

PUBLIC WORKS IN BULOZI: A CASE STUDY OF THE CONSTRUCTION AND
MAINTENANCE OF CANALS, 1885-1980

BY

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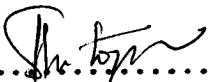
LUSAKA

1992

DECLARATION

I, SITWALA MUTONGA do hereby declare that this dissertation represents my own research work and that it has not been previously submitted for a degree at this or any other university.

215486

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APPROVAL

This dissertation of SITWALA MUTONGA is approved as fulfilling part of the requirements for the award of the degree of Master of Arts in History at the University of Zambia.

EXAMINERS

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- 3.
- 4.

ABSTRACT

This dissertation is a study of public works in Bulozhi with specific reference to the construction and maintenance of canals between 1885 and 1980 under the Lozi, colonial and post-colonial states. The construction of canals was necessitated by the local environmental factors such as low and high floods in the ^{plain} to facilitate transport and drainage. The construction of the canals was only possible with the availability of labour. Labour was provided by the makolo and through tribute obtained within and outside Bulozhi.

The coming of the Paris Evangelical Missionary Society (PEMS) and the British South African Company (BSAC) undermined the ability of the Lozi state to mobilise labour for work in canals. The PEMS and the BSAC were against the use of slave labour and this was abolished in 1906 by the company. Tribute labour was restricted to "twelve days" per man per year in 1906. Furthermore, the company introduced taxation and encouraged labour migration which eroded the makolo institution. In 1924, the colonial office in London took over Northern Rhodesia from the BSAC. The new administration did not also address itself to the state of canals from 1925 to 1945. After 1945 canals were considered to be important in the agricultural economy of Bulozhi and investments were made by the Northern Rhodesia Government and the Barotse Native Government to improve drainage in the seepage areas.

The post-colonial state wanted to improve maize production and transport in the floodplain. It made investments to construct and maintain the canals and this in turn provided employment to the local people who had no other option of employment. However, the programme of constructing canals failed to achieve the intended goals because of the economic problems which faced the country from the early 1970s and lack of extension education on soil, water and crop management on the part of the people. Thus the potential of the sishanjo (peat soil) was not fully exploited.

The general impact of canals is also discussed and it will be shown that they made agricultural land available for cultivation and aided transport in the flood plain. In some areas, canals provided water for domestic uses.

ACKNOWLEDGEMENTS

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The list is inexhaustible but I would be dishonest with myself if I fail to mention my family who endured the long periods of my absence. My mother, father, brothers and sisters who initiated the idea of higher education and provided all the support. My Children, Inonge and Sitwala, and my wife Kasonde who was always left alone while I worked on this dissertation. Lastly, while the above mentioned people assisted me in one way or another, they are not responsible for the opinions, omissions and errors of judgement contained in this study. I, alone bear the responsibility.

CHANGED CURRENCY

One penny (1d)	-	One Ngwee (1n)
Six pence (6d)	-	Five Ngwee (5n)
Twelve pence (12d)	-	Ten Ngwee (10n)
Two shillings and six pence (2/6d)	-	Twenty five Ngwee (25n)
Ten shillings (10/)	-	One Kwacha (K1)
One Pound (£1)	-	Two Kwacha (K2)

ABBREVIATIONS

BNG	- Barotse Native Government
BNT	- Barotse Native Treasury
BTF	- Barotse Trust Fund
CBPP	- Contagious Bovine Pluro Pneumonia
DWA	- Department of Water Affairs
GRZ	- Government of the Republic of Zambia
MLNR	- Ministry of Lands and Natural Resources
MRD	- Ministry of Rural Development
NAZ	- National Archives of Zambia
NRG	- Northern Rhodesia Government
NWR	- North Western Rhodesia
PEMS	- Paris Evangelical Missionary Society
RNLB	- Rhodesian Native Labour Bureau
TVA	- Tennessee Valley Authority
USA	- United States of America
ZULAWU	- Zambia United Local Authorities Workers' Union

DEDICATION

This work is dedicated to my mother, father, my two children, Sitwala and Inonge and my wife Kasonde whose love inspired me to work harder.

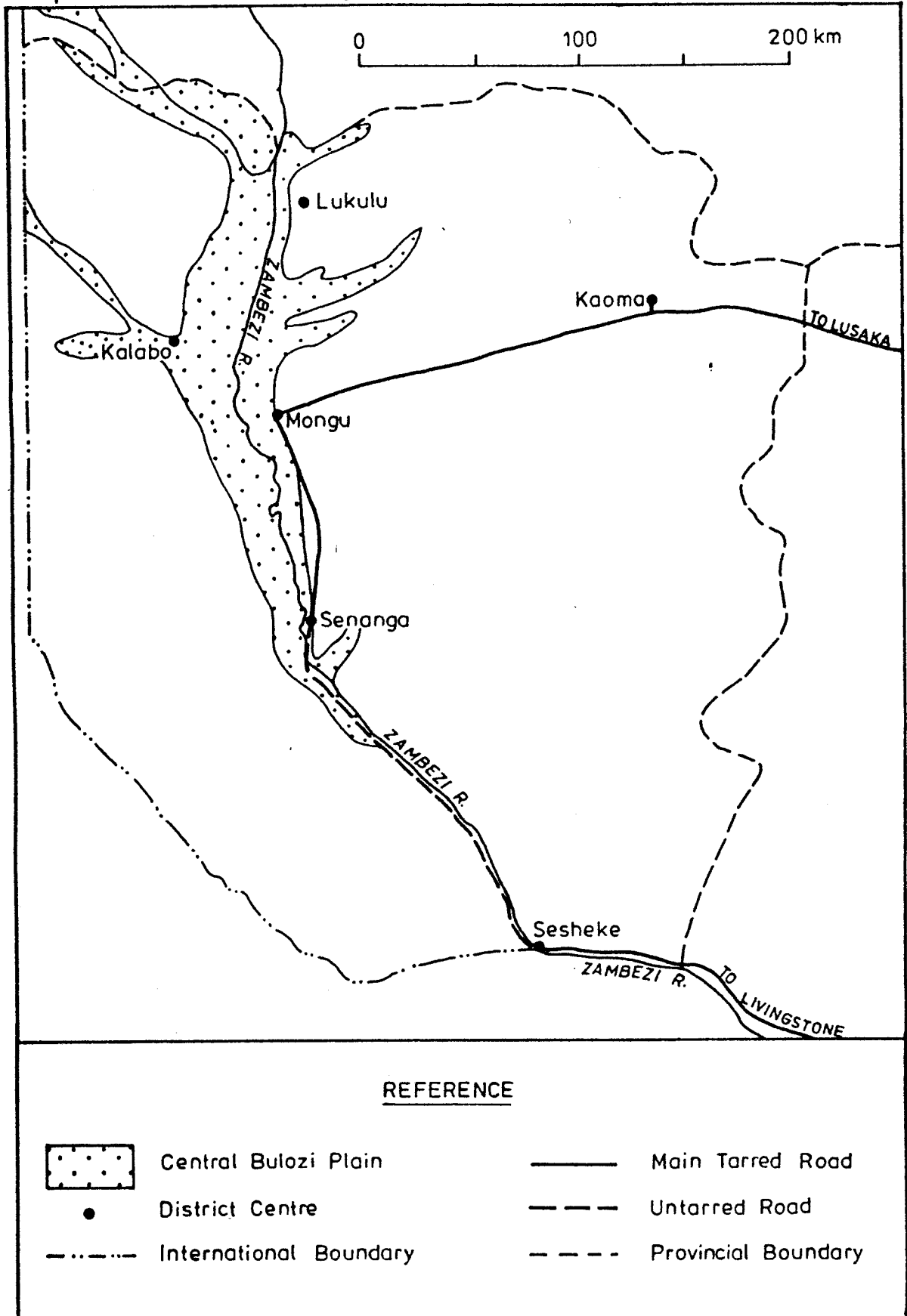
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Map 1: STUDY AREA, CENTRAL BULOZI PLAIN



Source : Republic of Zambia.

INTRODUCTION

STATEMENT OF THE PROBLEM AND OBJECTIVES OF THE STUDY

This dissertation is a study of public works in Bulozhi with specific reference to the construction and maintenance of canals under the three different political systems: the Lozi, colonial and post-colonial states from 1885 to 1980.¹ Public works in this study is used to mean buildings, roads, harbours, drains, and waterways built by the people under the guidance and direction of the government for public use which was intended to improve the quality of life. The communities who were involved in public works were organised by the government from village to territorial level.²

This study will focus on the beginnings of the construction of canals and the purposes for which they were constructed in Bulozhi. Second, we will investigate the respective roles of the Lozi state, the BSAC, the Paris Evangelical Missionary Society (PEMS), the Colonial administration and the Zambian Government in the mobilisation of labour and type of technology used in the construction and maintenance of canals. Third, the study will examine and assess the impact of the abolition of slave and tribute labour on the construction and maintenances of canals. We will also examine the impact of the colonial labour policies on, and the subsequent financing of the construction and maintenance of canals. Lastly, we will assess the effect of canals on the economy of Bulozhi and the labour responses towards work in canals

BACKGROUND

Public works have a long history of antiquity. Apart from Bulozhi, they were also found in other parts of the world such as Egypt, Mexico, Peru, the United States of America (USA) and Zimbabwe to mention but a few. In Egypt the great pyramids, sphinxes and temples were probably built from about 2,500 BC using slave and free labour and the great Zimbabwe fortifications were also built in the similar manner between the twelfth and fifteenth centuries.³ In the USA, the Federal Government carried out major public works to combat the effects of the Great depression that hit the world between 1929 and 1933. One good example of such schemes was the Tennessee Valley Authority (TVA), in the state of Tennessee which had the objectives of improving navigation, preventing floods and aid soil conservation along the Mississippi river. This in turn provided employment for the American citizens who were thrown out of employment by the world depression.⁴

In Bulozhi which is loosely used in this study to refer to the Central Zambezi flood plain, public works also involved the construction of settlement mounds (Liuba, singular - Suba) to supplement the natural termite ones (Mazulu - singular - Lizulu) and canals.⁵ The construction of the mounds and canals was organised and supervised by the state.

PERIODISATION OF THE STUDY

In this study, 1885 has been chosen as a starting point because it was at that time that Lewanika began to consolidate himself in power

after a civil strife and he also began to collaborate with the visiting European missionaries and traders to acquire western goods. It was also around that time that he began to improve agriculture in the kingdom through the mass construction of drainage and transport canals. The year 1980 on the other hand has been chosen as our terminal date so that we could have a wide period in which to examine the policy issues which affected canals in the post colonial period.⁶

LITERATURE REVIEW

Though there are a number of scholars who have written on Bulozhi, little scholarly attention has been paid to the construction and maintenance of canals and their impact on the economy of Bulozhi. Scholars such as Max Gluckman, Mutumba Mainga, John Hellen, Gwyn Prins, Elliot Hermitte and Mable Milimo who wrote on the history of Bulozhi were concerned with other aspects of history.⁷ To-date no historical study exists on canals in Bulozhi.

However, studies from other parts of the world show that canals were constructed during the early civilisation and industrial revolution for irrigation, drainage, land reclamation and transportation of industrial and agricultural products and people. In Egypt, a great canal was constructed by Pharaoh Necho II between 610 BC and 595 BC to link the mediterranean to the Red sea. In Peru and Mexico amongst the Incas and Mayas, irrigation canals were constructed between 300 BC - AD 500 and the fifteenth century respectively. Studies in England show that Acts of Parliament were passed in the seventeenth century to facilitate the construction of transport canals by companies and individuals.⁸ In mainland Europe, Holland in particular, there were about 3,500 kilometres of canals for drainage and flood control and about 1140 kilometres of navigable canals.⁹

This programme of constructing canals in Europe began well before the railways age to facilitate the transportation of goods and raw materials such as coal, iron and wool. Similarly in Bulozhi, canals were constructed for the same purpose. It should be noted however, that the canals in Europe were larger and were used by much bigger boats and barges, whilst those in Bulozhi were smaller and used mainly by dugout canoes.

In Bulozhi, the first study which mention canals is that by a missionary, Franscois Coillard. He described how the PEMS and Lewanika constructed canals in the flood plain for transport and drainage. James Johnstone a European visitor to Bulozhi in 1892 also made some comments on the depth and width of a transport canal constructed by Lewanika.⁹ Gluckman and V.W. Turner mention canals in passing as they discuss the economy of Bulozhi.¹⁰ Historians like Clay, Mainqa, Hermitte, Clarence-Smith and Milimo mention canals in Bulozhi in discussing the functions of the makolo (regiments) and tribute labour.¹¹ Hellen on the other hand described the significance of canals in the agricultural economy of Bulozhi and the sources of finance for the construction and maintenance in the post war years.¹² Prins refers to canals in relation to food production. He discusses how labour was mobilised and utilised by the Lozi state in the late nineteenth century to construct drainage canals.¹³ This dissertation is an indepth study of the construction and maintenance of canals in Bulozhi. Unlike the earlier works mentioned above, the present study examines and analyses the type of technology used in construction, the role of canals and their impact on the economy in Bulozhi.

THE SCOPE OF THE STUDY

Our study will show the contribution of canals to the political economy, indicate the importance of the construction and maintenance, and show how canals were utilised in the development of Bulozhi. In discussing the contribution of Litunga Lewanika to the development of Bulozhi, T.O. Ranger and Gluckman stated that he wanted to improve transport and that he drained the river valleys through a programme of canals for agricultural purposes. Lewanika was able to construct the canals because he could mobilise the makolo, slave and tribute labour.¹⁴

Slave labour was provided by the people brought into Bulozhi through raids by the makolo, but this system was abolished in 1906 by

the BSAC. Tribute labour which was restricted to twelve days after 1906 was brought to an end in 1925 by the colonial office administration which took over Northern Rhodesia in 1924. The BSAC that ruled North-Western Rhodesia from 1897 to 1924 had made a policy in 1906 that Lewanika would receive £1,200 from the ten percent of the tax money collected in the territory. The remainder of the money was to benefit the communities in Bulozhi through the building of schools and canals. This money was paid into a fund, the Barotse Trust Fund (BTF) which was established and administered by the BSAC and the traditional Barotse government.¹⁵

The colonial administration lasted from 1925 to 1964. During the period 1925 to 1945, the construction and maintenance of canals was at a slow pace. Between 1945 and 1964, there were investments made to improve transport and drainage canals in order to promote African agriculture in Bulozhi. In 1964, the new Zambian Government took over power. The new government's programme was to develop the rural areas. In Bulozhi, the programme involved the construction and maintenance of canals to promote maize production in the seepage areas (Sishanjo).¹⁶

RESEARCH METHODOLOGY

Between August and September 1989, we read published and unpublished materials in the University of Zambia Library, National Archives of Zambia (NAZ) and the Livingstone Museum Library. Moreover, between early November and the end of December 1989, we collected oral evidence through interviews in Monqu, Kalabo and Senanga districts which form

the area of our study. We also read district annual reports of the Department of Water Affairs at Mongu provincial office.

In our field research, we had the advantages of speaking the Lozi language and also the geographical knowledge of some parts of the study area. We interviewed old men who worked and lived near canals and have knowledge of how they were constructed. The interviews were open-ended, allowing respondents to voluntarily give information about canals. Sometimes, this method enabled us to ask our informants probing questions to cross-check the written sources. Group interviews of between five and eight people were also conducted at Lealui in Mongu district and some villages in Senanga to seek general public opinion. A questionnaire could not be used because of its restrictive character. The funding of the research was also inadequate and made us not to reach some of the areas we would have liked to visit. However, the information we collected was quite representative. This methodological approach has enabled us to use both written and oral sources to corroborate each other.

ORGANISATION OF THE STUDY

For the sake of clarity in the discussion, the study is presented chronologically in four chapters and a conclusion.

Chapter one examines the geographical location of the area, environmental factors, historical background, early settlement of the Lozi and the beginning of the construction of canals to 1884.

Chapter two, 1885-1924 looks at the respective roles of the Lozi state, PEMS and the BSAC in the mobilisation of labour for the construction and maintenance of canals. It also discusses the type of technology used and the impact of canals in the agricultural economy.

Chapter three, 1925-1964 examines the colonial policies and the financing of canals. It discusses the attempts of the NRG and BNG to construct and maintain canals. The impact of canals is also examined.

Chapter four, 1964-1980 focusses on the post-colonial period by discussing policy issues concerning drainage, employment in canals and the successes and failures of the canal construction programme in the agricultural economy and transport in the floodplain. The conclusion summarises the findings of the study.

NOTES

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12. Hellen, Rural Economic, p. 247.
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14. T.O. Ranger, "The Ethiopian Episode in Barotseland, 1900-1905", in The Rhodes-Livingstone Journal number 37 (1965), pp. 28-29; M. Gluckman, Essays on Lozi Land and Royal Property. The Rhodes-Livingstone Papers number Ten (Manchester: Manchester University Press, 1968), p. 16; see also the National Archives of Zambia (NAZ), KDE 8/1/3. Report of the District Commissioner (DC), for the year ending March 1912.

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- 16 G.L. Caplan, The Elites of Barotseland 1878-1969: A Political History of Zambia's Western Province (London: C. Hurst & Co. Ltd. 1970), p. 131; Northern Rhodesia, Commissioner of Rural Development, Annual Report for the Year 1955 (Lusaka: Government Printers, 1956), p. 6, see also The First National Development Plan, p. 180.

CHAPTER ONE: THE AREA OF STUDY AND BACKGROUND

GEOGRAPHICAL LOCATION

The central Zambezi flood plain called Bulozhi by its inhabitants, lies between 14.5° and 16° south latitude and is about 900 metres above sea-level.¹ It comprises parts of Kalabo, Mongu and Senanga districts and extends to include the Luena Flats. It has a total area of 3,848.2 square kilometres.² The plain is covered by a mantle of the Kalahari sands. The flood plain associated with them give the area special physical features not found in the whole country.³ The plain which is divided by the river Zambezi and its marginal seepage areas (mataba), stretch for about 177 kilometres from north to south and has varying width of about sixteen kilometres in the south and forty-eight kilometres at its widest point.⁴ The plain is bounded by two forests called Nyunyi and Kalamba-Lukona in both east and west respectively.⁵

ENVIRONMENT

Zambia has a savanna type of climate with three different seasons; cold, hot and rainy. The cold weather in Bulozhi is from May to August, with July being the coldest month with temperatures ranging from 10° to 17°C. From August to October, the area experiences a warm dry season with temperatures reaching as high as 24° to 25°C.⁶ The rainfall season is from November to April. From January to May the plain is inundated by floods coming from the catchment area on the upper Zambezi and its tributaries which force people and their livestock

to move to the margins of the plain. This movement is called Kuomboka, meaning, "to come out of the water". They return to the plain in July after the floods have subsided - (Kufululela).⁷

The plain is flat and well served by the Zambezi river system and its tributaries. The river system provides the most needed drainage and transport in the plain.⁸ At the edges of the plain occur belts of seepage soils (Sishanjo, plural - Lishanjo), which provide the most important garden types.⁹ These Lishanjo gardens are enriched by the rotten plant growth which is usually submerged in water.¹⁰

Schultz has noted that

these peats (Sishanjo soil) have frequently developed on the edge of the flood plains where there is a permanent seepage. Originally the natural vegetation was a ground water forest (with syzygium as the dominant tree species), which was followed towards the plain by a grass/herb swamp with a hanging ground water table. In order to use the peats for cultivation, they must be drained. Fields are drained and the ground water level controlled by a dense, almost rectangular system of channels.¹¹

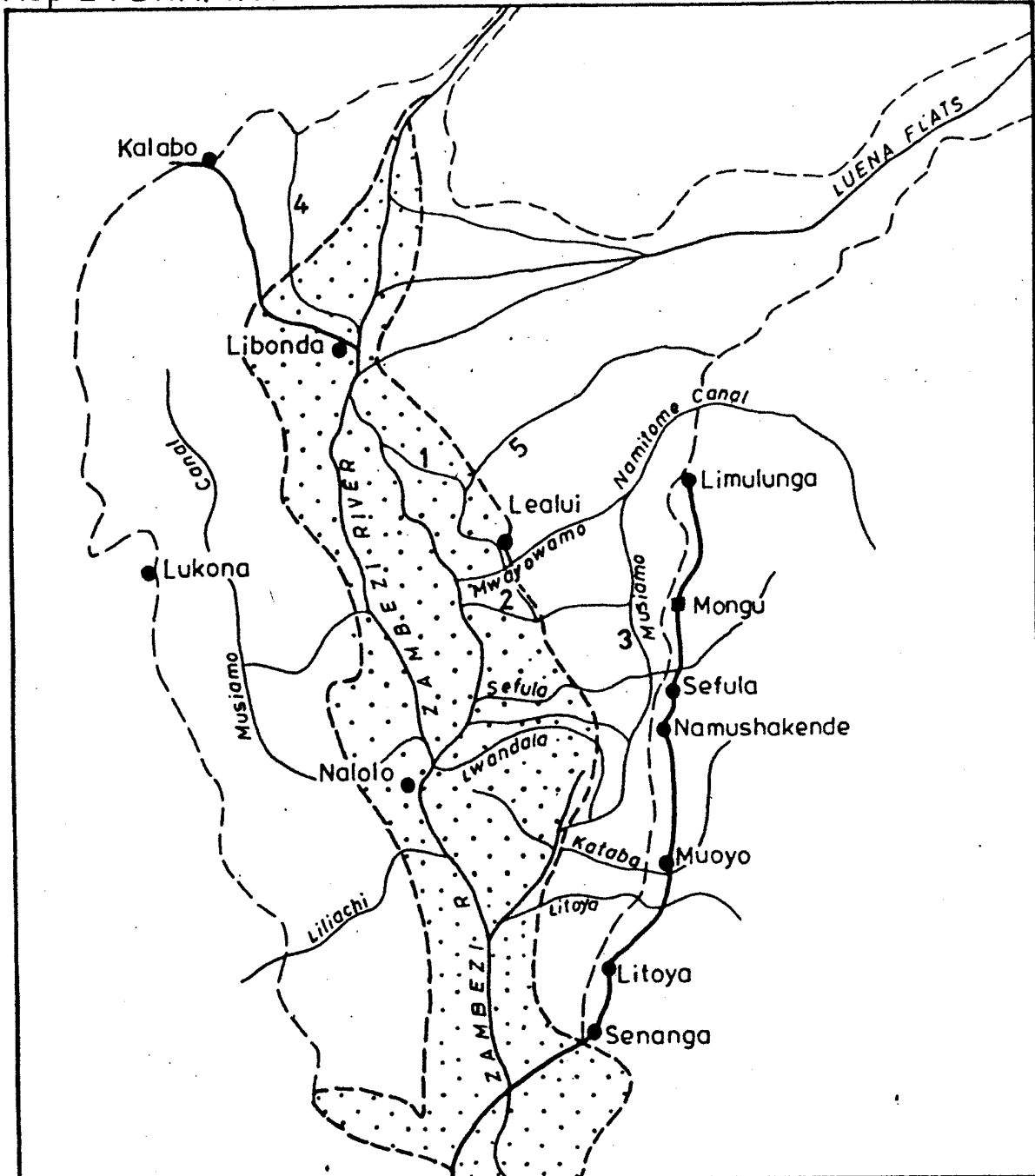
Drainage removes excess water from the soil to allow people to prepare the land for cultivation.¹² Artificial drainage is carried out by constructing canals which regulate the water levels in the soil. The drained areas, though sometimes affected by frosts in the cold season which is harmful to crops, are suitable for the growing of maize, cucurbits, millet and rice which are planted in November and harvested in April/May and also sweet potatoes and cassava from July and harvested in November shortly before the rains.¹³

The drainage and transport canals in Bulozí link up with the Zambezi river system (see map 2). Some of the canals are for transport purposes as travelling in Bulozí is difficult, more especially during the periods of low floods.

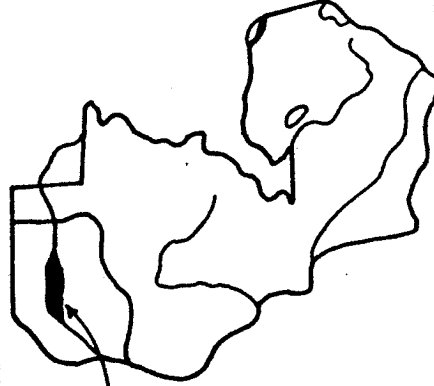
HISTORICAL ASPECTS: EARLY SETTLEMENT AND THE BEGINNING OF THE CONSTRUCTION OF CANALS TO 1884

Bulozí is inhabited by the Lozi speaking people whose original ancestors were the Luyá or Luyana. The Luyá came from the Lunda empire in Zaire probably in the sixteenth century headed by a queen named Mbuyamambwa.¹⁴ When they arrived in Bulozí, they found people of the hunter-gatherer stock whom they either drove away or absorbed.¹⁵ The Luyá invaders settled in the flood plain and called their country "Ngulu" or Bulozí. They built their villages on Mazulu and Liuba.¹⁶ Mazulu are termite mounds while Liuba are artificial ones made through the initiative of the state to increase the number of settlement sites in the plain as the Lozi regarded the flood plain more or less their permanent home. Some of the Mazulu provided gardens to the inhabitants. Mounds such as Naliele where the Kololo built their first capital in the floodplain was made during the reign of Litunga Mulambwa (c.1790-c.1825), and it housed the royal grain stores.¹⁷ The mound of Lealui first began by Litunga Sipopa (1864-1876), as a village was completed by Lewanika (1878-1916), who later chose it to be the capital of Bulozí.¹⁸ My informants stated that "national" mounds were built by involving many people such as slaves and commoners. Because of public involvement and participation, one of the mounds built for chieftainess

Map.2 : DRAINAGE CANALS OF THE BULOZI FLOOD PLAIN








REPUBLIC OF ZAMBIA



BAROTSE PLAIN

LEGEND

- 1 Liabwa la Twelufu (12) canal
- 2 Mongu Kalabo Canal
- 3 Musiamo Canal
- 4 Sishekanu Canal
- 5 Lubitameli Canal
-  Central Plain
-  Edge of the plain
-  Canal
-  River
-  Main Road

Source : G. Prins: The Hidden Hippopotamus; Reappraisal in African History, Early Colonial experience in Western Zambia, London: Cambridge Univ. press 1980.

(Mukwae) Mataka (1885-1934), who ruled at Nalolo in the southern part of Bulozì was named "Ibolokwa" meaning, "those who passed by put soil on the mound".¹⁹

The labour expended on these projects was a form of obligatory tribute labour provided by the inhabitants of Bulozì. Part of the labour was provided by those who were brought to Bulozì in raids by the makolo. The makolo were the reservoirs of labour for public works in addition to their regimental function. Apart from conducting raids to bring in extra labour into Bulozì, they also participated in the construction of canals such as Imulomba, Njendu and Lwandala which are connected to Litunga Mubukwanu (1830s), Mukwae Kandundu and Mataka (c.1865-1876) and (c.1885-1934) respectively.²⁰ By the time of Lewanika reign, Bulozì had nine makolo, each was founded by a Litunga between 1600 and 1885, (see appendix C).²¹ The makolo constructed the canals which drained the water logged land and also used for transport purposes.

Canals are not unique to Bulozì. They are also found in other parts of the world where they have much longer history. For example, King Darius of Persia cut a canal from the Nile to the Red sea in the fifth century BC.²² In England, the first canal was constructed in 1759 to transport industrial coal from Worsely to Manchester.²³ In Bulozì, the construction of canals was a local initiative by the people to solve agricultural and transport problems in the flood plain.²⁴ According to oral tradition, the Lueti (little river), in Mongu district and the new course of the Zambezi river near Nalolo village in Senanga district, developed from canals constructed before

Lewanika became a Litunga. Hermitte and Van Horn have stated that there were canals in Bulozí in the reign of Sipopa (1864-1876). Hermitte went on to state that the first canal in Bulozí was most likely the one near Kazungula which he connected to the sixth Litunga, Ngombala.²⁶ Gluckman was also informed that the Mbunda immigrants from Angola constructed drainage canals in Mabumbu near Mongu during the reign of Litunga Mulambwa (c.1790-1825). Prins mentioned about the traces of the old drainage canals around Sefula mission station.²⁷ My informants stated the names of the old canals referred to above.²⁸ The District Commissioner for Senanga district recorded in his 1939-40 tour report about chieftainess Imafusa, the sister to the first Litunga Mboq, that

most of the material for building the hill (of her grave), were probably obtained in the vicinity (of the mound), and there are traces of a moat and a canal leading into the river ... I have mentioned this tomb of the chieftainess at some length as the information collected on these artificial mounds is scanty. They are, with the old canals, almost the only monuments of the old Barotse kingdom.²⁹

The canal reported above might have been, like many later canals, constructed for the chieftainess for transport and agricultural purposes. In 1907, the Native Commissioner for Mongu district noted in his annual report that

in comparison with other Bantu (speaking people), the Lozi system of agriculture is highly advanced. Drainage by dykes is practiced and understood by all, and successful attempts to irrigate have recently been started.³⁰

The construction of canals received impetus from Lewanika who wanted to improve agriculture and increase food production in his country. Lewanika came to the throne in 1878 after a revolt against

Mwanawina II. Once in power, he wanted to restore the old Lozi ways of life as they were before the Kololo invasion (c.1840s). He forced his people to participate in public works through their wakolo by constructing transport and drainage canals.³¹ In 1882, he sent the regiments on a raid to the Ila country. In 1883, he was approached by the PEMS to begin a Christian mission station in Bulozhi. In 1884, he was overthrown but he managed to defeat his rivals in the following year. In 1885, he allowed the PEMS to start mission work and they were given land at Sefula near Monqu.³² The missionaries helped Lewanika to bring Bulozhi under British protection.

NOTES

1. Gluckman, Economy, p. 5, see L. Kalaluka, Kuomboka, (Lusaka: Neczam, 1980), p. 1.
2. Hellen, Rural Economic, p. 243.
3. D.U. Peters, Land Usage in Barotseland, (Rhodes-Livingstone Communication Number 19, 1960=, p. 6; S. Williams, "Subsistence Farming Area, The Balozzi Plain", in S. Williams (ed), A Guide To The Study of Sample Areas (Lusaka: Ministry of Education, 1966), p. 43.
4. Peters, Land Usage, p. 9.
5. M.E. Kashimani, "Constraints on the Growth of the Fishing Industry in Western Province, 1924-1964" (M.A Dissertation, University of Zambia, 1987), p.9.
6. Kashimani, "Constraints". p. 11.
7. Kalaluka, Kuomboka, p. 11; Interview: Liambai Lubinda, Nanjuca, Senanga district, 14-11-89.
8. C.J. Trapnell and J.N. Clothier, The Soils Vegetation and Agricultural Systems of North-Western Rhodesia: A Report of the Ecological Survey (Lusaka: Government Printers, 1957), p. 36.
9. Gluckman, Economy, p. 6.
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11. J. Schultz, Land Use in Zambia (Weltforum: Verlag Muchen, 1976), p. 107.
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13. Williams, "Subsistence Farming". p. 51; Interview: G.K. Kumoyo, Principal, Namushakende Farm Institute, Mongu District, 21-11-89.
14. A. Roberts, A History of Zambia (London: Oxford University Press, 1976), p. 97; Mainga, Bulozi Under the Luyana Kings, p. 21.
15. Mainga, Bulozi Under the Luyana Kings. p. 23.
16. D. Livingstone, Missionary Travels and Researches in Southern and Central Africa (London: John Murray, 1899), p. 148; Peters, Land Usage. p. 41; Interview: Saboi Liamba, Department of National Registration, Lusaka, 4-11-89.
17. Livingstone, Missionary Travels, p. 149.

18. Interviews: Saboi Liamba, Lusaka, 4-11-89; Mundia Mwibeya, Tunqi, Mongu District 24-11-89.
19. Interviews: Mutonga Akakulu, Naslawo-Mukukutu, Senanga District, 13-11-89; Phillip Mufalali, Nanjuca-Nalolo, Senanga District, 12-11-89; Saboi Liamba, Lusaka, 4-11-89.
20. Interviews: Mutonga Akakulu, Senanga, 13-11-89; Phillip Mufalali, Senanga, 12-11-89; Namanga Mukubesa, Naslawo, Senanga District, 13-11-89.
21. N.A.Z., KDE 2/44/2, History of Barotseland, Notes and Documents, 1900-1936, p. 6; Interview in the Kuta with Nqambela Mufaya Mumbuna and senior Indunas confirmed this, Lealui, Mongu District, 5-12-89.
22. R. Pilkson "Inland Waterways Outside Britain," in C. Singer et al (eds), A History of Technology Volume 4 (London: Oxford University Press, 1958), p. 753.
23. C.P. Hill, British Economy and Social History (London: Edward Arnold Ltd. 1961), p. 81.
24. Interviews: Muhau Mataa, Agricultural Office, Provincial Headquarters, Mongu District, 10-11-89; Mufaya Mumbuna, Lealui, 5-12-89; see Gluckman, "The Lozi People". p. 11; Hermitte, "An Economic History". p. 42.
25. Interviews: Mutonga Akakulu, Senanga, 13-11-89; Phillip Mufalali, Senanga, 12-11-89; Mundia Mwibeya, Mongu, 24-11-89; see Gluckman, Economy. p. 6. The Little River (Lusti) referred to is now a tributary of the Zambezi river and passes near Lealui in Mongu district. "Mekisa" is a new course of the Zambezi river near Nalolo Village in Senanga district.
26. Hermitte, "An Economic History". p. 42; see Van Horn, The Agricultural History", p. 148.
27. Prins, The Hidden Hippopotamus, p. 64.
28. Interviews: Phillip Mufalali, Senanga, 12-11-89, Muhau Mataa, Mongu, 10-11-89; Mutonga Akakulu, Senanga, 13-11-89; Muryinda Mwikisa, Nalolo, Senanga District, 6-12-89.
29. N.A.Z., Sec 2/539, Senanga Tour Report, 1939-40, Tomb of Chieftainess Luafua, 1939.
30. Prins, The Hidden Hippopotamus. Br. 67it.
31. Clarence-Smith, "Landlords, Commoners". p. 223.
32. Mainza, Bulozi Under the Luyana Kings, p. 149.

CHAPTER TWO: THE CONSTRUCTION AND MAINTENANCE OF CANALS, 1885-1924

In this chapter an attempt is made to examine the roles of the Lozi state, the BSAC and PEMS in the mobilisation of labour and type of technology used in the construction and maintenance of canals. Between 1884 and 1900, Bulozá experienced natural calamities such as locust swarms, frosts, floods, droughts, diseases from time to time and also a political crisis in 1884-1885.¹ The combination of these factors and coupled with lack of proper tools brought hunger and famine.² At the time Bulozá was experiencing the above problems, Lewanika welcomed the PEMS and later in 1890 he signed the Lochner concession which paved the way for colonisation. He also launched major canal construction works to drain the marshes and river valleys for agricultural purposes.

THE ROLE OF THE LOZI STATE

From 1885, Bulozá was threatened by famine and hunger brought by the political strife, natural disasters, poor storage facilities, poor distribution of food and tools. Lewanika attempted to remove the threat of famine and hunger by ordering his subjects^{to} construct canals for drainage and transport. He engaged the makolo to construct the needed canals and this became their main occupation.³ Lewanika wanted Bulozá to be self-sufficient in food. He therefore launched the construction of drainage canals beginning with the Mwayowamo canal in 1887 and it was completed in 1889. The canal ran from Lealui to Lámulunga, the present summer capital of Bulozá. The Mwayowamo canal, apart from providing a transport route and drainage to the area between Lealui and Lámulunga, it also provided water for domestic uses to the inhabitants

of Lealui. This canal was further extended to the east of Limulunga to drain the Namitome area and the extension was named Namitome canal in 1891.⁴ In 1890, the Sikolongo canal was constructed. It linked Lealui to the Zambezi river as the main transport route to the west.⁵ In 1928, the Litunga Yeta III described this canal to the Resident Magistrate as "used principally to bring in food to Lealui as well as by all the people coming in from south-west of Lukona."⁶ Other canals completed after 1891 were Nalipanga, running from Namitome to the Ikabako plain; Lubitameni from Ushaa to the Zambezi river; Nanoko along the margins of the plain from Na oko to Limulunga and Nakolomo which drained the Machuu area. The Iboka canal constructed in 1908 ran from Mukoko near Mongu to the Little river (Lueti). In the Nalolo sub-district, sukwae Matauka constructed Kataba, Lwandala, Litoya, Sianda and Musiano west canals. She also constructed Simunyange, and Sikongo Lueti canals (see map II for some of the canals). Writing on these canals in 1980, the officer-in-charge of the Department of Water Affairs in Kalabo district stated that

there are thousands of kilometres of these canals all over (Bulozi). These canals are maintained to remove water from agricultural lands so that the local people can grow crops. Kalabo district like other districts has a good network of these canals. Some of them date from Lewanika's time.⁸

Writing also on the transport canals, he stated that "these canals are very few in (Bulozi) as they do not exist in some districts. Kalabo has three (canals) namely, Sishekanu to Libonda, Lueti to Sikongo and Mwadi to Ikatulamwa."⁹

These canals were constructed with the use of local labour and technology. The labour was mobilised through the makolo in the whole region ruled by the Litunga. Bulozì had nine makolo mentioned in (Appendix C) and each man belonged to one likolo. Furthermore, those people who came to Bulozì through tribute and raids were also integrated in the makolo. Each likolo had a commander who ensured that his men responded to a call by the Kuta (court) to participate in public works.¹⁰ The makolo worked under the overall leadership of the Ngambela (Prime Minister), who was the commander-in-chief. The slaves and the free Lozi worked together as members of the makolo in the construction of canals. They were mobilised once in a year to work for about three to six months.¹¹ Apart from the makolo as sources of labour, Bulozì was divided into administrative units called lilalo (singular - Silalo) or wards. Each Silalo had a head or Induna who was a representative of the Litunga. He supervised members of the makolo in a given silalo. The Induna ensured that public projects and instruction from the Kuta were implemented.¹² This form of labour mobilisation ended in 1924 when new labour reforms were introduced in Bulozì. In 1906, the BSAC abolished slave labour and the number of days in which the Lozi subjects offered tribute labour were restricted to twelve days.¹³ This "twelve days" tribute labour was expended in the construction and maintenance of canals. One such canal constructed in 1908 was called "Liabwa la 12 (canal of twelve) or Iboka."¹⁴ The Silalo was very important in expending the 'twelve days' tribute labour because each one was allocated a portion to work on. The Silalo Induna in turn subdivided the portion into a number of villages in the silalo to ensure each village had its own portion to work on under the

village headman. The villages which failed to complete their portions were fined cattle which became part of the royal herds (Zambuwa)¹⁵ This shows that participation in public works in general and the construction of canals in particular was obligatory to the inhabitants of Bulozì.

Apart from the mobilisation of labour, the Lozi state mobilised technology used in the construction of canals. Chipungu has argued that poor technology, political crisis and natural disasters such as droughts contributed to food shortages in Bulozì between 1850 and 1900.¹⁶ Milimo observes that in the 1890s the Lozi economy required political stability and effective organisation to achieve economic prosperity. She further states that agriculture in Bulozì needed the concentration of labour in a particular locality to be utilised throughout the year.¹⁷ Improved technology was also important in the agricultural economy. The Lozi had originally used wooden tools called Bishumo (singular Sishumo), which were sharpened wooden spades shaped like paddles made from hard wood such as mukwa and mukusi (Zambian teak), brought into the country through the tribute cycle from the forest regions. Because of the crude nature of these tools, the Lozi worked to improve on their technology. In 1887, the PEMS gave Lewanika an iron spade. Soon after, Lozi blacksmiths produced a replica of this spade and called it Kalafu (plural - Lakalafu).¹⁸ This involved converting iron hoes into spades.¹⁹ The hoes also came from the forest region through tribute. These tools were used in the construction of the Sakolongo canal which was about five metres wide and two metres deep.²⁰ By 1900, Lewanika and his co-ruler at Kalolo had constructed several canals mentioned earlier in the chapter.²¹

The labour reforms of 1906 did not affect the construction of canals very much. In 1908, Lewanika constructed Iboka and Lubitamei canals by utilising the "twelve days" tribute labour. He also approached the BSAC in 1906, to provide him with technical assistance in constructing a canal which he wanted to go round the Sioma falls.²² The BSAC agreed to assist and contracted a Mr. Simpson, an engineer with the company, for the job. Writing on this in 1906, secretary for Native Affairs Frank Worthington stated that

Lewanika is very enthusiastic about it, and he would have become suspicious of some ulterior motive if I had spoken too strongly against the scheme.... Mr. Simpson has gone to Livingstone to purchase £75 worth of tools for cutting the canal. Mr. Simpson has for lately assured me that he is confident of his ability to complete the work before next year.²³

Despite the assurance from the Secretary and Simpson himself, the Sioma canal was, for unknown reasons, never constructed. Therefore, the direct transport route to Livingstone hoped for by Lewanika never materialised. This made it difficult to market products from Bulozhi.²⁴

Before 1915, most of the people in Bulozhi met their tax obligations through the sale of cattle and working for cattle traders and those who owned cattle. In 1915, there was an outbreak of contagious Bovine Pluro Pneumonia (CBPP), which killed thousands of cattle in Bulozhi and the area became quarantined.²⁵ From then onwards, most of the people found it difficult to raise cash with which to pay tax. These difficulties made most of the able-bodied men to migrate to the south of the Zambezi river, particularly Southern Rhodesia and South Africa where they worked in the mines, farms and other industries. By 1917, a

large number of men were reported to be away from their homes.²⁶ Some of the absent men were recruited by the Rhodesian Native Labour Bureau (RNLB) which was authorised by the BSAC to recruit labour in Northern Rhodesia, while others went on their own. For instance, in 1917, the RNLB recruited 1,500 labourers in Bulozhi and a few were taken to work in Katanga mines.²⁷ The migration and recruitment of labour, coupled with lack of investment on economic infrastructures which could have created employment in Bulozhi, turned the area into a labour reservoir whose role in Southern Africa was the supply of labour.²⁸ The migration of labour to the south meant that the men who were absent from home for about three consecutive years did not render their "twelve days" tribute labour obligation. This in turn affected the state of the canals because it became increasingly difficult for the Kuta to raise the required labour.²⁹ Another factor which affected the condition of the canals was that the Lozi state in general and Yeta III in particular became more dependent on the BSAC officials for most of his economic needs. In 1925, Yeta was convinced by the British officials to end tribute labour. In doing this, christian influence might have been a major factor on Yeta who had received his early education from christian mission schools in Bulozhi and South Africa.

THE ROLE OF THE P.E.M.S.

The P.E.M.S missionaries came to Bulozhi in 1883 and were given land to build their first mission station at Sefula in 1885. The object of the missionaries was to preach the christian gospel in the whole of Bulozhi. But the problem of transport hindered their work and this made Collard to complain in 1886 that "the shortest walk in these

torrid climates, in the sands and the swamps exhausts me and makes me dread the exertion. Besides, these walks cannot radiate very far, so how can the distant villages be reached."³⁰ The missionaries needed a transport route not only for use in spreading the gospel but also for securing food and medical supplies. In 1887, they began to construct the Sefula canal which connected their station to the Zambezi river. When it was completed in 1889, it was partly used by the missionaries when they travelled into the plain to spread the work of God and also in transporting their food and medical supplies which came from the south up the Zambezi river, and partly by the people who visited the mission station from the central plain.³¹

The missionaries obtained their labour for constructing the Sefula canal from within Bulozí. Augustine Goy, an artisan missionary and Mwanangombe, a servant sent to the mission station by Lewanika, were permitted to recruit labour by the Kuta. They began to construct the canal in 1887 but by April 1890, it was not complete though Collard is reported to have spent £150 on the project. The delay in completion was partly due to the labour shortage created by the absence of men who went on a raid to the Ila country in 1888 and also due to the difficulty experienced in the recruitment of labour which was needed by the Lozi state to perform other functions of the state.³³

One important factor to be made here is that the people in Bulozí who were not connected to the ruling family (royal), were called Batanga (subjects, servants, slaves) of the Litunga and they were obliged to offer tribute and corvee labour through the makolo in their

respective lilalo. The obligation to offer tribute labour came from the Lozi theory of land ownership which stated that the Litunga owned the land from which all the inhabitants of Bulozhi derived their subsistence.²⁴ Therefore, since all the people subsisted on the land, they were indebted to the Litunga and this was expressed through the payment of tribute in the form of labour and gifts. Thus, when Lewanika gave the PEMS the right to recruit labour, they obtained it within the lilalo around the mission station. Those recruited from the lilalo were also members of the makolo. The missionaries, therefore, benefited from the makolo institution, and they introduced the western spade in Bulozhi.

THE ROLE OF THE BSAC

The first BSAC agent came to Bulozhi in 1890 and signed the Lochner Concession which placed Bulozhi under British protection. The concession required among other things that the BSAC should construct, equip, improve, work and manage public works, railways, tram ways, roads, waterways, lighting and all other works and conveniences of general and public utility.³⁵ However, the BSAC took seven years to come and take up its administrative responsibilities. In 1897, a Resident Representative, Robert Coryndon arrived in Bulozhi. Lewanika and the Kuta looked forward to seeing the implementation of the provisions of the 1890 concession.³⁶ We have already argued that under the Lozi state the policies of the BSAC such as taxation, labour reforms, migration and administration made it difficult for the Lozi state to raise labour for the construction and maintenance of canals. The company was very much

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interested in redirecting labour into the cash economy. This was carried out through recruitment by the RNLB, and the company never recruited labour for work in canals.³⁷ This was so, for two reasons; first investing company money in the canals would be an unnecessary expenditure and that the Lozi state could finance the canals from the ten percent of the tax money paid to the Litunga and the Kuta. The company officials argued that part of the tax money should be paid into the BTF to be used for public works and schools and that the Litunga should receive only £1,200.³⁸ The rest of the money was to be invested in schools and canals for the benefit of the public. However, the money from the BTF was not enough and worse still, the BSAC which controlled the BTF was not interested in offering higher wages in Bulozhi for fear that it might discourage the flow of labour to the south. For instance in 1915/16, the company spent £17 on both roads and canals and in 1916 it spent £20.³⁹ Thus the BSAC did very little to improve the state of canals in Bulozhi and after the outbreak of CBPP in 1915 and the closure of cattle sales, labour migration increased. Thus, the company policy of labour migration became a success story.

From 1916 (when cattle sales were closed), to 1924 when the BSAC surrendered Northern Rhodesia to the colonial office in London, free labour was difficult to raise in Bulozhi and some of the important canals were in a state of disrepair.⁴⁰ The BSAC discouraged the makolo institution in order to satisfy its administrative responsibilities. This was done through the labour reforms and introduction of tax in 1906, labour migration and recruitment. All of these had a negative impact on the construction and maintenance of canals.

IMPACT OF CANALS TO 1924

Before 1880, the inhabitants of Bulozhi spent most of their time in the flood plain where they cultivated the traditional mazulu and litapa gardens and they only left the plain during the time of high floods.⁴¹ When Lewanika began a large scale programme of constructing canals which drained the river valleys and the marshes for agricultural purposes, they began to cultivate the Sishanjo gardens along the margins of the plain. This meant that some of the people spent part of their time in a year at the margins of the plain to work on the Sishanjo which was cultivated from July to December. The Sishanjo could be used continuously without fertilisation.⁴² Thus the cultivation of Sishanjo in addition to the mazulu and other garden types in the flood plain increased food production more especially when natural calamities did not occur. In 1907, the District Commissioner for Mongu-Lealui, estimated the cultivatable land in the district to be 400,000 hactres.⁴³ The gloomy picture of hunger and famine painted by Chipungu for the period between 1850 and 1900 seem to have changed after 1906. In 1907, the District Commissioner for Mongu district reported excellent harvests over the whole district. In 1910, he also reported the large quantities of maize and cassava in the distirct cultivated by the people. In 1911, the Native Commissioner for Mongu reported that food was sufficient in Bulozhi.⁴⁴ At one time Lewanika was reported to have raised £30 from the sale of about six tonnes of grains harvested in reclaimed lands. The average price of maize was 10s per 200 pounds (lbs) between 1910 and 1914.⁴⁵ Between 1920 and 1922, the Native Commissioner for Mongu reported that food was plentiful. This prompted the BSAC to open a food store where the people sold their surplus food, suggesting that the food

situation had improved for the better.⁴⁶

Although the reported food situation between 1920 and 1922 might not have occurred throughout Bulozhi, it could be argued that without high floods and other natural calamities which destroyed crops the construction and maintenance of canals made the fertile peat soils in the Sishanjo available for cultivation by the people. Apart from drainage, canals provided communication links as they took the place of roads in Bulozhi. For instance, the Mongu and Nalolo canals served colonial government stations in the flood plain. They also helped traders, the chieftainess at Nalolo and the people in general to transport firewood and other supplies. The Mwayowamo canal provided water for domestic uses to Lealui residents.⁴⁷ They also enabled some of the people to settle in the newly drained areas such as Namitome in Mongu district.

This chapter has discussed the roles of the Lozi state, PEMS and BSAC in the construction and maintenance of canals. The discussion has shown that the Lozi state played a major role despite the inhibiting factors such as labour reforms, taxation and labour migration brought by the BSAC. The company played an insignificant role because it was more interested in securing labour for the enterprises south of the Zambezi river than expending it in the non-commercial activities in Bulozhi. The PEMS constructed the Sefula canal and contributed to the development of Likalafu.

NOTES

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7. Interviews: Mufaya Mumbuna, Mongu, 5-12-89; Muhau Mataa, Mongu, 10-11-89, Saboi Liamba, Lusaka, 4-11-89; see Prins, The Hidden Hippopotamus. p. 68.
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- 15.

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20. Johnstone, Reality Versus Romance. p. 178; see Prins, The Hidden Hippopotamus. p. 67.
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24. Caplan, The Elites of Barotseland. p. 144.
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36. Bates, Rural Responses. p. 44.
37. NAZ, ZA1/9, Unpaid Labour for Chiefs, District Commissioner to Secretary for Native Affairs,, 25 March, 1927.
38. Gluckman, Economy. p. 99; see also Hailey, An African Survey. p. 489; NAZ, BS 3/166, From the High Commissioner, Lord Selborne Cape Town to Lewanika, Lealui, September, 1905.
39. NAZ, KDE 8/1/7, Barotse Annual Report, 1915/16, Resident Magistrate Mongu, 1916; KDE 8/1/8; Barotse Annual Report, 1916/17, Mongu, 1917.
40. NAZ, RC/60, Barotse District Annual Report, 1924, Nalolo subdistrict Native Commissioner R. Hudson suggestions for development, May 1924; NAZ; KDE 2/9/1, Paramount Chief Yeta III to Resident Magistrate, 10 September, 1927.
41. Turner, The Lozi People. p. 17; Interviews: Induna Imutakela, Lealui Kuta, 5-12-89; Induna Namunda, Lealui Kuta, 5-12-89; F.L. Muhau, Mongu, 7-12-89.
42. Schultz, Land Use in Zambia. p. 107.
43. NAZ, KDE 8/1/1, District Annual Reports, 1906/7, District Commissioner, Mongu, March 1907.
44. NAZ, KDE 8/1/2, District Annual Reports, 1910-11, NAZ, KDE 8/1/1. District Annual Reports, 1907, Mongu, NAZ, BS 2/150, Subdistrict Reports, Nalolo, May 1911.
45. Clarence-Smith, "Landlords, Commeners", p. 225; NAZ, KDE 8/1/1, District Annual Reports, 1910/11.
46. NAZ, ZA 7/1/5/2, Barotse Province Annual Report, 1920-21.
47. NAZ, RC/60, Acting Secretary for Native Affairs' Report, May, 1926.

CHAPTER THREE: COLONIAL POLICIES AND THE RECONSTRUCTION OF CANALS, 1925 - 1964

This chapter examines the colonial period. It focuses on the changing colonial policies and how they affected the construction and maintenance of canals, the drainage of Shishanjo and the impact of canals on the agricultural economy. The chapter is in two parts and the first one examines the role of the colonial state in the construction and maintenance of canals from 1925 to 1945, when very little work was carried out. The second part discusses the changing role of the state. The state began development plans in the post second world war years (1946-1964) which incorporated the construction and maintenance of canals in Bulozhi and it worked hand in hand with the BNG to encourage African agriculture in drained areas.

EFFORTS OF THE COLONIAL STATE AND BNG

Northern Rhodesia came under direct crown protection in 1924 and Sir Hurbert Stanley was appointed the first Governor. Upon assuming office, he found Bulozhi faced with problems created by the Lozi political elite. Some of these were that Litunga Yeta III and the educated elite did not like the BSAC administration. They also wanted to restore the traditional rights and powers of the Lozi ruling class and demanded that the company should surrender its mineral rights. The main one was the demand by the Kuta that the whole ten per cent of the tax money collected from North-Western Rhodesia must be paid to it.¹ This demand arose because the £1,200 paid to the Litunga and his Kuta was considered to be insufficient. The Governor

solved the problem by increasing the amount to £2,500 and asked the Kuta to abandon the "twelve days" tribute labour demanded from the subjects. This was accepted and tribute labour was abolished in 1925, and the makolo institution came to an end. The proclamation which stopped tribute labour, read in part that

there will be no unpaid labour or works of any kind which will be given to anybody to perform, but that every kind of work, national, personal or for the Paramount Chief himself or for a Councillor or Village headman or for any ordinary person under the authority of the Paramount Chief of Barotseland will be paid for in the same way as is being done for all work in the territory.³

After the abolition of tribute labour in 1925, the Kuta failed to mobilise labour because it did not have money to pay for hired labour services. As a result, Litunga Yeta reported to the Resident Magistrate in 1926 saying that he was having difficulties in getting labourers for canals. But the colonial government did not assist the Kuta because it believed that labour must be paid for. The people themselves were not prepared to offer either free labour or work for low wages. As if that was not enough, labour migration scattered the able-bodied men away from villages, leaving only women, children and the infirm. The British officials argued that labour in Bulozhi should be hired at the market wage rate which was on the average at 8/ per month, and that the £2,500 to be paid to the Litunga and the Kuta was also to be used to pay for the works previously performed by tribute labour.⁴ The Litunga was urged to finance the maintenance of canals from the above money. He was also asked to stop demanding a portion of the tax money paid into the BTF. Instead, the British officials strengthened the fund by paying into it thirty percent of the tax collected in Bulozhi.⁵

Although Yeta was requested to fund the maintenance of canals, the money paid to the Kuta was found to be insufficient. After distributing the £2,000 to the members of the Kuta, he was only left with £500 which fell far short of his expectations and those of the other chiefs.⁶ This made the Chieftainess at Nalolo to enquire into how canals were to be maintained without free labour and sufficient funds. The Native Commissioner replied by stating that the administration would undertake

the job in future.⁷ But the colonial Government, like its predecessor the BSAC, was not willing to foot the ^{total} cost of maintaining canals,⁸ but was willing to share the costs with the BNG. This suggestion arose after the Governor directed that "existing canals in Barotse (Bulozi) should be repaired and should not be allowed to silt"⁹ The Governor's directive came because Adophe Jalla, a PONS representative on the BTP local Executive Committee insisted that important canals in Bulozi should be maintained because "they were of direct benefit to thousands of natives. Formerly, they were kept clear by forced labour but now were becoming silted and useless. The canals might be considered as the equivalent of the great highways in Europe."¹⁰

The Governor sanctioned that the costs of maintenance should be shared between the government and the BTP. However, he ruled that no new canals should be constructed but the money should be spent on the maintenance of the important transport canals which benefitted the people.¹¹ With the Governor's authority to spend money, the BTP executive recommended that £75 be used annually depending on the amount of maintenance work. The Government on the other hand proposed £60 which was accepted by the BTP executive.¹² The table below shows the actual recommended expenditures made by the NRG and BTP from 1926 to 1932. The money spent by the BTP was controlled and authorised by the Government.

Table 3.1: RECOMMENDED EXPENDITURE IN £

YEAR	1926	1927	1928	1929	1930	1931	1932
BTF	60	67	80	80	100	100	100
NRG	60	67	80	80	100	100	100
TOTAL	120	134	160	160	200	200	200

SOURCE: NAZ, RC/60, Minutes of the BTF Local Executive Committee, December 1926 - August, 1929; NAZ KDE 2/9/1, Canals, December 1926 - August 1929 BTF, Executive Committee minutes of the meetings; NAZ, KDE 6/1/1, BTF Local Executive Committee meetings, 1930-36.

The NRG spent small amounts of money on canals which was only enough to employ a few hundreds of people for reasons that were two fold. First it wanted the continued flow of labour from Bulozzi to the south where it was needed in the mines, farms and other industries. Second, Bulozzi was regarded by the NRG as a labour reservoir whose labour was meant for exploitation outside the region. Therefore, the amount of money invested did not cater for all the canals.

The canals were not abandoned but the government wanted to maintain them at a minimum cost. An example of a minimum cost offered by Yeta with government approval may suffice here when the recommended average wage per month was 8/. In 1929, Yeta made an estimate of £25 on behalf of the BNG to maintain the Iboka canal and he needed forty labourers to work for three months.¹⁴ This means that he paid his labourers four shillings per person per month which was very little. These wages failed to attract the workers to maintain the canal. In our opinion, Yeta and the Kuta were responsible for this state of affairs because they were mostly interested in using the money paid

into the BTF for personal ends. Equally important was the NRG which had ignored the provisions of the concession signed with Lewanika in 1890.¹⁵ Thus, only a few canals were maintained between 1925 and 1932 because of insufficient funds.

In 1929, the Great world depression which began in the USA affected capitalist enterprises in Southern Africa as well. A large number of labour migrants lost their jobs and returned to their respective homes.¹⁶ For example, in 1932, less than ten percent of the able-bodied men were absent from Bulozhi. The majority were at home. Some of the returnees found employment in the maintenance of canals. Between 1935 and 1937, 10,800 men were offered relief employment and most of them maintained canals.¹⁷ Relief employment enabled some of the former migrants to raise tax money and also to purchase food in times of shortages.¹⁸ The period between 1936 and 1940 saw the maintenance of canals funded by the NRG and BNG from its native treasury (Barotse Native Treasury) which was introduced in 1936 and took over the functions of the BTF under the Native Treasuries ordinance. The canals helped in the drainage of some areas which were put to agricultural use.¹⁹

Between 1932 and 1936, the food situation was reported to be good in Bulozhi. The Provincial Commissioner noted that "Kalabo had excellent harvests, Mongu-Lealui, the best within living memory and Senanga, the best for a number of years."²⁰ Unhappily in 1937, locust swarms invaded Bulozhi and caused food shortages. Chipungu has argued that the colonial Government did not assist the subsistence farmers to fight the locusts but instead they were left to use traditional methods such as fires and

sticks. The reason for not assisting the African farmers was because of the shortage of chemicals in the country.²¹ The government equally feared that African agriculture could destroy white settler farming through market competition.²² The other factors which militated against the contribution of canals to food production was the occurrence of annual floods which sometimes destroyed crops. The prevalence of the cultivation in the Sishanjo which could not be reached by an ox-drawn plough because of its moist conditions, left large tracts of suitable land unutilised. The cultivation on the traditional mazulu which had a limited hactreage could equally be responsible for the food shortages in Bulozhi.²³ The rise in labour migration in the 1940s which left villages with a large number of women only, made drainage work impossible and subsequently most canals became blocked. This led to the abandonment of Sishanjo cultivation which in turn contributed to poor harvests.²⁴

MAINTENANCE OF CANALS, 1946-1964

After the second world war in 1945, there was an increased demand for copper in the world. The copper mining companies in Northern Rhodesia responded to this by increasing production. This meant that more labour was required to work in the mines. The high demand for labour speeded up the process of migration to the Copperbelt and other mining areas in Southern Africa, which in turn raised the labour force. The large labour force subsequently led to the demand for more food supplies. The colonial government responded to this by devising ten year development plans aimed at promoting peasant agriculture and

raising African production to supply more food to the mines.²⁵

In Bulozhi, the colonial government realised that African agriculture could only be raised by utilising the drained Sishanjo.²⁶ The drainage of the Sishanjo was included in the territorial development plans and in the five year native development plan.²⁷ The native plan emphasised the question of water and land transport and agricultural production.²⁸ In reference to the Zambezi river, the Provincial Commissioner commented in 1943 that

it is considered ... this fine river might be developed and I have made a provision for a survey by an expert. The method of transport in Kalabo, Mongu and Senanga districts during the wet season is by river craft, and since the abolition of the 'twelve days' tribute labour, the canals have got silted up although the Native Government does provide several hundred pounds a year to keep them open. It is considered that this canal system must be developed.²⁹

The Provincial Commissioner proposed to set aside £1,000 for the survey of the Zambezi river and £500 for the development of canals. In agriculture, a development centre for crop demonstration was also proposed. The centre was finally established in 1949 at Namushakende south of Mongu town.³⁰ The centre carried out among other things, extension services, crop experiments and demonstrations and drainage of the Sishanjo. The results of the experiments and drainage were later taught to the surrounding communities. For instance, in 1953, rice growing experiments were carried out at the centre. The total area of drained and cultivated land was 26.8 square hactres from which a total of 33,914 kilograms of paddy rice was harvested. The average yield was 1,265.4 kilograms per hactre.³¹ The experiments also showed that ~~Burma~~ and Angola II rice varieties were suitable for drained

areas and they were subsequently adopted by the subsistence farmers.³² The extension unit at the centre encouraged the construction of drainage canals and the planting of appropriate crops. Furthermore, a team at the centre constructed the Musiamo canal in 1949 in the eastern margin of the plain from Mongu to the boundary with Senanga.³³ Similar drainage works and experiments were extended into the Kataba area east of Namushakende.³⁴ However, the efforts of the demonstration team failed to bear fruits because of the absence of over half of the male population at Kataba and the surrounding areas.³⁵

The NRG and the Native authority tried to counter the absence of men and the abandonment of Sishanjo through the formulation of regulations under the Barotse Native Authority Ordinance which required people to maintain their canals. This was done, so that Sishanjo cultivation could be practiced to avert food shortages.³⁶ Measures such as the raising of the tax rate and forcing the land owners to finance and work on their canals under section 8(e) of the ordinance were taken. However, the measures were unsuccessful because of the large number of absent males.³⁷ With the failure of the regulations, the NRG and BNG found it necessary to foot the full cost of the construction and maintenance of canals from the Welfare development and Native treasury funds respectively. The Provincial Commissioner further suggested that an agricultural officer should be seconded to help in the development of Sishanjo cultivation.³⁸ Apart from that Indunas were also appointed to work with the extension staff and to supervise the work in their areas. The Indunas managed to supervise the drainage work because they were in direct contact with the people

and were familiar with the local terrain. Induna Saywa and Imandi dealt with canals at Nalolo and Lealui Kuta respectively and they had assistants in every chiefs' village.³⁹ Educational campaigns were also used by the NRG and BNG to explain to the people the importance of maintaining canals and to create a conscious attitude towards drainage. The other educational campaigns were

the dropping of leaflets from air craft, two tours by the protectorate public relations unit, the printing of 5,000 copies of a profusely illustrated book on the district canals that is now a school reader, preparation of a film and slides about canals, Canal courses had been held for Kapasus (messengers) and a canal conference for Indunas.⁴¹

All these measures were taken to ensure that the people grew enough maize and rice in the drained areas. The government also wanted to help in the production of food crops which were below subsistence levels in areas prone to high floods and water logging. The colonial state and the local authority worked jointly to reclaim 2,000; 1,050 and 1,550 hactres of Sishanjo in Lui, Itufa and Ukolo areas of Senanga district respectively. A total of 5,700 hactres were brought under cultivation in 1953.⁴² In the Nasiwayo-Mukukuto area, most of the cultivation was in the Sishanjo because the mazulu were scarce.⁴³ The western Musiamo canal in Senanga west was rehabilitated and had the Mwandi-Ukolo area drained.⁴⁴ Other areas in Monqu district such as Namitome, Ushaa and Nanoko, and in Kalabo district, Makoma, Simunyange and Lukona were also drained.⁴⁵

These drainage works required huge investments from the NRG and BNG. For instance, in 1954, £1,000 was spent on the reconstruction of fifty-two kilometres of canals.⁴⁶ In 1955, £2,300 was spent on a

dredger for dredging canals.⁴⁷ In 1958, the District Commissioner for Mongu suggested that "as much money as possible should be used this year..." and £20,000 was spent by the BNG to clear the floods of 1957-58 season and 2,500 people were employed for a period of three to six months.⁴⁸ Furthermore, one hundred and twelve kilometres of canals were maintained in Kalabo district. Another £3,600 was spent for an aerial survey of farming lands and the construction of canals in Kalabo and Mongu districts in 1959. In the year 1960, £2,000 was spent on draining the upper Luanginga plain in Kalabo district.⁴⁹ In 1961, the BNG made available £1,400 for the maintenance of the canals used by the Litunga during the Kuomboka and Kufuluhela (return to the flood plain).⁵⁰

These major construction works were essential to the economy of Bulozhi because the agricultural potential of most areas depended on drainage and they also provided employment to the people.

IMPACT OF DRAINAGE CANALS

The construction and maintenance of canals between 1945 and 1964 helped to reclaim the Sishanjo which was neglected by the people between 1925 and 1945 because of lack of extensive maintenance of canals due to inadequate funding. In the post second world war years, the Sishanjo was drained to increase the availability of agricultural land for cultivation so that food shortages could be averted. The colonial state came to note that apart from natural disasters, the perennial food shortages were also due to water logging in the Sishanjo caused by floods. The problem of floods and water logging was solved by

drainage canals which regulated the water levels in the soils.⁵¹
For example, the drainage experiments at Namushakende and Kataba showed the agricultural potential of the Sishanjo particularly when weather conditions were good. For instance in 1956, it was reported that

weather conditions in general were suitable for agriculture (in Bulozzi) a fact reflected in the increased quantities of maize and rice offered for sale. No famine areas were reported but food shortages in the Sihole area of Kalabo district were found to be connected with a general rise in water table.⁵²

In 1956, Mongu district sold 1,250 bags of maize against 600 in 1955.⁵³ In 1959, Mongu district produced 14,000 bags of maize and in 1960, 19,000 was harvested. In 1959, 3,200 hactres of land was reclaimed in Kalabo district and a large hectreage of it was cultivated for maize. In the drained Kataba area, food was reported to be plentiful in 1959 despite that 1957 and 1958 were bad years because of high floods.⁵⁴

Furthermore the well drained canals provided breeding grounds for fish.

The women used the canals for fishing and caught the small sardines (Nakatenge) with scouping baskets.⁵⁵ The canals were also used for

transportation of fish by both fishermen and traders from the central plain to the forest edge on their way to urban markets.⁵⁶ But the

absence of all weather good roads to urban centres of Mongu and Livingstone hampered the fish trade. In addition, the canals were used by the

Litunga and the people in general during the annual hunting parties.

After hunting was over, meat was transported back to the villages using dugout canoes. In other instances, men hunted birds which congregated on the banks of canals to eat small sardines (Nakatenge) when floods receded.⁵⁷

Between 1925 and 1945, no clear policy was made concerning the canals. As a result of this, very little work in the maintenance of canals was carried out by both the NRG and BNG. However, between 1946 and 1964, the policy of improving African agriculture made the NRG and BNG to spend money on the construction and maintenance of canals.

NOTES

1. Hermitte, "An Economic History" p. 297, see Caplan, The Elites of Barotseland. pp. 121-29.
2. Hermitte, "An Economic History", p. 298, Caplan, The Elites of Barotseland, pp. 298-9, see also Milimo, "Relations", p. 140.
3. Cluckman, Essays in Lozi Land, p. 85.
4. N.A.Z., RC/60, Canal from Nalolo Village to Nalolo Mafulo, Assistant Native Commissioner, Nalolo, to the Secretary, Native Affairs, Livingstone, 25 June, 1925; Gluckman, Economy, p. 99; N.A.Z. KDE 2/9/1, Correspondence on Canals, Paramount Chief Yeta to Resident Magistrate, Mongu, Dec. 1926; N.A.Z. ZA 1/9, Free Labour for Chiefs, DC to Hon. Secretary 19 October 1927; N.A.Z. KDE, 2/5/1 BTF, Resident Magistrate to Phillip Hall, 25 March, 1926.
5. Gluckman, Economy, p. 99.
6. Hermitte, "An Economic History", p. 298.
7. N.A.Z., RC/60, Assistant Native Commissioner Nalolo, to Secretary, Native Affairs, Livingstone 26 June 1925.
8. Bates, Rural Responses, p. 44.
9. N.A.Z., RC/60, Assistant Secretary, Native Affairs, to Hon. Secretary, Native Affairs, Livingstone, 11 Sept. 1926.
10. N.A.Z.. C/60, Extract from Minutes of the First Meeting of the BTF Local Executive Committee, 25 March 1925.
11. N.A.Z. RC/60, Minutes of His Excellency, the Governor to the BTF Executive Committee, 31 August 1926.
12. N.A.Z. RC/60, Extract from Minutes of the First BTF local meeting 26 March 1925, see also N.A.Z. KDE 6/1/1, Minutes of the BTF Local Executive Committee, 25 March 1925.
13. N.A.Z. KDE 6/1/1. Local Executive Committee meeting, 26 April 1928; The Committee discussed the general average wage to be offered to the workers in canals. This was done in relation to other areas of employment in Bulozhi.
14. N.A.Z. KDE 2/9/1. Paramount Chief Yeta III to the Provincial Commissioner, Mongu, 21 August, 1929. The Paramount Chief offered wages lower than the proposed ones.
15. Caplan, The Elites of Barotseland, p. 133-4, Clay, Your Friend, pp. 160-66. Yeta wanted the BSAC to develop Bulozhi using its money as it was agreed in the early concessions.
16. Northern Rhodesia, Annual Report Upon African Affairs for the Year 1931 (Livingstone: Government Printers, 1932), p. 78.

17. Northern Rhodesia, Annual Report Upon Native Affairs for 1936 (Lusaka: Government Printers, 1937), p. 90, see also Miliomo, "Relations". p. 150.
18. Northern Rhodesia, Native Affairs Annual Report for 1935/6 (Lusaka: Government Printers, 1936), p. 86.
19. For the introduction of the Barotse Native Treasury (BNT) in 1936, see N.A.Z., Sec 2/360, 1933-36, Reorganization of the Barotse Trust Fund (BTF), (Amendment Ordinance 1936); see also, A.W. Pim and S. Miligan, Report of the Commission Appointed to Enquire into the Financial and Economic Position of Northern Rhodesia (Lusaka: Government Printers, 1938), p. 194.
20. Northern Rhodesia, Native Affairs Annual Report for 1936, p. 86.
21. S.N. Chipungu, "Locusts, Peasants, Settlers and the Colonial State in Northern Rhodesia 1929-1940", in TransAfrican Journal of History, Number 15 (1986), p. 70; Interviews: Liambai Lubinda, Senanga, 14-11-89; Kayalekelwa Mutonga, Senanga, 13-11-89; Sianga Mwibeya, Mongu, 24-11-89.
22. See Chipungu, "Locusts, Peasants." p. 71.
23. Interviews: Mbelela Mulobela, Mumbwa Secondary School, Mumbwa, 10-5-90, G. Kumoyo, Namushakende, 21-11-89, see N.A.Z. Kde 8/1/1 Barotse Annual Report, District Commissioner, Mongu, March, 1907.
24. N.A.Z., Sec 2/478. Kalabo Tour Report, 1950, see N.A.Z., sec 2/71, Barotse Province Annual Report 1948, Provincial and District Agriculture.
25. S.M. Makings, Agricultural Change in Northern Rhodesia/Zambia (Stanford: Stanford University Press, 1966), p. 205; Northern Rhodesia, Capital Plan 1959-1963 (Lusaka: Government Printers, 1962), pp. 5-6. Emphasis on agricultural production and provision of remunerative employment to the population in rural areas.
26. Trapnell, Soils, Vegetation, p. 35.
27. N.A.Z., Sec 2/282. Native Development Plan, Barotse Province, 1943
28. N.A.Z. sec 2/282, Native Development Plan, Barotse Province, 1943, Five Year Plan, Comments by Provincial Commissioner.
29. N.A.Z. Sec 2/282, Native Development Plan, Barotse Province, Comments by the Provincial Commissioner, 1943.
30. Interview: G.K. Kumoyo, Namushakende, 21-11-89; for the Provincial Commissioner's Proposals, see N.A.Z., Sec 2/282, Native Plan 1943-48
31. Northern Rhodesia, Department of Agriculture, Annual Report for Year 1953 (Lusaka: Government Printers, 1954), p. 24.

22. Interview: G.K. Kumoyo, Namushakende, 21-11-89, see Department of Agriculture, Annual Report for 1953. p. 24.
33. N.A.Z. Sec 2/71, Barotse Province Annual Report, Mongu-Lealui, Subdistrict, 1947/48.
34. N.A.Z., Sec 2/494, Volume 1, Tour Report, Mongu, Development Centre, 1948, Agriculture and Food Supplies; Interviews: Lutombi Neta, Senanga, 14-11-89, Mutibiwa Mwananono, Muoyo, Senanga district, 15-11-89.
35. N.A.Z. Sec 2/494, Volume 1, Tour Report Mongu, 1940-48; N.A.Z. Sec 2/543, Senanga Tour Report, 1952, Agriculture and Canals.
36. N.A.Z. Sec 2/494, Volume 1, Tour Reports, Mongu, 1948.
37. N.A.Z., Sec 2/494. Volume 1, Tour Reports, Mongu, 1948.
38. N.A.Z., Sec 2/478, Kalabo Tour Report, 1950, Acting Provincial Commissioner's Comments on Kalabo Tour Reports, 1950.
39. Interviews: Mwangala Nawa, Senanga, 17-11-89; Muhau Mataa, 10-11-89; Sec Northern Rhodesia, African Affairs Annual Report, for the Year 1953 (Lusaka: Government Printers, 1964), p. 85.
40. Northern Rhodesia, African Affairs Annual Report for the Year 1959 (Lusaka: government Printers, 1960), p. 84.
41. Northern Rhodesia, African Affairs Annual Report, 1959, p. 84.
42. N.A.Z., Sec 2/543, Senanga Tour Report, 1953.
43. N.A.Z., sec 2/545, Senanga Tour Report, 1954.
44. N.A.Z. Sec 2/546, Senanga Tour Report, 1955.
45. Interviews: Mufaya Mumbuna, Lealui 5-12-89; Mbelela Mulobela, Mumbwa, 10-5-90; Saboi Liamba, Lusaka, 4-11-89, Mundia Mwibeya, Mongu, 24-11-89, see N.A.Z., Sec 2/509, Mongu Tour Report 1959, Luena Survey; N.A.Z., Sec 2/486, Kalabo Tour Report, Volume II, 1958.
46. Hellen, Rural Economic, p. 247.
47. Northern Rhodesia, Commissioner of Rural Development, Annual Report for the Year 1955. (Lusaka: Government Printers, 1956), p.6.
48. Hellen, Rural Economic. p. 247; N.A.Z. Sec 2/586, Kalabo Tour Reports, 1958, Agricultural and Food Supplies, Comments by the acting Resident Magistrate, Mongu, 1958. See Northern Rhodesia, African Affairs Annual Report, 1958. p. 8 and N.A.Z., Sec 2/505, Mongu-Lealui Tour Reports, 1958.

49. Colonial Annual Report, 1958, Northern Rhodesia (London: HMSO 1959), p. p. 60; Colonial Annual Report 1961, Northern Rhodesia (London HMSO 1962), p. 54, see also Northern Rhodesia, African Affairs Annual Report for the Year 1960, (Lusaka: Government Printers, 1961), p. 85.
50. N.A.Z. Sec 2/512, Mongu Tour Reports, 1961; Hellen, Rural Economic. p. 247, Ministry of Native Affairs, Annual Report for the Year 1961, (Lusaka: Government Printers 1962), p. 6.
51. N.A.Z. Sec 2/512, Mongu Tour Report, 1961. See, Ministry of Native Affairs, Annual Report, 1961, p. 6.
52. Northern Rhodesia, African Affairs Annual Report for the Year 1956 (Lusaka: Government Printers, 1957), p. 89.
53. Northern Rhodesia, African Affairs, 1956, p. 89.
54. Northern Rhodesia, African Affairs, 1959, p. 80; see also the Annual Report for 1960, p. 80; N.A.Z. Sec 2/494, Development Centre Tour Report, 1960.
55. Interviews: Kayalekelwa Mutonga, Senanga, 13-11-89; Masiliso Muyumbwa, Mukukutu, Senanga District, 12-11-89; for scooping baskets and how they are used, see Kashimani, "Constraints", p.33.
56. N.A.Z., RC/60, Canal from Nalolo. Extract from Minutes of the Local BTF Executive Committee Meeting, 25 March, 1926.
57. Gluckman, Economy, p. 57; Interviews: M. Nawa, Kalulushi, 23-08-92, M. Nganga, Kalulushi, 24-08-92.
58. Although waterborne diseases like Anthrax and Bilharzia, sometimes occurred in Bulozhi no diseases were reported to have been spread by canals.

CHAPTER FOUR: THE CONSTRUCTION AND MAINTENANCE OF CANALS IN THE POST-COLONIAL PERIOD UP TO 1980

Our main concern is to examine the post-colonial period by focusing on policies related to the construction and maintenance of canals and the type of technology used. We will discuss the employment opportunities offered to the people, successes, failures and the general contribution of canals to the agricultural economy. In the previous chapter, we have shown that the colonial state had paid very little attention to the construction and maintenance of canals between 1925 and 1945. But in the post 1945 years, canals were included in the Development Plans launched to improve African Agriculture.¹

The new Zambian Government which came to power in 1964, like its predecessor, also considered the importance of canals in the development of agriculture in the flood plain. It included canals in the First National Development Plan, 1966-70, whose objectives were providing employment opportunities and adequate incomes and promoting agricultural production in rural areas.² In Barotseland (now Western Province) the strategy for rural development was to promote maize production for internal consumption.³ The emphasis of the Development plan was on facilitating processes which would result in increased opportunities for rural life, with a focus on public participation in development.⁴

To achieve the above goals, the Government allocated its financial resources on provincial basis, and Western Province received £475 million, which was further distributed to various ministries and departments for development projects. The Ministry of Lands and Natural Resources under which the Departments of Water Affairs and Agriculture fell, were allocated

£1,367,000 to carry out local development programmes.⁵ The programmes were water, canal and agricultural development. The Department of Water Affairs which was responsible for the construction of canals was allocated the estimates shown on the table below to be spent on the construction, rehabilitation and maintenance of canals between 1966 and 1970.

Table 4.1: ESTIMATES OF EXPENDITURE (£)

YEAR	1966 - 67	1967 - 68	1968-69	1969-70
Estimated Capital Costs	£132 000	£250 000	£200 000	£192 000
Estimated Recurrent Costs	£10 000	£10 000	£11 000	-

SOURCE: Republic of Zambia, The First National Development Plan 1966-70 (Lusaka: Government Printers 1965), pp. 179-80.

A total of £805,000 which was more than half of the estimated allocation to the Ministry of Lands and Natural Resources (MLNR) in the province was to be spent on the development of canals. For instance in 1970, the actual expenditure on canals was £150,000.⁶

The Second National Development Plan 1972-76, like the first one, also placed its emphasis on rural development. In the foreword to the plan President Kenneth Kaunda noted that

the objective of this programme will be mainly to correct the anomaly of lop-sided development that we inherited from the pre-independence era. It is also necessary to create incomes for the rural people in order to generate a domestic demand.⁷

In this Second National Development Plan, the Department of Water Affairs was earmarked to utilise K645,000 to dig canals for drainage and transport. Out of this amount, K75,000 was earmarked to be spent in 1972 when the plan was launched. The rest of the money was to be spent between 1973 and 1975.⁸ The allocation of the money was also meant to create employment in Bulozzi so that people could earn incomes to meet the basic needs.⁹

THE ROLE OF THE DEPARTMENT OF WATER AFFAIRS

The Department was, in the main, in charge of the construction and maintenance of canals. To carry out its functions, it used both human labour and machines. However, most of the work was done by human labour as a way of providing employment to the local people. In 1964, between 650 and 700 men were employed by the department to construct and maintain the drainage canals whilst machines such as cutter dredgers worked on the major transport canals.¹⁰ In 1964, a suction cutter dredger was used to maintain and deepen the Monqu-Kalabo canal to allow large boats and barges to pass with minimum difficulty. In 1965, the department acquired another dredging machine from the Dutch Government. The dredger was later deployed on the Monqu-Kalabo, Mwayowamo and other important canals. Between 1964 and 1967, the increased work-load of deepening and maintaining the canals prompted the Government of Zambia to acquire another dredger from the Dutch Government.¹¹ However, in line with the Government policy of providing employment to the rural people, the department found it cheaper to use human labour on a larger scale than dredging machines. The machines were difficult to use in terms of repairs, fuel,

and trained personnel. Thus dredgers were later on confined to the Mongu-Kalabo canal.¹² For instance in 1973, out of the fifty-six kilometres of completed canals, only six kilometres were maintained by dredging machines while the rest were by human labour.¹³

EMPLOYMENT IN CANALS

The colonial Government had not laid an economic base in Bulozhi up to 1964 from which the region could develop because its role in the Southern African region was to supply labour to the South. Even after 1964, the Zambian Government did not create a viable economic agricultural base to which the returned labour migrants after the closure of the Witwatersrand Native Labour Association (WNLA) could turn to. The returnees migrated to the line of rail and the copper mines. In certain instances, they drifted to the Bomas within Bulozhi in search of employment.¹⁴ Those who resisted migration found employment in canals. However, employment in canals was mostly offered to those people who lived in areas near where canals traversed. This was done so that the department did not incur transport and boarding expenses because the labourers just walked to the working sites. Those who were employed as labourers worked for three to six months in a year to clear and maintain the blocked and silted canals. The canals were normally blocked by sedges (Mutaka) and floating vegetation or carpet grasses (Matindi) which overgrew in the canals.¹⁵ A permanent skilled labour as well as supervising Indunas were also employed to work with the unskilled labourers.¹⁶ The employment of the local inhabitants enabled them to earn income for almost half of a year. Informants

stated that the wages which they earned from working in canals were used to purchase the basic household needs such as hoes, clothes, pots and plates. They further added that whenever there was recruitment for work in canals, job-seekers turned up in large numbers, and many were turned away.¹⁷ Some of the labourers were recalled annually to maintain the important canals. This again involved those who lived very close to the canals.¹⁸

The wages offered to the labourers had been changing with time. In the late 1960s, a canal worker earned K1.00 per day and in the late 1970s it was K2.00 per day.¹⁹ These wages were attractive in rural Bulozhi especially given that there was little option of finding alternative work to compete with working on canals. This could be seen from the number of labourers engaged by the department from 1964 to 1970 shown on the table

Table 4.2: FIGURES OF EMPLOYEES

YEAR	1964	1965	1966	1967	1968	1969	1970
Highest Number	750	1000	1000	1000	1000	1000	1000

SOURCE: Department of Water Affairs, Annual Reports, 1964-1970 (Lusaka: Government Printers)

One thousand workers in the table represents the highest number of labourers recruited in one year and it was only achieved during the peak periods of construction and maintenance. Apart from the Department

of Water Affairs as an employer of labour to work in canals, the former Rural Councils also employed people on a limited scale to maintain a few selected canals such as those used by the Litunga during Kuomboka and Kufuluhela. They also encouraged the people to drain their agricultural land through community effort under the leadership of the Ward Councillors.

THE CONSTRUCTION AND IMPROVEMENT OF DRAINAGE CANALS

From 1964, when Zambia attained independence, there was need to increase food production in Buluzi so that the region could be self-sufficient. To achieve this, the Department of Water Affairs was to drain the water-logged see-page areas of the Zambezi river system, which after drainage had the potential for food production. The department cooperated with the Royal Establishment and at times with the community to carry out the drainage schemes.²¹ However, limited financial resources allocated to the scheme, lack of technical know-how by the community on soil and water management made the whole drainage scheme to have very little effect in the **economy of Buluzi**.

The major drainage works which were carried out were the rehabilitation and construction of the old and new drainage and transport canals respectively.²² This helped to reclaim a few agricultural areas, but no proper agricultural scheme was introduced to encourage peasant production in the drained areas. Between 1966 and 1975, quite a good number of kilometres of canals were completed. The completion of more work was made possible by the utilisation of the available human labour which had no other option of formal employment in Buluzi apart from

working in canals. The table below shows the distances in kilometres and the types of canals which were completed in the above period.

Table 4.3: CANALS COMPLETED IN BULOZI, 1965-1975 (in Kilometres)

YEAR	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
Deepened & Reconstructed	208	186	-	50	-	539	501	-	572	-	-
Drainage	-	77.5	50	-	-	-	-	-	-	-	-
Navigational	6.4	-	-	110	-	17	14	-	56	-	-
New Canals	-	6	273	188	185	94	148	97	121	134	111

SOURCE: The Department of Water Affairs Annual Reports, 1965-1975.

A close examination of the table shows that between 1970 and 1973, a lot of construction work was carried out. In 1970, a total of 750 kilometres of canals were completed while in 1973, a total of 663 kilometres were also completed.²³ The reconstruction of the canals was done in line with the agricultural policy put forward in 1964 that "maize extension, should take precedence over other crops."²⁴ The maize could easily be grown in the Sishanjo. Transport canals were also rehabilitated to improve the mode of travel which was still dependent on canoes and launches. The construction and rehabilitation of canals were approved by the Provincial and District Development Committees which considered the needs of the people.²⁵ For instance, the Monqu-Kalabo canal was essential for the travelling public between Monqu and Kalabo. Because of the importance of the canal, the Dredging Unit was used specifically for

deepening, clearing the channels and realigning the banks to make it navigable throughout the year. The canal was completed in 1971. Apart from that the Dredging Unit developed and deepened the Mongu and Kalabo harbours to accomodate the large boats and barges which operated in the canal.²⁶ Other drainage and transport canals were completed in 1971. A few examples below may suffice to show one year's work in the area.

Table 4.4

(a) NAVIGATIONAL CANALS DEEPENED IN KILOMETRES

<u>NAME</u>	<u>DISTANCE</u>
Nukana	3
Mapungu-Kalabo	6
Lwandala	5
TOTAL	<u>14</u>

(b) NEW DRAINAGE CANALS COMPLETED

Sindende	11
Sishekana	12
Ndanda	5
Nambabda-Nasilimwe	29
Mbale	8
TOTAL	<u>65</u>

(c) DRAINAGE CANALS DEEPENED

Limangula	<u>2</u>
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(d) CANALS MAINTAINED

493

TOTALS 590

SOURCE: Ministry of Rural Development, Department of Water Affairs
Annual Report for the Year 1971 (Lusaka: Govt. Printers 1972), p.9.

The objective of completing the above works was to improve transport and drainage in the flood plain.

The Department of fisheries also took the initiative to construct a transport canal in 1970 which linked Namushakende Development Centre to the Zambezi river. Writing on the importance of the Fisheries Canal in 1982, the Ward Secretary for Namushakende noted that

the purpose of the canal is to help the fishermen bring their fish to the other side of the forest edge in transit to Namushakende and Monqu markets respectively without delay. It also helps to drain water from the swampy agricultural area.²⁷

Although several canals were constructed and maintained between 1966 and 1975, the results obtained in the reclaimed land were not impressive as we will show later in the chapter. From 1973 to 1980 the programme of constructing canals slackened due to the economic recession which hit the country.

STAGNATION IN THE CONSTRUCTION AND MAINTENANCE OF CANALS, 1973-1980

The world economic recession of the 1970s hit Zambia as well and this in turn affected most development projects in the country including the maintenance of canals. The Department of Water Affairs reacted to the economic difficulties by first reducing its financial expenditure, second it cut down on the number of canals which it was going to maintain, concentrating on the few important ones and it reduced the number of people to be recruited annually.

Writing on this state of affairs in 1984, the Provincial Water Engineer for Western Province stated that

Bulozi has a good number of drainage canals which were yearly maintained. But since early 1970s, the Department of Water Affairs had no capacity to maintain some of them. The department has no permanent workers unlike those past good days. Furthermore, the inadequate funds normally released for construction and clearing of canals make the department unable to cover many canals.²⁸

Many canals were left unattended to because of the poor funding. The department in turn, began to urge the local communities who benefitted from the canals to maintain and clear them on self help basis. Although the people were willing to clear their canals they were discouraged by the blocked trunk canals which failed to take water to the rivers. They were also hindered by lack of tools such as spades and sickles with which they could cut the grasses and remove the silt.²⁹ This made the water levels in the seepage areas to rise and forced ~~the~~ people to stop Sishanjo cultivation. Writing on the state of canals and Sishanjo gardens in his constituency, the then Member of Parliament for Sihole in Kalabo district, **Kaluwe** Mukena noted that

the siloloti, Musiamo, Lumbo and Ndoka canals were not properly maintained and being agricultural canals, water has started troubling the people making them unable to cultivate their fields.... The workers are very few to maintain the canals. In the past, there were twenty-eight workers divided into four teams, each with its team leader. But now there are reduced to seven people to work and maintain the canals properly.³⁰

A similar state of affairs was also experienced in Mongu district where the Department of Water Affairs found itself with more canals to maintain but with only sixty-four men to do the job. Thus to attend to all canals, a work schedule was proposed for the labourers

It was proposed by the department that the men should be moved from one canal to another. This proposed arrangement was however, questioned by the union, Zambia United Local Authorities Workers Union (ZULAWU), who argued that the workers could only move from one canal to another if an upset allowance of K6.75 was paid per day.³¹ Payment of an upset allowance was not possible because the financial estimates and actual allocation to the department did not cater for these. Thus the department accepted defeat. In turn it reduced the number of canals under its care and concentrated on a few gazzetted ones (see Appendix A).

The period between 1973 and 1980 witnessed stagnation in the construction and maintenance of canals. Several canals were abandoned and became blocked and silted. This subsequently led to the abandonment of Sishanjo gardens.

CANALS AND AGRICULTURE

The main strategy of development in rural areas between 1966 and 1976 was to encourage the production of staple food crops. In Bulozhi maize production was encouraged so that the region could meet its internal demand. To achieve this, drainage works were carried out to provide extra agricultural land in Sishanjo. For example, in 1965, 6,000 hactres of land was made available for cultivation in the northern part of Mongu district and maize and rice were grown there.³² The drainage works helped the communities to meet their subsistence needs particularly in some areas which were not prone to early and high floods. However, the general results obtained from the drainage schemes were

not impressive. The tables below show the statistics of crop production between 1965 and 1976, and the marketed maize and rice in the three districts which form part of the area under study.

Table 4.5: CROP PRODUCTION, 1965-1976 IN 90 KILOGRAM BAGS

YEAR	1965	1966	1967	1968	1969	1970	1971
Maize	1,000	2,000	228,000	20,000	32,000	1118,000	27,800
Rice	-	-	-	553	360	1,155	351
	1972	1973	1974	1975	1976		
Maize	19,000	14,750	30,123	74,418	80,329		
Rice	150	630	1,134	1,551	3,448		

SOURCE: Ministry of Rural Development Department of Agriculture, Annual Report of the Extension Branch, Western Province, 1974-1975 (Lusaka: Government Printers, 1975), pp.62-63.

Table 4.5: MAIZE AND RICE SALES TO NAMBOARD 1976-1978 in 90 KILOGRAM BAGS

	(a) Maize			(b) RICE		
	1976	1977	1978	1976	1977	1978
Kalabo	-	208	10	788	12,888	2,704
Mongu	-	467	132	2,091	1,432	2,866
Senanga	-	3,250	524	38	23	76

SOURCE: Ministry of Agriculture and Water Development, Western Province Annual Report, 1977-78, Mongu, 1978, p. 5.

Although the area recorded surplus maize and rice for sale to the National Agricultural and Marketing Board (NAMBOARD) between 1976 and 1978, the number of bags were however, below expectations considering the investments made in the drainage schemes. This could be attributed to several factors such as high floods and droughts from time to time. Above all, the failure by the Zambian Government to provide extension services and technical assistance in form of loans to the subsistence farmers who could manage to produce about two to ten bags of rice from the Siahanjo.³³

To conclude this chapter, the construction of canals provided employment to the people on a limited scale. The drainage schemes were not a success story because of the financial constraints on the part of the government, lack of extension services and other incentives such as loans to encourage the people and their attitude towards self-help schemes. Lack of educational campaigns was a contributory factor which has left canals in a very bad shape.

NOTES

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5. Ball, "The Nature of Rural". p. 2.
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14. M. Mulobela, "The Consequences of the WNLA Closure on Bulozzi, 1966-80" (M.A. Dissertation, University of Zambia, 1989), pp. 116-24.
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- Senanga, 15-11-89; see also Ball, "The Nature of Rural". p. 8; Seidman, "The Economics of Eliminating". p. 46.
18. DWA, Annual Report 1973. p. 6; Interviews: Mundia Mwibeya, Mongu, 24-11-89; F.L. Muhau, Mongu, 7-12-89; Namanga Mukubesa, Senanga, 13-11-89.
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 20. Interviews: Lutombi Neta, Senanga, as a Ward Councillor for Muoyo between 1970-76, he held educational campaigns to encourage people to drain Sishanjo on self help basis. See WDWA/21/2/14, Volume 2, DWA, Mongu, File 1983, Officer-in-Charge, Mongu, Position of the DWA on the Lima Programme, 1983.
 21. DWA, Annual Report, 1964. p. 5; Interviews: Mwangala Nawa, Senanga, 17-11-89; Liambai Lubinda, Senanga, 14-11-89.
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CONCLUSION

This dissertation has been a study of public works in Bulozhi with specific reference to the construction and maintenance of canals. It has been stated that public works, canals in particular were not only found in Bulozhi but also in other parts of the world such as Egypt, the USA, Peru, Mexico, Zimbabwe, and England to name but a few.

The idea of constructing canals in Bulozhi was a local initiative which began because of the environmental factors like flooding of the plain, water-logging of the most fertile peat soils and the difficulties in travelling caused by low floods. These factors made the people to begin constructing canals. The makolo and lilalo, consisting of free men and slaves, it has been argued in the dissertation, were very important in the construction and maintenance of canals. They were headed by Indunas who acted as team leaders or supervisors. The use of the makolo was intensified by Lewanika who first came to the throne in 1878 and ruled up to 1916. Lewanika's desire was to encourage agriculture in the country so that people could produce enough food and have surplus for sale.

The missionaries of the PEMS came to Bulozhi in 1883 and settled at Sefula in 1885 where they set up a mission station. They constructed the Sefula canal in 1887 and others around the margins of the plain for transport and drainage of the Sishanjo where they grew some of their food crops. They managed to construct the canals with the help of

Lewanika who gave them labour from the lilalo near the mission station. However, the PEMS found that the Lozi were using wooden spades (Bishumo) and hoes in the construction of canals. These crude tools were obtained from the forest region through the tribute cycle. Later on, with Lewanika's desire to acquire new and western technology, the Lozi developed likalafu (iron spades) which were an imitation of the European spade. The use of likalafu, Bishumo and hoes facilitated the construction and maintenance of canals by the Lozi state between 1887 and 1900.

The BSAC came to Bulozhi in 1890 after the Lochner concession. **Although** the 1890 Concession had stated that the company should construct and develop water-ways and roads in Bulozhi, it only concentrated on its administrative activities. It failed to help the Lozi state to develop a transport network in the flood-plain and to the outside which was very much needed by the people. It made the labour reforms in 1906 which disrupted the sources of labour mobilisation. The company further introduced taxation on all able-bodied men which in turn triggered off labour migration to the south of the Zambezi river, where people worked in the mines, farms and other industries. Migration became very common to those who could not raise cash within Bulozhi either by working or sale of cattle. The policies of the BSAC, therefore affected the construction and maintenance of canals, particularly after 1915 when cattle sales were closed following the outbreak of CBPP.

The accession to the throne of Paramount Chief Yeta III in 1916 further hindered work in the construction and maintenance of canals.

Yeta did not want to utilise the money in the BTF for the development of Bulozhi. Instead he wanted the company to develop the region according to the provisions of the concession signed with Lewanika in 1890. By 1924, Yeta and his Kuta were finding it difficult to raise the required labour to work in the canals. This was due to the increased labour migration which eroded the makolo institution.

In 1924, the BSAC surrendered Northern Rhodesia to the colonial office in London. The colonial administration stopped the last practices of the makolo institution by abolishing the "twelve days" tribute labour. All the labour in Bulozhi was to be hired and paid wages at a market exchange rate. This policy worsened the position of the BNG in acquiring labour even when the Kuta was promised £2,500 in lieu of the lost labour services. The Kuta was expected to hire labour from the said amount but it was not enough. The result was that canals became blocked and silted up. Upon seeing that the Lozi state had failed to maintain the canals due to financial constraints, the NRG decided that it would maintain all the old transport canals by sharing the costs with the BTF which was by then controlled by the Governor.

The world depression of the 1930s affected some capitalist enterprises in Southern Africa which employed some labour migrants. The results of the depression were closure of industries, loss of employment and followed by the repatriation of the labour migrants to their respective homes. Those who returned to Bulozhi were engaged by the NRG and BNG in the construction and maintenance of canals. This was done to enable those who had lost their jobs to raise cash with which

to pay tax and purchase food when there were food shortages caused by high floods and locust swarms invasion.

In the post-war years, the NRG and BNG considered the improvement of African agriculture. In Bulozí, canals were found to be essential in the development of the agricultural economy. The Sishanjo was drained to make land available for cultivation by the people. The drainage canals lowered the floods and controlled the water levels in the soil. Some of the canals served as transport routes in the flood-plain.

The mobilisation of labour in the post-war years was carried out by Indunas employed by the BNG. The Indunas worked hand in hand with the NRG which provided, among other things, tools, funds and technical expertise to the local people. Information was also disseminated as a way of mobilising the people to drain and utilise the Sishanjo for agricultural purposes. In 1958, a cutter dredger was introduced for the first time to work on the important transport canals such as Nabubela to name but one.

In the post-colonial period, the construction and maintenance of canals was incorporated in the rural development schemes launched in the country. In Bulozí, canals were constructed and maintained to encourage the production of maize and rice in the Sishanjo. The reason for this was to make Bulozí self-sufficient in food supplies. The Government of Zambia invested money in the canals project and this later provided employment to the local people, particularly to the former labour migrants who returned after the closure of WELA in 1966. Those employed mostly lived near where canals passed. This available human

labour was utilised by the Department of Water Affairs as a major employer, the former Rural Councils on a limited scale and sometimes on self-help basis. The Department of Water Affairs also used machines such as cutter dredgers. The cutter dredgers were used to deepen and widen important transport canals. However, the construction and maintenance of canals had been affected by the economic recession which hit the country since 1973. From 1973 to 1990, only a few transport and drainage canals were maintained. The labour force in the Department of Water Affairs was reduced to match with the available financial resources.

Finally, canals in Bulozhi helped to make land in the Sishanjo available for cultivation. They also provided transport routes, water for domestic uses in the plain and along the margins as well as fishing grounds to women.

APPENDIX A

NAME OF CANAL	DISTRICT	DISTANCE IN KM
Nalinanga	Monqu	14.1
Lubitamei West	"	30
Lubitamei East	"	30
Mwayowamo	"	20.2
Sefula	"	20
Sikolongo	"	*
Nebubela	"	14
Litoya	Senanga	28
Kataba	"	*
Lwandala	"	*
Kuboma	"	*
Sikongo/Lueti	Kalabo	35.5
Nyengo	"	15.4
Namatindi	"	17.0
Lumbo	"	32
Musiamo North	"	14
Musiamo South	"	48

* Not available.

SOURCE: Chart of Permanent Canals which are yearly maintained.
 Monqu Provincial Office, Department of Water Affairs,
 1979.

APPENDIX B: GLOSSARY OF SILOZI WORDS USED IN THE TEXT

	<u>TRANSLATION</u>
Induna	Headman
Kuomboka/Kufuluhela	Transhumance of the Lozi
Kalafu (o. likalafu)	Iron spade made by blacksmiths
Kuta	Court
Lilalo (silalo)	Wards, sectors (Ward)
Liuba (suba)	Artificial mounds
Likolo (makolo)	Regiment (regiments)
Litunga	Lozi Paramount Chief
Mataba	Water logged seepage areas
Mukwae	Chieftainess
Mukwa	Zambian Teak
Nqambela	Prime Minister
Sishanjo	Drained peat soils
Sishumo (Bishumo)	Wooden Spade
Zambwa	Royal herds of cattle

APPENDIX C: THE MAKOLO REGIMENTS

Bulozi was divided for military purposes, public works and hunting expeditions into the following makolo or regiments.

<u>NAME OF REGIMENT</u>	<u>ORIGINATOR</u>	<u>DATE</u>
Nqundwe	Mboo	c.1600s - *
Mbi	Mboanjikana	c.1750s - *
Kabeti	Inyambo	c.1750s - *
Yalekelwa	Ngalama	c.1750-1760*
Imutakela	Mulambwa	c.1790-1825
Mbanda	Namakau	c.1790s - *
Ngulubela	Notulu	c.1820s - *
Njeminwa	Mulambwa	c.1790-1825*
Mooka	Lewanika	1878-1916

SOURCE: N.A.Z., KDE 2/44/2. History of Barotseland, Notes and Documents, 1900-1936.

* These dates are mere approximations in the absence of written records. That of Mulambwa appear in written records.

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7. ORAL SOURCES

The oral sources were not tape recorded. The following information is provided for each informant.

NAME	DATE	PLACE	OCCUPATION
1. Aongola Naluca	13-11-89	Malala Village	Farmer
2. Henry Siyumbwa	23-11-89	Malengwa	Retired Teacher
3. <u>Induna</u> Ingu Lutanu	5-12-89	Lealui	<u>Induna</u>
4. <u>Induna</u> Imutakela	5-12-89	Lealui	"
5. <u>Induna</u> Mubonda	5-12-89	Lealui	"
6. <u>Induna</u> Nogoo	5-12-89	Lealui	"
7. <u>Induna</u> Namunda	5-12-89	Lealui	"
8. Liambai Lubinda	14-11-89	Ilutondo	Farmer
9. Lubinda Sachoma	15-11-89	Muoyo	<u>Induna</u> , Nalolo
10. Lutombi Neta	14-11-89	Muoyo	" "
11. Kumoyo G.K.	21-11-89	Namushakende	Principal, Farm Institute.
12. Mufalali Phillip	12-11-89	Naliowa	Fisherman
13. Muhau Mataa	10-11-89	Mongu	Lima Coordinator
14. Mufaya Mumbwa	5-12-89	Lealui	<u>Nqambela</u> , Lealui
15. Mundia Nalungwana	24-11-89	Katoya	Farmer
16. Mundia Mwibeya	24-11-89	Naende	"
17. Munyinda Mwikisa	6-12-89	Nalolo	"
18. Mutonga Akakulu	13-11-89	Kanangelelo	Farmer/Fisherman
19. Mutonga Kayalekelwa	13-11-89	"	Former Induna
20. Mutibiwa Mwananono	15-11-89	Muoyo	Court President
21. Mukulwamutiyo F.M.	21-11-89	Mongu	Asst. Water Engineer
22. Muyendekwa, S.	23-11-89	Mongu	Provincial Water Engineer
23. Muyumbwa Masiliso	12-11-89	Situnga	Farmer
24. Muyangwa Ngula	4-12-89	Mongu	Lecturer T.T.C.
25. Mbelela Mulobela	10-5-90	Mumbwa	Teacher
26. Muhau, F.L.	7-12-89	Mongu	Principal TTC
27. Namanga Mukubesa	13-11-89	Kanangelolo	Farmer
28. Nawa Mwangala	17-11-89	Likombe	Farmer

29.	Namusa Inambao	14-11-89	Muoyo	Farmer
30	Saboi Liamba	4-11-89	Lusaka	Registration Officer
31.	Sianza Mwibeya	24-11-89	Naende	Farmer
32.	Sinonge Nasilele	24-11-89	Lyomboko	Farmer
33.	Sitwala Liambai	14-11-89	Ilutendo	Fisherman
34.	Susiku Kalaluka	12-11-89	Mukukutu	Farmer
35.	Siyengo, B.K.	23-11-89	Monqa	Retired Civil Servant.

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