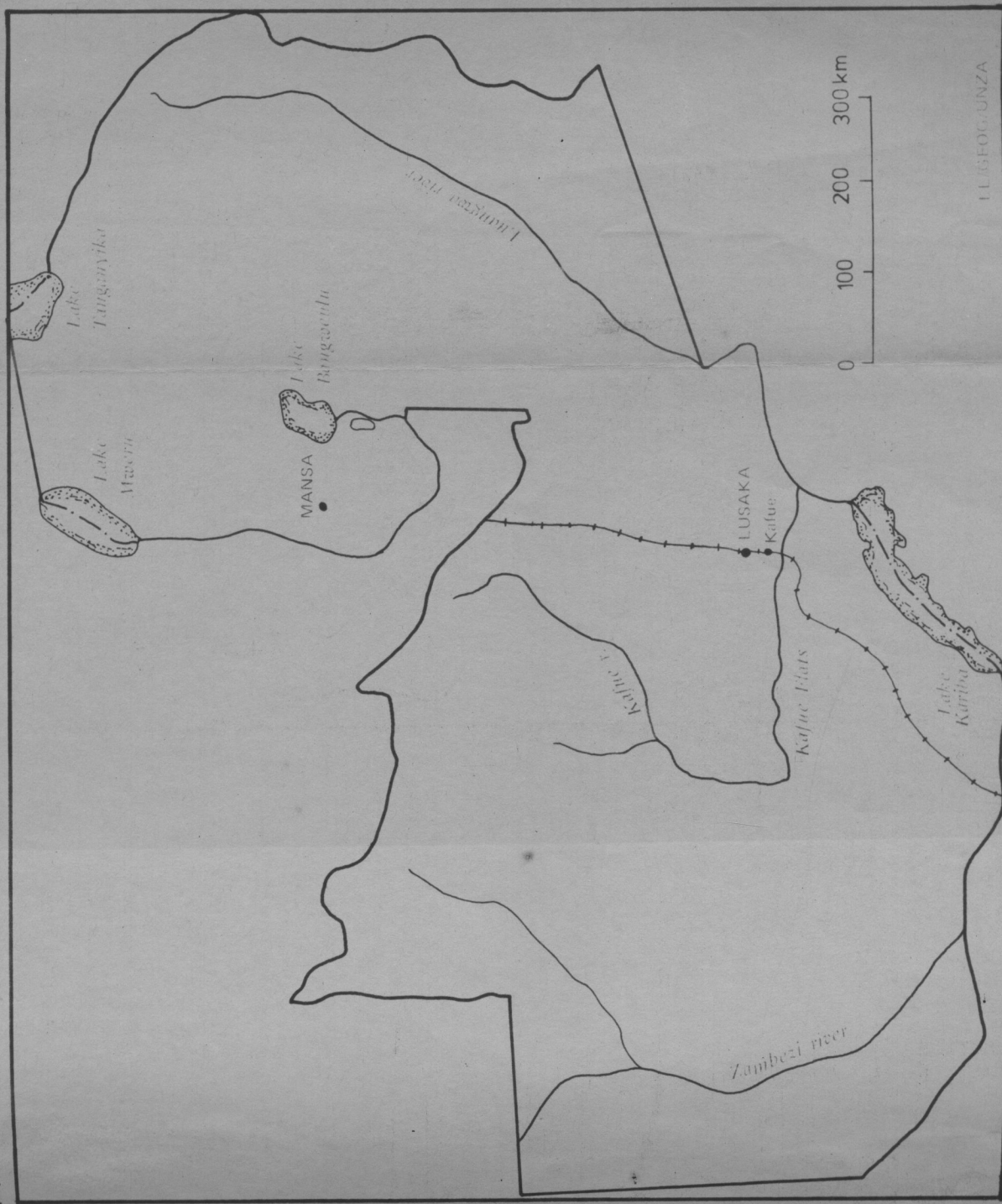
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Abbreviations

BSACo.	British South Africa Company
HKI	Haut-Katanga Industriel
MCM	Mifulira Copper Mines
NCCM	Nchanga Consolidated Copper Mines
RNLB	Rhodesia Native Labour Bureau
RST	Rhodesia Selection Trust
TCL	Tanganyika Concession Limited
UMHK	Union Miniere du Haut-Katanga

MAPI LOCATION OF BANGWEULU AND KAFUE FLATS IN ZAMBIA



CHAPTER 1

PRE-COLONIAL ECOLOGY, ECONOMY AND COLONIALISM

The main objective of this chapter is to set the theoretical and historiographical framework within which the themes of the dissertation will be examined and developed. Three problem areas will be considered: dislocation between man and the environment, economic effects of penetration of western capital, and the consequences of colonial policies on the environment and economies of East, Central and Southern Africa. These more general questions have a bearing on my study: first, my study is about how man and the environment interact for man to develop a particular type of economic system. In Bangweulu and Namwala, for example, floods, wildlife, fish and tsetse fly have greatly influenced the way man has exploited his surroundings. At certain times the existence of natural resources in fairly large quantities has brought economic prosperity while at other times the depletion of these resources has meant economic depression. While man in the 19th century showed good adaptation to the natural habitat, changes in the ecosystem, such as the spread of tsetse fly, rise in the water levels, climatic variations, increase in the human

population and decrease of the natural resources have increasingly made it difficult for man to subsist on the environment as he has done in the past. This in effect has meant disharmony between man and the environment and the spread of poverty for rural dwellers whose limited scope of technology fails to alter deteriorating land to their advantage.

Capital in Zambia penetrated through the mines to extract minerals, demand for natural resources such as ivory and animal skins, through the setting up of settler farms, and through the construction of railways and roads to serve these new enterprises. ¶ The growth of the mining industry required a lot of labour and therefore deprived rural areas of able-bodied men, and this in turn affected productivity in agriculture. ¶ While in some cases the big population of the mines provided markets for local products, such trade accelerated exploitation of natural resources beyond sustainable yields and therefore caused degradation of the natural habitat which could not withstand these new pressures. Bangweulu was affected in this way by the Copperbelt and Katangan copper mines. Fortunately for the two areas no settler farms were set up and local people did not lose any land as was the case for people along the railway belt. In both Namwala and Bangweulu the development of agriculture was

seriously hampered by poor infrastructure which the colonial government was unwilling to develop as their main aim was to have communications lines which served only European agriculture.

Colonial policies in general favoured industrial capital and commercial agriculture in European hands, and policy towards Africans was seen only in relation to the way it affected these two. Africans were required to supply cheap labour to the mines and any economic activity that made them avoid wage labour was viewed with disfavour. Wanting European agriculture to prosper and therefore supply food to the mines, most of the financial help and technical knowledge was only made available to European farmers. This therefore accounts for the lack of development schemes in many rural societies and both Bangweulu and Namwala were affected by this type of policy. Most often colonial policies led to degradation on the land either by depopulating certain areas and causing the spread of tsetse fly, or by overcrowding, with the attendant problems of soil impoverishment, soil erosion and a rapid decrease of natural resources. When the colonial government started to implement policies favourable to Africans it was to solve problems in African areas that had been brought about by the colonial policies themselves, such as economic backwardness in areas that supplied labour to the mines.

All these features manifest themselves in varying degrees in the economic history of Bangweulu and Namwala.

The relationship between man and his environment can be altered by deliberate political, social and economic actions (whose consequences may or may not be foreseen); natural disasters (drought, floods, pest invasions) and cultural traditions embedded in the productive processes. Such alteration may dislocate or enhance man's relationship to his environment. This new condition may in turn initiate a chain of changes in the economic and social systems which become the subject of historical study. It is here that a review of historical studies on environment and man become relevant so that we derive concepts and trends that have been observed in another situation and apply them wherever possible in my study.

1. Dislocation between man and his environment

I am going to concentrate on three studies that have addressed themselves to the question of environment and man. These are Vail's study of history and ecology in the Eastern Province of Zambia, Kjekshus' examination of ecology control and economic development in Tanzania

and Guy's study of ecological factors in the rise of Shaka and the Zulu Kingdom. Developing their arguments from different themes they all arrive at the conclusion that man was dislocated from his environment; and for Vail and Kjekshus, this was the root of the present prevailing rural poverty in the areas that they studied. Both Kjekshus and Vail see ecological factors and colonial policies as being instrumental in the economic crisis of the areas concerned. It is however clear that in the East African case late 19th century ecological disasters were much more decisive than in the Eastern Province in Zambia. Kjekshus sees colonial policies as accentuating an already declining situation, while Vail implies that colonial policies caused the poverty in Eastern Province. Both studies do however make it clear that administrative decisions in the colonial period changed man's relationship to the environment in such a manner as to cause degeneration of the land and inevitably decline in man's economic well being. Whereas Kjekshus and Vail look at the interaction between man and the ecology in the late 19th century and the colonial period, Guy concentrated on the pre-colonial period entirely. He sees degradation on the land as a result of diminishing natural resources vis-a-vis increasing population with limited technology to change the environment for the better, and this happened in the absence of natural

disasters as was the case in East Africa and Eastern Zambia. All of these studies demonstrate that man's impact on the environment brings about changes in the vegetation, wildlife, pest infestation and soil fertility that most often lead to the deterioration of the natural habitat as a whole. Bearing in mind these similarities and differences I will now examine the main arguments of the three authors.

Vail conceived the area between Luangwa escarpment and the Malawi border to have a delicately balanced relationship between man and the environment in the second half of the 19th century. Basing his argument largely on observations made by Gamitto who passed through the region in the early 19th century, he says that the area was able to support a large population because it had a moderate climate, ample rainfall and fertile soils which made it impossible for the people to have extensive cultivated areas. He says that the Chewa, for example, had great wealth; the area at the time was peaceful and the land productive, enabling the Chewa to trade with neighbouring peoples for goods locally unobtainable. Ivory and slaves were traded eastwards to the chieftainship of Mwase Kasungu in exchange for salt. Tobacco and dried fish from the Luangwa valley were

traded for iron implements that were made in great numbers on the plateau. 'The area was so well regulated, according to Gamitto, that the people left "their harvest, still in the ear, in heaps on the village roads; they take from them what they require and are not afraid of theft". Further, there were no creatures "that destroy their gardens, and so they sow and reap without any damage except that caused by weather".¹ People also had a lot of cattle and their country abounded in wild life.

In this peaceful and prosperous country came disruptive forces of the Ngoni, Bemba, expanding western capitalism and colonial administration which impinged on the area in such a way as to produce an ecological catastrophe. The impact produced desolation on the land, impoverishment for the people and spread of disease. The result was that the balanced relationship between man and his environment which had existed before the mid-19th century was undermined and thus involved the area in the process of underdevelopment which has not been corrected to this day.

Vail locates the ecological problems almost entirely in the context of colonial economic, ecological and political policies. He says that the Ngoni invasion and the Bemba attacks in the area caused disruption in the prosperous agriculture, wealth in cattle, trade in

tobacco and dried fish which were exchanged for iron implements on the plateau. The raids resulted in large villages which were perpetuated by colonial rulers for convenience in tax collection but caused congestion for the people. Close on the heels of this situation was the outbreak of natural disasters: jiggers (pulex penetrans) which broke out in 1893, rinderpest swept through the area killing wild animals and Ngoni cattle. Ngoni cattle were further depleted in 1898 when they were conquered by the forces of the British Central Africa Protectorate fighting on behalf of the British South Africa Company (BSACO.) In 1891, Harry Johnston, following upon Article 10 of the Brussels Act of 1890 proclaimed gun laws which curtailed the use of firearms and gun powder in an effort to suppress slave trade and control ivory trade. The result was that animals which had decreased with the outbreak of rinderpest increased and this in turn increased damage done to the gardens by wild animals, especially the elephant and bushpig. Land alienation in anticipation of a white settler influx preserved amalgamated villages, causing the surrounding areas to revert to bush. The result was an increase in wild animals by 1896, and thus a corresponding increase of tsetse fly which killed a lot of cattle, especially from 1905 onwards.

Vail further says that tax demands and labour policies to secure labour for Southern Rhodesia led to removal of able-bodied men from the villages to work in the south. Agriculture declined, houses were used for too long and became dilapidated leading to increase in the nkufu tick (ornithodoros mouata) and the eventual outbreak of relapsing fever. At the end of World War I, in 1914, the administration forced people to move into reserves, mostly into inferior lands. The action was continued after 1926 to create room for European settlers who did not arrive. Large areas of land as a result reverted to bush. The late 1920s and early 1930s thus saw an increase in game and spread of tsetse fly. Elephants in particular raided gardens and often caused famines in Luangwa valley. The spread of tsetse fly also increased the incidence of sleeping sickness. Forcing people into reserves led to overcrowding, soil exhaustion, destruction of bush cover and severe gully and sheet erosion as people cultivated on hillsides and near banks of streams. Efforts to make people adopt new farming methods failed as most of the able-bodied men were away. In the 1940s and 1950s adoption of new farming methods was regarded as collaboration with the colonial government owing to the African National Congress activities.²

Kjekshus in contrast with Vail sees the ecological relationship between man and nature in the 19th century not as the result of some precolonial harmony as Vail does, but as the result of the application of technical skills, that is ecological control. His postulate is similar to Vail's when he says that this control resulted in a prosperous economy in East Africa. Like Vail he sees degeneration of the environment as the result of natural disasters just before colonial rule and colonial policies which had adverse effects on the environment. Kjekshus therefore while being careful about ecological equilibrium introduced the concept of ecological control in East Africa throughout the 19th century. His study aims at issues relating to man and his environment and to the economic basis of indigenous initiatives. He says that far from being initiators only as a defensive reaction to a crisis situation, East Africans were on the offensive against a hostile ecological system and that until the end of the century, they were the victors in that struggle. Like Vail he says that explorers travelling through East Africa talked of prosperity in the 19th century. Challenging the idea that shifting cultivation was the overall system of pre-colonial agriculture in East Africa, he maintains that the majority of agriculturists in Tanganyika operated systems of relative permanency, labour intensity and a

variety of soil improvement techniques. The second key concept to ecological control is found in domesticated animals, especially cattle. An important cattle economy existed in East Africa throughout the 19th century. Cattle constituted a significant aid in the maintenance of the ecological control system, and their presence indicates absence of tsetse fly. Third, he says that there was competition between people and animals for control of the land and maintains that wildlife was already becoming managed by the end of the last century. Fourth, the basic economic activities of agriculture and animal husbandry gave rise to a number of industrial innovations, that is, iron smelting, forging of implements, salt production and cotton manufacturing. There were also trading relations which connected the supply and demand of agricultural produce and livestock, as well as a series of manufactured commodities which acted as dynamic stimuli to exploit comparative advantages within indigenous economies. Well developed trading patterns existed by the time foreign interests became aware of the interior as a source of commercial riches.

Kjekshus like Vail also sees ecological degradation almost entirely within the context of colonial rule. He says that by about the 1890s the

man-controlled ecology in Tanzania came to an end owing to natural disasters and historical events. The breakdown was caused by the outbreak of rinderpest, small pox and the jigger in the last decade of the 19th century, all of which undermined the people's ability to maintain their economies. Pacification policies, procurement practices, labour recruitment policies, drought and locust plagues caused widespread famines. Colonial warfare caused further destruction. The population concentration for reasons of health, but also for labour recruitment, soil conservation and wildlife protection purposes resulted in large areas remaining vacant and reverting to bush. This in turn led to the spread of tsetse fly and to an increase in sleeping sickness.³

Unlike Vail and Kjekshus, Guy sees dislocation between man and the environment not as a result of natural disasters and colonial policies but owing to an increasing imbalance in the precolonial period between the density of the population and the resources of the region. Guy says that the relatively harmonious relationship in Zululand came to an end by the end of the 18th century, much earlier than it did in the other two areas. Before that time man carried out his economic

activities satisfactorily. Zululand contained a number of different vegetation types according to variations in rainfall. The higher rainfall areas, like the coastal plain and much of the country with a rainfall of over 500 millimetres were covered with bush and forest. The deep river valleys and the area in the northeast, lying in the rainshadow tended to produce types of savanna vegetation. Fire, the iron hoe and the axe in the hands of man, and the grazing patterns of his stock had over a period of 1500 years altered vegetational patterns. The forest was driven back to the wettest slopes and along watercourses and replaced by grassland. In the dry valleys burning and grazing reduced woodland to grassland. These changes resulted in extensive tracts of bush along the coast and grass further away from the coast which in turn produced vegetational types excellent for livestock in Zululand. The vegetational types that resulted were sweetveld in the low-rainfall river valleys, sourveld on the coast and in the high-land area, and in between there was mixed veld. As long as the Zulu herder could move his cattle freely he could take advantage of the spring grazing in the high country, and as summer advanced he could move his animals down to the valley sides and to the sweet grasses of the valley floors in winter.⁴

The wide range in climate allowed the Zulu cultivator to choose between the types of the environment best suited to the requirements of sorghum, millet and maize. Maize was established by the 18th century and, mixed with dairy products, formed the basis of the Zulu diet. Most of the other materials were produced in the same environment. Wood for fuel and buildings, clothing from hides of slaughtered cattle, cooking and eating grasses from receptacles of wood and clay were all produced and utilized by the Zululand inhabitants. Iron for weapons and agricultural implements was mined, smelted and forged within the country.⁵

While it was human activity which at first made Zululand an excellent region for production by stock keeping cultivators, it was the same human activity which initiated a process of environment degeneration; '... the physical resources were breaking down under existing systems of exploitation.'⁶ Through continued use the grasses in Zululand were damaged; overstocking led to the destruction of grass cover, soil erosion, and bush encroachment; sweetveld became vulnerable. Lacking scientific knowledge of plant life and nutrition, or the means to control grazing and cattle movement by fencing or to store up water, the Zulu could not avert degeneration. 'Once population density in the sub-continent made migration to new areas difficult, and when

it was no longer possible to convert forest and bush to grass and arable land, then there were definite limits on the rate of increase of production and of population density, limits imposed by the changing productive capacity of the environment under existing modes of exploitation'.⁷ As the ecological limits were approached, violence between social groups living in the area increased as they struggled for access to diminishing resources.

At this stage one perhaps can pause and attempt to see the relevance of this literature to my study. To what extent, for example, can one postulate a harmonious relationship between man and the environment in the pre-colonial period in Namwala? Can it be said that a man-controlled ecology existed in the two areas under study in the same manner that Kjekshus envisages? Was there any environmental degradation in Namwala and Bangweulu, if so, was it caused by natural disasters and colonial policies as Vail and Kjekshus imply for eastern Zambia and Tanzania? Does in fact ecological degeneration result from contradictions between natural resources, limited technology and population increase as in Guy's case? How far can we apply Guy's model to Namwala and Bangweulu?

Without trying to answer these questions in great detail, as this will be done in chapter 2, let me make the following observations: while environmental changes in the Eastern Province in Zambia and in Tanzania give credence to the theory that disasters and colonial policies led to dislocation between man and his environment this model does not apply to Bangweulu and Namwala. Although disasters and colonial policy affected the two areas adversely one cannot talk of dislocation and rural poverty in the same way that Vail and Kjekshus envisage. One reason for this is that local economies and ecologies differed. In Bangweulu even though there was a gradual depletion of natural resources neither disaster nor colonial policy undermined the mainstay of the economy, fishing, to the extent that one can postulate disharmony between man and the environment. If anything some aspects of the Bangweulu economy approximate Guy's 18th century contradictions between a growing population and diminishing natural resources, but then in 18th century Zululand there were no capitalist interests and colonial rule to accelerate this process. In Namwala neither the depletion of natural resources nor the colonialists and capitalists individually or jointly caused economic desperation to

the degree that they did in Bangweulu and in the Vail and Kjekshus case studies. The factors undoubtedly caused reduction in the productive capacity but it was nowhere near disaster or dislocation. The economy in Namwala showed resilience against odds and an ability to pick up under more favourable conditions. Besides, the flooding regime was functional in both Bangweulu and Namwala (although in Namwala it was better than in Bangweulu). Flooding as an established and predictable phenomenon helped to sustain the economies of the two areas: fishing was possible, large game populations were maintained and in the Namwala case floods made it possible for people to utilize good grazing grounds on the Kafue Flats.

Even though the disaster/dislocation theory does not apply to the two regions in toto, it does however give useful analytical concepts. In the pre-colonial period the studies help me to construct the cycle of relationship between man, vegetation, wildlife, land and the flood regimes. The ideas gained from Vail and Kjekshus enable me to better judge whether or not the relationship between man and the natural habitat was in fact harmonious or meant ecological control in Bangweulu and Namwala. Was this type of relationship

policies in these countries. We should however not expect a simple equation of always the colonial state being related with capitalist interests. In some cases for example there were ecological problems which the colonial governments could not handle successfully even if they had the money or necessary policy.

Bundy in his study of the rise and fall of the South African peasantry argues that in the 19th century, black agriculturists responded successfully to new market opportunities. He says that hundreds of thousands of African peasants met the new demands of the state and landowners by adapting their existing methods of farming to the new requirements rather than enter wage labour on the terms of the white colonists. This emergent peasantry sold part of what they produced. Africans entered the land market as purchasers, especially in the Cape and Natal. In the Eastern Cape they traded wool and grain, sold food in Natal, and were sharecroppers in the Orange Free State. However the growth of the mining industry after 1870 and the commercialization of white agriculture led to competition for African labour, and pressure was put upon an independent peasantry. Mine owners and white farmers sought legislative measures designed to dislodge labour

from African areas. These measures adversely affected the peasant's access to markets, his terms of trade and disposal of his surplus. Taxes, rents and other fees were demanded of him on the land, while white agriculture was aided. Unfortunately at this time peasant production was also subjected to natural disasters; droughts and floods destroyed crops, rinderpest and East Coast fever broke out frequently between 1890 and 1913, cattle were further weakened in the 1880s and 1890s by redwater, horses died of horse sickness and sheep affected by scab and crops visited by disease and pests. The effect of disasters was made worse by overcrowding in peasant regions because of conquest, expropriation of land and political and economic barriers put up to stop Africans from acquiring land, and by increase in the population. Reserve areas were retained to provide a cheap reserve of migrant labour for the mines. Reserve areas were to supply part of their subsistence through peasant production to give benefit to urban employers in the form of low wages, cheap housing, and avoidance of welfare consideration for workers' dependants.⁹

This process described by Bundy was reproduced in nearly all countries in Southern and Central

Africa according to recent study.¹⁰ In Southern Rhodesia for example, Phimister has shown how peasants responded to new market opportunities by supplying food to the mines, sold honey and beer to the mine compounds, and sold food to migrant labourers travelling to and from the mines. This response was undermined and crushed by the desire to get cheap African labour for the mines. Capitalist European agriculture was deliberately made to supply food to the mines. The little surplus generated by peasant production was appropriated by Europeans in the form of labour reserves, taxes and rents.¹¹ The policy was to secure cheap African labour for South African mines in countries north of South Africa: Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland and Zambia. Any developments which discouraged cheap labour supplies in these countries were viewed with disfavour. Even in Shaba, Zaire, the overall colonial strategy was, '... to incorporate the male population into the modern labour market, mainly as temporary migrants to HKI, [Haut-Katanga Industrielle], and at the same time to extract the surplus from rural communities'.¹² Poll tax and compulsory labour were used to achieve these objectives and these in turn depressed rural incomes and commodity prices. Indeed the theme in these studies is that rural areas in

Central and Southern Africa were subjected to capitalist mining and agriculture either by extracting labour from these areas or by making them supply food to the mines at low prices. The result of this process was rural poverty and stagnation.

However this easy equation of the colonial state as the arm of capitalist interests has been challenged by Lonsdale with reference to Kenya. Lonsdale argues that there are three models of the colonial state. The South African model (Bundy) of exploitation by labour and the West African model (Hopkins et al) of exploitation by commodities produced by peasants; and the Kenyan model which oscillated between the two models. Lonsdale says that in the Kenyan case the peasant commodity production, instead of being destroyed, continually expanded despite the dominance of settler production. Rather than merely nourishing the expanded reproduction of a wage-labour force, and in contrast to the South African experience, it also dominated the domestic cereals market as a whole between the wars and earned export incomes which normally increased from year to year, apart from the slump in 1929-1931. Unlike other colonies in Africa there were no real

labour reserves in Kenya; the main sources of labour supply were also the centres of marketed African production. The other thing about Kenya is that increasing intervention by the state against the African population in order to make viable the settler sector coincided with a rising level of conflict between the settlers and officials who were determined to defend African interests.

In Kenya it was felt that to establish any form of export production and self-financing administration it was necessary to have effective authority over the African population. This was best done by steady exercise of civil power and consent instead of conquest. When the balance of power changed from coexistence to British control, collaboration had to be rewarded with markets to satisfy both the British and their allies in the changed context. Africans had to be provided with the means to pay hut tax, and this was in the form of marketed production. 'The expansion of commodity production... thus provided not only a material base for colonial domination but also, specifically, the funds of patronage for chiefs who with derisory official salaries none the less maintained a growing clientele, including tribal

retainers, the bully-boys of colonial control'.¹³

Lonsdale adds that, 'In a very concrete fashion, therefore, the legitimation of conquest and the poverty of the state articulated African household production to the capitalist world system, in the sense both of joining it to overseas markets through Indian merchant capital and of giving it expression through the interests of the chiefs and district administration'.¹⁴ It is under these conditions that in 1910 Africans paid up to 40 per cent of total revenues in tax and import duties and the settlers only 20 per cent. By 1913 products of African origin accounted for about three-quarters of export earnings.

The early fears about land speculation by big capital in Kenya were removed by the Crown Lands Ordinance in 1915.¹⁵ The state therefore collaborated with land concessionaires by loosening control, first at protectorate level since too stern a control over land tenure closed up the capital market, and second, at district level in the Highlands where white landowners would not tolerate the form of autocratic paternalism wielded by district officials over Africans. 'The state was obliged to stand increasingly outside the immediate relations of capitalist production, while

co-opting the leading concessionaires on to its one representative institution, the Legislative Council, set up in 1907. The Protectorate was too late and unproven a segment of the capitalist world's farming frontier for the state to dictate terms to capital. Not until after the war, when the state's revenues provided security for development loans raised in London, and when the pressing claims of social order demanded fresh administrative controls over labour relations and the farm work process, could the state be said to have begun to establish any real authority over the settlers. And it was not until the crisis of the Depression and the exigencies of wartime production in the 1940s that, in return for protected markets and public crop-financing, white farming accepted a position of state clientage'.¹⁶

The authority of the colonial state in Kenya therefore rested on the incompatibility of interests between the big men of both peasant and capitalist production. The contradiction this posed expressed itself more clearly when demand for labour increased. When African-owned land was appropriated with the expansion of capitalist estate production this did not have an immediate adverse effect on the Africans as they

were able to have access to land at one time left vacant for reasons of defence and as landowners made available land they could not yet utilize to their African tenants. Hut tax and poll tax were raised to force Africans to work for settlers, but taxation encouraged domestic production as much as wage employment. Of those who went for employment the propertyless and unmarried young men were in the majority and they did so to get stock needed to start the domestic cycle of family formation.

Against this background it can be argued that quite a number of African countries fall into this Lonsdale 'Kenya' model. Let us for example take Zaire, the colonial state there pursued two objectives for Katanga: to incorporate the male population into the modern labour market and at the same time to extract the surplus from rural communities. The poll tax was used to achieve both objectives. In some areas chiefs played an important role in co-opting African rural communities into the colonial structure. Sometimes local district development under 'indirect rule' was contrary to official policy at the provincial capital which favoured large scale recruitment for European-owned enterprises. There were two conflicting development strategies; first a strong emphasis on African agriculture

and slowing down of industrial development to show the benefits of indirect rule. Second, was the desire to stabilize labour on industrial sites and in neighbouring rural areas.¹⁷ It was felt that a settled agricultural population could in future meet both the food supply and manpower needs of the mining centres.

Malawi is another country where colonial state policy vacillated between the labour and commodities models. Although the state pursued a policy of extracting labour from the rural areas for European settlers and the mines in the south, the government at various times tried to promote African agriculture. There was for example the effort to encourage Africans to grow cotton between 1909 and 1914, and in 1929 the government sought to encourage African peasant production by persuading Africans to grow groundnuts. To promote the industry further the government built a soap factory and instituted a protective tariff, but the government had at the same time to reckon with the railways which feared that replacement of imported soaps by locally produced soaps would result in declining freight revenues.¹⁸ In the 1931-1934 period the colonial state in Malawi again faced the dilemma of either to send Africans to the South African mines for labour or develop African agriculture.

In Zambia the same contradictions were apparent. While promoting European agriculture on one hand the colonial state advocated paramountcy of African interests on the other. The desire to promote European agriculture had the effect of stimulating African agriculture along the railway line. After 1930 when the government saw that settler production was not adequately meeting food requirements on the mines it sought to encourage African production. For this reason the government carried out agricultural improvement schemes for selected African areas from 1940 onwards. Measures were also undertaken to control soil erosion and overcrowding in the Native Reserves. However while doing these things the government still controlled agricultural expansion in African areas by allowing the Maize Control regulations to limit maize sold by Africans. Credit facilities for agricultural development were only available to European farmers and the Department of Agriculture concentrated its extension services on the settler community.

Another model relevant to my study is that of regional differentiation caused by the uneven impact of colonial rule. Iliffe says that regional differentiation in Tanzania was caused by the growth of commercial

agriculture in the more developed parts of the country and the uneven development of other regions. He says that the establishment of the slave plantation economy producing cloves in the 19th century for the world market drained labour from the mainland either as slaves or as porters for the trading caravans. Export agriculture increased with the coming of the colonial economy and new export crops were introduced, especially coffee, cotton, and tobacco. These were grown in favourable areas; coffee in the Haya and Kilimanjaro areas, cotton in Sukumaland and Musuma area. The result of production for export in certain areas was underdevelopment which showed itself in the regional inequality which became relatively fixed and rigid during the 1930s. By this time Tanzania was divided into three types of economic regions: there were regions which specialized in production for export: the sisal estates, the main cash crop areas, and the towns. Here the main problem was land shortage and soil exhaustion, and a growing discontent with dependence on production of cash crops for the world market. The first category was surrounded by regions which supplied the export producing regions with food and other services, for example, Ezaramo, Uluguru, and Rufiji supplied food

to Dar es Salaam; Bonde, Ukaguru, and Ulanga supplied food to sisal estates; Kandoa supplied cattle for the Tanga and Korogwe markets. Spreading out beyond the export and food producing regions were peripheral regions which either supplied migrant labour or stagnated in near isolation from the territorial economy. The last two areas experienced stagnation. One of this was depopulation; for example Tabora and Kigoma entered a vicious circle of labour migration and the spread of tsetse fly in the absence of men to clear the bush. In other areas a rapidly growing population led to land shortage and soil exhaustion which in turn led to reduced yields and periodic famine, for example in west Usambara.¹⁹

Regional specialization also revealed itself in Zambia not only in agriculture but also in other economic spheres. In agriculture the railway belt was earmarked for the production of maize while the Eastern Province was intended to grow tobacco. The Northern and Luapula Provinces were to supply labour to the Copperbelt and Barotseland to be a labour reserve for the mines in the south. The result of such specialization was stagnation in the labour reserves areas and in potentially good agricultural

areas because of concentration on European agriculture. The same regional specialization was very evident in Katanga, Zaire. This model can certainly be applied to countries like Malawi, Lesotho and South Africa.

How then does this body of theoretical knowledge on the impact of capitalist penetration on the economies of South-Central Africa apply to Namwala and Bangweulu? There is one reason to take it into account, and this is that capitalism and colonial rule penetrated differently in Namwala and Bangweulu. In Bangweulu with a less viable economy people responded much more vigorously to the pressures of the capitalists by migrating for wage labour and by selling commodities than they did in Namwala where the cattle industry was not easy to manipulate. In Namwala labour migration was low-keyed and the emphasis was on the establishment of law and order. In both areas there was no land alienation on a big scale and there was no movement of people into native reserves to cause artificial overcrowding or depopulation of certain areas. Neither in Bangweulu nor in Namwala was there a peasantry that rose through the sale of agricultural products to be crushed through expropriation of land, imposition of rents and low pricing of products.

Since there were no European settlers to develop commercial agriculture as in Kenya, the Lonsdale model does not apply to the two areas. On the other hand the two areas do demonstrate regional differentiation but again not along the lines postulated by Iliffe. It is however true to say that the overall capitalist strategy and colonial policy affected the two areas but it was different in each area, and each area responded differently. While decline occurred in Bangweulu, the disasters, capitalist penetration and administrative decisions did not happen in the manner that existing studies have argued. Ecological constraints together with colonial policies had a greater bearing on the economic development and eventual stagnation that Bangweulu experienced. In any case one can not talk of gradual decline in Namwala as one sees it happening in Bangweulu and other areas. While Namwala at first experienced stagnation and impoverishment due to ecological problems and negative colonial policy, it however later showed an ability to improve economically when efforts were made to control ecological constraints. Against this background it is therefore necessary to look at each area individually and see how it developed

under the impact of colonial rule and capitalist penetration, rather than apply any of these models wholesale.

3. The nature of colonial rule in Zambia

Just as Lonsdale pointed out in his Kenya model, in Zambia we find that the colonial state was mediating between competing groups. The colonial state had to balance the interests of the mines in South Africa, Southern Rhodesia and Shaba with those of the copper mines and settler agriculture in Zambia. The colonial government also tried to please commercial farmers vis-a-vis peasant agricultural production, and it is these competing concerns that characterised the nature of colonial rule in Zambia.

With the signing of the treaty between Lochner and Lewanika in 1890 and the passing of the North-Western Rhodesia Order in Council in November, 1899 North-Western Rhodesia came under the rule of BSACO. North-Eastern Rhodesia came under BSACO. rule after Alfred Sharpe and Joseph Thomson were sent in 1890 to conclude treaties with chiefs and the position legalised with the North-Eastern Rhodesia Order in Council in January,

1900. In return for mining and trading rights the company was to give protection to the subject peoples on behalf of the British Government.²⁰

The objectives of the BSACo. for the newly acquired territory determined the nature of the colonial system that evolved in Zambia.

The main objective of the company was to earn profit for its shareholders through developing the mineral resources. Agriculture was to serve the mining interests by supplying low-cost maize and meat. In this way new mining activity would be attracted and thus more royalties for the company provided. To carry out these aims the company felt that European agriculture had to be promoted by encouraging immigration of European farmers since African agriculture was still poorly developed.²¹ Government policy towards Africans was to maintain the status quo in agricultural production. Africans were to be given only enough land to satisfy current requirements and in this way maintain African agricultural incomes at a low level. The reason for such a policy is that the company's design for Zambia was to provide unskilled labour for the expanding labour intensive economies of Southern

Rhodesia and to a less extent, South Africa.²²

The Northern Rhodesia administration at this time was still concerned with supplying labour to these countries because until the late 1920s local mines did not produce on a large scale. Until 1924 production of copper in Zambia was neglected in favour of much more profitable developments in Zaire, although little work was carried out at Kansanshi, Bwana M'kubwa and in the Hook of the Kafue.²³ However local companies wanted to increase the productivity of their concerns and to minimize their production costs by employing African workers on very cheap terms and at low wages. There was thus conflict between labour demands by local companies and other territories, and the Northern Rhodesia government supported the latter. As well as ensuring labour supply to outside territories, the government tried to aid local industries by recruiting directly at times, providing the laws and regulations to force people into the labour market.²⁴ Throughout the 1900s and 1910s administrative officials recruited labour for Southern Rhodesia which they sent directly to that country but later directed to the Rhodesia Native Labour Bureau (RNLB). By 1925 the number of Zambians in Southern Rhodesia was 19,803.²⁵

To ensure that labour flowed to the mines in Southern Rhodesia, and later for the local industries and Katanga tax was introduced; first in North-Eastern Rhodesia in 1902 and in 1904 in North-Western Rhodesia. A 3/- tax was levied for North-Eastern Rhodesia while in North-Western Rhodesia it varied between 5/- and 10/-, and was unified at 10/- in 1914.²⁶ The tax was also imposed to make Africans bear the costs of maintaining law and order. In addition the government passed regulations for effective control of labour. One of these was The Masters and Servants and Apprentices Proclamation passed in 1908. The proclamation provided for the tracing of deserters, bringing them to court and then fining them or returning them to the employer for completion of the contract.

In keeping with the policy of maintaining the status quo in African agriculture European settlement was promoted. Africans occupying land suitable for European settlement were moved and as compensation the Northern Rhodesia Order in Council of 1911 provided that the company could assign land for Africans elsewhere sufficient for their agricultural and pastoral needs. Africans were also

compensated £1 to £2 for each hut destroyed and 8/- to 10/- per acre of land cultivated. Under this type of arrangement settlers gained control of African labour. Without fully explaining what was involved, settlers encouraged the former occupiers to stay not as owners of the plots and independent cultivators but as tenants. The Department of Native Affairs provided the machinery by which Africans went into tenancy agreements with their new landlords. Tenants had to work for landlords at current rates. Tenants had to fulfil their obligations to supply labour and give one bag of maize from their plots to their landlords.²⁷ Africans were not only squeezed in this way but discouraged from cash cropping. Before 1910, for example, the Kaonde were reluctant to travel to work as they could grow maize for the Katanga mines. In 1910 Union Miniere offered 27/6 each for 100 kg bags of maize from the Kaonde near Kansanshi. The North-Western Rhodesia administration banned the transaction on grounds that the high price offered to the Kaonde would not be of benefit to them. The Acting Administrator, Carden, said that the Kaonde were of fine physique and could earn more money by migrating to Kansanshi or Bwana M'kubwa

mines. '...it would seem to be a better policy to encourage the energies of the Bakahondi in the direction of mining rather than agriculture'.²⁸

Despite such policies which favoured European commercial agriculture, settlers found it difficult to make their farming activities viable and profitable. The few European settlers who were established were frustrated by lack of support from the Company until the late 1920s. Most of the Europeans who took up land were amateurs in agriculture. They comprised of former members of the British South African Police, the armed forces, retired members of the administration, the railways, the Post Office and traders who had built up little capital through cattle trade. Their methods of farming were extensive, all faced the problem of lack of markets and transport, and only the mines in Zaire at first proved to be the farmers' regular customers. Little machinery was employed because of high transport costs. Right through the 1920s farmers along the railway belt struggled on. Most of them lacked capital and were faced with misfortunes. The beef market to Shaba was taken over by Southern Rhodesia when that country was declared free from East

Coast. fever in 1922, there was a maize slump in 1923, efforts to grow cotton and tobacco in the Chipata area failed. Many settlers lacking experience in farming found it difficult to improve their land and did not get technical advice from the government. They tried to put pressure on the government to help them in their hard circumstances but this met with little success until after 1924.

In the 1924-1939 period the colonial government still wanted the African population for the labour requirements of the mines. From 1925 the copper industry expanded because of intensive copper exploration, rise in the copper prices as the electrical and automative industries expanded in the world, perfection of the flotation process and control of malaria which attracted a large number of Europeans.²⁹ Development work on four mines started during this period. In October, 1926 Nchanga Consolidated Copper Mines (NCCM) was formed to exploit deposits along the Nchanga stream. In 1927 the Rhodesia Selection Trust (RST) was formed and launched the Roan Antelope Copper Mines to exploit deposits near Luanshya river. In 1930 the

third of the large companies, Mufulira Copper Mines (MCM) was formed by ^{RSM} to work Mufulira deposits. Rhokana Corporation was charged with the development of Nkana and Mindola deposits between Luanshya and Nchanga. By the end of the decade all the four mines were about to start production. Bwana M'kubwa which had started production in 1926 was by 1930 running at full production capacity. The overall result of all these developments was increase in the demand of all categories of labour. Africans employed on all the mines and concessions in Zambia rose from 8,592 in 1927 to 31,941 in 1930. In Shaba, Zaire, the main area of investment was in the central mines and the number of black workers employed by the Union Miniere du Haut-Katanga (UMHK) increased by 4,000 between 1926 and 1929.³⁰ Just as Roan Antelope, Mufulira, Rhokana and Nchanga were coming into production the Depression started and Mufulira and Nchanga closed down and Roan and Rhokana barely managed to stay into production. There was therefore more labour than was required so that the African labour force was reduced from 13,948 in 1931 to 5,831 in 1932.³¹ Between 1930 and 1939 owing to the Depression and depressed economies the mines

continued to rely on labour-intensive methods to cut down on production costs and so demand for African labour continued. The mines also wanted to stabilize some of their labour and move away from the short contracts of the previous decade.³²

It is against the background of these developments that labour demand continued to be a serious issue in Zambia, especially that labour requirements to the south had to be met. The period also saw increasing co-operation between mining and agricultural capital with the colonial administration. In 1929, the Northern Rhodesia government instituted Native Reserves in the railway region which undermined African productivity and thereby released Africans for wage labour.³³ The government also resolved the problem of labour shortages by restricting recruitment for Rhodesia and Katanga starting in 1926. The mining companies also brought pressure upon the government on the issue of extra-territorial recruitment. Yule and Company (which had replaced Williams and Company) recruiting for Shaba mines were restricted to 5,000 recruits in 1931.³⁴ This situation meant dividing the country into three areas. Eastern Province and Barotseland were to supply labour to the south,

Northern and Luapula Provinces were to supply labour to the Copperbelt, while the region along the railway line was to supply food to the mines.

With the expansion of the copper industry in the 1920s there was a big demand for food and by 1930 formerly heavy exports of maize to Zaire had to be replaced by imports from Southern Rhodesia and South Africa. The market opportunities created by the mines and the entrance of European settlers along the railway line caused an unexpected revolution in African agriculture near the railway belt. Africans began to expand the size of their cultivated gardens and to use the plough. By 1927 they sold 30,000 bags of maize to traders.³⁵ European farmers feared that African increased maize production would lower the price of agricultural products to the mines. Instead they wanted more land for further expansion and high prices for their output. To achieve this objective and to lessen African competition they pressed for Native Reserves. The Native Reserves therefore established in 1929 were also to undercut African maize production and to reserve land 32 km on each side of the railway line for European settlement.

The rise in African maize sales did not cause undue alarm among European settlers as long as domestic production was insufficient to meet the internal demand at prevailing prices. With the near collapse of the copper industry since the onset of the Depression, European farmers feared that they would be driven off their farms by African competition. These fears led to the enactment of the Maize Control Ordinance in 1936 which established the Maize Control Board. The market was by this Ordinance separated into an internal pool and export pool. African producers were given $\frac{1}{4}$ of the internal pool and Europeans $\frac{3}{4}$. This move again undercut African food production and restrained them from expanding their acreage.³⁶ The settlers with the co-operation of the colonial government succeeded in limiting African access to financial resources and technical knowledge. They also ensured that only rudimentary roads were extended to the African areas. All these measures were taken despite the fact that in 1930 the Passfield Memorandum had advocated the paramountcy of African interests. Faced with food shortages since the expansion of the copper industry the mining companies turned to

the Government to resolve the food crisis; and this was with the realisation of the weakness of settler agriculture and the costly nature of relying on imported food. The government thus started to encourage peasant agriculture in areas near the railway line. The government allowed Native Reserves to service settler agriculture by growing foodstuffs for sale to millers and registered traders. After the Depression the government encouraged Africans to grow groundnuts and beans, and marketing facilities for maize were made available to them. Encouragement of African agriculture was never however to supersede European agriculture, and African farmers were therefore ignored or discriminated against when their interests conflicted with those of the European population.³⁷ Northern Rhodesia's share of the £1 million granted to colonial countries by the Colonial Development Act in the British Parliament to improve communications in African areas and African agriculture generally was disproportionately expended in favour of settlers. In addition the Legislative Council voted £59,000 to start an agricultural loan scheme for settlers. Settlers also made the Government to act

as guarantor for the loans that they got from the banks. While doing all these things for the settlers the government did not make similar financial arrangements for African producers. Contrary to Colonial Office desires, no roads were extended to African areas while many farms had at least dirt roads joining them to the main roads or railway line. Although £10,000 was set aside in 1938 to improve conditions in the reserves (that is build dams and wells), under pressure from Provincial Commissioners and the Native Development Board, the 1939-1945 war started before the money could be used. African producers therefore did not receive any financial help from the Colonial Office or the Northern Rhodesia government in spite of efforts to encourage peasant production.³⁸

The 1940-1963 period saw a rapid expansion of the copper industry and general rural backwardness despite efforts to improve African agriculture. The steady growth of the mining industry which had started in 1934 with the rising prices of copper was further enhanced by the outbreak of the Second World War (1939-1945). Post war reconstruction of devastated towns and buildings increased manufacture of electrical

goods and created new demands for copper. The copper industry expanded further because of the development of the cold war between the United States and the Soviet Union in the 1940s, and the outbreak of the Korean and later Vietnam wars. Prices of copper therefore continued to rise: in the years between 1938/39 and 1944/45 the price of copper per long ton went up from £20 17s 5d to £33 12s 0d, an increase of 61 per cent.³⁹ In 1947 copper prices rose from £62 10s 0d per ton to £137 0s 0d, and in 1949 when Britain was forced to devalue its pound copper prices increased by 44 per cent.⁴⁰ In the 1950s prices continued to rise; at £402 10s 0d per long ton in 1955 they rose to £437 0s 0d in 1956.⁴¹ To overcome technical problems and reduce labour costs, and thus in the long run lower production costs it was felt that the personnel's efficiency be increased, and this could only be done if black workers were promoted to more responsible jobs. The other way of reducing labour costs was by mechanization, which again meant African advancement and higher pay. To carry out such a policy required settled rather than migrant labour, and in 1946 the

mining companies started to encourage stabilization of labour and African advancement which became official policy thereafter.⁴²

In the first few years of the war agricultural production went down, falling from 437,000 bags of maize in 1937 to 152,000 bags in 1941. The reason for this drop in production was a run of bad seasons; and once the war started implements became expensive and hard to get. To improve matters, a Food Production Committee was set up to advise farmers to expand their maize acreage, but no similar arrangements were made to Africans on the pretext that such moves might increase soil erosion. In 1942 the government guaranteed minimum prices for wheat and maize over a period of three years, loans became available to cultivators, and inspectors went round the countryside with a right to enter all European farms to enforce better methods of farming. Oxen and machinery which were not being used to their full capacity were handed over to people who needed them most. In 1942 Africans were conscripted and forced to work for European farmers for two months at normal rates of pay, but the system worked badly and was eventually stopped. The result of these measures is that maize production

increased from 197,000 bags in 1942 to 475,00 bags in 1945, most of the maize coming from the European farmers where government assistance was concentrated.⁴³ White farmers now relieved of African competition during the war supported the drive for greater productivity in African areas. White farmers also supported this drive because they could no longer buy maize from Africans who could now not grow more because they were overcrowded and therefore overploughing and overstocking the Native Reserves in which they were living. In this situation Europeans were forced to grow more maize instead of devoting their acreage to other crops which they considered more valuable.

After the war production of crops for increasing needs of international capital in the country and the need to increase primary products made the government want to improve African agricultural production. The government thus undertook steps to speed up agricultural production for Africans. For this reason the government announced the Ten Year Development Plan for rural development. In addition to food crops African producers were encouraged to grow cash crops, especially tobacco and cotton. Fearing

that African nationalism might base itself on the poverty prevailing in the rural areas and loss of productive land, the government showed interest with rural advancement and introduced the Improved and Peasant Farmers Schemes in 1946 and 1948. Few farmers belonged to these schemes yet government loans and technical knowledge were restricted to them.⁴⁴ In 1947, through the Northern Rhodesia Order in Council of the same year, Native Trust Land was set aside for occupation by Africans. With the increase of urban unemployment, it was decided that income earning prospects be improved in rural areas, especially in those areas where the Copperbelt drew its labour. In 1956 the Intensive Rural Development Programme was launched to stimulate rural development in the Northern and Luapula Provinces.⁴⁵ In 1961 a working Party was set up to investigate the problems of rural economic development. The Party unfortunately recommended development not in areas of economic value but in politically volatile areas.

Despite encouraging African production the government was still biased towards European agriculture. The post war memorandum by G.F. Clay made it clear that the colonial government wanted European producers to

move away from maize in favour of livestock, irrigated wheat and vegetables and other crops which required knowledge, techniques and capital. Africans would be responsible for satisfying the internal demand for maize.⁴⁶ Besides, in the 1940s when demand for African grown maize was high the government still saw fit to continue the operations of the Maize Control Board. In 1948 the Executive Council barred Africans from obtaining Certificates of Participation for them to enable them to take part in selling maize in the Class A Pool which was reserved for settlers. The action was taken to protect settlers in the face of overproduction and lower prices and at a time when Africans were called upon to participate more actively in producing for the local and metropolitan markets.⁴⁷ Another thing to remember is that settlers controlled financial resources and were thus able to mechanise, use fertilisers and improved seed. In the 1950s, the Federal Government set up a Land Bank for settlers but nothing similar for Africans. Settler control over finances and their political power resulted in unequal distribution of staff to disseminate new technology and techniques to African producers. In 1963 the ratio of technical officers among Africans was 1:1,000 compared to 1:50 for settlers. While

expenditure in agriculture for Europeans rose to £281,316 in 1952, and for Africans to £797,114 in 1963, that for Europeans rose to £1.18 million in the 1958-1959 period. The result of such a situation is that African areas had few roads connecting them to the markets and owned only 350 tractors while settlers had many roads linking them to the markets and 2,400 tractors in 1964.⁴⁸ This therefore demonstrates clear collaboration between the colonial administration and European commercial farmers, leading to a neglect of the possibilities of rural areas.

From the beginning to the end of colonial rule Africans were made to serve the interests of the mining industries in South Africa, Southern Rhodesia, Katanga and the Copperbelt and European commercial Agriculture. Imposition of tax, enforcement of tenancy on European owned farms and the creation of Native Reserves were all measures taken to release Africans for wage labour. While European farmers were helped by the government to establish themselves on the land through the provision of land on which to settle, policies which lowered African agricultural production and the dissemination of technical knowledge concerning farming and financial facilities, nothing was done

for the Africans to see that they developed in a similar manner. Any developments that made Africans independent of capitalist interests were viewed with concern and consequently discouraged. The measures that were often taken to encourage African production were to serve colonial interests or to solve problems that were brought into being by colonial rule itself. The few agricultural development plans that were undertaken were often poorly conceived and therefore ineffective, and benefited only very few people. The nature of colonial rule in Zambia was therefore such that it promoted rural backwardness and development for the mining industry and European agriculture.

Whatever economic activities took place in Bangweulu and Namwala should be seen in the context of the overall colonial policy and strategy for the country as a whole. Bangweulu located in the north-eastern part of the Copperbelt and east of Katanga was seriously affected by the labour policies intended for these two areas. As long as the mining interests were satisfied, the government was happy and no concern was shown for the agricultural development of the region. Namwala on the fringes of the railway belt was a marginal area both for

favourable policies inhibited development in agriculture and livestock-keeping. In the Bangweulu case I show the forces behind the economic booms and slumps that were characteristic of this period. What were the ecological problems in agriculture, livestock, and game and what measures were taken to overcome them? I also show the reasons for the fact that Bangweulu was generally more prosperous than Namwala in the 1911-1940 period. The fourth chapter covers the 1941-64 period, and in it I try to show the reasons why Namwala responded to development measures while Bangweulu did not. To what extent were ecological problems still responsible for economic backwardness first in Namwala, and then in Bangweulu? What development plans were carried out to overcome environmental problems and how successful were they in each case? The fifth chapter brings together the main conclusions of the study as a whole and the contrasts and comparisons that have emerged.

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CHAPTER II

THE NATURE OF THE ECONOMIC SYSTEMS IN NAMWALA AND BANGWEULU BETWEEN 1859 AND 1910

In this chapter I will first explain the ecology and political background against which economic activities took place in the second half of the 19th century and early 20th century. Second, I will show how people in the two areas were adapted to their environment. Third, I will demonstrate that slave trade and cattle raids either created temporary setbacks or had no impact at all on the areas. Fourth, I will show the early colonial and capitalist impact. In the concluding section I will highlight the contrasts and similarities of the two areas in this period.

1910 has been chosen as the cut-off point because the pre-colonial economy until then had changed very little. 1910 marks the point at which western capitalism started to penetrate more actively in Zambia. It was about this time that political trends of the previous period were changing, as for example the decline of the slave trade. It was in 1911 that

the two areas came under one administration when North-Eastern Rhodesia and North-Western Rhodesia were amalgamated into Northern Rhodesia. Ecological problems also became more pronounced after 1910.

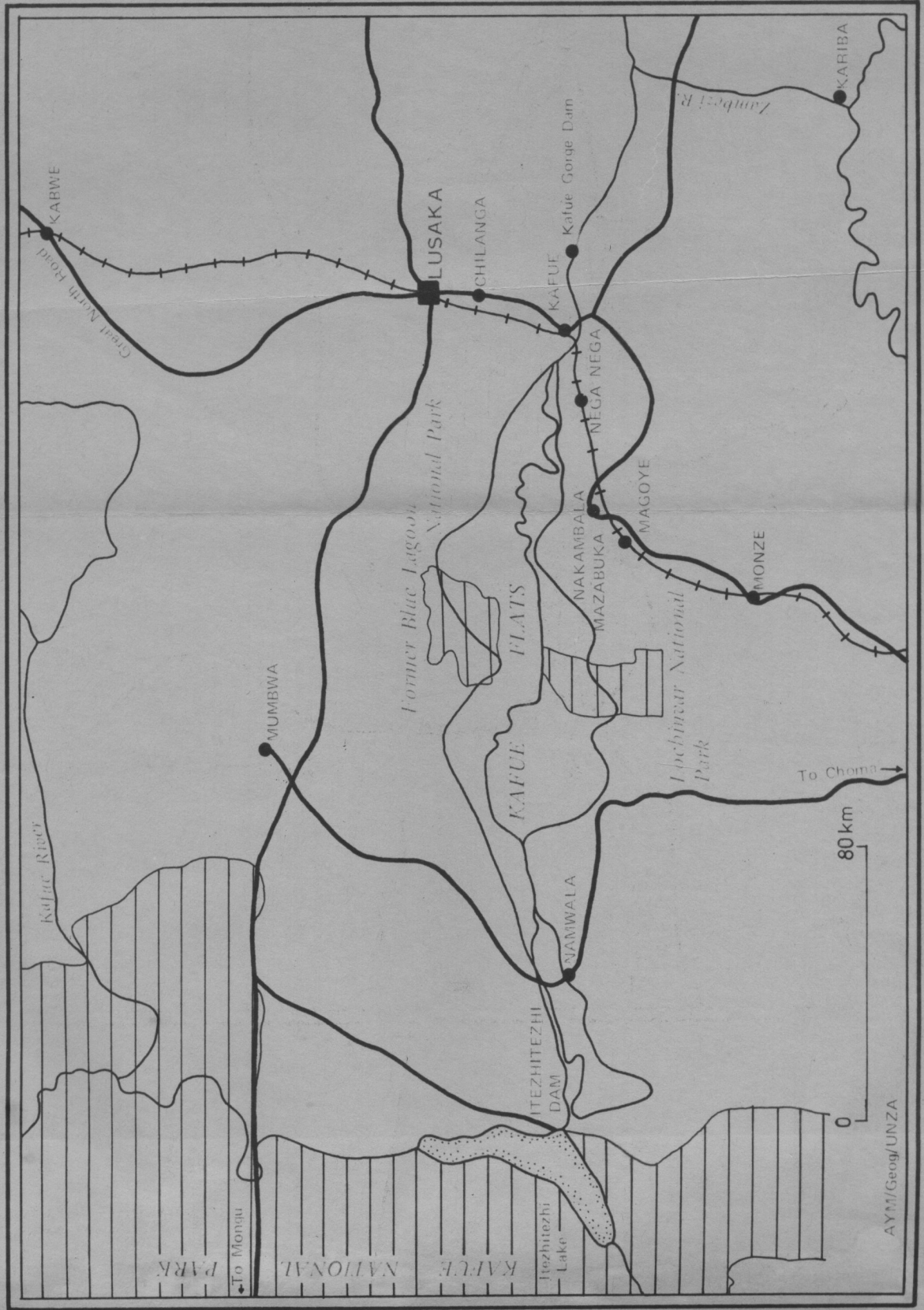
A. The Nature of the Namwala Economy, 1850 - 1910.

1. Geographical Background

Namwala covers most of the Kafue Flats found at 1065 to 1075 metres above sea level located between latitudes $15^{\circ} 20'$ and $16^{\circ} 15' S$ and longitudes $26^{\circ} 10'$ and $29^{\circ} 00' E$. The Kafue Flats area is $7,000\text{km}^2$ and the Kafue river falls only 10 metres between Itexhitezhi Dam and the Kafue Rail Bridge, a distance of 450 km. Although the study concentrates on the lower middle of the Kafue Basin in which most of Namwala district is found, frequent reference will be made to areas lying in the areas of chiefs Chonge, Mwanachingwala and Siamusonde, to the east.

The dominant feature of the environment is annual flooding. The Kafue as the main river meanders across the Flats in an irregular and changing course. On the sides of the main channel in many places are found many lagoons and depressions that look like

MAP II KAFUE FLATS AREA : FLOOD PLAIN, COMMUNICATIONS AND NATIONAL PARKS



ox-bow lakes.¹ Rainfall ranges between 700 mm in the south to 1400 mm in the north. The Kafue river has a catchment area of 155,000 km² and this together with the low gradient account for the flooding in the Flats area.

Soils are largely clays, which shrink and enlarge depending on the water content. They are generally devoid of organic matter, and are fairly fertile. On the upland areas soils are sandy and less fertile. Vegetation is primarily of aquatic grasses with a few scattered palms. Bordering the flood plain is a termitaria zone which supports bush grassland behind which is woodland.

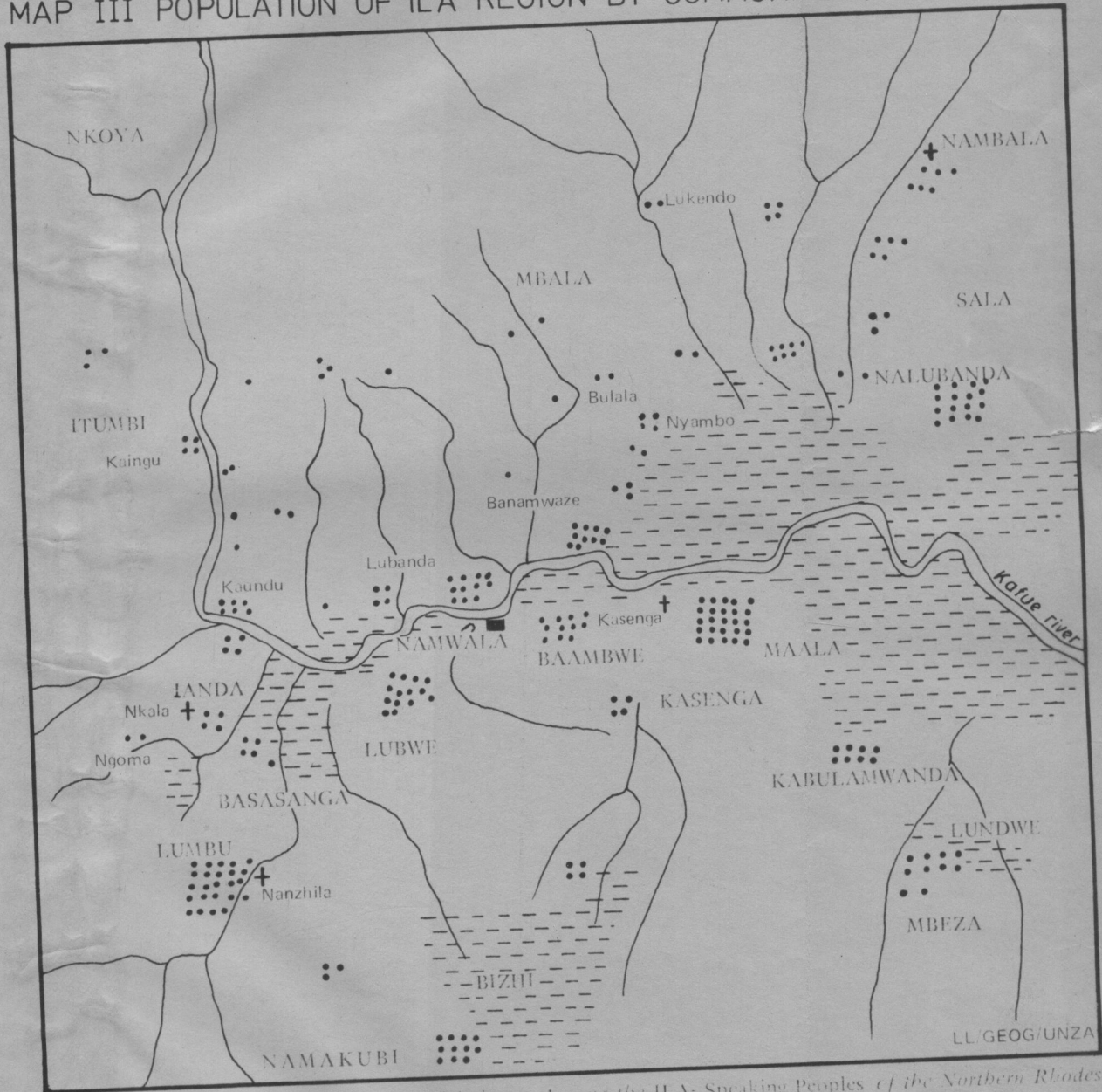
2. Political Background

According to Smith and Dale Namwala District has been predominantly settled by the Ila. In the outlying areas have been small groups: in the south and south-east the Tonga are found, in the north were the Mbala, Luba, Dima, and Lenje; in the west were the Bizhi, Lumbu, and Nduwe. Along the Kafue river itself, on the sandy banks were the Twa.²

Extension of the BSACO. rule to Namwala was through a series of expeditions to deal with chieftainship disputes, stop the slave trade and the fighting between numerous independent communities that were existing in the region owing to slave raiding. In January, 1899 G.V. Drury on reaching Monze after travelling from Bulawayo was forced to go to Kantengwa to settle a chieftainship dispute between Mungaila (the incumbent chief) and Mgalo (claiming the title). Before settling the problem Drury was forced to return to Monze for food and because three of his men were suffering from malaria.³ In June, 1901 Colin Harding, Acting Administrator of North-Western Rhodesia, went to Kantengwa on hearing that Mgalo had made fresh attacks on Mungaila's men. Harding combined his forces with those Val Gielgud's men (who at this time was stationed at Mwendwa in the Kafue Hook area). In the attack on Mgalo's followers and the fighting that ensued Mgalo was captured, and immediately Harding went eastwards up to Mwanachingwala to impress upon the people the powers of the new government. Mgalo was sent into exile to Lealui in Barotseland.⁴

In 1900 Rhodes sent Gielgud and A.C. Anderson to establish a post in the Kafue District, and they built a station at Muyanga, north of Kafue river, Between 1900 and 1902 Gielgud and Anderson with a force of Matabele men and from stations at Linyungwe and Mwengwa toured the surrounding country to show the people who lived in numerous small independent communities that a new government existed.⁵ Peace was established after the Mambari slave traders were defeated and driven out of the area. During the period leading up to 1901, the boundary between North-Western Rhodesia and North-Eastern Rhodesia was not clearly defined. In 1900 for example Harding toured the Hook of the Kafue area thinking that it was in North-Western Rhodesia when in fact Gielgud and Anderson already established in the region were North-Eastern Rhodesia BSACO. officials. To clear the confusion, Kafue river was in 1901 made the boundary between North-Eastern and North-Western Rhodesia.⁶ Until 1906 when the boundary was moved to the line of rail, Ila-speaking people fell under the administrations of North-Western and North-Eastern Rhodesia.⁷

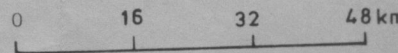
MAP III POPULATION OF ILA REGION BY COMMUNITIES, 1915



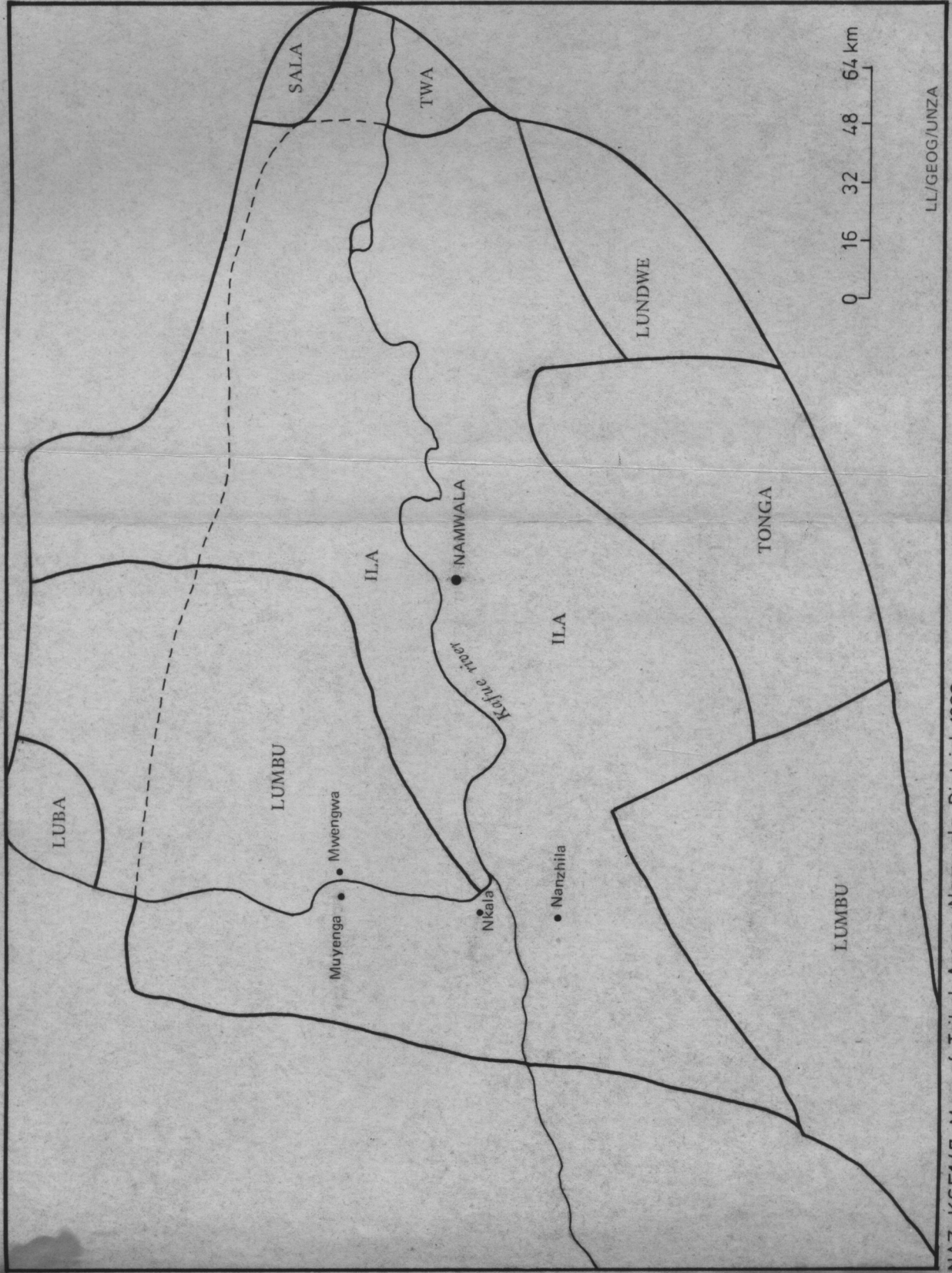
Map adapted from R. J. Fielder, 'Social change Among the ILA-Speaking Peoples of the Northern Rhodesia' Unpublished M. A. Thesis, University of Manchester, 1965, p. 15

REFERENCE

- Represents 100 people
- - - Open plain marsh
- † Mission station



MAP IV DISTRIBUTION OF ETHNIC GROUPS IN NAMWALA, 1933



NAZ, KSF1/7, Map of Tribal Areas, Namwala District, 1933

After the military operations to establish law and order were over civil administration was introduced into the southern part of the Kafue district in 1903, and A.C. Anderson became District Commissioner for the Hook of the Kafue area. The Barotse National Police built forts at Maala and Nkala. In 1903 the Hook of the Kafue District moved its headquarters to Linyungwe on the upper Kafue river. In 1904 the boma was moved to Mumbwa and at the same time a new district was formed which embraced all the Ila-speaking people and the Twa along the Kafue river. The district was called the Mashukulumbwe District and the boundary extended up to the Kafue Gorge. Established by Andrew Dale its first site was at Munangala near Lubwe and was moved to Namwala in 1905. In 1911 the district became a sub-district of the Kafue district.⁸

3. The Namwala Economy between 1850 and 1910

The Ila were well adapted to their environment. The impact of the raids, rinderpest and the establishment of colonial rule did not seriously dislocate the Ila economy. In this section I will show how the economic activities of the region were related to

the ecology of the area. Success in agriculture, livestock-keeping, fishing, hunting and trade depended on the knowledge of the environment which was exploited in the best way possible given the technology of the time.

a. Ecological influence on settlement

Settlement in Namwala was determined by economic demands and by the environment. In the north and west the population was sparse because of limited economic opportunities and owing to the existence of tsetse fly. Because the economy here depended on collecting and shifting cultivation, movement of villages was frequent, but rarely covered more than 25km. In the east and south where there was greater dependence on grazing grounds on the Flats there was greater residential stability on the margins of the Flats. Villages often moved within a 2 km radius. Here one also finds villages which depended on the exploitation of natural resources: Basanga making salt and the Twa catching fish. Looking at the maps sketched by Gielgud in the early 1900s and those recently drawn there is little change in the population settlement distribution in the area south of the river.⁹

b. An agricultural system adapted to the environment

Namwala people demonstrated knowledge of the soils around them and planned their gardens accordingly. There were four main types of gardens. In gardens in the forests on the sandbelts trees were cut down, burnt and the ash used as fertilizer. Bulrush millet - maize crop rotation was practised, varying according to the soil quality which was judged by the trees and grass that grew on it. The major crop was however millet which grew more easily on the poor sandy soils found in the wiry grasses of the bush. On land with acacia trees and muntende grass groundnuts, maize and millet were grown. Millet was grown on loamier soils. Second, were the mabala gardens chosen by the presence of Nankokwe grass occupying dark coherent clays and clay loams covered with water in February and March. Here water melons, pumpkins and gourds were planted. Third, malembwe gardens on rich alluvial pockets selected in the matete reeds (phragmites mauritianus) near the river. Early maturing maize was planted with pumpkins, gourds and watermelons. Fourth, near the villages in most seepage soils of imperata grass on the margins of the sandbelts were planted pumpkins and tobacco.¹⁰

Agricultural production thus varied according to ecological conditions. Areas such as Basanga bordering the Flats were the most productive.¹¹ North in the Kafue Hook area Gielgud described the area as prosperous agriculturally where soils were better. Further west in Shezongo's and Kaingu's areas agricultural production was lower; the area occasionally suffered from crop failure owing to floods or drought. For example in the years 1895, 1900 and 1908 there was hunger owing to shortages of food at Kaingu, Sejoba and Shezongo. People during this time had to subsist on wild fruits and roots. This feature of the Ila economy in the bush areas was also noted by Fielder who says that, 'The seasonal economic cycle for the "true" Ila has already been described, but in the Nkala-Nanzela region its most important feature was the period of famine. This was more acute in the forest areas than on the plain, and extended from the latter half of the dry seasons until near the end of the rains when crops begin to ripen. Its duration varied from two to as much as eight or nine months in a year, depending on rainfall, locusts and other hazards. When the missionaries first arrived their work was greatly affected by the fact that

local inhabitants, including Sezungo's people, were forced to spend a significant proportion of the year scattered in temporary huts in the forest living on roots and wild fruit...'¹² In the Baambwe-Maala area agriculture was not as important as in Basanga because of greater emphasis on cattle keeping.¹³

c. Livestock based economy

By the 1850s the Ila had already become established as cattle keepers through making use of the pasture provided by the Flats in the dry season. Each village had a cattle post (ntanga) on the Flats.

Cattle-keeping in the west, in Shezongo's and Kaingu's areas was on a lesser scale owing to the existence of tsetse fly. Later people in these chieftaincies left their cattle in the custody of the people on the Flats margins. Cattle herds were most numerous at Maala and Baambwe where conditions were more favourable.

The Ila production process centred on cattle which represented the main economic surplus used to secure crops, ivory, skins, slaves and used in social transactions and ritual practices (such as marriage

payments, fines, slaughter during funerals). Cattle also marked the main standard of social differentiation.

Cattle herds were large, often estimated at one thousand each. However cattle in this period suffered more than any other aspect of the economy. First, were the raids by the Kololo which started in the 1830s and continued until the 1850s; then Ilozi and Ndebele raids in the 1880s which also claimed a lot of cattle.¹⁴ Cattle raids were followed by rinderpest in the 1890s, affecting largely the western parts of the district.¹⁵ Ila cattle were therefore fewer than before at the time of the introduction of colonial rule. The raids and rinderpest did not bring disaster to the Ila economy: by 1900 cattle were on the increase and showing rapid recovery.

d. Hunting of game as an important source of protein

Another important feature of the Namwala economy was hunting of game. Travellers in the region in this period reported numerous and varied game throughout the area. Though rinderpest killed many animals, this had only a temporary depressing

effect on the game population: animals recovered quickly from the scourge. On the Flats were the lechwe, wildebeest, zebra, buffalo, roan antelope, reedbuck, oribi, sitatunga, leopard, lion and hyena. In the woodland were kudu, hartebeeste, puku and warthog. In the river were crocodile and hippopotamus.¹⁶ Game throughout the Kafue Flats area occurred in large herds. Rawson travelling from Monze to Nkala in 1902 observed that the country was, '....very sparsely populated owing to the floods covering the whole country during the rains.... it was flat, open with clumps of high palm trees were scattered over the plain. To add to this there were thousands of game. One herd I estimated at between two and three thousand head of puku, and there were zebra and wildebeest, interspaced with a few Roan antelope and hartebeest'.¹⁷ Harding made similar observations in 1900. Near the present Kafue town he made the following comments, 'Game abounds, in fact, through our mornings trek we saw more than during the whole period of our trip, every species seems to have selected this spot as a rendezvous. Eland, sable, zebra, hartebeeste and wildebeests, with stembock, oribi and duiker, all these I saw

within three hours' march, and it is with great reluctance that I left such an ideal sportsman's spot, but as we had plenty of meat, and not being on a hunting expedition, we passed without killing any'.¹⁸

Animals were hunted for meat which provided the main source of protein; (cattle being largely used for funerals and social transactions)¹⁹ although skins were used as clothes by women. In 8 Muwezwa's area Holub met a man who sold him fresh lechwe meat in exchange for glass beads. 'When I asked him how he had come by the game we got the answer that puku and lechwe were the most important trading goods of the twin villages (Nikoba and Diluka) and that Mashukulumbwe from far and near came to exchange cattle for these skins. The fellow tribesmen exchanged these skins again at the border with Mankoya, Mabunda, Matoka and Natakala for salt, corn, tobacco, arms, women, calico, glass beads and blankets'.²⁰

The Ila had well developed methods of hunting. First was the day to day hunting with dogs and spears, bows and arrows. Second, springing traps were used to kill small animals. Third, trenches were dug for big animals. Fourth, were communal hunts called chila;

the most famous being the buffalo hunt at Iyozha plain. Chilas were most effective for the lechwe. Rawson describes a lechwe chila that he observed in 1903. 'Early next morning the party of about 200 natives assembled. They had long spears and axes and they took us up the river for a few miles and then away to a very large lagoon, there they spread out, taking what cover they could until they got close to some lechwe, then with a shout and whoop they rose up racing for the game and driving them with their spreadout formation towards the lagoon. The animals had no option but to take to the water and the natives followed up, still giving their wild cries. As the buck are good swimmers they went into the deeper parts of the lagoon taking refuge in the very thick reeds when they could.

More natives were ready to follow up in canoes and as they are experts in their type of paddling, they soon caught up with the swimming lechwe, and as soon as they were near an animal he was axed on the head or killed with a deadly long spear. When they had enough the natives turned the boat back, singing their war songs, all very happy'.²¹ 25-35 lechwe were killed that day. Since most of the hunting was for subsistence and not for trade, the effect of these

methods on the game population was small. Given the human population of the time, and judging from travellers' reports there was no noticeable reduction in game.

During this time the Ila did not have guns to use when hunting.²² Only in the north in the Hook of the

Kafue area, in Abala and Iuba did Gielgud in 1900 encounter guns brought by the Mambari slave traders.

And it was there that indiscriminate slaughter of game occurred, and the elephant was practically shot out.²³

e. Fishing

Fishing was another resource exploited in the region. Though not as important as cattle keeping, it was still a vital part of the overall economy. It was also not as important as in other parts of the country such as Bangweulu because of the existence of cattle and game which was an alternative source of protein.

Fishing expertise varied according to economic opportunities available in each area within the region. On the Flats themselves with limited economic opportunities fishing was the main occupation of the Twa. The Twa often sold fish to the people on the margins of the

plain in exchange for crops. In Itumbi, where there was less emphasis on cattle-keeping, fishing was well developed. Here fishing rights were much more pronounced than elsewhere. Most fishing was in streams and ponds and fishing methods were small dams and weirs, traps and spears. Part of Kaingu's power was acquired by exacting tribute from fishing rights. Similarly in Shezongo's area which suffered from periodic famines, fishing played an important part in the economy. In Basanga and Ianda with a greater agricultural emphasis, and in Baambwe and Naala where cattle-keeping was important fishing did not play a major role in the economy. Fish poisoning was the main method of catching fish in these areas.²⁴

In the whole region fishing rights over ponds, pools and streams were an established phenomenon, and no one was allowed to fish without the permission of the owner. The Ila confined their fishing to pools and small inlets after the floods subsided. Owing to the importance of cattle, fishing never developed to the commercial level that it did in other areas and Bangweulu although fish was sold to neighbouring peoples on a small scale in exchange for meal and milk. Fishing among the Ila was mainly for local consumption. The fishing potential can be seen by remarks made by Rawson

who observed fishing activity while travelling from Lonze to Mkala in 1902: 'On my way to Mkala I saw many fish-hunting parties out on the plains, on which were many large lagoons... The lagoons would stretch for a mile in length and about half a mile in width if they were big ones.... and there were plenty of smaller ones, all of which were heavily stocked with fish left by receding floods. The plan of catching them was for the whole village to turn out men and women, forming a line close to each other across the lagoon, shouting and singing and catching any fish which tried to escape, but driving the main body always forward. When the line was reaching the end of the lake the fish would flounder about while the men with assegais atabbed the water to spear the fish and carry them back to the bank. There were literally thousands of fish and the children who were old enough made fires and small benches to lay them on for smoking and drying which made them saleable. The place was a hive of industry with two or three hundred people...'²⁵

On his way north west he says that he passed several fishing expeditions. The Ila in general fished in big crowds with spears and traps. Fishing

was therefore important and well developed and suited the fishing grounds and requirements of the people within the broader spectrum of economic activities. Since the Ila did not engage in serious fish trade, and their own fish demands were met by fishing on the flats, they did not see the need to fish in the Kafue river itself.

f. Production of commodities and trade

The Namwala people showed knowledge of the environment by extracting from the ground minerals, and manufactured products from trees and crops to meet their various needs, selling the surplus. Salt was produced at Basanga and sold throughout the Flats area. Iron was mined at Itumbi and at Mbala and hoes sold from these places. Tobacco was grown and processed north of the Kafue river, and tobacco cakes sold throughout the district.²⁶

In a number of localities men specialized in making pipe-bowls and women moulded pots which were traded in the region. Baskets from palms in Basanga, and reed mats in Shezongo and Itumbi were made and sold to those who needed them. Bark and cotton cloth were made, and canoes carved. Ivory bangles were carved at Lubwe, Shapela and Maala. Lechwe and puku skins were

sold within Namwala and to people around, especially the Nkoya, Mbunda and Tonga in exchange for salt, corn, tobacco and glass beads.²⁷

From outside the region the Ila got sea-shells (mpande) from the East coast brought by Arab traders.²⁸ In the Hook of the Kafue zone Mambari slave traders brought guns and ammunition in exchange for slaves.²⁹ Butter and lechwe skins were sold to the Lozi to get cattle, and this trade became pronounced after the cattle raids because the Ila wanted to rebuild their depleted cattle herds. The Lozi and Nkoya sold canoes and drums to the Ila. Between 1900 and 1905 there was a small but brisk cattle trade with European cattle buyers from Rhodesia.³⁰

g. Collecting as a supporting economic activity

All communities collected wild growing food in varying degrees, but it was more pronounced in poor agricultural areas such as Musungwa, Shezongo and Kaingu. Little collecting was done on the Flats itself and along the river. Food collecting sustained the people in times of famine. Items collected included mantumbu, mawi, mbula, and honey, wood for firewood and building materials and grass for thatching.³¹

h. Impact of the slave trade

Except for the Hook of the Kafue area most of the district was free from the slave trade. All the attacks that the Ila experienced were cattle raids. In the Kafue Hook area trade in slaves by the Mambari from the West Coast led to unsettled conditions in the areas as communities raided each other to get slaves for sale. The Mambari slave traders exchanged calico, guns, gun powder and percussion caps for slaves. They also collected ivory and rubber in the Hook of the Kafue area. However this slave raiding came to an end when the BSACO. moved into the area through its representative Val Gielgud.³² Val Gielgud wrote that , 'To disarm these people would put an end to their slave raiding, for it is they who raid each other to sell slaves to the Mambunda; would prevent a great and indiscriminate slaughter of game...!³³ This slave raiding did not however affect most of the area inhabited by the Ila. On a small scale there was sale and buying of slaves with the surrounding tribes such as the Tonga of Chief Mapanza.

MAP VI DRAINAGE AND PLACE NAMES IN BANGWEULU



AM/Geog./Unza.

i. European capitalist penetration

The major capitalist penetration in the region was the opening of the copper mines in the Hook of the Kafue area among the Kaonde and Lamba by Barangwanath, Cook and Lewis. Between 1899 and 1904 three main copper mines were in operation: Sable Antelope, Silver King and Hippo mines. The other smaller ones were Maurice Gifford, North Star and Bluejacket. These mines however did not attract wide scale labour migration from the surrounding region. The majority of the labour force was local, and nearby villages also supplied meal to the mines.³⁴ The Ila also did not respond to labour recruitment for the mines in Rhodesia, on the Copperbelt and Katanga. Indeed with such a well balanced economy the majority of the Ila had no need for wage labour.

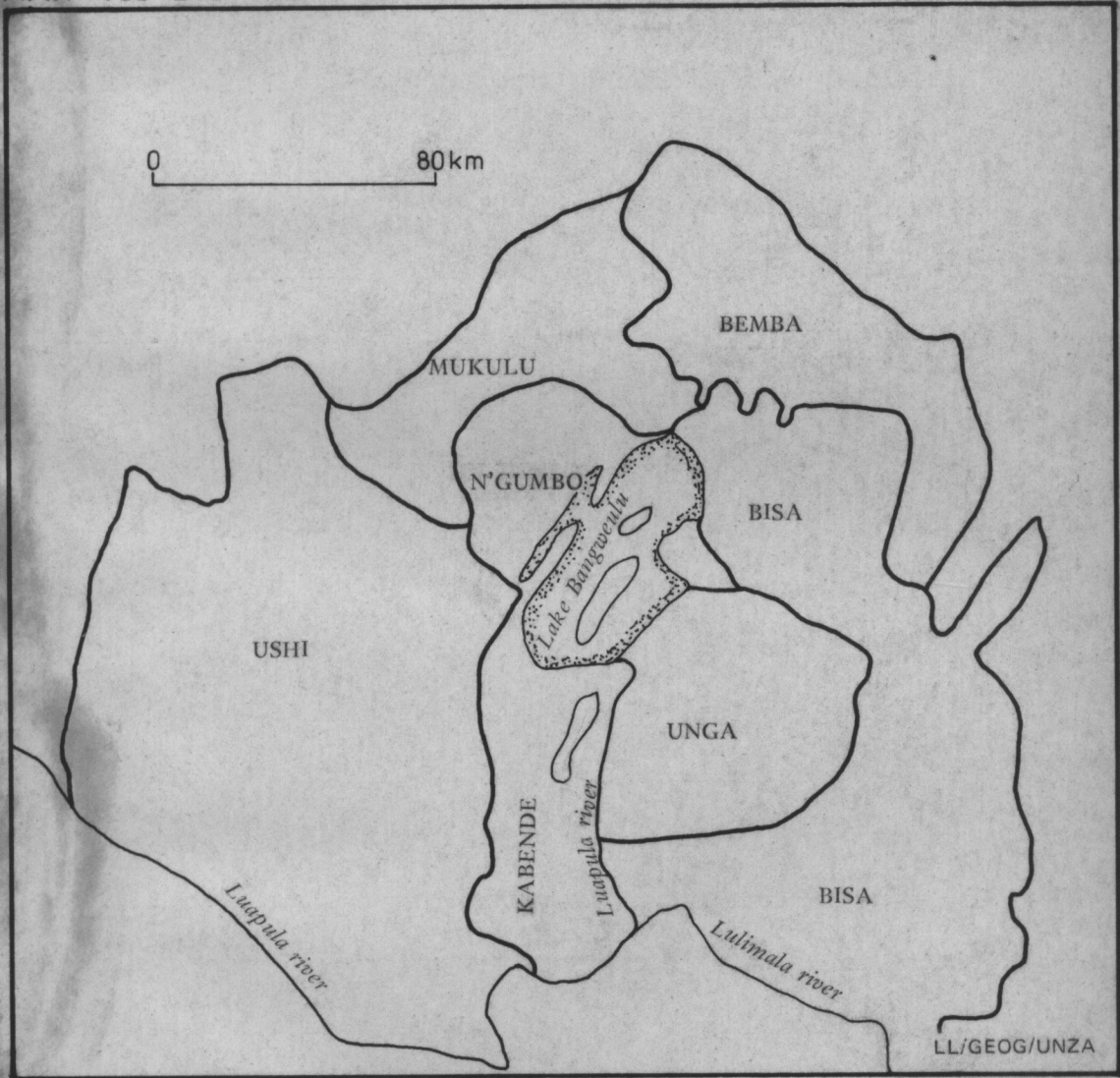
B. The Nature of the Bangweulu Economy, 1850 - 1910

1. Geographical Background

The Bangweulu swamps lying at an altitude of 1160 metres above sea level are located between $10^{\circ} 50'$ and $11^{\circ} 50'$ S latitudes and longitudes $29^{\circ} 30'$ and $30^{\circ} 45'$ E. The swamps and floods area is $12,000 \text{ km}^2$ and that for the swamp drainage is $82,500 \text{ km}^2$. The catchment area for the whole Bangweulu Basin is $190,000 \text{ km}^2$. As in the Kafue Flats the gradient in Bangweulu is low, 1:20,000 from south east to the north west.³⁵

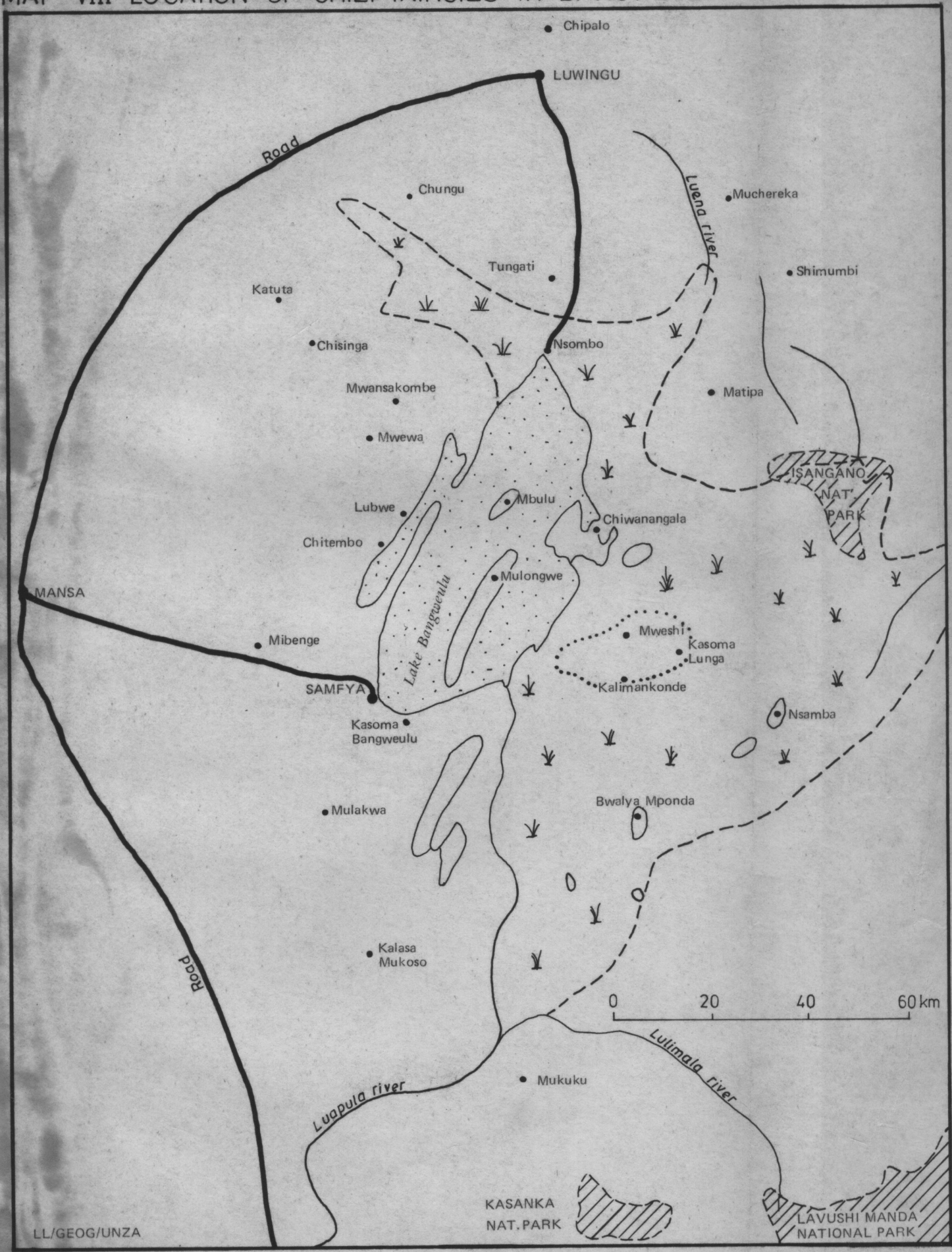
The Bangweulu drainage system is much more complicated than that of the Kafue Flats. The Bangweulu basin floor, 160 Km in diameter, has 17 rivers flowing into it, and the Chambeshi river is the largest. The only outlet is Luapula. Bangweulu consists of 5 distinct interconnected lakes and numerous lagoons. Lake Bangweulu is separated from Chifunauli by the sandy Ifunga Peninsula and in the east from lake Walilupe by Mbabala Island. To the South are lakes Kampolombo and Kangwena connected to the swamps by rivers and man-made channels. To the east and south-east is the vast swamp and floodplain complex of channels and open lakes, low swamp islands (the main ones being Mbo, Ncheta, Matongo, Nsalushi and Mutwamina) and seasonally flooded marginal grasslands. The floodplain has numerous termitaria. Papyrus often blocks river channels and the constant build up of silt which forms levees causes local accumulation of water which in turn cause water currents to reverse several times along their south-westerly route. The eastern section of the swamps has many ox-bow lagoons in the Chambeshi, and many sandspits, with Wumbu and Chaya as the main lakes. In the central swamps channels become smaller and increase in number, the water flow is sluggish and the current reversible as it drifts through vegetation in search of low levels.³⁶ Mean annual rainfall averages 1500mm.

MAP VII DISTRIBUTION OF ETHNIC GROUPS IN BANGWEULU, 1900



Based on information in NAZ, KDF 3/1, Luapula District Notebook, 1905

MAP VIII LOCATION OF CHIEFTAINCIES IN BANGWEULU



LL/GEOG/UNZA

Soils in the Bangweulu basin are alluvial in origin and show that they derive from the adjacent plateau. On the periphery of the swamps soils are sandy as well as on the sandbank islands but towards the centre of the swamps silt and clay become dominant. These soils are acidic and of low fertility and are therefore poor agriculturally.³⁷

Vegetation is ^{zoned} according to the water regime and soils. In the permanent swamp aquatic plants grow and the dominant ones are papyrus (cyperus papyrus) and matete reeds (phragmites mauritianus). Near to the permanent swamp are grasses which flourish on wet and acid soils such as oryza barthii, vossia cuspidata, echinochloa stagnina and sacciolepis. On the Flats are peripheral grasslands inundated to about 45 cm at the height of the floods. Near to the forest line are short grasses which grow on sandy soils. On the shoreline and lake islands there was at one time motsikiri trees. Behind the lake margins is woodland.³⁸

2. Political Background

The area falls within two provinces, Northern and Luapula, and in its colonial history has been governed from the following areas: in 1902 Luwingu became a

division of the Awemba District called West Awemba Division. It was administered from Luena on the shores of lake Bangweulu. The boma was moved to a more healthy site at Luwingu in 1909. In 1916 a boma was opened at Nsumbu Island from which to organise water transport during the First World War and all lake islands were administered from here. The boma was moved to Chilubi Island in 1920 and was known as the Kawena Sub-District. In 1921 it was closed and merged with Luwingu Sub-District. It was temporarily opened in 1923 and finally closed in 1924 and amalgamated with Luwingu.³⁹ In 1958 a boma was set up at Samfya and administered the southern part of the swamps while the lake islands continued to be ruled from Luwingu in Northern Province. The extreme south was administered from Mpika. The western part of the region, in the Ushi area, was governed from Mansa (Fort Rosebery) since 1911, a boma first established at Kalungwishi in 1900.

By 1850 the following groups of people had established themselves in the region: on the lake islands of Bangweulu were found the Bisa. In the swamps at Lunga sandbanks and sandbank islands were the Unga. In the south-eastern part of the swamps around Lake Chale were the Twa. On the western shoreline between lake Bangweulu and the southern bend of the Luapula were the Ushi; the N'gumbu group were in the north and the Kabende group in the south. North of the N'gumbu were the Mukulu, and west of the latter lived the Chishinga. In the north-east were the Bemba.⁴⁰

3. The State of the Bangweulu Economy between 1850 and 1910

Though Bangweulu was a much more difficult environment because of swamps, lakes and dense vegetation the inhabitants as in Namwala were nevertheless well adapted to it. In this section I shall show how economic activities were related to the ecology of the region. Commodities were produced and traded according to the resources available in different parts of the region. Unlike Namwala, Bangweulu in a small way responded to the first stages of colonial rule and western capitalism.

a. Influence of economic needs on settlement

Settlement was determined by the desire to exploit the natural resources in the swamps: fish, otters and game. For this reason all swamp and lake islands were thickly populated by 1883.⁴¹ The western shoreline was similarly densely populated.⁴² The western shoreline became more and more thickly populated as people moved out of the swamps or moved to the lake shore to fish.⁴³ This pattern and distribution of population has remained the same to the present time.

b. Agriculture was adapted to the ecology

The Bangweulu people developed an agricultural system suited to the ecology. Cassava, a crop which does

well on poor soils, was grown productively on most of the lake and swamp islands and on the western shoreline. The other crops grown were bananas, sweet potatoes, sorghum, groundnuts, plantains, pumpkins, tobacco, beans and maize. On Chilubi and Chishi in particular there were still mushitu, motsikiri and lipupu trees to make it possible to practice shifting cultivation. After Giraud's journey Chilubi island in 1883 was described as follows, 'Kirui, the first island he visited, is the richest in cultivation, and the most thickly populated'.⁴⁴ In 1890 Weatherley exploring the swamps on reaching Chilubi said that, 'This island is low, beautifully wooded, well peopled, and cultivated',⁴⁵ and most of the crops listed above were grown on the island. People were quite happy with their agriculture on Chilubi, 'The fish are eaten with flour of the pounded sorghum and cassava. Groundnuts, pounded up into a paste, with boiled pumpkin-leaves, are much relished as an addition to the n'sima.... Both pumpkin and cassava leaves, when young are excellent as a vegetable.....'.⁴⁶ On Chishi he made the following observations, 'My path led through masses of cultivation, chiefly cassava, with its bright green leaves and ruddy brown stems',⁴⁷ and on the shore he found 4 villages

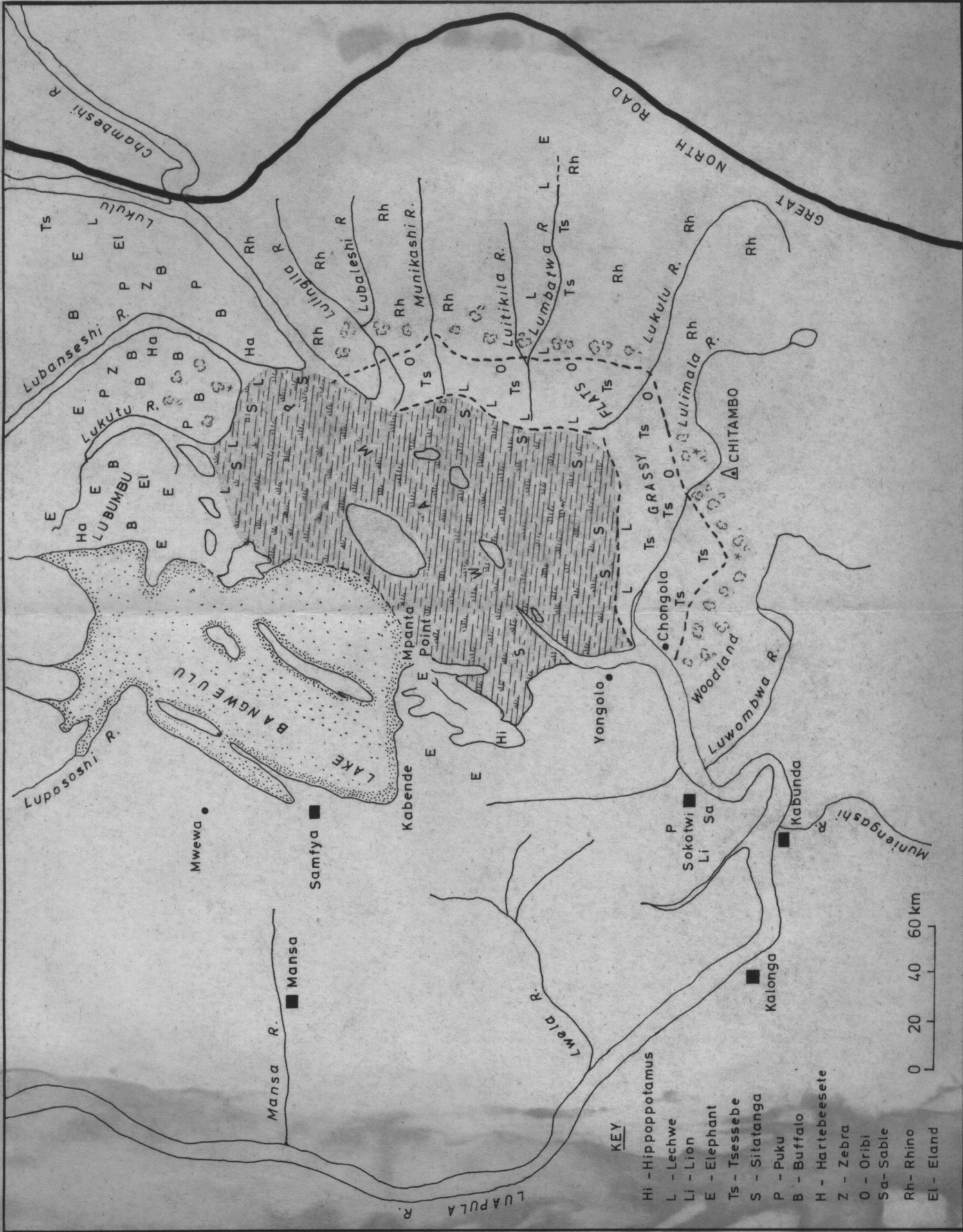
'nestling amid bananas and lipupu trees'. Travelling southwards from the northern end of Chifunauli he said that, '.... we passed along a very fertile country, well wooded and cultivated, with many villages'. Further on he found high cliffs, 'covered with dense foliage, with many bomas and villages looking out over...' to the lake.⁴⁸ These descriptions indicate just how satisfactory agriculture at this time was. The only place where agriculture was poor was in the Kapata peninsula in the Twa area where people lived on water-lilies and fish and game meat. Agriculture was also poor in the Kabende area and therefore it was poorly settled.⁴⁹ In the north-eastern part agricultural yields were low because of game. In Luwumbu and Isangano 'damage done to crops by the many herds of cow elephant and calves is almost incredible, whilst on Mbawala and part of Chilubi-hippo play havoc amongst the cassava'.⁵⁰ In the same north-eastern area, in the coldest month, July, most game left the highlands and went down to the low lying forests where there was cover and better feeding. Larger animals raided gardens every night in spite of the elaborate fencing interspersed with traps and concealed pitfalls. Buffalo were the worst offenders and villages around the shore were the worst affected.

Agriculture as in Namwala was based on the knowledge of the soils. Soils in Bangweulu are poor and the people grew the crops that did well on such soils. Cassava therefore was grown on mounds in fairly fertile sandy loams. Millet gardens were found in areas with thickets, and this was especially common in the N'gumbu and Kabende areas.

In the swamps apart from gardens made on the dry parts of the lake and sandbank islands, there were gardens in the wet grassland reeds and papyrus or on slight elevations. These gardens were known as fisebe. In the absence of thickets swamp people used tall grassland for their millet. These were the mabala gardens on more humic and moister black soils. There were also gardens lying 30 to 60 cm below flood level, and these were called nkashi gardens on which cassava, sweet potatoes, beans and maize were grown.⁵¹

Towards the close of the period however the effects of overpopulation in some places was starting to be felt so that the most rational way of cultivation was being ignored. For example Melland in 1910 observed that every metre of Nsalushi was cultivated. With increased population shifting cultivation was giving way to continuous cultivation and with depleted tree cover ash could no longer be used as fertiliser. The same was true in the Chifunauli region.⁵²

MAP IX DISTRIBUTION OF ANIMALS IN BANGWEULU SWAMPS, 1900



- KEY**
- Hi - Hippopotamus
 - L - Lechwe
 - Li - Lion
 - E - Elephant
 - Ts - Tsessebe
 - S - Sitatanga
 - P - Puku
 - B - Buffalo
 - H - Hartbeesete
 - Z - Zebra
 - O - Oribi
 - Sa - Sable
 - Rh - Rhino
 - El - Eland

c. Controlling factors in livestock keeping

The presence of tsetse fly in the country surrounding the swamps precluded cattle keeping. This was exacerbated by the swampy nature of the terrain. However all travellers passing through the region from 1873 (Livingstone) to 1910 (Melland) found numerous sheep and a few goats on the lake islands and in the north-east in the Bemba area. Their importance was limited by the large number of people living on the islands. There was an average of 40 sheep for a village with about 100 huts on the islands, and 70 sheep to a village of 80 houses in the Bemba section. They were not a viable part of the economy because the demand put on them when need arose easily surpassed supply. For example in 1904 owing to the need to get hut tax money they were nearly sold off, and in 1905 a ban had to be imposed on sheep sales to ensure that there was not a complete depopulation of sheep in the district.⁵³ Besides, the limited grazing space on the islands prevented further increase in numbers.

d. The role of hunting

Game was plentiful all around the Bangweulu basin, but zoning of animals according to habitat and localities

was more pronounced than on the Kafue Flats. I have summarized Hughes' description of the distribution of the animals at the beginning of this century on map 9. In general however game was distributed as follows; in the swamps and channels were the crocodile, hippopotamus and sitatunga. On the flood-plain were the lechwe while on the peripheral grasslands were the tsetsebe, eland, zebra, roan antelope, reedbuck, oribi, hyena, cheetah and jackal. On the plateau in the woodland area were hartebeest, sable antelope, waterbuck, puku, warthog, bushpig, bushbuck, grysbuck, duiker, elephant, buffalo and black rhino.⁵⁴

These animals existed in thousands, especially in the case of the lechwe as the following observations indicate. Around 1910 Dunbar Brunton said that, 'These lechwe on the Bangweulu are exceedingly numerous and exist in thousands'.⁵⁵ A Native Commissioner in 1902 in Luwingu wrote the following 'Luena Division may well be described as the haunt of big game: with the exception of rhinoceros and koodoo, practically every species is met with. Large herds of elephant roam through the district and by the numbers of the cows and calves would appear to be increasing. Buffalo are found in small herds but are very plentiful

and certainly increasing. Hippopotamus are found in the lake and mouths of the large rivers and are sometimes seen within 5 miles of Luena station'.⁵⁶

Hunting methods were adopted according to the type of animal hunted. Deep pitfalls were dug for the elephant, hippopotamus and buffalo and other big game. Inside these pits were sharp pointed sticks. These pitfalls were covered with twigs, leaves and grass to match the surroundings. Sometimes elephants were driven into the swamps and then speared by gangs of people. Leopards were impaled and then killed by sharp stakes planted below a tree when trying to reach a dog suspended above. A chiwingo harpoon was used to kill crocodiles and hippopotamus,⁵⁷ For the lechwe and other small animals game drives using nets, dogs and spears were held; and sometimes snares were used.⁵⁸ Although there were guns brought by the Arabs and the Lamba, these were few and were during this time rarely used when hunting. The effectiveness of these methods, given the human population of the time, did not cause a noticeable decrease in the game populations. Most of the animals were hunted to meet subsistence meat requirements. The only exception to this rule are the otters which were hunted to obtain

skins for sale. In 1910 it was estimated that more than 10,000 otters were killed annually. 'The favourite season is January to April when the floods are greatest. The method of hunting is as follows: two natives together in a canoe, and when they see an otter swimming they follow it paddling quickly and one of the natives kneels in the canoe with a short stabbing spear about 3 ft long and when the otter brings his head above the water stabs it and lifts, cajoles it into the canoe where it is despatched. They will often kill two or more in a day...'⁵⁹ The selling price of a skin was at first 3d but later rose to 2/-. The price in London in 1909 was between 2/6 and 16/-, with an average of 10/-. From 1901 onwards the otter skin trade was considerable and in March, 1910 3,473 otter skins passed through the Mpika boma office.⁶⁰ When rinderpest swept through the area only buffalo were seriously affected. Prior to 1894 buffalo were numerous but rinderpest killed many of them, especially on Chilubi island.⁶¹

e. Fishing potential

Bangweulu is a good habitat for fish and there are 67 species in the lakes and swamps. There are two types of water conditions: the swamps, and the open waters. In the swamps the variety of species is limited but the few that are present exist in enormous numbers. Swamps have a uniform environment, offering few different kinds of habitat for the fish, and most fish live in narrow channels and among weeds. The most important fish are mormyrids, cichlids, catfish and Barbus. Fish in the swamps largely feed on weeds and insects. In the open waters of lakes, lagoons and rivers there is a larger variety of fish than in the swamps. The environment is less uniform and there are different habitats for fish. The species of fish are cichlids, mormyrids, synodontis and Alestes spp. Food chains here are much more complex than in the swamps since there is greater variety of both fish and sources of food. Fish in the open waters are dependent on one another for food to a great degree.⁶²

Fish in Bangweulu during this time was already an essential feature of the overall economy. Apart from being the main local source of protein it was often used by people on the islands to barter for meal, canoes,

paddles and firewood with the mainlanders. Often fish were hawked in the Bisa and Bemba areas for hoes and money. People on the islands and near the shoreline were more dependent on fish than those further away,.

f. Production of commodities and trade

Commodities for use and trade were produced much in the same way as in Namwala. The Nyamwezi smelted copper ore which was cast into bars and used as currency. The Chishinga smelted iron ore and supplied the whole region with hoes, spear heads, axes and fish hooks. Salt was obtained in Mpika, in Luchembe's area and at Kalungwisi. Salt producing areas were the main centres of trade. The Chishinga took hoes to Kalungwisi to buy salt, one hoe buying 8 to 10 kg of salt. The Bemba took bark cloth via Kampanwa to buy salt. The Bisa took baskets of dried fish to Mpika to exchange for salt. Rubber was tapped at Chilubi island. Within the swamps the Unga burnt a saline reed to produce salt.⁶³ Oil for hair, especially on Chilubi and Chishi, was produced from the caster oil plant, but oil was mostly extracted from the berries of the motsikiri tree-which explains why the tree abounded during this time when most of the islands had no trees at all.

The Eisa made and sold nets, mats and baskets. Bamboo palms were used to make punting poles, and most of the people surrounding the swamps knew how to make canoes.

Trade with people outside the region before 1900 was in guns with the Arabs who came from the east coast of Africa (and were locally known as the Banasala). The Arabs also brought with them beads and cloth. All these things they exchanged locally for ivory.⁶⁴

h. Slave trade

Slave trading impact in Bangweulu was as limited as it was in Namwala. Three attempts were made to get slaves: the first was by the Bemba. Arab slave traders passed through Bemba country on their way to Zanzibar through Tanzania. The Bemba in turn raided other weaker neighbours and sold them to the Arabs for guns and gun powder. Before 1900 they made three attempts to attack the Unga for slaves, but each time they were defeated because the Unga could easily defend themselves being used to the swamps while the Bemba were not. The last defeat was at Musubilwa Mpemba in the Lunga sandbanks.⁶⁵ Secondly, Arab attempts to get slaves from the Chishinga and Ushi were successfully

beaten off in 1865.⁶⁶ Thirdly, in the N'gumbo, Mukulu and Chishinga are a Ngoni invading force visited the area in 1868 looking for slaves and caused confusion in the area. The Nyamwezi came to the aid of the inhabitants and drove out the Ngoni.⁶⁷

i. Wage labour in the early colonial era

The designs of the BSACo. to get labour from Zambia had a serious impact on Bangweulu. Introduction of hut tax to force people to work in order to earn tax money stimulated the search for employment and the consequent periodic labour migration for those tribes without resources with which to pay tax. The Bemba and Ushi were most affected. The Bemba went far afield to look for work in places like Karonga at first and later Zaire and Southern Rhodesia. Some took up work as carriers. The Ushi responded to work mostly in the Luapula District and by 1903 when work opportunities were available 6411 of them had registered for work.⁶⁸ To facilitate contracting of labour for the mines recruiting agencies were allowed to operate in the area. The first of these was the Tanganyika Concession Ltd. (TCL), which started operations in 1902/1903 in the area from Tete and recruited people to carry loads for the building of bomas at Luena in 1902 and Mansa in 1903. By 1906 TCL was

handling labour for UMEK in Zaire, and formed Robert Williams and Company to deal specifically with labour. Of the 4038 men engaged by Robert Williams in 1908 1718 were from North-Eastern Rhodesia. Also in 1900 700 men were recruited from North-Eastern Rhodesia for the South African gold mines and the same year in August the Rhodesia Native Labour Bureau (RNLB) extended its operations to North-Eastern Rhodesia. From 1907 onwards labour migration to Katanga increased to the extent that the border between North-Eastern Rhodesia and Zaire had to be closed on account of sleeping sickness although this was not necessary but for fear that there might not be enough labour for Rhodesian and Namibian mines.⁶⁹ By 1910 wage labour for the Bemba and Ushi labour had become a necessity to earn tax money to the extent that when labour demand was low people were unable to pay their taxes, as in the years 1904, 1905, 1906, 1908 and 1910.⁷⁰

Labour was however not readily accepted by people who had alternative means of earning money: the Bisa, Chishinga and Unga. Many Chishinga preferred to sell hoes at 1/- each. As for the Bisa they preferred to sell their sheep and in 1904 nearly

sold all their stock, leaving Chilubi almost depopulated of sheep. Sometimes they went so far as to sell assorted items like dogs, mongoose, fowls, otter skins, hoes, spears, monkeys, and pots of beer to earn tax money and thus avoid wage labour.⁷¹ The Unga hawked fish but as fish markets were still limited they intensified their killing of the otter whose skin had a ready market in Europe for amaking fur coats. Otter killing became so intense that about 10,000 of them were killed every year so that in 1907 it was reported that otters were not as plentiful as before.⁷² Lechwe were not killed much because there was only a limited market for lechwe skins. Hut tax demands therefore were starting to have adverse effects on natural resources and were making people more and more dependent on capitalist interests. Since there were still many males left behind, and those who migrated did so only for short periods, there was as yet little bad effect on the agriculture of the Bemba and Ushi, and to a smaller extent agriculture of the Bisa and Chishianga.

j. Breakdown of chiefly rule resulting in ecological problems

The superimposition of colonial authority on traditional rulers weakened the power of the chiefs.

The Native Commissioner was in charge of the district. Below the chiefs were three district headmen appointed to each tax section of approximately 640 sq. km. Messengers (askari) were sent to the village to extend his authority. The new headmen appointed tended to be old men with little control outside their villages. The overall result of this structure was a weak administration and a weakening of the chiefs' power. The new administration failed to prevent people from seceding from their traditional villages and setting up their own villages (called mitanda). The result was a proliferation of small settlements and in 1902 there were 560 new such settlements in Luena Division alone.⁷³ These mitanda accelerated deforestation on the plateau in the north-east. Previously allotting of gardens was done by the chief, but under the new system the District Headman was supposed to check unnecessary deforestation by allotting plots of forest to be cut down by individuals in each village. With the weakening of the power of the chiefs forest destruction through the setting up of mitanda went unchecked, thus shortening the life span of shifting cultivation.

C. COMPARISONS AND CONTRASTS BETWEEN BANGWEULU AND NAMWALA

Having looked at each area in turn we are now in a position to see the similarities and differences in the

ecology and economy of each area, and their response to colonial rule. Both areas had abundant natural resources: fish and game, and to a lesser extent mineral ores. People in each case adapted themselves successfully to the environment. Living in flooded environments every effort was made to put to profitable use the advantages offered by floods. In both cases agriculture was developed according to soil types and settlement influenced by economic activities and the ecology. Game was hunted and used as need demanded. Commodities were produced and sold within the regions, and when necessary trade was carried out with distant places. During this time game stocks were still high in the two areas.

There were however a number of contrasts. In Namwala there was a greater developed role of cattle in the economy while in Bangweulu fishing was the mainstay of the economy and the sheep and goats kept were of marginal value. Despite the presence of tsetse fly in Namwala and Bangweulu, only Namwala was able to maintain a cattle keeping tradition owing to the existence of tsetse free and seasonally flooded Kafue Flats grazing grounds. Bangweulu did not have this advantage, and tsetse infested bush encircled the swamps. Namwala had

greater agricultural differentiation because of rainfall irregularities, location of resources exploited, the existence of cattle-keeping areas and tsetse fly distribution. In Bangweulu available space on the islands and the lake shore commanded the siting of gardens. Collecting of forest products was more highly developed in Namwala than it was in Bangweulu where the swampy nature of the environment did not permit this.

Namwala however exercised control over some aspects of the ecosystem. Hunting (especially the Iyezha buffalo hunt and lechwe chilas) prevented undue game increase for the grazing grounds shared with cattle. Game ravages were then few. Control on hunting was maintained in that only chiefs and appointed persons called chilas 3 to 4 times a year. Fishing was also controlled by the existence of fishing rights in streams, ponds and lagoons: there was no haphazard fishing. Pasture on the Kafue Flats was regulated by strict observance and maintenance of cattle posts (ntanga): cattle were not grazed randomly. Grazing itself reduced decomposed vegetation and therefore allowed a high level of oxygen in the water which was good for the fish population. Cattle manure and wildlife droppings provided nutrient for the fish.

In Bangweulu fishing rights here were much more diffuse and even though they existed in some places they were not enforced to the degree that they were in Namwala. Fishing in Namwala became more specialized depending on the presence and importance of other resources in any one particular area.

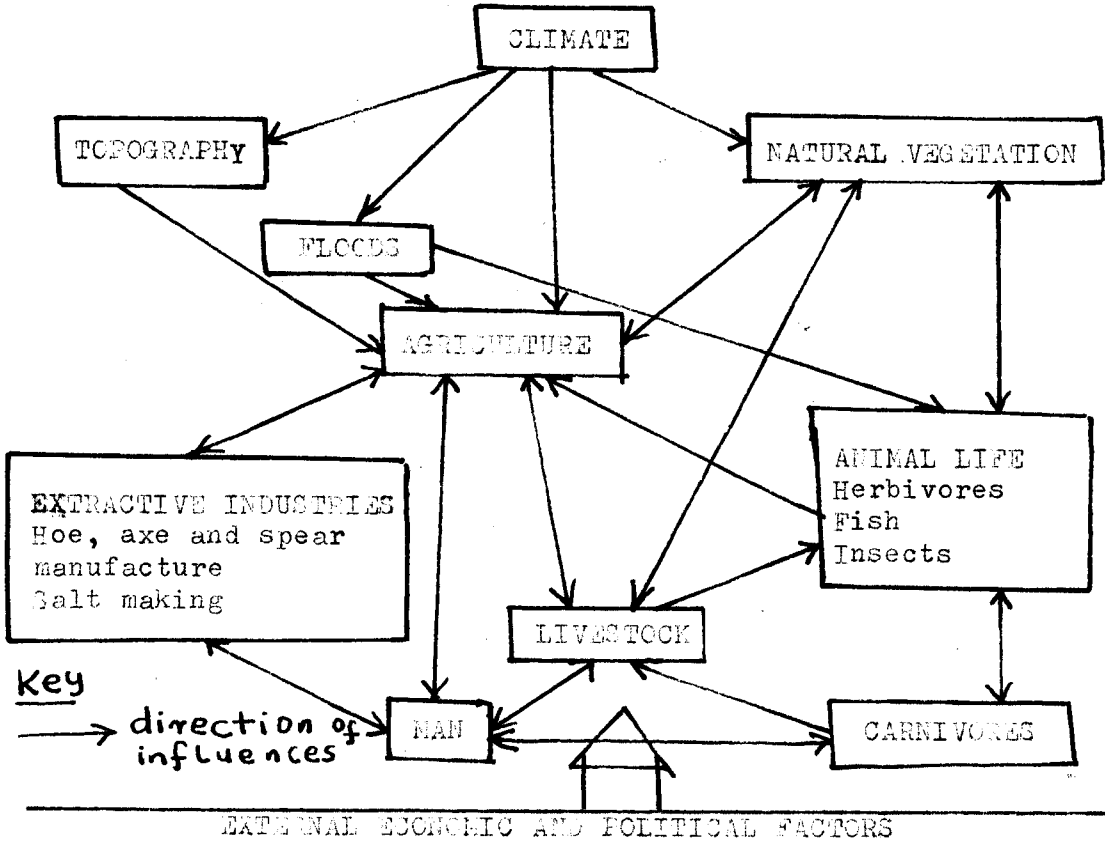
The impact of western capitalism and colonial rule were felt more in Bangweulu than in Namwala. Lacking capital and resources with which to meet hut tax demands many plateau people of the Bangweulu area left home in search of employment in Luapula and Northern Provinces, Rhodesia, Katanga, Malawi and the Copperbelt. Need for cash made people exploit their natural resources more intensively. This process was enhanced by nearness to the mining centres. In Namwala owing to the relative presence of the cattle complex which made it easier to get cash for tax, distance from the urban areas and pacification policies carried out in the area, capitalist interests failed to make headway. The copper mines in the Hook of the Kafue area did not attract labour on a large scale because of their small size.

In the first 20 years of colonial rule there was no overall policy affecting natural resources. In

Extraction of minerals led to the manufacture of hoes and axes which were important in tilling the land and enabled the practice of shifting cultivation. Products of the natural vegetation (roots and fruits, leaves used as relish) were an integral part of the people's diet, and often sustained them in times of crop failure. They also formed the basis of crafts such as basket and mat making.

The ecosystem in both Bangweulu and Namwala was therefore self-contained though it did not provide a harmonious relationship between man and the environment. The processes in each aspect of the ecological system however were such that they supported the perpetuation of the whole ecosystem. However, the effect of the penetration of colonial rule and western capitalism from 1900 onwards started to exert pressures on the ecosystem that gradually led to the deterioration of the environment as will be seen in subsequent chapters.

The ecosystem that I have depicted for the years 1850-1910 can be represented diagrammatically as shown below.



From the diagram it is clear that many aspects of the ecological system were interdependent. Agricultural systems were influenced by climate, natural vegetation which enabled shifting cultivation to be practised and affected the fertility of the soils; topography, floods and animal life. Floods played an important role in influencing the ecosystem; distribution

of various species of animals was a consequence of the flood regimes and the vegetation cover. Floods brought into being natural habitat suitable for fish and the food that the fish ate, that is, weeds, insects and micro-organisms. Fish on the other hand was important to man as food and as a means of economic transactions. Annual flooding and the topography of the country were responsible for the existence of good grazing grounds for cattle and wildlife. It should however be pointed out that floods often constrained effective exploitation of the environment by destroying crops and reducing land available for agriculture.

Wildlife was important as a source of protein and in trade. Trade was important in ensuring regional interdependence since natural resources were not evenly distributed. Hunting by man and carnivorous animals controlled game populations to numbers that the ecosystem could support. Grazing by wildlife and domesticated animals kept bush growth to proportions that enhanced the ecological system. Animals through their faeces fertilized the areas in which they grazed and these droppings were good nutrient for plants and organisms living in the water.

CONCLUSION

My conclusion for the 19th century is that man used his environment intelligently given the technology of the time. This is shown by the specialisation of economic activities in certain areas which put to best use ecological advantages existing there. The pressure of colonial rule was felt more in Bangweulu than in Namwala because of limited economic opportunities whereas Namwala had a stronger economy based on cattle. However the adverse effects of colonial rule and capitalist interests were delayed because of a small human population exploiting still abundant natural resources.

Footnotes

1. G.J. Williams, 'The Kafue Hydroelectric Scheme and its environmental setting', in G.J. Williams and G.W. Howard (eds.) Development and Ecology in the Lower Kafue Basin in the Nineteen Seventies, (Lusaka: KBRC, UNZA, 1977), 13.

2. E.W. Smith and A. Dale, The Ila-Speaking Peoples of Northern Rhodesia, Vol. I, (London: MacMillan, 1920), p. 3. By far the most extensive study of the Ila is contained in the two volumes written by E.W. Smith and A. Dale which deal with almost every aspect of Ila people: R.J. Fielder, 'Social Change Among the Ila-Speaking Peoples of Northern Rhodesia: with particular reference to their relations with the Primitive Methodist Mission', unpublished M.A. Thesis, University of Manchester, 1965. Though this thesis is on social change among the Ila-speaking peoples, Fielder concentrated on the Nanzhila area where the Primitive Methodist Mission was stationed. The political, social, cultural and economic changes that he wrote about confine themselves to the Nanzhila area. The other contribution by R.J. Fielder, is listed below. 'The role of cattle in the Ila economy: a conflict of views on the uses of cattle by the Ila of Namwala', African Social Research, 15, (June, 1973),. In this article Fielder shows the social and religious uses of Ila cattle and says that Ila unwillingness to sell cattle is rational. Recently J.K. Rennie has written a number of unpublished papers which have increased our understanding of pre-colonial Ila society. The following are some of his major contributions. J.K. Rennie and A.K. Mubita, 'Precolonial Economy and Society Around Itezhitezhi', unpublished paper, (1974). Although the paper is on the area around Itezhitezhi, the authors also touch on the economic activities in other parts inhabited by the Ila. J.K. Rennie, 'Traditional Society and Modern Developments', unpublished conference paper, (1978). This paper - deals with the changes that have occurred in the Ila economy with the introduction of colonial rule. The Kafue Basin Research Committee of the University of Zambia has conducted studies on a wide range of topics concerning the Kafue Flats. These studies have thrown more light on the relationship between man and his environment, especially in so far as the Ila-speaking people are concerned. The following is the committee's major publication;

- G.J. Williams and G.W. Howard (eds.), Development and Ecology in the Lower Kafue Basin in the Nineteen Seventies. Though writing about the lower Kafue Basin as a whole the studies show how changes in some parts of the basin have affected the Ila people, for example the construction of the Itezhitezhi dam and its effect on Ila cattle.
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 5. NAZ, BS1/93, Val Gielgud (Tshamombe's Kraal) to the Administrator North-Eastern Rhodesia, 5 July, 1901.
 6. NAZ, BS1/93, Val Gielgud, Mwenga, to the Administrator North-Eastern Rhodesia, 1901.
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26. J.K. Rennie and A.M. Mubita, 'Precolonial Economy', (1974).
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29. NAZ, BS1/93, Gielgud Hook of the Kafue Expedition, 1901.

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CHAPTER III

ECONOMIC CHANGES IN BANGWEULU AND NAMWALA, 1911-1940

In this chapter I shall deal with ecological and government-induced constraints on agriculture and livestock in Namwala. I will point out the changes that occurred in Bangweulu in agriculture and the reasons for the decline of livestock. The role of labour and trade in economic cycles of booms and slumps in Bangweulu will be explained, together with its effect on the natural resources and economic well being of the region.

1940 has been chosen as the cut off point because it marked a period before which there were few or no government development projects. It also marked the end of prosperity in Bangweulu and increasing ecological problems thereafter. For Namwala after 1940, there was gradual improvement in the main aspects of the economy. In the country as a whole as well as in the two areas the Second World War marked a turning point in African History after which colonialism became more active in African affairs. The period itself is distinguished by serious ecological problems in Namwala and by the integration of the Bangweulu economy into the colonial society.

In this period the economies and ecologies of the 19th century underwent changes which led to the disappearance of pre-colonial industries and crafts and increasing use of European goods.

A, Namwala: Ecological constraints and ineffective development

In this section I will discuss the frustration of the Namwala people's initial response to new agricultural techniques owing to lack of agricultural policy and the inconsistency of the colonial government regarding African agriculture. Added to the government's shortcomings were the persistent environmental adversities which lowered agricultural production even more in most parts of Namwala. Cattle keeping was also bedevilled by ecological barriers in the form of tsetse fly infestation in the bush surrounding the Flats, the inhibiting effect of cattle diseases and inbreeding on the cattle reproduction rate. As a result of these constraints there was a slight increase in labour migration in Namwala during this period.

1. Chronic ecological obstacles to agricultural growth

Although the Ila were open to new methods of farming their agricultural development during this time was inhibited by rainfall and water level irregularities, disease, pests and poor soils. In 1911 the missionaries at

Nanzhila introduced to the Lumbu the use of oxen for draught purposes. The Lundwe also started to use the plough after learning the art from the Ndebele at Mbeza. The Ila traditionally did not use their cattle for draught purposes because of their veneration of cattle, and so adoption of the plough was slow. In 1916 chief Mukobela bought a wagon and used oxen to drag it, but it was not until 1926 that oxen were generally used in pulling sleighs and ploughs. From that time the number of ploughs increased and everyone who could afford bought one and people parted with their cattle to buy a plough.¹ The spread of the plough meant that more men now took part in cultivating than was the case previously, lessening the work of the women. People also increased their acreage for maize, but all this interest was thwarted by the factors noted below.

a. Rainfall irregularities

There was poor rainfall in the following years resulting in food shortages: 1915/16, 1933, 1934, and 1937 in the whole district; in 1922 in the north-western part of Namwala in chiefs Shaloba, Shezongo and Muwezwa, and in 1924 in chief Chiliabufu's area.

Each time people had to live on wild fruits, roots, fish, and sour milk.² The seriousness of the situation is illustrated by the hunger conditions that prevailed in the 1915/16 year. Nanzhila mission boarding school had to close down in July of that year as all food stocks were exhausted and no food could be bought. The missionaries at Nanzhila had to go on hunting trips to get meat for distribution. Villagers camped near the Kafue river bank to fish. Many families went into the forest to live on wild fruits and roots such as muntembwe. Maize was brought from Kalomo; chief Shezongo's people bought 180 bags at £180 which they later paid for by selling cattle. Food was in short supply in the whole district except at Mwendwa and Mumbwa.³

b. Irregularities in the water level

Floods destroyed crops in the following years: 1917, 1918, and 1926 in the Twa area, 1932 in Shimbizhi's area and between Kasenga and Maala 1938 in Shikafwe's and Mungaila's areas, and in 1940 in Kaingu's, Muwezwa's and Shikafwe's areas.⁴ Food shortages were again each time very much in evidence. Owing to these problems people in the east often sold crops to people living in the west in exchange for cattle. In 1933 for example

about 1400 bags of maize were taken to the west in this type of transaction.⁵ In the Twa area in most years it was not possible to have reasonable harvests because of floods and efforts to cultivate crops on high ground near river banks gave only small yields.

c. Disease

In most parts of the district in 1918 gardens were small and hoeing not extensive because of the outbreak of influenza and the result was that in 1919 grain was scarce.⁶ Reports by district officials indicate that venereal diseases were common among the Ila between 1920 and 1940 causing a low birth rate. The population estimated at 23,600 in 1923 fell to 22,000 by 1934 and remained static until 1940 when it showed a slight increase of 500.⁷ Venereal disease however did not have such a serious effect on agriculture as the influenza of 1918 since people produced enough crops for their requirements when climate was favourable.

d. Pests

Chiminga, spring hares and locusts destroyed crops causing food shortages and prevented some crops from being grown. In 1918/19 chiminga, an ant-like insect

attacked millet in the west and at the same time wire worms damaged crops in many localities.⁸ The presence of millions of spring hares coming out at night to destroy crops since 1918 prevented the growing of cassava on the south bank of the Kafue river.⁹ In 1917 grasshoppers were present in many parts of the district. Locusts were common between 1931 and 1936 all over the district destroying crops and causing low crop yields. In 1934 it was reported that, 'Owing to damage done by locusts there are natives in some areas in the West of the District who will be faced with food shortages this year. The damage is most serious in an area of approximately 100 square miles to the North and West of Nanzhila Mission: the area is ... known as Luchena. Here the crops have suffered severely and there were a number of people who had exhausted their grain by the middle of May',¹⁰ Many areas in Musungwa's and Kayingu's chieftainces had their crops destroyed by locusts in 1934. The overall effect of locust invasion since 1931 was that by 1938 in many villages where previously 5 different crops were grown now grew only maize giving the excuse of locusts. Besides during the period of locust invasion people did not increase their maize acreage in chiefs Musulwe's, Chilabufu's and Shikafwe's areas.¹¹

e. Soils

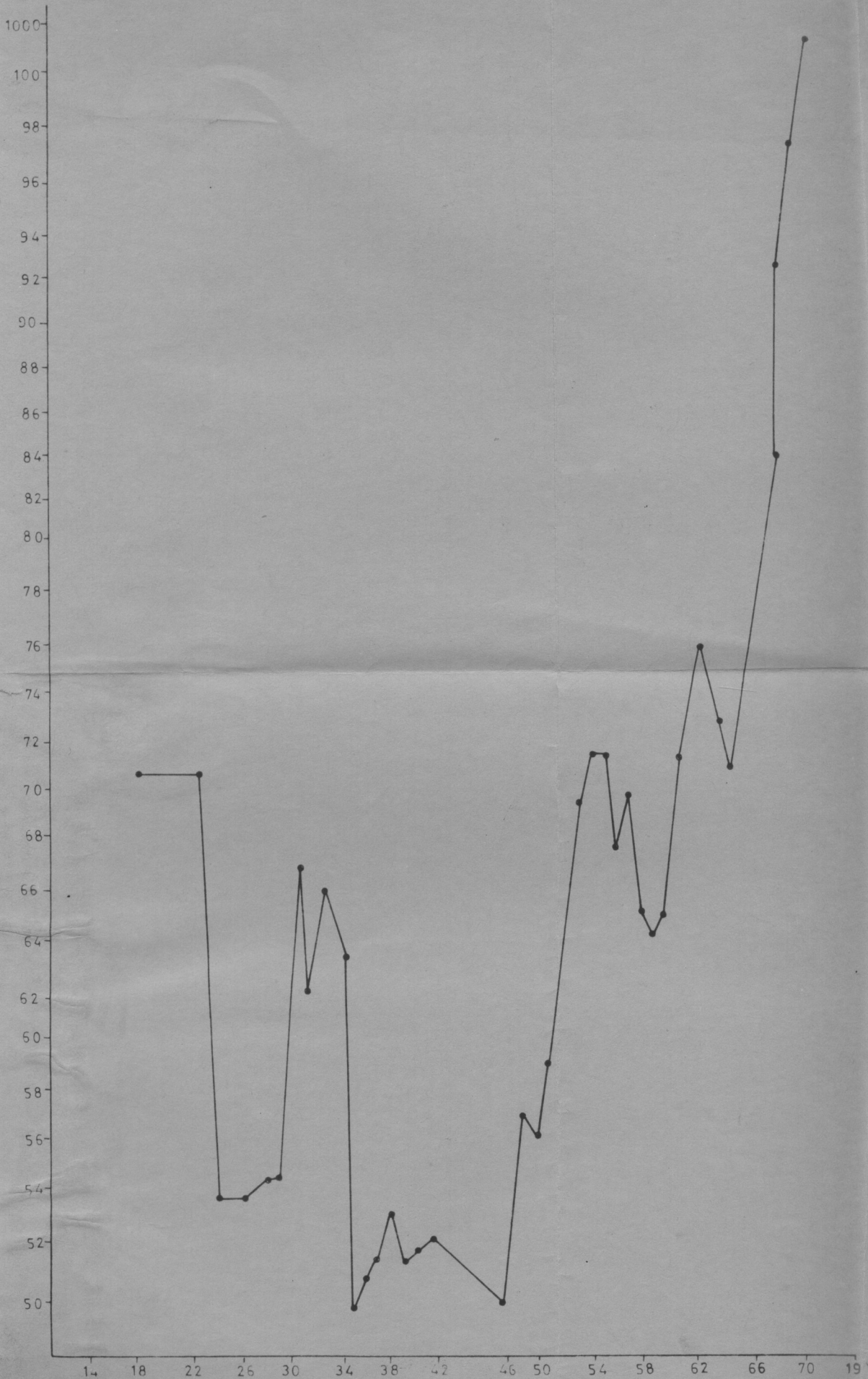
In the bush area near the Flats where the main villages were found soils were poor. To offset this problem some fields were made in the bush or on the banks of the river and lagoons or on small patches of rising ground in the Flats. This arrangement was good in that if the crops on the sandy soils were bad the crops near the river would probably be good, while the heavy rains could damage the crops on the Flats bush crops could be satisfactory. With increasing concentration on the growing of maize for sale production could not be raised to desired amounts because of the sandy soils except in the Mbeza area in the east.¹²

f. The failure of Government encouragement to grow maize and groundnuts

After the First World War the rapid expansion of the country's economy and the need for food to feed the labour force on the Copperbelt in the late 1920s made the government encourage the people to grow maize. In the eastern part of the district where there were few ecological constraints people responded to the call. However this response was discouraged by first, the government's inconsistent pricing policy. At

first prices for maize were too low to meet transport costs to the line of rail and the government in encouraging people to grow maize did not take this into account. Then the government made Maize Control Board prices apply in the district without according to the district the full benefits of the Maize Control Act of 1936. Locally a 100 kg bag of maize cost from 2/-, 4/- to 5/-, but private agents buying maize from the Ila were made to pay a further 5/4 for each bag to meet the 10/5 controlled price of maize. This action caused maize to remain unsold as no one was willing to pay the controlled price of 10/5 for maize worth 4/- or 5/- per bag.¹³ There were also contradictions within the operations of the Maize Control Board. While the Board was set up to serve mostly the maize belt along the line of rail it extended its requirements to the district without extending its operations there except in the Mbeza area. As a result of this situation, in 1936 when there was a bumper crop most maize remained unsold as there were no buyers. Only at Mbeza were people able to sell 1000 bags as it was profitable for traders to buy there and transport the maize to depots on the line of rail. Further west little maize was sold.¹⁴ In 1937 people at Mbeza had to take their maize by sleighs and scotch carts to Monze and Pemba,

GRAPH I CHANGE IN THE CATTLE POPULATION BETWEEN 1917 AND 1969 IN NAMWALA



Compiled from Namwala District Annual and Tour Reports

64 km away. It was for this reason that Namwala was excluded from the Maize Control Board area in July 1939 except for Mbeza on the recommendation of the District Commissioner there.¹⁵

Since maize could not fetch enough money owing to transport costs people were in 1936 encouraged to grow groundnuts which did well on the sandy soils and which could absorb transport costs. However groundnut growing in 1938 was affected by a three weeks drought in February and by ravages of spring hares. The yield was therefore half that of the 1937 crop. Interest in the crop was further discouraged by low prices of 12/6 per bag and competition from maize sales, maize was easier to grow. With the heavy work entailed in groundnut growing the effort to stimulate the growing of the crop failed.¹⁶

At this time the government policy of protecting game increased game ravages on crops for areas bordering the Game Reserve area. Hippopotamus was increasingly destroying crops in the riverside gardens, especially in chiefs Kaingu's and Muwezwa's areas. People not being allowed to kill hippopotamus referred to them as 'government cattle'. Between 1937 and 1940 there were many complaints about raiding elephant, buffalo, eland and wild pig destroying crops in various parts of the district.¹⁷

Suffering from all these constraints most areas in Namwala were unable to realise agricultural surplus for sale. When these surpluses were realised poor marketing stifled interest in increased production. Agriculture therefore until 1940 in Namwala was in an unsatisfactory state.

2. Constraints on cattle increases

The period also marked the beginning of the decrease of cattle in Namwala. Estimated at 71,000 in 1917 the cattle population dropped to 54,000 in 1924 (see graph). Even though there was a slight increase between 1928 and 1934 the cattle population remained lower than before in all these years. Only between 1931 and 1934 was it above 60,000 and between 1935 and 1940 averaged around 50,000.

a. Spread of tsetse fly

The main reason for cattle decrease was the spread of tsetse fly, starting in 1922, which covered most parts of Namwala especially in chiefs Kaingu, Musungwa, Shezongo, Chilibufu, Musulwe, Shaloba and parts of Shimbizhi's area. This left only Shikafwe's, Mungaila's and Mukobela's areas. Tsetse fly covered almost all of the woodland parts of the district, leaving the Kafue Flats and the

immediate neighbourhood as the only places free of tsetse fly.¹⁸ Tsetse fly increased because of increase in game since the declaration of a Game Reserve in the Kafue Hook area in 1908: the buffalo in particular, a well-known tsetse fly carrier, increased enormously.¹⁹ The Flats themselves are fly free being treeless and seasonally covered with floods; they are thus incapable of supporting a tsetse fly population. So long as cattle grazed over them there was little or no danger of being infected with trypanosomiasis. When floods however are at their highest the area available for cattle was restricted and the cattle moved up into the G. Morsitans infested bush that fringe the Flats. It is in this bush that tsetse fly was met with and the cattle infected with trypanosomiasis.

b. Existence of cattle diseases

The prevalence of diseases also contributed to the poor condition of cattle and therefore a low reproduction rate estimated as low as 15 calves per 100 cows in the early 1970s.²⁰ One of the most common diseases has been foot and mouth which has been endemic since 1926. Anthrax has broken out from time to time: the others are heart-water, red-water, mange, tuberculosis,

worm infestation and contagious abortion; and in 1978 at the time of research 99 per cent of all cattle in Namwala had liver fluke.²¹

c. Inbreeding of cattle and other cattle-keeping problems

The third problem affecting cattle quality was inbreeding. Since the creation of a cattle cordon in the western part of the district in 1913/14 in order to prevent spread of pleuro-pneumonia from Barotseland increased inbreeding resulted in poor quality cattle.²² The source of new blood from Barotseland was therefore closed. Within Namwala itself government encouragement of maize growing led to poor quality cattle because people chose the best bull calves and castrated them for draught oxen. Increased interest in the growing of maize as a source of wealth made people graze their cattle near to their villages for 8 or 9 months and only took cattle to the Flats in July or August after the crop was harvested and marketed. The result was that cattle did not benefit from lagoon grazing, and rains grazing was over grazed, especially in November and December and cattle therefore fell off in condition.²³ The practice of herding cattle in big herds, especially at Baambwe and Maala was common, and caused to herbage to be cropped short and erosion taking place. Cattle became poor in condition while on the Flats owing to

the cold and bitter winds blowing across the Flats. In the past herdsmen had built grass kraals and made dung fires to keep cattle warm, but with new economic interests this practice was discontinued. There was also a sizeable number of cattle lost through game attacks every year, and thus with decreased interest in herding led to the practice of allowing cattle to roam at will all over the Flats.

d. Measures to improve cattle

Although problems affecting the quality of cattle were known as early as 1923 the government only undertook half-hearted measures to correct the situation. No measures were taken to control trypanosomiasis in cattle and distribution of tsetse fly until after 1940. Although a dipping tank was built at Mbeza in 1928 to combat diseases endemic in the district, the government introduced dipping in such a manner that people were reluctant to dip their animals. The 1/- demanded per head for cattle to be dipped proved expensive for people with many cattle so that the dip tank at Mbeza was little used. For the same reason regular dipping offered at Namwala by 1938 was not used much by the Africans. In an effort to fight inbreeding

the Department of Veterinary Services in 1938 gave two Grade Aberdeen-Angus bulls from Mazabuka to Kaingu and Mukobela. Within two years both died after being attacked by wild animals. In 1930 two Grade bulls were given to Mukobela and Mungaila and both has died by 1932. Between 1933 and 1936 six Grade bulls were given to the district and by 1938 all of them had died.²⁴ The giving of such a small number of bulls was ludicrous as it is obvious that they could not produce wide-ranging change over a large cattle population such as that found in Namwala. Despite the fact that the bulls given died after they were left with their new owners no measure was taken to reduce mortality. The genetic effectiveness of European bulls on African cattle in any case has been doubted and it was unlikely that they could produce the desired results.²⁵ The fact that they died also indicates that they were susceptible to disease and nutrition problems. Of the other problems affecting the condition of cattle, nothing was done. Cattle therefore did not increase during this period.

e. Effect of diseases on cattle sales

Because of decrease in cattle and infection with various diseases the economy of Namwala was also affected.

Cattle sales responded to the disease situation. There was a boom in cattle trade was only in 1919/20, but from then onwards trade remained poor until 1936.²⁶ Between 1922 and 1930 poor cattle sales were due to the spread of tsetse fly and to the fear that trypanosomiasis might be spread to other parts of the country if cattle trade was not controlled. In 1928 for example more than half of the district was excluded from selling cattle because of the fear of spreading trypanosomiasis.²⁷ In 1930 one fifth of the cattle in Namwala were in the tsetse fly quarantine area and was open for trading for only three months. Cattle on the North Bank in 1933 had to undergo a month's quarantine before being allowed into the clean areas. This situation made cattle prices drop and fluctuate and made markets unreliable. Prices dropped from £10 in 1920 to £1 in 1921. In the early 1930s cattle prices were still low, averaging £2 or £3 for cows and £3 to £6 for oxen.²⁸ Cattle leaving the district also decreased. In 1932 only 427 permits were issued for cattle to leave the district as against 2558 in 1931.

Cattle trade slumped further between 1934 and 1935 because of the outbreak of foot and mouth disease, and also because of the depression and trade came to

a stop at the beginning of 1934. Poor cattle trade affected the prosperity of the region. People found it difficult to pay taxes and fines, and there was an increase in labour migration on the North Bank and in the west.²⁹ Undoubtedly cattle prices were in the 1930s affected by the depression, but the disease factor all the same was still important. In 1931 many people were unable to sell their cattle or produce crops for sale. Many went to the line of rail but did not find employment. Others tried to sell tobacco without success. It is against this background that it was reported in 1933 that, 'Economically the natives have suffered from the slump in cattle trade and poor crops due to lack of rain and locusts. Some divisions have been reduced to living on forest produce and their slender cash resources which might have been used to pay taxes have been expended in the purchase of foodstuffs'.³⁰

3. Game situation

Up to 1940 there was little change in the game range and variety in Namwala and the Kafue Flats in particular. Although the heaviest concentration for lechwe, for example, were at Namatushi and Mukuyu,

the species in the 1920s extended from Mazabuka to Kantengwa in fairly big numbers, thinning out westwards up to Namwala and eastwards up to the Kafue railway bridge where they occurred in scattered groups.³¹ In fact some species such as the buffalo increased because of game legislation. In the main concentration areas one could see 30,000 to 40,000 lechwe in a day's trek of 32 km. Vaughan who stayed on Lochinvar between 1933 and 1938 made the following reports:

The fantastic quality of wildlife defies description-thousands of animals roamed over the Flats and the savannahs along the edges. Travelling on the Flats from Mazabuka to Namwala and beyond you would never for one moment during that long trek have been out of sight of countless herds of game all around you, buffalo, eland, roan, wilde-beeste, zebra, hartebeeste, lechwe, puku, reedbuck, and the rest, while the savannah country bordering the Flats was full of the browsers such as sable, kudu and eland with the buffalo, using the dense musitu areas. Lions were everywhere, the river full of hippo.³²

Taking the Flats as a whole Pitman in 1932 could still hazard a guess of 250,000 lechwe, but to judge from Vaughan's

description above, the position for the other animals was also still good. Only at the western end of the Flats was decrease in the lechwe population noticeable: near Namwala and at Basanga small herds were found where previously dense populations existed. The use of animals had remained very much as before.

4. Fishing and production of commodities

Fishing did not change much. The Ila continued to fish for subsistence purposes in pools, ponds, and lagoons, while by 1935 the Twa with an increasing number of Lozi immigrants fished in the river.³³ The production of commodities continued but on a much reduced scale. The Mbala continued to cultivate tobacco and sell bolster shaped tobacco cakes. The Nduwe still worked in metal and made hoes, axes and spears. Trade with the Lozi and Tonga was gradually dying out. Western manufactured salt replaced local salt and collecting as an important part of the economy ceased.

5. Response to labour demands

The Ila with cattle wealth were in a strong position to resist recruitment for work. Many attempts to solicit people for work, including the war effort

of 1914 to 1918 failed. Response for work only increased after the returns from cattle sales were low, especially after 1926. The number away for work out of the district at any one time was over a thousand per year.

While making this observation it is important to note that response for work was greater in tsetse infested areas in the west and north with few cattle. For example in Kaingu's area 50 per cent were away in 1935, 25 per cent in Shikafwe's, Musulwe's, Muwezwa's and Musungwa's areas.³⁴ Only at Baambwe and Maala with heavy cattle concentration was migration low. But even then with poor cattle trade these two areas showed an increase in labour migration during the Depression. Labour migration which stood at slightly over 1000 in the early 1920s rose to about 2000 in 1927, and 3000 in 1933 and decreased thereafter as cattle improved in quality and numbers.³⁵

Ecological constraints, especially in agriculture and cattle-keeping, were therefore very pronounced in Namwala in this period, and the lack of development policy for the district made economic well-being all the more difficult to

achieve. It is also clear that Namwala was slowly but not effectively incorporated into the colonial economy, and where this happened it was the result of economic decline caused by ecological problems. Cattle trade and labour migration responded to these changes as people tried to adjust themselves to the changing ecosystem and world economy.

B. Bangweulu: Economic cycles and ecological decline

By contrast with Namwala, Bangweulu was more closely integrated into the colonial and capitalist economy in the form of commodity marketing and wage labour. This process brought booms and slumps and accelerated the exploitation of natural resources which laid the ground for ecological decline later. Although there was little or no surplus, agriculture satisfactorily met the subsistence food requirements of the people; but towards the end of the period agricultural problems were more and more coming to the fore. Livestock, bedevilled by disease and having to serve a large population, was not an asset in the overall economy. After dealing with the way game was affected by all these trends in Bangweulu, I will end this section with a brief discussion on the phasing out of local industries.

1. Economic booms and slumps based on labour and trade

Increased pressure on the collection of hut tax to run the government and force the people to migrate for work had far reaching consequences for Bangweulu. People either sought wage labour or sold whatever local products they could get hold of. The process was enhanced and entrenched by the impact of the First World War, 1914 to 1918. In the absence of a viable economy the prosperity of the region was susceptible to economic forces outside its boundaries, and as far away as Britain. It is for this reason that during this period there were two boom-slump cycles.

a. The 1911-1919 boom period

Between 1911 and 1919 prosperity was largely due to labour. Between 1911 and 1915 a lot of people found work as load carriers, working on the roads and working for the administration. Demand for such labour was so great that it was often difficult to get enough labour. The Bemba and Mukulu, in particular would go up to Mpika, Serenje and Kasama and Kabwe looking for such work. For example in 1913 of the 6643 taxable males 2774 earned money by working in this way.³⁶

Secondly there was labour migration to the mines in Southern Rhodesia and Zaire. Labour for Rhodesia was recruited by the Rhodesia Native Labour Bureau (RNLB). RNLB-recruited labour during this time rose from 1808 in 1911 to 3423 in 1913, RNLB recruitment representing 36 and 18 per cent respectively of the total work force available.³⁷ RNLB was the only recruiting agency because the Northern Rhodesia government had discouraged labour migration to Zaire by closing the border in 1905 between Zambia and Zaire on the pretext of sleeping sickness. It was feared that the high demand for labour in Katanga was threatening labour requirements in Rhodesia. To ensure a steady supply to the south taxation was increased and had to be paid in cash. To make this action more effective an attack was made on the chitemene system of agriculture. In 1913 because of serious shortages of labour in Shaba, Robert Williams and Company resumed recruiting labour for the Shaba mines and from the Bangweulu area in 1914. Because of the Southern Rhodesian labour demands and the chronic labour shortages at Kansanshi and Bwana Mkubwa mines in Zambia, Robert Williams was theoretically restricted to 1000 men per year. Work in Zaire became more and more popular than work in Southern Rhodesia because shorter six month terms

enabled people to return home and work on their gardens.³⁸ Recruitment for RNLB therefore fell from 537 in 1913 to 136 in 1914 while that for Robert Williams rose and in the first year of recruitment the firm engaged 933.³⁹ People were evidently reluctant to become fully proletarianized and were trying to keep the peasant option open. The government did not discourage this response since it lowered production costs for the mines who did not have to worry about the social welfare and pension benefits of their workers. Interest in peasant production in this case illustrates Lonsdale's Kenya model of the colonial state trying to encourage labour emigration while at the same time supporting settler and peasant production.

From 1916 to 1918 labour was channelled to the war effort. Men were either employed as soldiers or food carriers, but most of them were employed in the water transport work. As a result of this recruitment to Zaire virtually came to an end. Of the 16,164 people employed within the territory 12,786 were in the war transport work from April 1915 to March 1916.⁴⁰ Work in Zaire and on the railway was discouraged. A full list of able - bodied males in each village was kept and fixed labour calls

were made. In 1916 little labour was signed on at Luwingu as half the population in the district was used in recruiting canoe-men for water transport. By September in 1916 labour in Luwingu was described as follows: 'Practically all the labour of the sub-district has been employed during the half-year by the Administration and principally on war transport'.⁴¹ The same situation persisted until 1918.

Before that war goods from the railway line were carried from Ndola through Zaire to the Luapula. A depot at Kabunda's village was constructed on the Munyengazi river. During the war the idea of the waterway was thought of by J.E. Hughes because it was felt that carriers could not cope with increased loads. Efforts to use wagons were dropped as the oxen died because of tsetse fly. The African Lakes Corporation were appointed forwarding agents at Ndola on the railway and the carriers necessary for the transport of goods from there to Kabunda were engaged by the officials of the administration from Kalomo and Barotseland. The bulk of the loads consisted of grain bought on the railway line, European rations, machine gun parts, safes, petrol, bicycles, police equipment, bales of blankets and calico, rice, salt and other things for soldiers.

Nsumbu was the headquarters of the water route to which stores were transported by canoes from Kapalala on the Luapula through the Bangweulu swamps up the Chambeshi to Chiwutuwutu on the Great North Road for troops operating on the Tanganyika border. There were two routes through the swamps. The shorter route through the swamps went from the Luapula river past Mpwaki's village on Mbo Island, then to the bottom end of Ncheta Island, to Matongo and Nsalushi Islands and then into the Chambeshi river. This route took 12 to 14 days, but when the water was at its lowest level canoes used to go from the lower Luapula river into Lake Chale through a channel cut by Goodall into the upper Luapula, past Mpanta Point to Lake Walilupe, up the Kawena channel to Nsumbu Island and down to the Luwingu side of the Chambeshi river. During the war and at its peak as many as 1,885 canoes and boats were used.⁴² This involved the use of all canoes owned by the Bangweulu inhabitants capable of carrying two or more loads. These boats were sent to Goodall on Nsumbu Island, then sent down to Kabunda where they were numbered and registered and a numbered label nailed to each of them. The canoes

were hired for whatever period they were needed and the owners received hire payment at the rate of 6d per load per trip. Paddlers were engaged for two complete journeys and received 6/- pay and 2/- food allowance per journey. An extra shilling was paid to those who completed the journey under one month. Canoes were repaired at Kabunda free of charge to owners and the return journey to the Lukulu depot was usually completed within a month, covering a distance of 1280 km. The number of the male population of the islands and coastline available for canoe work numbered approximately 10,000.⁴³ Despite low rates of pay for transport work the work nevertheless constituted an important source of income given the large number of people involved.

Another source of money during this time was sale of lechwe trophies. After 1914 lechwe skins found a ready market all over the country. During the war thousands of lechwe were killed and the meat was dried and sold in 'joints' to feed carriers, canoeemen and soldiers. While the war was in progress a large number of permits to own guns were issued to facilitate killing of game. Additional money was earned by the

sale of lechwe skins sold at 1/- each, and about 10,000 skins could be sold in one season.⁴⁴ Although there was a lively trade in otter skins before the war, the trade subsided during the war. Between 1911 and 1914 fish was bought by the Food Bureau at Mansa which had undertaken to buy as much fish as possible from Luwingu through their capitao at Chilubi Island. The war also encouraged heavy fishing: canoemen and swamp inhabitants caught and sold fish. Existence of a large population in the bomas at Mansa and at Luwingu caused a large demand for food and a Bureau was set up at Mansa to handle food trade. Food sales also increased during the war.⁴⁵

The result of all these activities was an increase in the amount of money in circulation. People showed an enhanced desire for clothes, household utensils and hoes.⁴⁶ Tax payments were good between 1911 and 1919. For example in 1912/13 the Unga paid 80 per cent of their taxes, and increase of tax from 3/- to 5/- in 1915 made little difference to the tax payment.⁴⁷

b. The 1920-1924 slump period

The prosperity of the war period was short-lived. Money acquired during that time had by 1920

been used up and in 1920 it was said that, 'The Luwingu natives are not by any means a wealthy class: their wants are therefore restricted and the turnover of these local stores is not at any time large. The past year has shown a falling off in this respect owing to the stoppage of the war and the consequent end of the war transport'.⁴⁸ Money in circulation decreased, local stores until 1924 were not prosperous, and the prices of calico had to be reduced by 20 per cent. Between 1920 and 1924 Luwingu paid under 50 per cent of the taxes due.⁴⁹

What reasons can one advance for such a situation? First there was a shortfall in labour work. Recruitment by Robert Williams was still picking up after it had stopped during the war, only 876 people were for example recruited in 1920. RNLB did not recruit at all. The few people who had gone to Rhodesia or Zaire were unable to help their relatives because they spent most of their money in those countries. Within the district there were few employment opportunities. Secondly, the renewed interest in otter skin sales yielded little profit because prices were low in the district averaging 3/- per skin, although in European markets they cost 29/- and just across the border at Lubumbashi 20/-. In any case the sale of 3,000 otter skins for the population of the Bangweulu swamps

region could not produce a marked effect.⁵⁰

Thirdly, although thousands of lechwe were killed, the meat sun-dried and then sold to the Copperbelt, the low prices again made the trade unprofitable.⁵¹

Fourthly, increased interest in the dried fish trade was hampered by limited market, and only a small proportion of the swamp people took canoe loads of fish to Messrs. Joos and Bourgeois at Kabunda in Zaire. The market for lechwe meat and fish possible during the war could **not now be** found. Labour demands that the war had encouraged could not be sustained and neither the mines nor the administration could call for such massive labour.⁵²

c. The 1925-1930 boom period

The Bangweulu economy now picked up because of two main factors: the streamlining of the marketing system and the growth of the Copperbelt. European traders and firms who were allowed to operate in Bangweulu facilitated transportation and sale of swamp products. In 1925 three main buyers came together to form a ring to buy otters, and were later

joined by Messrs. Booth Ltd. The result was that otter prices rose from 4/- in 1924 to 8/- per skin in 1925.⁵³ An estimated 10,000 skins were therefore sold in one season. At this time Messrs. Joos and Bourgeois, a Belgian firm with headquarters at Kabunda in Zaire, and W.H. Clarke, a British firm with headquarters at Kapalala were allowed to open trading stations in the Bangweulu area. These firms employed capitaos who were located at strategic points in the swamps and bought fish from fishermen. Many people also took fish to the headquarters of the two companies at Kabunda and Kapalala. The firms bought fish at 2½d per pound and sold the same weight at 6d on the mines. The provision of the marketing system by these firms stimulated the growth of the fishing industry in Bangweulu. Between 1929 and 1931 the amount of fish sold ranged from between 140 and 150 tons, although there were many European buyers from whom no records were available.⁵⁴ Some European buyers came from Ndola to buy fish in the swamps. Initially most of the fish was sold to the mines in Zaire, but the growth of the mines on the Copperbelt increased fish markets and encouraged

the growth of the fishing industry even more. The nearness of this new fish market encouraged Bangweulu people to take their fish to Ndola, bypassing the firms, in order to realise more profits.⁵⁵ Between 1930 and 1931 there was a monthly average of 700 people taking permits to sell fish on the Copperbelt. These firms also eased the selling of otter skins, goats, sheep and chickens sold at Lubumbashi. The African labour force on the mines increased during this time with the expansion of the Copperbelt. Sale of meat was allowed as it was felt that it would not make any difference to the game population. Lorries used to go up to Bangweulu and return to the Copperbelt laden with dried meat. The companies also bought cassava meal at an average price of $\frac{3}{4}$ d per pound. A 1930 annual report talking about trade in dried fish, otter skins, and meal in the swamp said that, 'The products of all these industries are traded chiefly in the Congo and the North Western mining area and are a considerable source of wealth to the swamp tribes. This is evident from the well clothed appearance of the natives round the lake and from the number of bicycles seen. While Native Registration has been going on at this station anything from 30 to

50 cycles have been noticed outside the office daily'.⁵⁶ With the difficulty of collecting tax in the swamps, tax collected ranged from 77 to 90 per cent in the swamp and lake areas.⁵⁷

On the mainland more and more people were independently finding work on the Copperbelt on the mines, but mostly with contractors who paid higher wages. In Tungati's and Shimumbi's areas over 40 per cent of the males were away at work, some places in these areas having as many as 90 per cent of able bodied males away in search of work. Returns from labour work were however not as lucrative as those gained by the swamp dwellers.⁵⁸

d. The 1931-1940 slump period

In the early 1930s the 1925 - 1930 prosperity vanished, largely due to the effects of the Depression in the world. In Bangweulu the Depression undermined the markets for commodities. First to be affected was the fish trade. During the boom on the mines demand for fish was high, and the supply being somewhat limited the price paid for fish to African sellers was forced up to an uneconomic level until the European middlemen demanded a price at the mines greater than that demanded for fish imported from South Africa and Lobito Bay.

The market was also spoiled by an excessive supply of insufficiently cured and poor quality fish from the Luapula river and Bangweulu swamps while the imported fish was better.⁵⁹ The mining industry suffering from the 1930s depression could not sustain big markets for fish, and fish came to be regarded as luxury relish, and only few Africans could afford it. The result was a fall in fish prices to about a quarter of the prices prevailing before 1930. In 1933 prices had fallen down to 1d per pound from the 2d for the same weight before this time.⁶⁰ With the fall of prices many swamp dwellers bypassed the European middlemen in the hope that they would secure higher prices for their fish and took their fish directly to Ndola. In 1932 2,600 people were issued with passes to sell fish on the Copperbelt. In 1933 80 tons of fish was sold directly to the Copperbelt while only 35 tons was sold to European middlemen.⁶¹

African hopes to advance their enterprise by selling fish were frustrated by restrictions imposed by the government in Zaire on the transit of fish through the Pedicle in 1934 owing to the foot and mouth disease, and only 34 tons of fish was sold from the Bangweulu region.⁶² Later, a concession

was made: fish could be transported through the Pedicle but in open baskets carried by lorries. For the Africans who mostly transported their fish on bicycles or on foot this move did not improve their situation. To solve the problem it was suggested that the fish trade be directed through another route to Ndola, via Kapalala and Sakania, Lulimala and Livingstone memorial Road. The idea was dropped as it would prove too expensive to dig and maintain a channel 32 km long.⁶³ As things stood only Zaire-based Belgian firms continued to benefit from the fish trade until 1939 when the restrictions were removed. It was only then that many Africans resumed taking fish to the Copperbelt. The growing fish trade from 1935 to 1939 did not bring substantial prosperity as the European traders who bought the fish from the Africans and sold it to the Copperbelt continued to offer low prices. In 1939 for example, they offered 1/- for bundles of fish weighing between 6 lb and 10 lb, or at prices ranging from 1d to 1½d per pound. Yet Africans disregarding these middlemen and taking fish straight to the Copperbelt could sell each fish at 3d. At that time there were more than 130 capitaos working for various traders; fish exported was estimated at 250 tons and half of

this was handled by Bourgeois, another share by the Northern Rhodesia Native Produce Company.⁶⁴ The trade in African hands was therefore still small. Fishing, the only economic activity capable of bringing wealth to Africans, was for most of the 1930s still profitable to the Europeans by and large.

At the same time that fish markets and prices were crumbling in Zambia there was a depressed English market for otter skins. Traders were therefore discouraged from buying to any extent, and the previously extensive otter trade dwindled; the number of otter skins bought in 1932 dropped by over 50 per cent compared to that in 1931. A report in 1932 said that, 'African otters were in somewhat poor demand, and, where sold were fully 20% below April levels. 2,100 fewer African otters were on offer than the corresponding sale in 1931... As otters at the April sales averaged under 7/- their Autumn sales average was something under 5/6. Duty 1/6, transport 6d, agency fees.... 9d leaving 2/9 for the producer and trader. The result of all this is that otters will be entirely neglected in Northern Rhodesia in so far as cash buying is concerned'.⁶⁵ By 1933 the otter skin industry was moribund.

The price for cassava meal was also low, $\frac{1}{2}$ d per pound; so that even if sales increased from 57 tons in 1931 to 87 tons in 1932 there was little gain for the sellers.

Having no means of earning money in the district thousands of people went to the Copperbelt looking for work; in fact it was estimated that 40~~0~~ per cent more people left the district in 1934 looking for work. At the mines work was difficult to find because of the policy of employing experienced workers. There was a decrease of about 40 per cent in the number of people who found work in the country. A few people went to Rhodesia, some to Tanganyika and others to Zaire; but these did not change the general welfare of the district at all. Hardships experienced in obtaining work increased the number of people who decided to live permanently on the mines to 50 per cent in the mainland area and on Mbabala and Chilubi.⁶⁶

From 1930, Bangweulu people did not have any economic activity that would provide their much needed cash. This reflected itself in poor tax payments: tax paid averaging only 40 per cent and there was

decline in trading activity. Whereas the average takings of the 14 shops in the district was £45 per month in the period leading up to 1930 the takings by 1934 had fallen down to £19 per month in the swamps and £15 15s.0d per month on the northern shores of lake Bangweulu. In the hard times that now prevailed people not only abandoned luxuries such as bicycles and finery but had barely enough money to buy clothes and utensils. Savings from the previous prosperous period were used up: there was now little money left and people looked poverty stricken.⁶⁷

The Bangweulu economy became more involved in the general colonial economy through labour and trade. It was also dominated by externally generated booms and slumps in a way in which Namwala was not, and people's economic prosperity fluctuated according to the changing world economy. Lacking capital such as the wealth in cattle found in Namwala, Bangweulu people utilized the natural resources intensively, and this led to the gradual decline of the ecological system.

2. Ecology and agricultural production

At this time in Bangweulu agricultural problems were not as pronounced as they were in Namwala. Although there was still little surplus there was self-sufficiency in food requirements in most parts of the district. Most crops continued to be grown much the same way as they were in the past. Cassava was still grown extensively and successfully on the mainland, lake and swamp islands. Good harvests for sorghum, pumpkins, groundnuts, beans, sweet potatoes, maize, tobacco, bananas and millet on the mainland were still possible.⁶⁸ Poor harvests owing to poor rainfall occurred only two times in 1915 and 1919. Grasshoppers were only destructive in 1914 when they ate most of the millet on the mainland. The locusts that invaded the area in 1931 were of a migratory type, and though in large swarms did not inflict widespread destruction of crops: only maize, pumpkins and millet suffered a little damage, and cassava the main crop, was not attacked at all. The locusts largely fed on leaves of trees and bananas.⁶⁹ At no time were there famine conditions as in Namwala. In fact when an opportunity offered itself people sold some of their agricultural produce. In the war period an average of 40 tons of meal was sold without causing a serious drain on the supplies.

Quite often food was exported to Zaire and Ndola together with dried fish. In 1933, 13 tons of millet was bought in 3 days in the Luwingu district.⁷⁰

Three ecological problems were however evident. The first of these was the depredation of game on crops in the north-eastern part of the region in Luwumbu: most active in destroying crops were the elephant, buffalo, bush-pig and eland. In this area there were few years in which harvests were plentiful: food shortages were frequent. Although good fencing could keep out buffalo and eland from the gardens, no fencing was good against bush-pig or elephant. These two would break down any fencing and let in other animals. Elephants sometimes destroyed whole gardens and at times would attack grain bins. In the central part of Chiwanangala's area there were no villages in the late 1920s owing to the depredations of elephant and buffalo, villages were concentrated along the Luitikila river. There was also no agricultural surplus in Shimumbi's, Chungu's, Matipa's, Tungati's and Fuwe's areas because of game ravages, and a lot of people had to migrate to Chilubi to get away from annual damage done to crops. In the Luwumbu area a Game Protection

area was declared in the late 1920s and this increased the already numerous game even more. Constant raids by elephant and buffalo in the Lubanshanshi valley in Shimumbi's area and in the five rivers area in Luwumbu made it impossible to settle people there until elephant control started in the mid-1930s.⁷¹

Secondly, although there was no apparent decrease in food production continuous cultivation, was becoming an established phenomenon on all the lake and swamp islands because of shortage of land. Soils were showing signs of exhaustion despite crop rotation. The reason for this was overpopulation, and in the case of Chilubi the problem was made worse by people immigrating from Luwumbu.⁷²

Third, in the last four years of this period agriculture in the swamps was further threatened by the one metre rise in the water level in the lake and swamp area in 1936. Three theories have been advanced for the rise in the water level. Brelsford says that possibly the rise in the water level was a periodic high water level in his discussion of cycles of low and high water levels in Central and Eastern Africa.⁷³ Debenham hypothesized that flooding was due to the closing of the sandy gap of the Chambeshi river six km north of Lake Chaya and this obstructed

the southern route of the Chambeshi river directing most of the water to the west to the Lunga.⁷⁴ Grimsdell and Bell on the other hand say that the rise in the water level was as a result of the blockages of the channels by vegetation and the tilting of the basin floor westwards. The actual cause for the rise of the water level has yet to be verified, but the floods that resulted from it led to a number of ecological problems.⁷⁵

The flooding of the central swamps instituted a number of agricultural problems. The Lunga Sandbank is dry and slightly elevated land in the central swamps and is 32 km long and 16 km wide. It has fertile black alluvial soils with sandy patches. Before the floods it was famed as a good area for growing crops, especially cassava and millet. It carried the largest population concentration in the swamps; estimated at 6,000 people before 1935.⁷⁶ People from the sand islands in the east and from the lake islands used to migrate to the Lunga Sandbanks to cultivate. The first immediate effect of the water rise was the inundation of cassava and male gardens. Cassava rotted. People tried to make higher cassava mounds but with little success. In Kasoma Lunga people tried to build small

retaining walls to confine the water to the main Chambeshi channel but gardens were already sodden.⁷⁷ The floods continued to rise until 1944, but in 1937 most of the inhabitants of the three villages in Kalimankonde's country left to settle in Kalasa Mukoso's country. Others migrated to the mainland in Samfya, Luwingu, Serenje and Mpika districts. Food shortages were experienced; some people pulled out their cassava prematurely. The majority of the people now had to buy meal from the upland area, and Native Authorities started to regulate purchase prices to protect swamp people.⁷⁸

3. Deforestation

Lack of trees on the islands and the Lunga was becoming worse, people had to go to the mainland for 3 or 4 days to get firewood, poles or timber for building their houses. Timber for canoes was even more difficult to obtain even on the mainland. The only tree planting going on was that of self-perpetuating mango tree planting. Mango trees were first planted in 1927 at Kambala, Fube, Perembuto and other villages in the swamp area. From these trees and seed from Santa Maria mango trees spread all over the swamps. By 1939, 69 villages had an average of 38 trees.

The basic timber problems were not however solved as people got only fruit and shade from these trees.⁷⁹

4. Limitations in livestock keeping

There was little change in the position of cattle, sheep and goats. Increase in the sheep population was held back by diseases which broke out in 1913, 1920, 1925, 1927, 1930 and 1931. After each epidemic it took a long time before full recovery was achieved. The problem was compounded by owners killing sheep that survived fearing further losses.⁸⁰ Sheep were concentrated only on the lake islands of Mbabala, Chishi and Chilubi; in fact 80 per cent of all sheep were concentrated here, less than 5 per cent on the swamp islands and the rest in the north-east area, and served only a small part of the region.⁸¹ A sheep population which averaged around 2,000 could never have a significant effect for a growing population of 28,000 in 1913 and 52,000 between 1933 and 1940. Even taking the population of the islands where most of the sheep were found, 2,000 sheep distributed over a population of 15,000 in 1913 and 20,000 in 1933 gave only very marginal benefit.⁸² Moreover even with a small sheep population as this one dangers of overstocking

were already apparent owing to limited space. Complaints about sheep and goats ravaging crops were numerous. Economically livestock also failed to give a good alternative for earning much needed cash.

5. Disappearance of local industries.

Introduction of cash and European-made goods undermined traditional crafts. In 1914 iron smelting had ceased in many places. The only place where iron smithing persisted was in Chungu's area, but even there it was in re-used pieces of iron.⁸³ After the collapse of the 1925 to 1930 prosperous period efforts were made by the colonial authorities to revive the industry but without success. The result was a shortage of hoes and axes. Salt manufacturing and rope making were moribund. Only basket-making, mat and canoe making, pottery and lechwe skin preparation survived on a small scale.

6. Decline of game

I have already described the role game played in the Bangweulu trade. Such utilization of game had a serious impact on the population of various species, and this was shown by the absence of some species in

certain areas. Although Pitman in 1931 could still estimate a lechwe population of 150,000 in the Bangweulu area as a whole, ⁸⁴ lechwe had disappeared or decreased seriously in some localities. In 1934 for example lechwe in the central swamps had thinned out. Lechwe herds at Mbabala were smaller; at Kansenga only 2,000 lechwe remained. There were only hundreds of lechwe remaining in the north-end of Kampolombo, 500 south-east of Mpanta Point to the east of Luapula river. In 1934 small numbers existed at the south-end of lakes Walilupe and Bangweulu, and west of lake Kangwena in the Lusaba estuary. The main lechwe concentration was now in the south-east along the Mbo-Ncheta-Matongo frontage; and in the northern part in Chichili-Kasasa, Minswa-Luangwa areas up to the Lunga sandbank where about 40,000 lechwe were said to be still existing.⁸⁵

At Pitman's survey in 1931 rhino had declined drastically because of the demand for ivory. Rhino was absent in most areas it was previously found and now confined to the west of Lavushi mountains. There were only about 6,000 tsessebe in 1931 and puku previously widespread was now found in the dambos of Serenje and Mpika districts. Elephant in Hughes time

existing all round the swamp forest area at Pitman's time were restricted to the Luwumbu forest. Only sitatunga was holding its own because of its inaccessibility, living in the tall papyrus and reeds near marshes and in the woodland area.⁸⁶ Only in the Luwumbu could one find different species still existing in large numbers.

But perhaps the most disastrous event for animals, and lechwe in particular, was the rise in the water level in 1936. The floods covered most of lechwe habitat in the central swamps: the floods factor proved decisive in the decline of lechwe already under heavy pressure. Lechwe estimated at 150,000 in 1931 had declined to 60,000 in 1944.⁸⁷ The floods made lechwe easier to kill by isolating them on small patches of dry land. As lechwe were receding behind oncoming floods to the dry land in the Samfya, Mpika and Serenje districts a lot of them were killed. Hunting parties increased, often consisting of 100 to 150 people going up to two weeks, and sometimes longer, in lechwe grounds killing an average of 30 animals each day. Then there were smaller parties of 20 to 40 people killing an average of 10 lechwe per day. The period coincided with the increase in firearms, and a lot of meat was bartered on the mainland for meal and other items.⁸⁸

C. CONTRASTS AND COMPARISONS BETWEEN NAMWALA AND BANGWEULU

Ecological constraints played a big role in arresting development in both areas. In Namwala the effect of climatic irregularities and pests in arresting agricultural development were more severe than in Bangweulu. In Bangweulu agricultural problems only became severe with the flooding of the central swamps. However the policy of protecting game resulted in poor agriculture in sections where this was done: the western part of Namwala and Luwumbu in Bangweulu. Prevalence of livestock diseases inhibited increase of cattle in Namwala and sheep and goats in Bangweulu.

Western capitalism expressing itself in the form of labour demands and sale of commodities had a greater impact in Bangweulu than Namwala because the latter had a much more viable economy in the form of cattle while the former relied on wasting natural resources which could not bring in steady income. For this reason the Bangweulu economy was more fragile, always vulnerable to market forces outside the area; thus we find that there were a series of economic booms and slumps. Although cattle trade in Namwala was sensitive to disease, which in turn affected the economic well-being of the district, labour migration which increased during the time that

cattle trade was poor was on a small scale compared with that which occurred in Bangweulu. However as in Bangweulu labour migration tended to be higher in areas where people had little or nothing to sell for cash to pay tax: in the tsetse fly-infested areas in Namwala and on the plateau in Bangweulu. There was response to markets for agricultural products in the two areas, but this response was greater in Namwala because people had started to adopt new methods of farming; but this response was thwarted by adverse ecology and inconsistent government policies.

Decline of game was very drastic in Bangweulu where hunting had to meet subsistence and commercial meat requirements. There was greater reliance on game to earn money in Bangweulu than in Namwala. In Namwala commercialization of game did not take place because of distance from the urban areas and the fact that people could earn money through cattle sales.

As far as development policy is concerned there was none in this period. This situation was a reflection of colonial policy for the country as a whole. The 1911 Order in Council reiterated the BSACo's position that its aim as far as Africans were concerned was to maintain the status quo in African agriculture. Although

the Passfield Memorandum of 1930 re-emphasized the paramountcy of African interests the Colonial Office still maintained a policy of favouring settler interests whenever the two conflicted. This comes out clearly in what the Governor of Northern Rhodesia said in 1924, and the statement was carried out the 1930 Passfield Memorandum notwithstanding. He said, 'The policy of the Government is one of providing for the natives sufficient land to enable them to develop a full Native life in their own areas; sufficient land to meet the inevitable expansion of the population settled thereon and sufficient to enable the Government with a quiet conscience to release to European settlement other areas suitable for this purpose'.⁸⁹ It is for this reason that the government was very concerned when Africans in Zambia expanded the size of their gardens, used the plough to cultivate and in 1927 sold 30,000 bags of maize in response to expanded markets on the Copperbelt. The government, fearing strong African competition against European farmers, did not welcome these improvements. To lessen African competition Africans were now to have less land at their disposal while that available for European use was increased. Thus in 1928 many Africans were moved to Native Reserves. African competition

was further crushed by the establishment of the Maize Control Board in 1936 which limited the market for African-grown maize just at the time when African-grown maize was increasing. This was done by giving only a $\frac{1}{4}$ of the internal pool to Africans while whites were given $\frac{3}{4}$.⁹⁰

With this overall objective in mind it is small wonder that the government pricing system in Namwala was inconsistent: that the marketing of maize was bad even with the extension of the operations of the Maize Control Board into Namwala. Africans in this district, as in other parts of the country had increased maize production in response to expanded markets created by the growth of the Copperbelt. Although the government appeared to be encouraging maize production it in fact leathed improvements in that direction. Though less overt than in Southern Rhodesia and South Africa, African response to new market opportunities was also crushed in Zambia.⁹¹ The Bangweulu region responding to labour demands much to the taste of the colonialists had even less help in agriculture and other economic spheres.

When in 1933 the District Commissioner for Namwala said that there were no funds for development and expected

the people to embark on development projects on their own he was merely echoing the overall colonial policy regarding Africans. Although he described Africans in Namwala as 'ultra-conservative' it was because Namwala people did not go for work for wage labour according to government's expectations. It was for this reason that he later said that, 'A principle of unvarying pressure for the Tax will I think eventually overcome their characteristics'.⁹²

With such an attitude to Africans no measures were taken to improve the environment in which Africans lived. Only in so far as game is concerned was there any policy, and this was done because of revenue that game brought and its value to European sportsmen and tourists. It is for this reason that the 1925 Game Ordinance did not introduce any wide-ranging changes other than merely introducing the 2/6 Native Licence.⁹³ Theoretically the licence hoped to control hunting in African areas by restricting Africans to hunt in their own districts, and requiring them to endorse on the licence the number of game hunted. All these measures were difficult to enforce in the absence of a Game Department. After Pitman's tour and complaints about the depredations of elephants, elephant control started

in 1935. Until 1940 when the Game Department was established, any game conservation that was done was left to the Elephant Control Officers. A game policy of this nature therefore accounts for the uncontrolled slaughter of game that took place in Bangweulu between 1911 and 1940. When game existed in large numbers as it did in Bangweulu there was belief that massive killing would make no difference.

Conclusion

Taking the period as a whole it is my conclusion that Namwala was much more economically depressed than Bangweulu because of ecological disadvantages which were more powerful and pronounced than they were in the latter case. The government discouraged African response to new markets in Namwala. Even though Bangweulu had slumps, it at least had some prosperous periods which was not the case in Namwala. The exploitation of natural resources in this period however, together with the ecological problems caused by the 1936 floods undermined the economy in such a manner that made economic recovery in subsequent years much more difficult. Colonial intentions succeeded in Bangweulu but failed in Namwala.

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CHAPTER IV

EFFECTS OF ENVIRONMENTAL CONTROL MEASURES, 1941-1964

In this period, owing to the fear of rising African nationalism and enlightened self-interest there was increase in the colonial government's interest in African development and welfare. This is reflected in the number of development plans and schemes carried out in the two areas and throughout the country. This change of policy was in line with the colonial outward-looking policy for Africa as a whole. In 1940 Britain passed the Colonial Development and Welfare Act to provide new stimulus for development and abandoned the provision of grants-in-aid previously given. The new measure it was hoped would increase production. After the Second World War there was increased concern for African welfare as a result of African participation in the war on the side of the Allied Nations. In the reconstruction process African people could not provide out of their own low incomes capital to break the vicious circle of poverty. Foreign private sources would not give the capital, so governments took the initiative. Thus immediately after the war development plans covering definite periods were drawn and put into

operation in all African dependencies. Emphasis was placed on schemes to promote the welfare of the colonial peoples themselves. In British territories, the Overseas Food Corporation was set up to operate the East African Groundnut Scheme in Tanganyika in 1946, in Nigeria corporations took over the coal and electricity industries in 1951, and a railways and ports authority set up. In French territories these corporations were concerned with mining, provision of electric power, and the marketing of a number of export commodities. By another Colonial Development and Welfare Act of 1945 the British parliament voted £120 million to be spent on development in the colonial territories and this was increased to £140 million in 1950.¹

The colonial government's interest in African development in Zambia expressed itself in the form of increased measures for environmental control carried out by the government departments. New departments were created and the operations of those already existing were expanded. Before explaining the schemes and programmes carried out in Bangweulu and Namwala, I will first of all explain the structure, aims, and policies of each of the government departments that

were concerned with the environment throughout the country. This background will help me relate development programmes undertaken in each region to the policy that each department had for the whole country.

Until 1940 the operations of the Department of Agriculture were somewhat limited and concentrated their efforts on European agriculture. The financial crisis created by the Depression in the early 1930s led to a reduction of staff. Out of an establishment of 23 in June, 1932, only five were left by December, 1933; comprising the director, a clerk, an entomologist and two agricultural officers at Abercorn and Fort Jameson. In 1936 a third agricultural officer was added to the staff and stationed at Pemba. The total provision for the department in 1937 was £7,204 and in 1938 £8,362.² This was the position at the beginning of the 1940-1964 period, but by 1960 this state of affairs changed very much. In 1940 two more agricultural stations were opened at Monze and Magoye, and by 1953 agricultural stations providing extension services had increased to 32 throughout the country.³ Although the government carried on with the late 1930s policies of soil conservation in the African maize-producing areas in Southern Province by contour ridges, soil preservation

in congested areas in the Eastern Province through a re-settlement programme, and control of chitemene in the Northern Province, many more new measures were undertaken to improve African agriculture. In 1946/47 the Improved African Farmer Scheme was started, and was re-organised as the African Improved Farming Scheme in 1949 operating in Southern and Central Provinces.⁴ In 1947 the Ten Year Development Plan was launched by the agricultural department and operated throughout the country through Area Teams. A Peasant Farming Programme was started in 1948 and in 1950 the Natural Resources Ordinance was passed and provided for the conservation of natural resources through the formation of Intensive Conservation Areas. This ordinance was followed by the regional planning scheme in 1954 designed to correct soil erosion, conserve water and protect the natural veld by paddocking and installing water supply for cattle, especially in the Southern Province.⁵ In 1956 the Intensive Rural Development Programme for Northern and Luapula Provinces was launched and a Working Party appointed in 1960 to look into rural economic development.

The policy of the agricultural department during this time was to encourage food production in areas

where Africans were living, to ensure efficient use of natural resources and their conservation, and lastly to see that the standard of living for all Africans dependent on agriculture was improved. To carry out these policies the department of agriculture was organized into three main sections: the headquarters which until 1948 was based at Mazabuka after which it moved to Lusaka was responsible for administration, a research and specialist services (dealing with land-use, planning, conservation and irrigation), and lastly the provincial and district advisory staff. To check on the operations of the department was the Board of African Agriculture which was formed in 1956.⁶

Until 1945 when the Forestry Department was created, there was a Forestry Service attached to the Department of Agriculture. Up to this time forestry work concentrated on two areas: the railway belt, especially timber exploitation on the Copperbelt, and the utilization of mukusi forests in the Livingstone-Sesheke area. In the rest of the country the department acted only in an advisory capacity. In 1941 the Forests Ordinance was passed, and brought into operation in October, 1942. The same year the Forest Licence Regulations were published to issue licences and collect

fees for forest produce. The headquarters of the department was at Ndola.⁷

The duties of the department were to preserve forest cover in the country's headwaters, preserve forests against shifting cultivation and control supply of timber to village communities and other users such as pit-sawyers, carpentry craftsmen, and artisans. It was also policy to protect individual trees, especially African mahogany. The department was also responsible for controlling fires in forest exploited areas. Forests were divided into Forest Reserves, Protected Forest areas, Communal Forests and Forest Estates. When funds permitted tree planting was carried out, and efforts were made to teach people the value of forests.⁸

These policies were executed by Forest Officers who in most cases had good technical and scientific knowledge. Forest Reserves were looked after by Foresters, and below them were Forest Rangers and Forest Guards who checked the activities of those people exploiting timber in Forest Reserves.

The Veterinary Department dealt with the health of all domesticated animals, especially cattle. Since 1928 the headquarters of the department has been at

Mazabuka. Until 1940 there were three main areas of operations: the veterinary officer at Choma controlled Livingstone, Kalomo, Namwala and Choma districts through stock inspectors posted at each of these places. The veterinary officer at Lusaka had stock inspectors at Lusaka, Mumbwa, Kabwe, Mkushi and Ndola districts. The veterinary officer at Mongu was in charge of operations in Barotseland. There were independent stock inspectors at Abercorn and Fort Jameson. The department operated under the Stock Diseases Ordinance of 1913.⁹

After 1940 the sphere of operations remained for the most part much as they were before this period. The policy of the government was to safeguard and foster the livestock industry, and second to reduce endemic diseases and control inbreeding. This was done by a system of stock inspection and registration, inoculation and dipping, and quarantine operations. Through the Cattle and Marketing and Control Board of 1937 cattle sales were streamlined.¹⁰

Most of the activities of the Veterinary Department were geared to the welfare of European-owned cattle, and to a lesser degree the improvement of cattle owned by Africans. In 1956 a Cattle Loan Scheme was started; cattle were imported and loaned

to people in Fort Jameson and Fort Rosebery areas. The same year the African Livestock Improvement Scheme was launched in the Southern Province and extended to other provinces in 1958. By this scheme improved bulls were supplied to African communities at cheap prices and bonuses given on the sale of slaughter stock in return for good husbandry.¹¹

The more determined effort to control the environment was the creation of the Game and Tsetse Control Department on January 1, 1940. The department embraced under its operations preservation of game and fish, and control of tsetse fly distribution.

The aims for forming the department were first of all to study and control wildlife found in the country in relation to human needs. **Second**, game was to be controlled and preserved. This implied selective hunting where necessary and enforcement of game laws with a view to balancing different interests such as sport, meat requirements and protection of property. In order to re-inform these aims a Game Ordinance was passed in 1941. The ordinance introduced Controlled Areas to act as buffer zones between game reserves and settled areas. It was stated that controlled areas were to conserve game in definite areas for the use of

inhabitants of the area in question who depended upon it for their meat supply.¹² Following upon this idea the following controlled areas were formed on the Kafue Flats: in 1947 the Central Research Station in Mazabuka, in 1950 the Luwato Lagoon to give protection to dwindling herds of lechwe in the area, the Blue Lagoon in 1951 and in 1952 Nkala. In Bangweulu, Kasanka and Lavushi Manda became controlled areas in 1946, and Isangano in 1957. In areas outside the game reserves and controlled areas game got what protection it could under the licensing laws. The 1955 Fauna Conservation Ordinance created First and Second Class areas to replace controlled areas. In the First Class Hunting areas hunting was limited by what each area could withstand. In the Second Class Hunting areas Africans were not allowed to hunt beyond the limitations of the licences permitted.¹³ The National Parks and Wildlife Act of 1958 created management areas in which wildlife conservation was paramount and replaced the First and Second Class areas. Further changes also occurred with the enactment of the Game Ordinance number 24 of 1962 which made the Ordinary Game Licence to operate on a provincial basis instead of having schedules which applied to the whole country. The number of animals killed was reduced from 47 to 17

and 24 according to the province. The Old African Game Licence was replaced by a Restricted Game Licence which now became available to all races, and the fee raised from 5/- to 7/6. A Supplementary Game Licence was introduced in which not more than 6 animals of different scheduled species could be killed.¹⁴

To carry out the work of the department there was the administration with headquarters at Chilanga, and Game Wardens for each of the major game reserves and game parks assisted by Game Rangers, Biologists, Game Scouts, Game Guards and Vermin Hunters.

Efforts to control tsetse fly implied control of game as the normal carrier and food-supply of the local species of tsetse fly. Control of vegetation forming habitat for tsetse and prevention of the spread of tsetse by traffic were the other major concerns of the Tsetse Control Division's work. This often meant Game extermination and fencing off economically desirable agricultural and pastoral blocks of land to control stock and game movements, and therefore control trypanosomiasis and sleeping sickness. Work concentrated on areas where sleeping sickness was endemic: the Eastern Province, Feira and the Broken Hill-Mulungushi area, and in the Kafue and Kalomo areas where trypanosomiasis was common.¹⁵

In the 1945-1950 period the Colonial Development and Welfare Fund Scheme to control tsetse was launched on the north bank of the Kafue river in Namwala and in the Eastern Province in the Plateau area. When the scheme ended a three-year Tsetse Field Survey Scheme started and was financed from the Colonial Department and Welfare Research Vote to determine the extent of tsetse infestation in the country.¹⁶

In 1956 the Tsetse Control (Amendment) Ordinance no. 11 brought the original 1941 ordinance up to date providing for the issue of regulations governing the control of traffic through pickets. The same year the Tsetse Control Picket Regulations were published. In order to control carried fly, especially on the Kafue Flats, the Tsetse Control Ordinance was amended in 1959 to provide for the control of human activity not only in fly belts, but also in areas free from resident fly but subject to temporary infestation with carried fly. The main aim was to canalize travellers and traffic along specified routes where they did not endanger livestock by carrying fly to them, and ensure disinfection by tsetse control staff.¹⁷

Work of the department was carried out by entomologists and tsetse control supervisors, scouts and guards manning road and footpath pickets in the areas of operations.

The Game and Tsetse Control Department also included a fisheries section responsible for the protection and management of fisheries, and marketing of fish. Following upon the recommendations of the 1943 fisheries report measures were made for fisheries conservation: minimum mesh for nets, protection of immature fish and a simple licensing system. Fish Control Regulations were made by the Government Notice no. 77 of 1943 for Luwingu, Fort Rosebery and Kawambwa, and were administered by District Commissioners.¹⁸

Control of fisheries implied, first, conservation of fish which meant re-enforcement of restrictions to increase supply of fish in the long run. Second, reserving fishing exclusively for Africans, and third price control which was introduced to encourage fair distribution of fish between town and rural consumers.¹⁹

In 1945 the licensing and conservation system was extended to the eastern part of Bangweulu and swamps, and to the lower Kafue Fishery, and in 1946 to Mporokoso and Abercorn districts and Lukanga swamp fisheries.

In 1948 the Colonial Development and Welfare Scheme was extended to a fishing scheme which provided for two experimental fish farms at Chilanga and another

at Fort Rosebery. In 1950 a grant from the Colonial Development and Welfare Research Fund was used to set up a Joint Northern Rhodesia and Nyasaland Fisheries Research Organisation at Fort Rosebery, although the organisation's main laboratory and staff housing were sited at Samfya. The Research Organisation was to study the natural history of fish, fish populations and the productive capacity of the fisheries; to improve fishing methods and open up unexploited fishing areas.²⁰ In 1951 a Fisheries Advisory Committee was appointed to investigate and make recommendations on the fisheries of the territory with special reference to the methods of fishing, processing, marketing and distribution of fish as well as conservation and research. Following the recommendations of the committee a Fisheries Development Board was established in 1953. Conservation and Control Regulations were issued in 1956 under the provisions of the 1955 Fish Conservation Ordinance. The Fisheries Regulations of Government notice no. 69 of 1956 reduced fisheries where conservation and licensing were imposed from 15 to 6, and Native Authorities could now impose their own rate of fees for people in their own area.²¹

In 1956 when the Colonial Development and Welfare Scheme under which the Research Organisation was established

ended, it was replaced by two schemes applying independently to Northern Rhodesia and Nyasaland. The same year the Fisheries Development Ordinance which brought the Fisheries Board into being was repealed and the Board ceased to exist. The action was taken to encourage private enterprise. To lead private enterprise fisheries sub-committees were formed and attached to Area and Provincial Teams.²²

Policy of the department was carried out by Fisheries Officers, Fish Rangers and Fish Guards and Kapasus stationed in various fisheries.

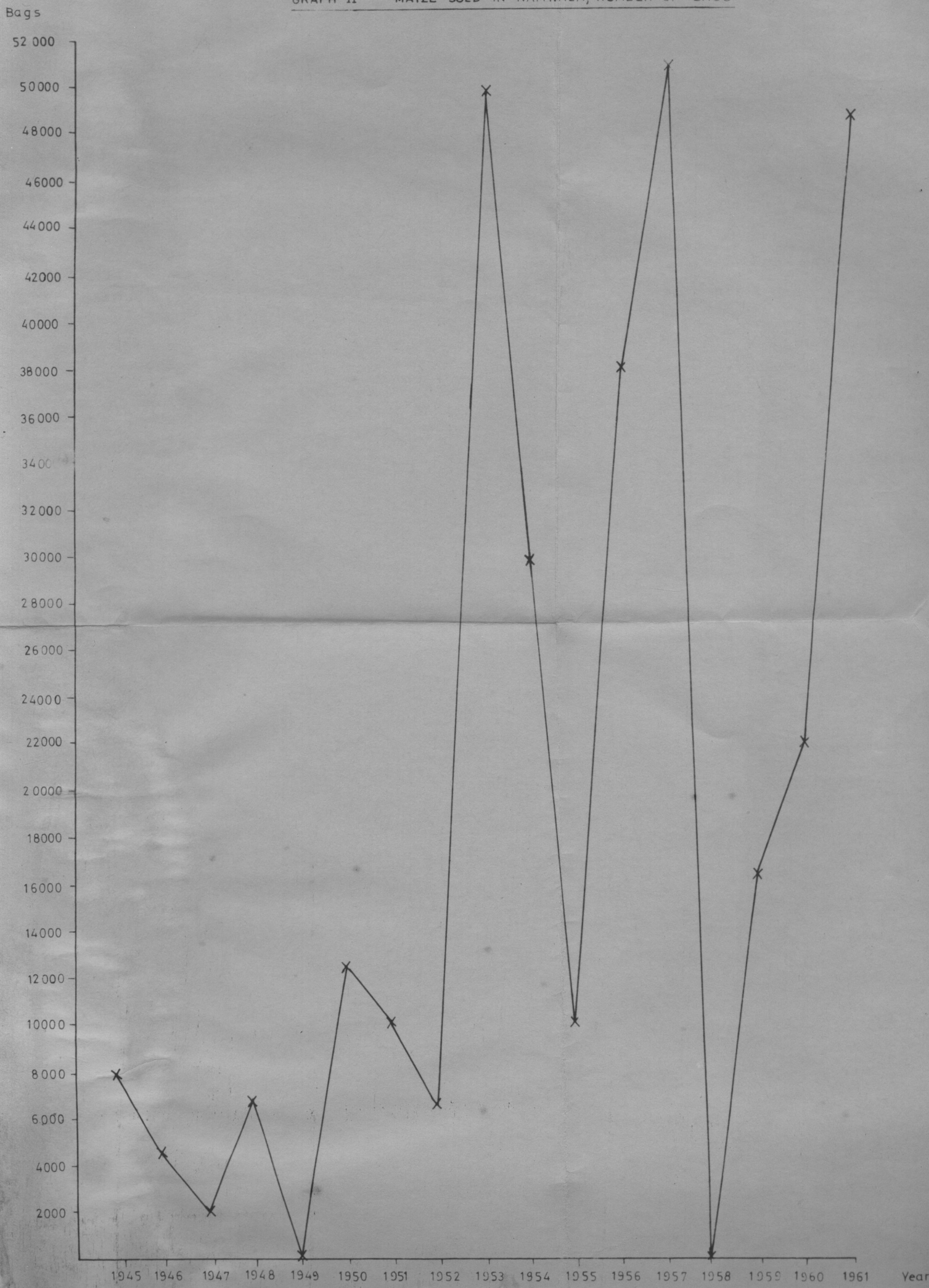
Until 1947 the Water Affairs section was part of the Public Works Department. In 1947 the Water Development and Irrigation Department was formed. The activities of the department were centered on well sinking, and dam construction to provide water supplies for domestic stock in African rural areas.²³ In October, 1949 a New Water Ordinance was enacted to enhance collection of hydrological data, and in 1950 the Water Board was formed.²⁴ It is under these new changes that efforts were made to control water in Bangweulu and on the Kafue Flats.

In 1959 there was a re-organisation of departments owing to the introduction of the Ministerial system. A Ministry of African Agriculture was formed and

embraced the Department of Co-operatives and African Marketing. European Agriculture remained the responsibility of the Federal Government.²⁵ The Department of Veterinary Services took over from the Game Department the Tsetse Control division, and the responsibility of African animal husbandry was transferred to the Ministry of African Agriculture. European animal husbandry was controlled by the Federal Government since 1956. The newly created Department of Veterinary and Tsetse Control Services moved from Mazabuka where it had been headquartered since 1933 to Lusaka where it became part of the Ministry of Land and Natural Resources.²⁶ The Water Affairs Department also fell under the Ministry of Land and Natural Resources.²⁷ The new Game and Fisheries Department was put under the Ministry of Native Affairs although the headquarters of the department remained at Chilanga.

It was therefore clear that the colonial government in keeping with the mood of the early 1940s by colonial rulers throughout Africa was making a much more determined effort to solve ecological problems that were existing. Some of these programmes however were not implemented in the two areas under study, but those that were carried out will be examined as economic development is studied in each area. What should be

GRAPH II MAIZE SOLD IN NAMWALA, NUMBER OF BAGS



borne in mind is that the colonial government very often embarked on schemes to protect government interest or for the welfare of European agriculture. The control of the environment was also in such a way that it did not conflict with the overall colonial strategy for African communities in Zambia.

In this chapter I will look at the development efforts in both regions. In Namwala these concentrated on the control of tsetse fly and the improving of maize production. In Bangweulu there were measures to improve communications and to control floods. A lot of attention was paid to the ecological constraints in agriculture in both areas.

A. Namwala: Economic Response to Development Measures

My discussions in this section will centre on improvements in agricultural production and cattle population in the face of ecological problems. I will also point out the reasons for the drastic reduction in game, the changes in fishing and the position of labour.

1. Agricultural Development in Namwala

a. Increase in maize production and sales

Agricultural development in Namwala was at first a response to the boom at the Copperbelt

mines after the Second World War which created a large food market, and to the rise in the maize prices rather than to a conscious development policy. In fact before 1950 the government deliberately held down the amount of crops grown in Namwala. It was felt undesirable to encourage maize production for sale until local conditions were studied, proper conservation measures worked out and applied. The agricultural department felt that ~~this~~ was necessary because of frequent crop failures and the inherent dangers of increased maize production on the sandy soils in most parts of the district. Ignoring these facts, the District Commissioner thought, would in future create problems for the agricultural department.²⁸ To carry out this policy prices were kept low; but the small maize price increases and the increased market increased maize sales. In 1946 the price of maize increased from 5/- to 7/-; in 1947 it rose to 11/6, and in 1950 to 21/3 at Mbeza and 18/- in the rest of the district.²⁹ Although maize sold did not show an immediate upward trend maize sold over time increased (see graph I). The increased desire to sell maize led to marketing problems and maize often remained unsold in areas outside the Maize

Control Board. In 1950 in order to solve the problem an agent was appointed to cover most of the district (except Mbeza in the Maize Control Area) to buy and transport Maize on behalf of the Namwala Native Authority. As a result of this action 5,000 bags of maize was bought in chiefs Mungaila and Muchila, other parts of the district were not touched because it was felt that the surplus should be retained for local consumption and as a reserve against crop failure. To ease organisational problems the Namwala Native Authority the same year decided to buy and market the maize in Namwala district to the Maize Control Board.³⁰

Towards the end of the year it was felt that direct Native Authority involvement in marketing was not in accordance with government policy. Discussions were therefore held to form Co-operative Producer Societies for agricultural produce. These discussions gave birth to the Namwala Co-operative Marketing Union in 1951. The Union's first office and store were at Kabulamwanda. In 1952 the Union had a manager, 4 societies and 70 people as members.³¹ Response to the Union grew so that by 1962 it had 17 primary societies and buying depots in most parts of the district. Provision of these marketing facilities stimulated maize production further, reaching record

sales of 50,000 and 51,000 in 1953 and 1957.³² It is however to be noted that until 1962 when Maclean conducted an agricultural survey in Namwala no measures were taken to study the agricultural potential of the area as was planned earlier on. Increased maize sales were only a spontaneous response to increased maize prices and markets. The creation of the Namwala Co-operative and Marketing Union was only a response to marketing problems caused by increased maize sales. If one looks for agricultural policy or schemes in Namwala during this period one finds none. Only in Mbeza and to a small extent in Muchila was there any agricultural extension work. Mbeza with fertile upper valley loamy soils, and a concentration of progressive Ndebele and Tonga farmers, and with the beneficial effects of the Maize Control Board produced two thirds of the total number of bags of maize sold in Namwala.³³ In the rest of the district agriculture was still poor and susceptible to ecological constraints.

b. Agriculture and ecological bottlenecks

i. Climate variations

In most of Namwala district climatic variations continued to result in poor crops. There was either too little rain or too much water from floods almost

continuously from 1945 to 1955. There were food shortages and famine conditions owing to poor rainfall in the western part of Namwala in the chieftaincies of Shezongo, Kaingu, Chiliabufu, Shaloba and Shimbizhi in the years 1946/47, 1948/49, and 1950/51. In most years floods destroyed crops in Muwezwa's and Shikafwe's areas, but were especially serious in the years 1951/52 and in 1954 and 1955.³⁴

Unfavourable climatic conditions apart from inhibiting agricultural progress in most years in western Namwala often lowered the amount of maize produced and sold in the maize producing areas in the east. In 1953, for example, favourable climate resulted in a record production of 50,000 bags of maize and a record maize sale of 27,000 bags. After that year maize sold in the years 1954 and 1955 was low, 29,000 and 10,000 respectively because of poor rainfall.³⁵ After record sales of 51,000 in 1957 not a single bag of maize was sold in 1958 because of heavy rains and maize had to be imported into the district.³⁶ Namwala people therefore were often frustrated by climatic irregularities in their response to new market opportunities and until 1964 no method had been devised to reduce its effect.

ii. Game depredations

Agriculture was greatly hindered in the chieftaincies of Kaingu, Chiliabufu, Shimbizhi, Shaloba and Musungwa because of game depredations. Ravages by various species of animals prevented satisfactory crop yields in most years in these areas. In Shaloba's and Musungwa's areas, the two chieftaincies near the Kafue National Park, there was a build up of game, especially the elephant, bushbuck, buffalo and wildpig, whose activities led to poor harvests. At Basanga, in Musungwa's area, for example, the activities of the zebra were so bad that the animal had to be moved into the National Park in 1958.³⁷ Agricultural development in these areas has also lagged behind because of tsetse fly infestation which made it difficult for the people to adapt to plough cultivation on a large scale using oxen.

iii. Terrain of the country

Most of the western parts of Namwala have sandy and infertile soils, and as there was nothing done to improve the situation crop yields here continued to be poor. The sandy nature of the soil also made travel difficult and therefore crops could not be easily transported to the markets. The floods also made travel

across the Flats difficult and cut off the North Bank from the rest of the district as the only road to the north was covered with water for a considerable part of the year.

2. Namwala: Cattle economy and disease control measures

a. Declining cattle sales

Namwala still had a lot of cattle despite decline in numbers which started in the 1920s and continued until late 1940s. We have also seen how in the period up to 1940 cattle sales in Namwala were greatly affected by disease, cattle sales being low because of the presence of one type of disease or another. In this period even less cattle were sold. Between 1940 and 1950 an average of 2,000 cattle were sold every year, representing only 3.8 per cent of the total cattle population.³⁸ Between 1951 and 1961 Maclean worked out the total cattle take off to be 6.2 per cent and of this only 3.5 per cent for sale. The number dropped to 3 per cent between 1963 and 1969.³⁹ The main reason for such low cattle sales is that people were accumulating cattle. While people were still building up their herds by buying cattle with lechwe skins from Barotseland, the 1913 cattle cordon was brought into

force. Shortly after that cattle started to decline because of trypanosomiasis and other diseases, and the disease situation in this period had not changed much. Although Fielder highlighted the socio-economic commitment to cattle, Ila unwillingness to sell cattle so that they can increase, and lack of outlets for cash as the main reasons for low cattle sales, he however did not give enough attention to disease among Namwala cattle as an important variable in cattle sales. This is rather interesting because he found that cattle distribution among the Ila was uneven but did not give the reason why. He said that an Ila man needed about 30 to 40 cattle to be self-sufficient and safe from loss. It was only after this ideal herd was reached that a man could sell cattle regularly: before that he only sold in emergencies. Only about 5 to 10 per cent of the adult Ila had reached this ideal herd and these only sold about 2 animals per herd of 40. 90 to 95 per cent had not reached this ideal herd. Besides among those who owned cattle only a few had large herds, some individuals owning up to 1000 and others between 200 and 300. The majority owned less: the average was 6 to 8 cattle per person. Even in Maala and Baambwe, the two areas with the largest cattle concentration in

Namwala, the average herd in 1969 was 24.⁴⁰ Uneven distribution of cattle was due to the prevalence of trypanosomiasis and other diseases in some parts of the district.

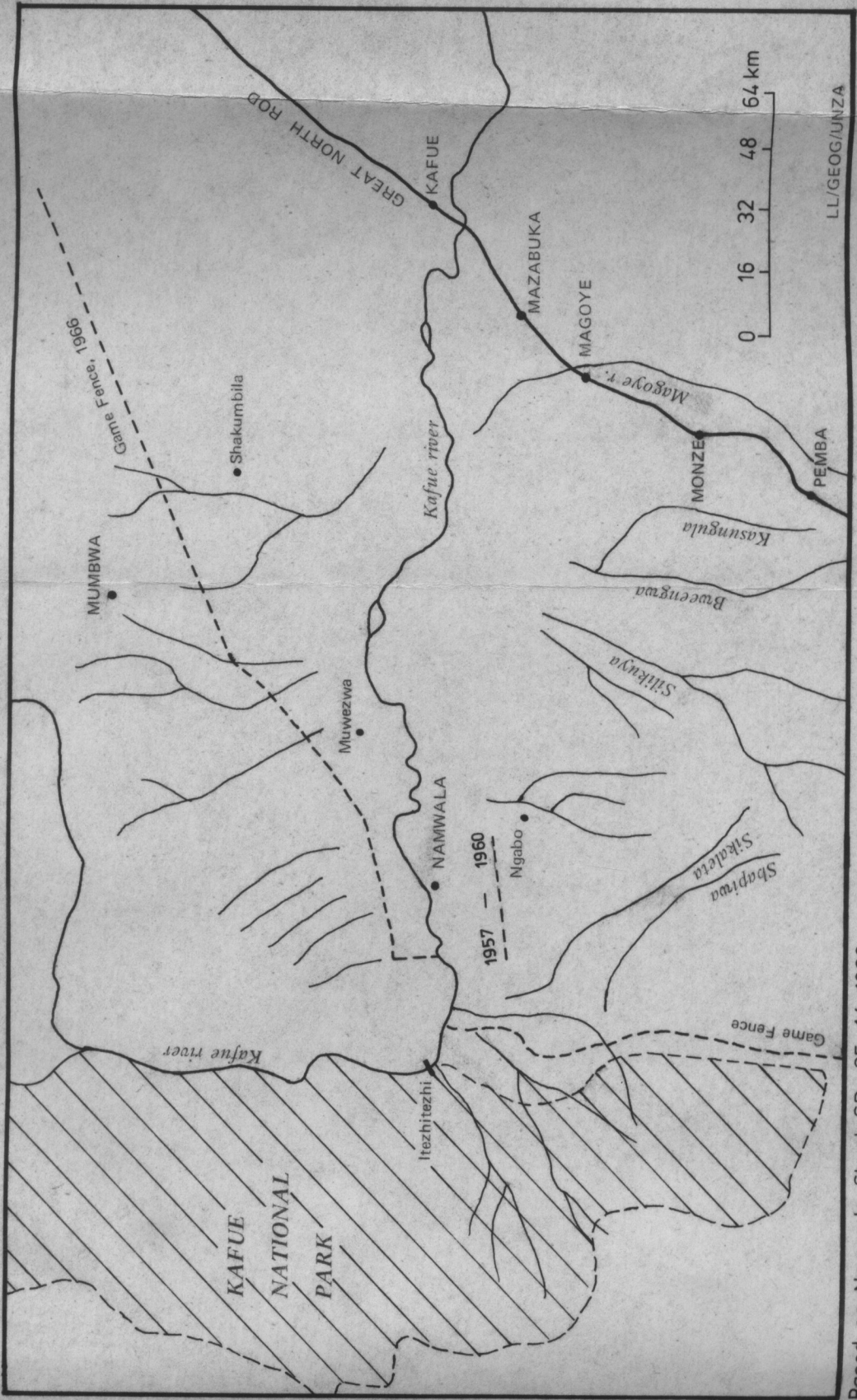
Although the small herd sizes also account for low cattle sales, the more important fact is that these herds did not increase and in fact in many cases declined. There was a steady increase of cattle from 52,000 in 1940 to 70,000 in 1952, but increase between 1953 and 1963 fluctuated (see graph II) owing to the disease situation, while there were 71,000 cattle in 1953 by 1964 cattle had only increased to 71,500. It was only after 1964 that cattle increased rather dramatically and continued to increase in an upward trend. The unusually high cattle increase between 1964 and 1965 was due to the availability of more pasture land which probably led to a sudden influx of cattle from surrounding chieftaincies, such as Shakumbila in Mumbwa. More pasture land was created by the completion of the second game fence 4 km north of the existing one in 1961 on the North Bank. On the South Bank the 1957 fence was extended from Iyanda to Itezhitezhi to the north boundary of chief Shezongo's area in 1960.⁴¹ This too encouraged cattle previously

kept with people outside the Flats in tsetse fly free areas to be brought into Namwala district. These measures and the fact that disease control measures were becoming effective just at that time account for the rapid increase of cattle after 1964. But before 1964 the low cattle increase was due to the low calf survival rate. The Ila during this time expected a cow to produce a calf which survived once in two years. The number of surviving calves before 1964 was worked out to be between 15 and 17 per cent out of the total cattle population. It only rose to 30 per cent between 1964 and 1970.⁴² The main reason for such a low calf survival rate was due to the endemic diseases and to a certain extent poor livestock keeping habits. In addition to the consideration of diseases in selling cattle, cattle sales were also low between 1950 and 1964 because of increased maize sales. People with few cattle preferred to keep their cattle in order to allow them to increase, and to meet their target income by selling their crops.⁴³

b. The tsetse fly position

Tsetse fly still covered most of Namwala district as in the 1920s. The following chieftaincies were still tsetse fly-infested: Kaingu, Musungwa, Shezongo,

MAP X GAME FENCES AND DRAINAGE IN NAMWALA



Based on Namwala Sheet SD - 35 - 14, 1966

Shimbizhi, Chiliabufu, and Shaloba. Areas which were once habitable for both man and cattle were still uninhabitable, leaving only small areas near the Flats and in the east for cattle keeping. Until 1943 trypanosomiasis still accounted for 4,000 cattle deaths every year.⁴⁴

In order to combat tsetse fly distribution a number of measures were taken. First a survey was conducted in 1943 by the Game and Tsetse Control Department to determine the extent of the problem and measures to correct the situation suggested. The survey proposed reclamation of 480 square km of land from tsetse or danger of tsetse. As a result of the survey's findings the Northern Rhodesia government launched the Colonial Development and Welfare Fund: Tsetse Control-Kafue (North) Cattle Areas scheme in 1945 which was carried out until 1950. The scheme was launched to correct the progressive wastage of African-owned cattle due to trypanosomiasis on the Flats bordering the Kafue river on the north bank in the Namwala and Mumbwa district.⁴⁵ Until 1950 measures to control tsetse fly on the north bank of the Kafue river in Namwala district were carried out using funds provided by this scheme. After 1950 tsetse control activities in Namwala were conducted using funds provided for by the Northern

Rhodesia Development Account.⁴⁶ Second, a fence bordered by a 1000 metre-wide bush clearing on the North Bank from Busanga west of Namwala to the Mumbwa-Namwala district boundary was constructed and completed in 1947. The fence was also to prevent game from going to the Flats and cattle going into the bush areas.⁴⁷ Third, resettlement by moving Musulwe's, Chiliabufu's and Shimbizhi's people inside the fence was carried out in 1951. In 1954 a Tsetse Control supervisor was posted to Namwala, and a survey was therefore conducted on the south bank of the Kafue river to determine the extent of tsetse infestation. It was decided that a barrier be created in chief Shalob_a's area to isolate the floodtime grazing area from the surrounding tsetse fly bush.⁴⁸ Fourth, this led to the construction of a fence on the South Bank from Iyanda through Nakalongwe to the boundary of chief Musungwa and Shezongo, and in 1960 extended south to the Kafue National Park boundary.⁴⁹ Fifth, a campaign against animals, especially the buffalo believed to be a tsetse fly carrier, started in 1943, and by 1956 2,824 animals had been killed.⁵⁰ In the fence built on the north bank a 22 km gap was left without wire near the Nansenga river for a game drive

which was held in 1950 to evacuate game from inside the fence without having to resort to wholesale slaughter. This region was the route of the main annual migration of game from the north down to the Kafue Flats. It was felt that if the gap was closed before this trek large numbers of animals would be excluded from the fence area and would not be destroyed. When the game drive was carried out all game remaining inside the fence was destroyed. Annual migratory movement and all further influx of game was prevented on the fence line. Plains game was left alone until it moved up into the woodland when it was harried until it moved back on to the plains. Most of the animals moving southwards in herds of 300 to 400 on reaching the fence line moved along it for a while before they turned back north without attempting to break the wire.⁵¹ In 1960 the Kafue Basin Tsetse Control Scheme was introduced under the Tsetse Control Ordinance of 1959. Pickets were placed at strategic points on access routes to the Kafue Flats, and fish traders who had been recognised as the main carriers of tsetse fly were now required to pass through these pickets on their way to and from fishing areas. In 1960 400 fish traders were registered. These fish traders were required to carry a pass book in which their movements in and out of the controlled area were recorded.⁵²

As a result of these measures there was an increase in cattle in some localities. In 1947 there were only 9,000 cattle on the north bank but by 1954 the number rose to over 14,000. In the whole district in 1953 there was an increase of about 20,000 cattle since the measures to control tsetse fly were started in 1947.⁵³ The completion of the fence also enabled people on the north bank who previously used to keep their cattle on the south bank to now avoid tsetse fly in the reclaimed areas on the north bank inside the fence. These efforts notwithstanding the trypanosomiasis problem was still intractable because of the movement of game to and from the Flats. Every year when floods covered the Flats cattle were forced to move to the tsetse fly infested woodland where they met tsetse fly and contracted trypanosomiasis. Game also moved down to the Flats during the dry season to take advantage of the grass and water. This movement was enhanced during the years of drought. Secondly trypanosomiasis was difficult to control because of mechanical transmission. In 1941 for example in Muwezwa's country when there was no encroachment of tsetse fly cattle deaths were high.⁵⁴ A number of people suffered deaths of between 10 and 30 cattle per herd and the same situation prevailed in 1950. Thirdly there was the problem of carried tsetse fly. In the 1950s the problem was aggravated by the large scale development of the fishing industry. Large numbers of

fish traders who moved in and out of tsetse fly areas carried tsetse over long distances.⁵⁵ This necessitated the checking of fish traders at convenient points in tsetse fly infested areas. Inoculation against trypanosomiasis continued, and as late as 1959 the situation was described as follows: 'The control of bovine trypanosomiasis continues to be the major occupation of the Veterinary staff in the district. The position is particularly serious on the North Bank where approximately one beast in every three had to be treated during 1959'.⁵⁶ In Shimbizhi's area cattle were largely kept alive by inoculation. On the South Bank it was impossible to keep cattle in Muchila's area because of tsetse fly, though it was potentially a cattle rich area.

Table I: INOCULATIONS AGAINST TRYPANOSOMIASIS IN NAMWALA DISTRICT

<u>Year</u>	<u>Number of Cattle inoculated</u>
1951	5,300
1952	6,700
1953	12,100
1959	11,727

Other diseases were still prevalent and inoculation had to be constantly carried out against them. Foot and mouth was endemic and broke out in virulent form in 1954 and 1960.⁵⁷

Anthrax continued to break out from time to time, and in the 1960/61 year 26,00 cattle had to be inoculated against anthrax.⁵⁸ Liverfluke, heartwater, red-water, mange, tuberculosis, worm infestation and contagious abortion were still common. Disease control measures were at first difficult to carry out because people refused to have their cattle inoculated as some cattle died on being injected. In 1958 a headman at Mbeza wrote a letter to the Livestock Officer at Namwala saying that, 'Our cattle die every time, and we have very less milk due to the fact that calves die. All these troubles are caused by your injection to our cattle. While at first before you have come to inoculate our cattle, we had a lot of cattle in our area. But from the time you brought your injection, our cattle are decreasing, a great number die in a year'.⁵⁹ Refusal to have cattle inoculated was reinforced by Mungoni Liso's persuading the people to reject inoculation because it killed cattle, which he did in order to prove further how bad the colonial government was to the Africans. However within 6 months there were heavy losses of cattle in chief Nalubamba's area. A total of 4,203 cattle were lost, and of these over 1,000 were lost in the Mandondo area by 11 owners. This forced headman Mandondo to ask the District Commissioner to have cattle in his area inoculated.

3,890 cattle were immediately inoculated and cattle stopped dying. By April of 1958 Mbeza people also asked for help.⁶⁰ The overall effect of such a disease situation is that cattle increase was held back until after 1964 when the control measures started to take effect. Cattle sales were as a result also low, although with increasing maize sales the prosperity of the district was not affected.

At this stage one can relate Ila cattle wealth to the human population of Namwala. The population of the Ila between 1917 and 1945 was static, averaging at 22,000 for the whole period.⁶¹ The reason for this is that the birthrate was dropping since the First World War because of widespread venereal diseases among the Ila. In order to combat the disease a campaign against venereal diseases was started in 1946 and was stopped in 1959 after positive results had been achieved.⁶² The result of this campaign is that by 1963 the population in Namwala had increased to 32,000.⁶³ Because of the low population growth Namwala had vast tracts of uninhabited land, especially on the Kafue Flats. Population tended to be concentrated in large fixed settlements of between 1,000 and 2,000 people on the margins of the Flats. A small human population owning a large cattle population makes the Ila to be the wealthiest cattle owners in Zambia; resulting in 1968 in an adult male-cattle ration of 1.15, and in some communities reaching 1.23.⁶⁴ It is for this reason that

the Ila were able to meet the financial obligations imposed on them by the colonial government with ease.

3. Decline of game

At the beginning of the 1940-1964 period game was still abundant on the Kafue Flats. The following animals were still numerous between Mazabuka and Namwala, forming continuous herds: on the Flats were buffalo, eland, roan, wildebeeste, zebra, hartebeeste, lechwe, puku, eland and buffalo. In 1952 the position had changed little.

Bainbridge reported that, 'Although I saw nothing of the great herds described by Vaughan on this visit, I did see something of the spectacle. It was not possible to stand on the edges of the great plains, half-a-dozen miles from the Boma without seeing herds of buffalo, zebra and wildebeeste, while all around were reedbuck, oribi, and other species. These herds formed an unbroken line along the Flats between Namwala and what is now the Kafue National Park...'⁶⁵

During the 1950s however edible species such as wildebeeste, lechwe, eland, kudu, roan and buffalo were showing signs of decrease.⁶⁶ A lot of animals, especially the buffalo believed to be a tsetse fly carrier, were also killed in an effort to control distribution of tsetse fly. The greatest concentration of game was along the Western

boundary of Lochinvar and on the opposite side on the north bank of the Kafue river. Apart from lechwe only zebra still occurred in large herds because its meat was disliked on account of bad taste. Hippopotamus was still numerous in the river because of its protection, and on the Flats in scattered groups could still be found the lion and leopard.

Decline was however much more pronounced for lechwe. Estimated at 250,000 by Pitman in 1932 the numbers by 1955 had dropped to 25,000.⁶⁷ Although lechwe increased for a while since 1955 to number 54,000 in 1961 because of conservation measures the numbers dropped again to 37,000 in 1966.⁶⁸ Lechwe range therefore shrank. In 1957 Mitchell and Uys summarized the position of lechwe on the Kafue Flats as follows, 'On the South Bank the range has been reduced from approximately 80 miles to about 30 miles and lechwe have ceased to exist on the Mulele Plain west of Namwala, the Kabulamwanda and the Magoye, three large stream confluences which provide what we believe to be the correct habitat and which ... are known to have carried heavy lechwe population in the past. The main streams which are the core of the surviving lechwe herds are the Bwengwa just west of Lochinvar Ranch and the Kaleya on the Veterinary Research Station; and the best of these is the Bwengwa outlet'.⁶⁹ Lechwe east of Mazabuka, at Ibamba Ranch, Kansenga mission, both banks of the Kafue from the north-east of Lochinvar to the Mazabuka

Research Station, the lower Luwato and east of Mwembeshi had disappeared.

Patrols to check unlawful hunting and trading of meat were intensified by 1960, but it was difficult to prevent poaching in the district because of lack of support from the public. Illicit hunting was encouraged by the presence of fish traders and other people who bought game meat.⁷⁰ The District Commissioner therefore in 1954 wrote that, 'There is a strong reason to believe that game meat is smuggled to urban areas mixed with fish. The uncontrolled commercialisation of game meat, in particular that of the red Lechwe, is one of the most potent threats to the continued existence of game, and means of control will have to be found'.⁷¹ The other problem faced in controlling poachers from town is that the district lent itself to overland travel whenever there was need to avoid the road. Control was made all the more difficult because of shortage of staff.

The main reason for the reduction of lechwe was the increasing destructiveness of chilas. At first chilas were only for people living near the Flats but from the 1940s people living as far away as Menze and Mwanza started to join. With improved communication and growth of small towns near the area people participated in chilas not only to get meat for their food but also for sale. By this

time too guns in the area had increased and were increasingly used in chilas with great destructiveness.⁷² The destructiveness of the chilas in the 1950s is illustrated by the killing of lechwe that occurred during controlled chilas that were held in 1956 and 1957 in chiefs Mwanachingwala, Chongo, Siamusonde and Mungaila. In the 1956 chila 2,500 animals were killed and more than 8,000 lechwe involved. This represented 31 per cent of the game stocks. The damage was increased by the fact that 718 of the animals killed had foetus, a lot of pregnant females were harried to exhaustion.⁷³ In the 1957 hunts 1993 animals were reported killed, a 20 per cent cropping.⁷⁴ A lot of people took part, 1,200 in 1956 and 2,151 in 1957.

Because of the commercialization of game meat there was an increased kill rate of most of the edible species, especially the lechwe and wildebeeste, and there was therefore a rapid decrease of the wildlife population. Looking at Table IV showing game estimates on Lochinvar, it is apparent that from the late 1930s onwards animals were concentrating on Lochinvar, a cattle ranch where they found refuge as hunting pressure increased on the eastern and western parts of the Kafue Flats. Increased hunting also showed itself in the gradual decrease of game found on Lochinvar. In most areas between Namwala and the Kafue National Park where in 1952 there were

a lot of animals in 1966 one could fly over the same area and not see a living thing except herds of cattle.⁷⁵

Although game was still important in the overall economy in the 1940-1964 period, the period after 1950 saw increasing government concern to preserve game and an outlawing altogether in 1958 of traditional chilas which by this time had become free-for-all events. It is against this background that fishing was increasingly becoming important after the mid-1950s.

Table II: LECHWE ESTIMATES ON THE KAFUE FLATS

<u>Year</u>	<u>Numbers</u>	<u>Source</u>
1932	250,000 (150,000)	Pitman
1954	25,000	Ansell
1961	54,000	Robinette and Child
1966	37,458	Game Department
1970	90,000	Game Department
1975	94,000	Game Department

Table III: ESTIMATES OF ANIMALS AT LOCHINVAR⁷⁶

Species	1937	1962	1966	1971
	(Robinette)	(Game.Dept.)	(Game Dept.)	(Grimsde and Bell
Lechwe	20,000	17,000	7,000-8,000	53,000
Zebra	5,000	2,000	842	1,500
Wildebeeste	3,000	800	365	800
Roan Antelope	300	40	-	-
Sable Antelope	200	-	-	-
Buffalo	200	-	-	9
Eland	250	150	120	120
Kudu	300	100	90-100	100
Reedbuck	Common	10	15	30
Oribi	Common	100	30	200
Bushbuck	-	4	40	-
Impala	-	20	35	35

4. Position of fishing

Although fishing was gradually becoming important in this period it was not as highly developed as in Bangweulu because game was still an important source of protein. Fishing was also not commercialized to the degree that it was in Bangweulu because people in Namwala could obtain money by selling cattle and maize.

For this reason fishing for most of the people in Namwala was still for subsistence purposes. However fish exports were increasing since 1950 with the increasing participation of people from Barotseland, Luapula, Malawi, and Tanzania in fishing.⁷⁷ There was a rapid increase in fish production from 1954 to 1958 because of greater intensity in fishing. The average yield expected from the fishery was between 7,000 and 8,000 short tons, while exports in the 1950-1967 period averaged 2,500 short tons.⁷⁸ Data collected covered the area between Itezhitezhi and Kafue Gorge.

Table IV: FISH PRODUCTION IN SHORT TONS OF THE KAFUE RIVER FISHERY⁷

1954	1,700
1955	3,026
1956	3,260
1957	8,303
1958	11,300
1959	4,900
1960	2,705
1961	4,337
1962	6,218
1963	7,490

The Kafue Fishery was third in importance after Bangweulu and Mweru in the whole country. It was the most

accessible, most productive and most easily exploitable fishery in Zambia. Fisheries surveys were conducted since 1953, and intensified from 1957, and were designed to get production statistics. The fishery has 67 species of fish, and of these 21 are important commercially.⁸⁰

Breeding takes place just before and immediately after flooding, the Nampongwe area with its shallow water covering 32 square km provides the best spawning ground. During flood time the fish are spread over a large area and are less vulnerable to predation by other fish and man.

The critical period for survival is at low water during the dry season when the fish are concentrated in the river and subjected to intensive fishing by man and natural predators.⁸¹

A number of conservation measures were undertaken to safeguard the well-being of the fishery. In 1945 the licensing and conservation system already in operation in Luwingu, Fort Rosebery and Kawambwa districts since 1943 was extended to the Kafue Fishery.⁸² In May, 1957 a Fish Ranger was posted to the fishery. In 1959 there was a fall off in fish caught and sold because of over-fishing the previous year when the water level was low and fishermen made draw nets by joining together a number of gill nets. The Fish Conservation Ordinance was

therefore amended to deal with the new problems. One amendment established the West Kafue Fishery Area to enable fishing regulations to be applied to the stretch of the river above Itezhitezhi which was increasingly fished since reduction in fish yields started in the downstream sections of the river. The practice of towing nets through the water between boats, a method which was increasingly being used with damaging effects on the fish stocks, was prohibited. Control of fishing in the fishery and licensing by the Native Authority was revised to enable chiefs to exercise more control over the large number of fishermen living in the fishing camps but owing no allegiance to the chiefs in the area.⁸³ In 1961 the fishery was divided up into regions and the nets in each region were enumerated by a Fish Guard each month.⁸⁴ In 1963 a Research Officer was appointed for the Kafue Fishery and the Kafue Research Unit was established.

The fishery however suffered from a number of problems. The fishery did not have well-defined distribution centres: the fish trade was carried out from many widely scattered camps over 300 km stretch of river, most of them impermanent, and was not canalized anywhere. The majority of the traders came from the

Copperbelt which was the main market for fish from the district. One route used was from the north bank areas, via Mumbwa; the other was on the south bank from the fishing areas near Kantengwa, Maala, Namwala and other centres further west with Lusaka and other towns in the Southern Province as the main markets.⁸⁵ Control of the trade was made difficult by the fact that the fishery lay in several chiefs' areas, crown and alienated land, and four districts in two provinces.

5. Labour Migration

With increasing maize sales and the traditional cattle sales as cash earners Ila response to labour work continued to be low, rarely more than 30 per cent of the total male population. Fielder however observed that during this period wage labour was increasingly becoming a substitute for the traditional means of expanding capital investment which were no longer open. It was also a substitute for herding which in the past enabled many young Ila men to build up their own herd of cattle through gifts of cattle given while herding cattle for their kinsmen. In the 1950s many young Ila folk started off by initiating their herds through cash earned in wage labour. The period of time that a man spent away depended on the access he had to links which enabled him to manipulate his capital to increase his cattle.

The greater the access (through birth and place of residence) the less likely he was to spend more than two or three years in town. The Ila who spent a long time in wage earning was trying to build up capital in cattle through friends and not through kinsmen, thus expanding rather than simply establishing his initial herd.⁸⁶

In the tsetse-infested areas migration was higher than in the cattle-rich and tsetse fly-free areas. In tsetse fly-covered areas labour migration varied between 40 and 50 per cent while those away in areas like Baambwe, Maala and Mbeza only about 20 per cent of able-bodied males were away looking for work in the 1940s and 1950s.⁸⁷ Labour work in Namwala was still on a small scale largely because the main sources of earning money were still good. Many Ila however went to work in Southern Rhodesia at Wankie Colliery where wages were good. Many others were employed in the Northern Rhodesia Police Force and Northern Rhodesia Regiment which suited their proud and independent outlook. Most of those working in the territory preferred farm work along the line of rail where though wages were low but made it possible for workers to go back home in time for harvests. During the Second World War many Ila fought in Somaliland and distinguished themselves as good soldiers, and those at home contributed generously to the War Fund.⁸⁸

6. Water Development in Namwala

Water resources development in Namwala took the form of well-sinking in areas away from the Kafue Flats. The work was carried out by the Water Development Department and by the Ila Native Authority. By 1939 7 wells had been sunk, and from that time onwards there was a steady programme of digging wells. By 1941 20 wells had been dug. In 1958 a well-sinking plan was prepared to provide wells for almost every village in Chief Shezongo's country badly affected by bilharzia and it was hoped that copper sulphating could be carried out in the Nanzhila pools.⁸⁹ Mass water provision was also needed in Muchila's area. Well sinking was also part of the resettlement schemes in tsetse reclaimed areas.

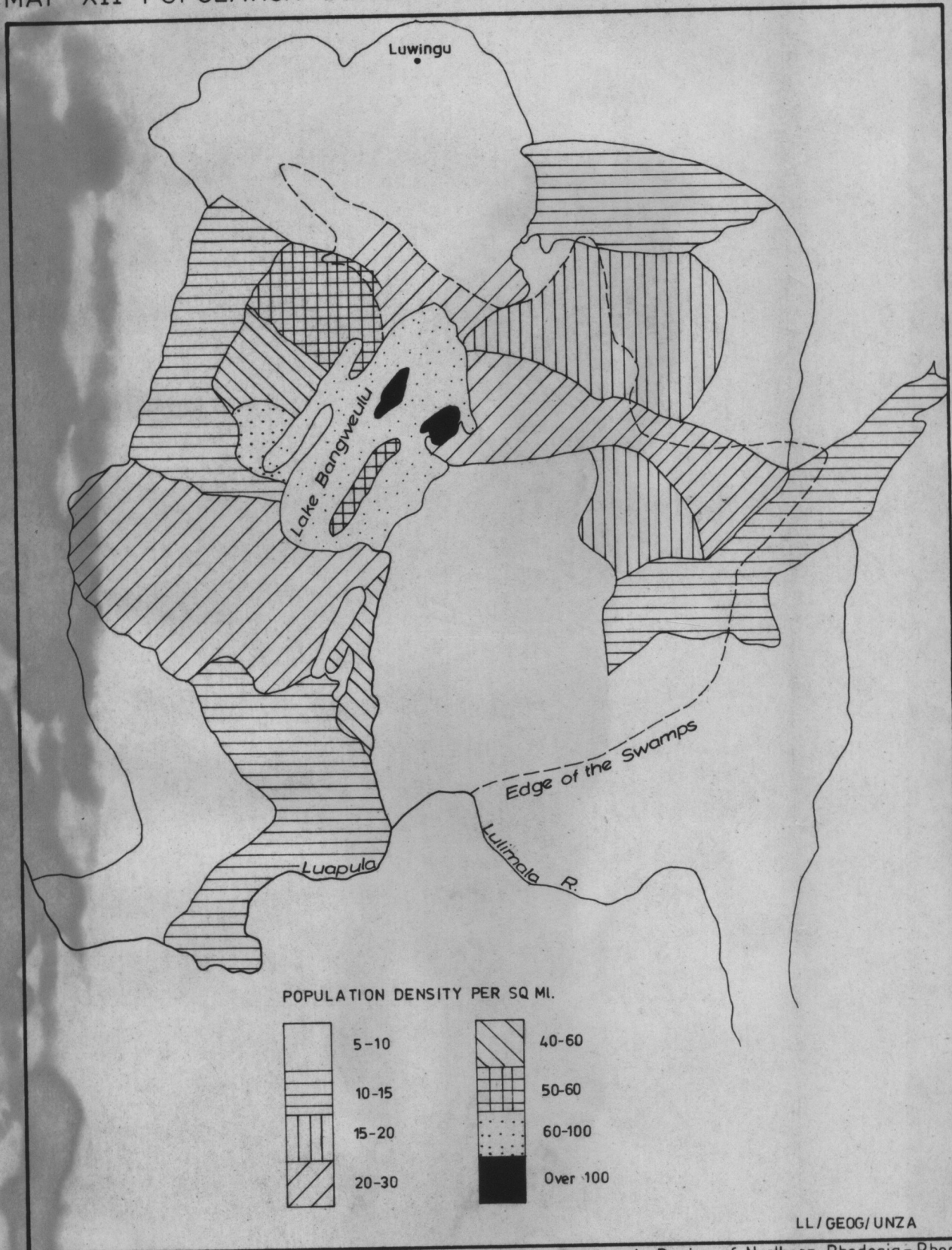
In the post-World War Two period four dams were constructed, one at Baambwe near chief Mukobela's village, two at Kabwe in chief Muchila's country, one at Mbeza and the big earth dam at Kabulamwanda.⁹⁰ In order to facilitate transportation of maize, groundnuts and cattle from various parts of the district, efforts were made to develop cheap water transport. In 1945 the Namwala River Transport was started by J.J. Strydom who operated eight steel pontoons, but operation of a boat service downstream from Namwala failed because the Kafue river was shallow in some places and water levels were low when rainfall was poor.⁹¹

In this period there was therefore a gradual improvement in agricultural production in areas where ecological constraints were not serious in response to the provision of a marketing system. Efforts to improve cattle through the control of tsetse fly distribution and inoculation against various diseases were much more concentrated and clearly defined than measures to improve agriculture. Owing to greater participation of people further away from the Kafue Flats in traditional hunts there was a rapid decline of wildlife in the Kafue Flats, especially after 1950 and this increased the government's interest in conserving game. However ecological problems taken into account the overall economy in Namwala was becoming more and more viable than before so that in most parts of the region people did not have to migrate to earn money for their various needs. This situation was however very different from the development in Bangweulu in the face of measures to improve the various aspects of the economy.

B. Bangweulu: Declining Economy and Failure of Ecological Control

Bangweulu during this period saw decline of agriculture and increased fishing activity. There were also efforts to control the ecology without success.

MAP XII POPULATION DENSITY BANGWEULU REGION, 1962



LL / GEOG / UNZA

Based on G: Kay, A Population Map (1:500,000) of the Luapula - Bangweulu Region of Northern Rhodesia - Rhodes Livingstone Institute, Lusaka, 1962, p.12

1. Agricultural decline

a. Change in the land tenure system

The floods which started in 1936 and continued to rise until 1943 destroyed the traditional land tenure system. There were two classes of land: Communal land and privately owned land. Communal village land was owned by the village and was used by residents of that village. The user had possession of it as an occupier, and no one could dispossess him of it while he was making active use of it until he left the village and ceased cultivating it. After that it would revert to the village pool and be open to the next occupier. On privately-owned land a man had absolute ownership. This land was selected by the man himself and could be anywhere so long as it did not interfere with any village communal land. On his death he could leave it to anyone he chose but according to custom it remained with his family. With the floods there was an immediate shortage of land, and those whose land was submerged left Lunga Country. The land that remained had to be shared evenly amongst the people, but a lot of people just turned their attention entirely to fishing.⁹² Shortage of land led to food shortages in the Lunga. People now depended on cassava and millet brought by the mainlanders and which they bought with money or bartered for fish.

b. Increase in population and its effect on agriculture.

Natural increase in population combined with natural disasters to worsen agricultural problems. In the years 1930 to 1937 the Bangweulu swamps population averaged 51,000; between 1940 and 1950 it was in the region of between 55,000 and 60,000 and was in 1960 71,000.⁹³ Population density in 1940 was high, especially when it is noted that nine-tenths of the swamps are uninhabitable. Heaviest population concentration was along the lake shore and the islands. Even in the 1940s the population density was already high to be safely supported by existing agricultural methods. Between 1937 and 1940 22,000 people were said to be living on the small islands, sandbanks and Kapata Peninsula. Chilubi had about 9000 people and a density of between 237 and 337 per sq. km, Chishi and Nsumbu had densities of 510 and 352 respectively, Nsalushi had between 283 and 312, Mbabala 102, Kapata Peninsula 179 and Lunga had the lowest with 12 people per sq. km.⁹⁴

The situation worsened by 1950, especially on the western shoreline because many people had migrated to this region following the 1936 floods.⁹⁵ The western shoreline population density in 1950 varied between 109 people per sq. km in the north, 27 in the south and an average of 54.⁹⁶ Chilubi in 1950 had 10,000 people

living on it and in 1955 had a density of 400 people per sq. km. This was a very high population density compared with the 13 people per sq. km. for Luwingu district as a whole.⁹⁷ Bangweulu population densities were higher than that for the whole country. The only place with similar high population densities was in the Chipata area with 90 to 130 people per sq. km.⁹⁸

The land shortage created by this high population density led to the abandonment of traditional forms of agriculture which allowed for crop rotation and shifting cultivation. Land was now continuously cultivated and soils were therefore exhausted, leading to poor and diseased crops. All the lake and swamp islands suffered from this problem. In 1958 it was reported that, 'On the three main sandbank islands of Nsalushi, Matongo and Ncheta, there is no ground free of old cassava mounds either resting or bearing pathetic looking plants, none are left in for longer than twelve months and a few attain three feet in height during that time.'⁹⁹ In 1960 a tour report reflected the same situation, 'At the moment the southern swamps has little to recommend it agriculturally. The islands are all sandy and because of the shortage of land for cultivation the soil is extremely overworked. The shortage of food in this area has been the cause of a considerable amount of

emigration to areas bordering the swamps. The whole of the main sandbank islands of Ncheta, Matongo and Nsalushi have all at one time been used for the cultivation of cassava. The leaves are very poor, none of the plants attain more than four feet in height. Mosaic disease is widespread over most of the swamps, it was present at every village garden that I visited.¹⁰⁰ At this time food imports were very high and estimated as follows: Chisale imported 15 per cent of its cassava requirements from the mainland Bisa and fish traders, At Nsalushi over half of the cassava was bought from the Ngumbo, Kabende and Bisa; on Ncheta 40 to 70 per cent cassava was imported from Ngumbo and Kabende, varying from village to village, Mutwamina imported 75 per cent of its cassava from chief Chiwanangala. The two villages on Kawulu imported 80 per cent of their meal from Ngumbo. The Twa on Mbo were virtually dependent on purchases from Kabende.¹⁰¹ Because of food shortages many people in the 1950s applied to leave the swamps. Food shortages were also acute at Mbabala, Chishi and Chilubi islands.

c. Decrease in types of crops grown

Soil exhaustion and disappearance of bush led to the phasing out of other crops in place of cassava. As a result of this there was a general scarcity of

cereal crops except millet. Millet which was grown by clearing thickets on the lake islands and the western shore was now grown by spreading cassava mounds and fertilizing them with hoed up grass with the disappearance of thickets. The change was more noticeable among the Kabende on Kapata peninsula and on Chilubi and Chishi. Only in Ng'umbo and Lupososhi was the position still good. Other crops grown in most of the swamp areas were now only found in certain regions. Groundnuts were now mostly grown in Ng'umbo and Kabende on the western shore. Beans was only grown on Lunga. On Kapata peninsula, the lake and swamp islands subsidiary crops were negligible. Cassava itself was prematurely reaped, early reaping becoming pronounced on exhausted soils and under waterlogged conditions in the swamps. Whereas the crop was left for $2\frac{1}{2}$ years under normal conditions, under difficult circumstances on Kapata peninsula and the Lunga these periods were reduced to 18 months, and on the sandbank islands the crop was removed entirely after one year, and often the crop was resorted to after six months of growth because of hunger.¹⁰²

On the western shoreline although there were no food shortages there were, as in the swamps, continuous belts of cassava gardens. Cassava had replaced sorghum. Land here was able to support a larger population because

it was inherently more fertile than that on the islands. But even here in 1950 the fertile sandy loams with their humus horizon were reported to have been reduced to less fertile sandy loams because of dense population. The shoreline in Mibenge was in 1950 carrying twice the population land could support. Surplus crops were only possible in two places; the western shore of lake Chifunauli and in Kalasa Mukoso's area because soils here were fertile, and in the case of the latter the country was less populated.¹⁰³ In these two areas surplus cassava and millet was sold to the swamps.

d. Agriculture on the mainland.

Although agricultural problems experienced in and around the swamps were not experienced on the mainland, agriculture even on the mainland did not generate enough income to meet the people's needs because it was on a small scale, and there were no markets and low prices. Although Luwingu district exported an average of 10,000 bags of foodstuffs every year to Kasama up to 1953 there were many years when crops remained unsold because there was nobody to buy them.¹⁰⁴ In 1951 the price of cassava was reduced from 12/- per bag to 10/6 so as to put them in line with prices in Mansa. This action discouraged farmers from expanding their production. The surplus produced was small so that in the years 1952

to 1954 when prices were favourable producers oversold their cassava crop, and farmers still wanting to earn cash removed cassava in the second year of growing instead of removing it in the third year as was the case traditionally. Because of this development Luwingu failed to maintain its 10,000 bags of food export.¹⁰⁵ The importance of cassava as a cash crop was undermined by the absence of many able-bodied males for work on the Copperbelt. Besides the growing cycle of cassava does not make it possible for the crop to be grown on a commercial scale given the limitations of land available.

Rice, the only crop that could be grown on a commercial scale faced many difficulties. Production of rice, though firmly established by 1948 along the Luena estuary and on Kasansa Island, could not be expanded because of the problems of growing the crop. People found the rules that had to be followed in growing rice cumbersome and so tended to treat the crop as a relish crop. Rice harvested was so poorly hulled that nobody wanted to buy it.¹⁰⁶ Rice growing for cash therefore failed.

e. Failure of efforts to increase agricultural production.

Agriculture in the Bangweulu mainland failed to improve in the face of agricultural plans. These plans

were part of the overall colonial government effort to develop African agriculture in the whole country after 1940. Most of them though beautifully laid out on paper were not implemented or were applied only in part and so failed to make an impact on the region. In 1945 there was a forestry scheme which was a continuation of the 1927 tree planting scheme. Although by 1953 there were eucalyptus trees at every centre of population, the scheme did not meet the timber requirements of the area.¹⁰⁷ Trees planted as in the previous period, could not be used in the same manner that thickets were used to fertilize the soil, nor could they supply wood needed for fuel and houses. Again their only value was in providing shade for the people.

In 1947 a plan called the Luapula-Bangweulu Development Plan was laid out in the Ten Year Development Plan in Zambia. The Plan had a lot of good intentions: there was to be a marketing system for surplus foodstuffs such as cassava, groundnuts, rice and palm oil. Buying stations were to be set up and sacks distributed; but nothing was done to put the plan into practice.¹⁰⁸ This plan was followed by another plan, the Bangweulu Zone of Intensive Rural Development in 1949. The plan provided for peasant agriculture as was the case in most parts of the country, especially the Eastern and Southern

Provinces. This plan was more realistic than the previous one. It tried to identify crops that had the potential of being grown on a commercial scale. It also projected a co-ordinated system of road, river, lake and swamp transport to serve the whole area and reduce transport costs.¹⁰⁹ In a few cases the projections were actually carried out. A seed farm was established in 1949 at Nsombo. A village groundnut scheme was started in 1953 and extended to Muchereka and Tungati. In 1955 the Lufubu Peasant Farm Block consisting of 8 farms was started: other farm blocks were set up at Mutili and Tungati.¹¹⁰ An experimental tobacco scheme opened at Nsombo in 1959. Although all these efforts received enthusiastic support from those who were taking part, they could not generate widespread interest in agriculture because first of all people could earn more and quick money by fishing. Secondly, labour with all the attractions of town life had already become an established way of earning money, and few people were impressed with these piecemeal measures to improve agriculture.¹¹¹ These plans also failed to tackle the major agricultural problems of soil deterioration resulting from overcrowding on the swamps and along the shorelines. They only affected a few scattered places in the northern part of the region. The agricultural problems in the

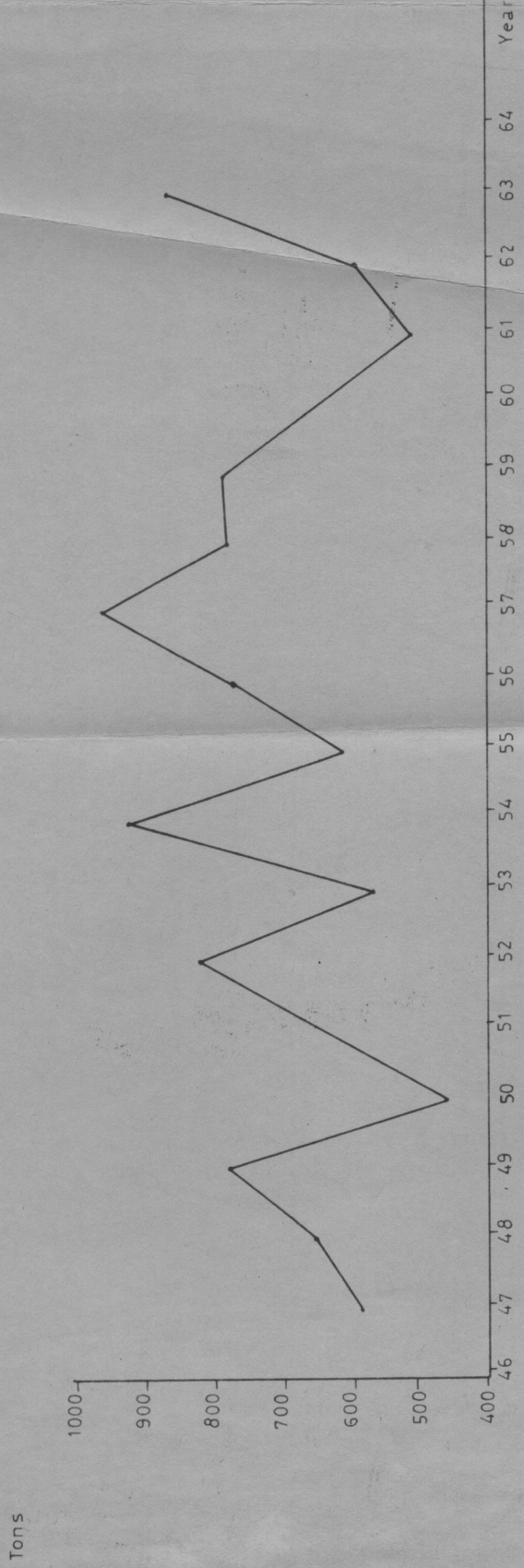
rest of the district that had been going on for about two decades remained unattended. Even the 1950 agricultural survey on the western shores failed to correct the situation as its recommendations were not followed up and as it also tended to rationalize the problem by saying that cassava growing that had established itself in the area could still support any further increases in population.¹¹² The region thus remained agriculturally backward: barely managing to meet its food subsistence requirements, but even **then** only along the western shoreline.

2. Changes and constraints in the fishing industry

a. Changes in the fish trade

We saw how in the 1930s there was increased fishing activity. Owing to the restrictions on the Zaire pedicle most of the profits from fishing accrued to the European companies operating from Zaire and using local capitaos to buy fish in the swamps. In 1942/⁴³ there were 50 capitaos buying fish in the swamps on behalf of three European firms.¹¹³ However from 1940 fish selling increasingly fell into the hands of African middlemen who wanted to realize more profits by bypassing the European middlemen. By 1951 the middlemen had dominated fish marketing and were taking

GRAPH III FISH PRODUCTION IN BANGWEULU IN TONS



Figures obtained from the Annual Reports of the Game and Fisheries Department

a large share of the profits using lorries to transport their fish. Swamp people sold fish to the middlemen who either came from the mainland or from the Copperbelt.¹¹⁴ Most of the fish caught was sold to the Copperbelt and only a small quantity found its way to the mainland.

Until 1948 75 to 80 per cent of all fish sold out of Bangweulu to the Copperbelt passed through Kapalala.¹¹⁵ The route was a short cut to the Copperbelt and people could either paddle up to Kapalala and then walk with their bundles of fish or cycle the whole distance. The road route through Samfya and Mansa increased in importance from 1948 onwards because of low water levels in that year and in 1950 when the road was improved to an all-weather standard. From then onwards more and more lorries were used, going as far as Kantanshya on Kapata peninsula.¹¹⁶ Most of these lorries were operated by African businessmen such as Luka Mumba, Costa Nsemuchila, Goodson Kalyafye and Machipisa. Unfortunately increase in traffic on the Samfya - Mansa route did not mean increased fish production. The route only took some of the fish traditionally passing through Kapalala.¹¹⁷ This is illustrated by figures below:

Table V: DRIED FISH EXPORTS TO THE COPPERBELT IN TONS¹¹⁸

<u>YEAR</u>	<u>KAPALALA</u>	<u>SAMFYA</u>
1952	756	64
1953	388	179
1954	641	274
1955	138	424
1956	291	472
1957	390	563
1958	323	345
1959	431	223
1960	233	323

With the improvement of the transportation system to the Copperbelt one should have expected a drastic rise in fish exported, especially that the population taking part in fishing increased with natural increase in population and with the loss of land due to floods, and declining agricultural yields due to soil exhaustion. In fact fish exported to the Copperbelt between 1945 and 1964 never went beyond one million kg. Exports slightly improved until 1957 and after that gradually started to decline (see graph III). During the same period the population supported by Bangweulu fishing increased by about 20,000. A static fish production against a rapidly increasing population meant diminishing

returns. Individual incomes from fishing were low. The position since then has got worse so much that in 1975 Grimsdell and Bell found that of the 152 fishermen they interviewed at Ngungwa, 35 had sold no fish: the remainder sold fish worth between K4 to K200 with an average of K34.¹¹⁹

b. Constraints on fish production

The question that can be asked is why it is that a fishery whose fish crop potential per year has been estimated at between 4,000,000 and 7,000,000 tons exported fish less than one thousand tons each year between 1945 and 1964 (even with another 500 tons for fish locally consumed or sold to the surrounding areas) the fishery was still exploited far below the potential.¹²⁰ In fact Evans has recently estimated fish stocks to be about 91,000 tons for the whole of the Bangweulu region with a sustainable yield of 30,000 tons.¹²¹ Was this type of exploitation due to lack of a proper marketing system or a deficiency in fishing methods? Was this due to lack of incentive on the part of the fishermen to sell fish? The last question does however not apply since for most of the people in the swamps fishing was the main economic activity that earned them cash in the absence of any other way of earning money. I suggest

the following reasons for low fish production in Bangweulu: most of these reasons are ecological. Firstly, fish catches are unevenly distributed in the area. Fish catches are lower in the open water than in the swamps. In 1958 it was found that the catch per unit effort in the swamp lagoons was higher than in the lake. Weight of fish caught per 100 metres setting of net was 3.4 kg. at Samfya, 5.1 kg. at Chishi island and 7.3 kg. at Ncheta island. The ratio between fish taken from the swamps, the open waters of the lake and Luapula river was around 10:3.2.¹²² One reason for this situation is that the open waters though having a greater variety of fish are not as heavily stocked with fish as the swamps because of the killing of immature fish in the surrounding swamps, the depth of the water and shortage of plankton. There has also been decline in the catch per unit effort since the early 1950s when the first commercial gillnets were introduced and the fishery more effectively exploited: 9.146 kg in 1957 to 1.833 kg catch per unit effort. Since that time the catch per unit effort fluctuated and was in 1974 0.611 kg and 1.086 in 1976. The average weight of fish caught also fell from 0.725 kg in 1951 to 0.199 kg in 1975 and 0.071 kg in 1976. However the average weight of fish was 3.403 kg in the swamps, about three times heavier than

the catch of the open waters.¹²³ Fish in the swamps is more easily exploited by African methods of fishing than that in the open waters. Relatively little fishing has been done in the open waters because people have feared to venture out far from the land in their small canoes. Only the fringes of Lake Bangweulu have been exploited: there has been little fishing for distances longer than 2 km. offshore. For this reason, it was estimated in 1947 that of the 2,000 tons of fish produced annually from Bangweulu nine-tenths of it came from the swamps.¹²⁴ Even in the swamps, only certain areas are noted to be good fishing grounds: these are the areas along the Luapula river, the Kalunga river, the marshes around Ncheta, Kansenga and Lake Chale.¹²⁵ People from the mainland in the surrounding districts and lake islands have been converging on these areas for fishing, thus lowering individual catches. Second, not all parts of the swamps were fished because they are not accessible owing to sandbanks and dense vegetation. In others it was not possible to fish because it was not possible to build shelters (fitanda).¹²⁶ Most of the fishing therefore occurred in narrow channels and plant filled water in which it was difficult to improve traditional methods of fishing in small family groups on scattered fish camps.¹²⁷

Third, the increasing concentration of the population on the western shoreline led to over fishing and a disturbance of the reproductive cycle in that region. In 1945 it was observed that there was a decrease of fish in Lake Kampolombo and at Mpanta point, particularly of tiger fish.¹²⁸ Similarly shortage of fish was noticeable at Chifunauli and Samfya because of the population concentration. For this reason the licensing and conservation system for fish operating in some parts of the country was in 1945 extended to the Bangweulu swamps.

Fourth, the productivity of the fishery has been lowered by fishing methods. In general these consisted of nets, weirs and traps. The 1941 Game Ordinance forbade the use of nets less than 7.62 cm. and fish weirs. People could use fishing nets only if they had fishing licences. This Ordinance was re-enforced by fish control regulations in 1943 and were to be enforced by Native Authorities.¹²⁹ In 1944 fish poisoning was outlawed. People were opposed to these measures, and wondered why fish which were God-given should be controlled. While the size of the nets could be controlled at the place of manufacturing the same control could not be exercised on fish weirs. Fish weirs tended to choke the channels and impeded traffic, and were largely

responsible for the killing of immature fish. Although they were prohibited they were still plentiful in most years since the fishery is large and makes patrolling difficult. In 1950 87 tons of immature fish was exported through Kapalala, and because it was felt that fish weirs were jeopardizing the fishery 45 prosecutions were made.¹³⁰ Control could only however be made for fish passing through check points, but not for fish eaten or bartered within the region. Use of seine nets in the Kasoma Bangweulu area and in the Lake Chifunauli area had the same effect. In 1948 a Fisheries Officer was posted to Samfya for the Bangweulu region.

Fifth, the nature of the swamps with lots of papyrus, reeds and grasses, shallow water with sandbanks has made it difficult to develop an efficient transport system. Since the inhabitation of the swamps the main form of transport has been small canoes. These carry only 6 to 9 baskets of fish at a time. In 1954 it was estimated that about 72,500 kg. of fish was exported out of the swamps, and most of it was transported in canoes. It was observed that there was wastage in time, money and labour in the hiring of canoes and agents of transportation. Because there were no properly maintained channels most of the communications has been

through self-maintaining canoe routes. These were inefficient and at times resulted in the considerable loss of dried fish through lack of transport.¹³¹ For a similar reason it was not possible to deal in fresh fish. Even though people preferred to use motor operated services this was lacking.

There were three efforts to establish transport services in the swamps, but all of them met with little success because of the difficult terrain of the swamps. The first of these was in 1943 when two boats, the Maizie and the Beans were launched by the government to run between Kapalala and Nsombo. The boats operated twice a month and carried passengers and freight. Following a definite route: Kapalala to Kansenga, to Mpanta point, Chilubi up to Nsombo they left the heart of the swamps unserved. Two journeys a month was also insufficient. Moreover, after operating for 5 years the services ended in December 1948 as the engines of the boats were unserviceable and in 1950 it was decided that the service would never resume unless the boats were operated by a transport contractor.¹³² A second effort to establish a transport system in the swamps was the joint venture between the Government and the mining companies with the formation of the Bangweulu Water Transport in 1958. The company ran weekly services using 4 boats on scheduled routes

to the lake and swamp islands. Response to the use of these boats was overwhelming, but the capacity of the boats was limited: two 6 ton and two 14 ton boats. By 1960 however the company started to have operational problems which made the services irregular, and the boats themselves broke down frequently.¹³³ The third transport service, started by Luka Mumba operated only for two years (1958 to 1960) before operations stopped.¹³⁴ Facing such transport difficulties in moving fish out of the swamps, it was not possible to increase the productive of the fishery.

Sixth, there was the problem of drying the fish. The disappearance of trees in the swamps increasingly made it difficult to dry fish by smoking. Results from using grass and cassava stalks were poor and resulted in poor quality fish which could not be easily marketed.¹³⁵ Apart from the problems of quickly sun-drying large quantities of fish, sun-dried did not fetch as high a price as smoked fish which had a taste liked by consumers on the Copperbelt.

On a purely economic level, there was lack of a streamlined marketing system. Fishing was haphazard and individualistic and people disliked the idea of

partnership because of the fear that the person who took the fish to the market would not declare its true value on his return. Instead of forming a marketing union, most people preferred to take their fish to the Copperbelt to realize high profits. The few efforts made to form Co-operative Societies in 1950 on Mbabala and Chishi failed., The Bangweulu Co-operative Marketing Union formed in 1958 was liquidated in 1959 because of lack of support from the members.¹³⁶ In the absence of a good market system which should have eased collection and sale of fish it was difficult to increase production because of the difficulties encountered in selling the fish.

Table IV: EXPORT OF DRIED FISH FROM THE BANGWEULU SWAMPS IN
SHORT TONS¹³⁷

<u>Year</u>	<u>Tonnage</u>
1947	587
1948	523
1949	701
1950	458
1951	-
1952	820
1953	564
1954	917
1955	692
1956	685
1957	850
1958	771
1959	727
1960	646

With such a relatively static production Evans has concluded that the fishery is not a productive one by most African standards. The fishery therefore has largely been subsistence with few powered fibre-glass or plank boats. The fishing unit has consisted of a family head owning 1 or 2 dugout canoes and 3 or 4 gillnets assisted by the immediate or extended family. Owing to adverse factors, such as decline in catch per unit effort, costs of fishing materials and the rising cost of living there has been a declining effort applied to catch fish. In 1951 it was estimated that there were 10,000 fishermen in the region, and none of them full-time. In 1971 a survey gave a total of 13,878 fishermen of whom only 5,030 were boat owners, but by 1976 the number of fishermen fell to 7,969.¹³⁸

For all these reasons fish sales remained low, and the fishing industry on which many people depended for their living was with the passing of years giving declining benefits to the majority of the people. The role of fish as a money earner was reduced further by the fact that a lot of fish was used to buy meal from the mainland people in the swamps.