A HISTORY OF MAAMBA COAL MINE AND ITS SOCIO-ECONOMIC IMPACT ON ZAMBIA, 1968-2010

BY

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LUSAKA

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“I can do all things through Christ who strengthens me”

Phillipines 4:13

DECLARATION

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

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APPROVAL

This dissertation of Sheena Kabombwe is approved as fulfilling part of the requirements for the award of the degree of Master of Arts in History by the University of Zambia.

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DEDICATION

This dissertation is dedicated to my mother, Ever Siakalima Kabombwe, for her endless love, support and encouragement. It is also dedicated to my elder sisters, Caroline, Yvonne and Ivy. Your achievements have been my greatest source of inspiration.

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ABSTRACT

This study examines the origins and development of Maamba Coal Mine and its socio-economic impact on Zambia. It demonstrates that although Ian Smith's Unilateral Declaration of Independence (U.D.I) in Rhodesia, 1965 was the key driver in the development of commercial mining of coal in the country, the art of mining had been done on a small scale by indigenous people in the Gwembe valley during the pre-colonial era. However, it was the import restrictions on Rhodesian coal imposed by Smith's U.D.I that threatened Zambia's copper industry to the point where the country established Maamba Coal Mine in 1968 so as to exploit its domestic coal reserves. This study investigates how Maamba Colliery recruited and retained its labour force. It reveals that the colliery pooled the bulk of its skilled workforce from the Copperbelt province owing to the working experience and technical schools which were in close proximity to the copper mines. Unskilled labour was recruited mainly from the local population in the surrounding villages. The study shows that in the early days, miners enjoyed good conditions of service, including the provision of recreational facilities as well as social services such as education and health facilities in Maamba township. This immensely contributed to labour retention at the colliery. This study demonstrates that Maamba Colliery was not spared from the woes of privatisation as it experienced operational problems due to lack of recapitalisation. In an attempt to stay afloat, the colliery retrenched some of its skilled workforce in 1997. The study also shows that Maamba Colliery had an adverse impact on the environment. Gaseous emissions caused lung diseases such as pulmonary tuberculosis and other respiratory infections. Water pollution in turn negatively affected human, livestock and agricultural activities. This study concludes that despite its negative impact on the environment, Maamba Colliery made a huge contribution to the country's economy through its exports and those of various coal-fired industries such as copper mines, Chilanga Cement, Zambia Breweries, Zambia Sugar and Zambia Railways.

Key words: *Maamba Colliery, Unilateral Declaration of Independence, Privatisation, Recapitalisaion.*

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LIST OF ACRONYMS AND ABBREVIATIONS

AAC	Anglo-American Corporation
ADB	African Development Bank
BMCL	British Mining Consultant Limited
BSAC	British South African Company
BE	Bucyrus Erie
CPP	Coal Preparation Plant
CSR	Corporate Social Responsibility
FAZ	Football Association of Zambia
GCE	General Certificate of Education
GRZ	Government of the Republic of Zambia
HEP	Hydro-Electric Power
INDECO	Industrial Development Corporation
IMF	International Monetary Fund
JCI	Johannesburg Consolidated Investment
KCM	Konkola Copper Mines
KNB-HEP	Kariba North Bank-Hydro Electric Power

KSB-HEP	Kariba South Bank-Hydro Electric Power
OSHA	Occupational Safety and Health Act
MCL	Maamba Collieries Limited
MCL-RSC	Maamba Collieries Limited-Retrenchees Steering Committee
MUZ	Mineworkers Union of Zambia
MINDECO	Mining Industrial Corporation
MMD	Movement for Multi-Party Democracy
NCBZ	National Coal Board of Zambia
NCSC	National Coal Supplying Commission
NIPA	National Institute of Public Administration
NRC	National Registration Card
NCCM	Nchanga Consolidated Copper Mines
NLCL	Ndola Lime Company Limited
NCZ	Nitrogen Chemicals of Zambia
NRIDC	Northen Rhodesia Industrial Development Corporation
NRDGS	Northern Rhodesia Department of Geological Survey

NORTEC	Northern Technical College
PPE	Personal Protective Equipment
PHB	Poly-Hydroxy-Butyrate
PCC	President Citizenship College
PwC	Price waterhouse Coopers
RNLA	Rhodesia Native Labour Association
RST	Rhodesian Selection Trust
RCM	Roan Consolidated Mine
SAP	Structural Adjustment Programme
TAZAMA	Tanzania Zambia Mafuta
TAZARA	Tanzania Zambia Railway
UDI	Unilateral Declaration of Independence
UNIP	United National Independence Party
UNSC	United Nations Security Council
UNZA	University of Zambia
WENELA	Witwatersrand Native Labour Association
WB	World Bank

ZBL	Zambia Breweries Limited
ZCI	Zambia Clay Industry
ZCCM	Zambia Consolidated Copper Mines
ZCCM-IH	Zambia Consolidated Copper Mines-Investiment Holdings
ZESCO	Zambia Electricity Supply Corporation
ZIMCO	Zambia Industrial and Mining Corporation
ZIS	Zambia Information Service
ZIT	Zambia Institute of Technology
ZNCB	Zambia National Commercial Bank
ZPA	Zambia Privatisation Agency
ZR	Zambia Railways
ZSC	Zambia Sugar Company

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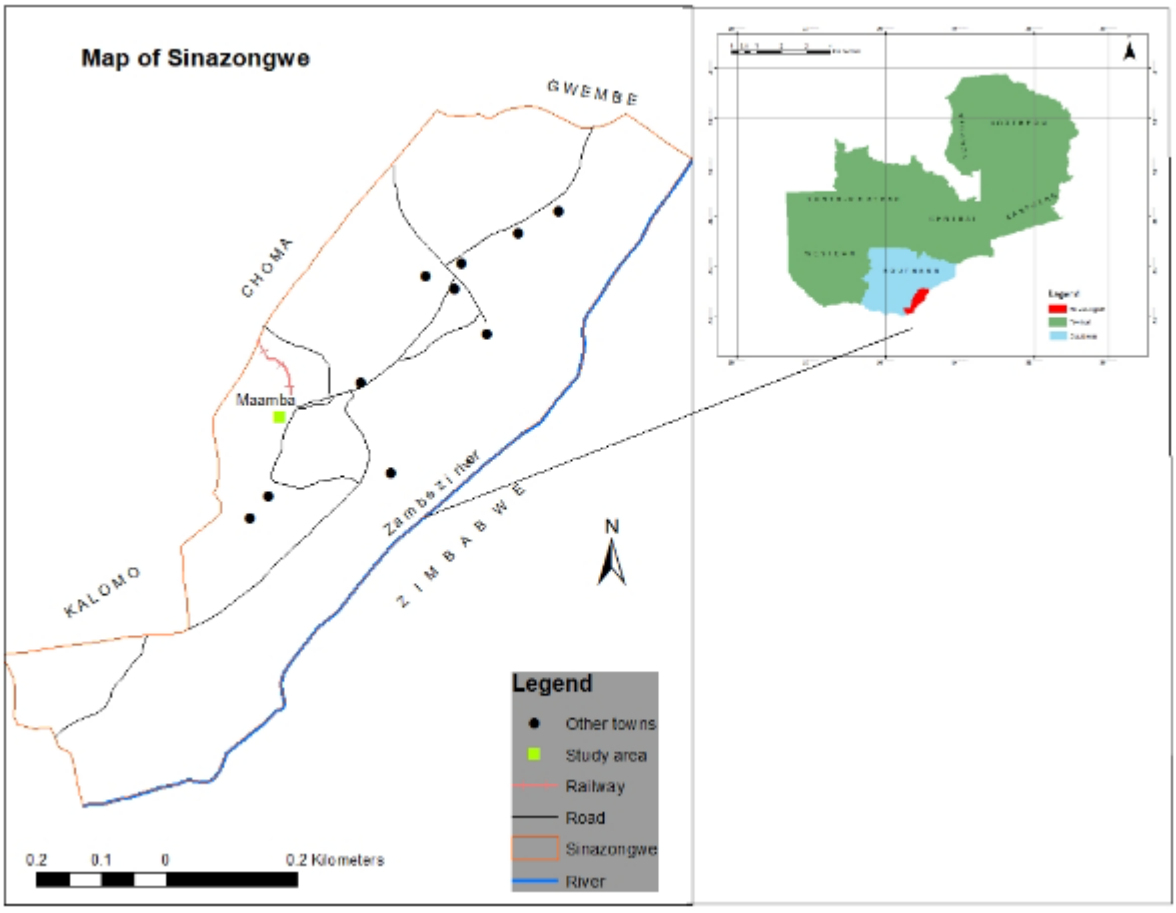
GLOSSARY

Mabuyu	Baobab tree
Montalvo	Community office
Tobwa	Fermentated maize drink

MAP OF MAAMBA COLLIERY IN SINAZONGWE DISTRICT



Source: Cartography Unit, Department of Geography and Environmental Studies, University of Zambia, 2022.

CHAPTER ONE

INTRODUCTION

1.1 Introduction and Historical Background

The history of coal mining in the world can be traced back to ancient times. Available evidence suggests that the Greeks, Romans and Chinese were the earliest users of coal.[1] These people used it for carving ornaments, heating, cooking, pottery baking, and in cremating the dead. The transition from wood as the major source of energy to coal came as a result of energy constraints due to population growth around the sixteenth century. As civilizations and nations grew, trees disappeared, depleted by competing demands for fuel, timber, and land for crops.[2] As the shortage became more severe, the price of wood rose far faster and the poor, for whom fuel was already a major expense, were under increasing strain.[3] With the tight energy constraint, coal became the alternative source purely because it was cheap yet offered superior heat compared to wood. However, for a long time, coal mining remained a relatively small scale industry until the mid-eighteenth century when capitalist exploitation began.

Coal mining became primarily important in Britain during the eighteenth and nineteenth century in the wake of the industrial revolution. Edward Wrigley noted that the nineteenth century engineering industry was a spinoff of the coal industry.[4] The production of coke from coal and its use in smelting iron served as a catalyst for the industrial revolution. There were three major inventions during the industrial revolution, all of which were closely linked to coal. Newcomen's

[1] Roy D. Merritt, *Coal exploration, Mine Planning and Development* (New Jersey: Noyes Publication, 1983), p.3.
[2] Barbara Freese, *Coal A Human History* (New York: Basic Books, 2004), p.6.
[3] Freese, *Coal A Human History*, p.6.
[4] E.A. Wrigley, *Energy and the English Industrial Revolution* (Cambridge: Cambridge University Press, 2010), p.47.

steam engine improved upon by James Watt was invented to drain coal mines, and also used coal as fuel to produce steam. Cheap iron required the substitution of coke for charcoal and was prompted by cheap coal.[5]

Additionally, the construction of transport networks such as railways also depended on coal for the reason that iron could only be processed with coking coal. The construction of the railway system meant that coal could easily be hauled from the mines to the canals and rivers which invigorated coastal coal trade. All these scientific inventions that were closely linked to coal transformed the entire British construction and manufacturing industries. No wonder, Barbara Freese contended that coal allowed the industrialisation of Britain to gain a momentum that was nothing short of a revolution![6] As time went by, the industrial revolution led to the subsequent colonisation of Africa and other parts of the world because capitalists who emerged during this period began to seek raw materials, cheap labour and markets for the surplus goods which could only be obtained from overseas territories.

In Central Africa, the first European to discover coal deposits was a young German prospector, Albert Giese. Giese discovered the coal deposits south of the Zambezi in present day Zimbabwe after he learned from a local African about the "black burning stone" in 1893. Owing to the Shona and Ndebele rebellions in the area, he abandoned the search for coal. In 1894, he returned and pegged the original location on an outcrop of shales in the Kamandama River.[7] Giese later discovered that the coal he found south of the Zambezi was of good quality. However, he did not

[5] Wrigley, *Energy and the English Industrial Revolution*, p.42.
[6] Freese, *Coal A Human History*, p.68.
[7] Government of Rhodesia, *Report of the Commission of Inquiry into the Wankie Colliery Disaster and General Safety in Coal Mines in Rhodesia*, Salisbury, (Government Pinters,1973), p.6. and Ian Phimister, *Wangi Kolia: Coal, Capital and Labour in Colonial Zimbabwe 1894-1954* (Harare: Baobab Books, 1994), p.3.

comply with the conditions laid down by the British South African Company (B.S.A.C) for it owned the mineral rights to the area. For this reason, he could not exploit the coal deposits that he had pegged earlier on.

In 1894, the B.S.A Company granted a concession to Mashonaland Agency Limited, Wernher, Beit and Company to exploit the coalfields at Wankie in an attempt to swallow up individual claims.[8] Geological works commenced in August 1901 and by January 1902, the main incline shaft of what became No. 1 Colliery had reached the coal.[9] A railway was also constructed to pass through the newly discovered coalfield to ensure its development. By 1903, the development of Wankie Colliery had begun. By 1910, not only did Wankie meet its local demands for coal but had also become a regional supplier of coal throughout Central Africa. South Africa's gold and diamond mines, the Katanga, and Northern Rhodesia's Copperbelt mines relied on it for coal supplies.

Zambia's mining history dates back to the early iron age. Though on a small scale, mining activities by the indigenous people were widespread across the Copperbelt region and other places.[10] However, large scale mining only began in the twentieth century at Broken Hill, when an Australian geologist working for what became the Rhodesian Broken Hill Development Company stumbled upon the outcrops of lead, zinc, and vanadium in 1902 on a rocky hill which he named Broken Hill on account of its resemblance to a similar formation of that name in Australia.[11]

[8] Phimister, *Wangi Kolia, Coal, Capital and Labour in Colonial Zimbabwe 1894-1954*, p.3.
[9] Government of Rhodesia, *Report of the Commission of Inquiry into the Wankie Colliery Disaster and General Safety in Coal Mines in Rhodesia*, 1973, p.6.
[10] J. Sikamo, A. Mwanza and C. Mweemba, 'Copper Mining in Zambia-History and Future', *The Journal of Southern African Institute of Mining and Metallurgy*, vol.116, (2016), p.491.
[11] Buzandi Mufinda, 'A History of Mining in Broken Hill (Kabwe): 1902-1929', MA Dissertation, University of Free State, Faculty of African Studies, 2015, pp.2-3.

The mineral discovery at Broken Hill was later followed by commercial copper mining at Kansanshi, Bwana Mkubwa, Mufulira and Nkana.[12] With the commencement of large scale mining in the 1920s, the extraction of copper ores heavily depended on coal for energy. The coal was mainly obtained from Wankie, in Southern Rhodesia for many decades. With the steady flow of coal from Wankie, Zambia made no serious attempts in exploiting its coal deposits until the mid-1960s. In this regard, the origins of Zambia's capitalist coal mining industry is shrouded in a political showdown that occurred between Lusaka and Salisbury, *vis-à-vis* the Unilateral Declaration of Independence (U.D. I), in Rhodesia, 1965.

Coal deposits existed on the north bank of the mid-Zambezi valley around the nineteenth century. In his book, *Narrative of an expedition to the Zambezi and its Tributaries 1858-1864*, David Livingstone notes that 'we crossed several rivulets in our course as the Mandora, the Lofia, the Mazzoli (with brackish water) Rimbe, the Chibule, the Chezia and the Chilola contained fragments of coal which did little more than mark our progress'.[13] However, Livingstone's report on the coal deposits in the lower Zambezi valley received little attention for the reason that in 1894, another coalfield was discovered south of the Zambezi at Wankie.[14]

The relatively inaccessible coal deposits on the north bank of the Zambezi valley were only surveyed in the 1950s and the resulting report named Nkandabbwe as a promising area but concluded that its Karoo coal was of "substantially" lower rank than Wankie coal.[15] Consequently, Wankie became a major supplier of coal to the Northern Rhodesia's copper industry thereby

[12]A. Bancroft, *Mining in Northern Rhodesia: A Chronicle of Mineral Exploration and Mining Development* (Bedford: The Sydney Press Ltd, 1961), p.25.
[13] D. Livingstone and Charles Livingstone, *Narrative of an expedition in the Zambezi and its Tributaries 1858-1864* (London: Cambridge University 1865), p.244.
[14] I.L. Griffiths, 'Zambia's New Coalfield', *Geographical Association*, Vol. 53, No. 4 (1968), p.415.
[15] Griffiths, 'Zambia's New Coalfield', p.415.

reinforcing the already existing interdependency between Northern Rhodesia and Southern Rhodesia. This dependency resulted from the Central African Federation (1953-1963), where Northern Rhodesia was developed as an appendage of Southern Rhodesia's economic system.[16]

Northern Rhodesia depended on Southern Rhodesia in almost all key sectors of her economy including railway, air transportation and Hydro-Electric Power (H.E.P). Though jointly owned by the two countries, the power station on the Kariba Dam had been carved out of the bedrock on the (Rhodesian) bank of the Zambezi river.[17] This implied that the generating facilities and control centre of the interconnected system were wholly located in Southern Rhodesia. [18] Meanwhile Zambia's annual intake from Kariba was roughly 70 per cent of its total energy requirement which meant that she entirely relied on the Kariba South Bank Power Station for her electricity supplies.[19] Furthermore, this overdependence also bordered around the fact that Northern Rhodesia imported her goods such as petroleum through Southern Rhodesia as it was the major transport line that existed prior to the formation of the Federation. Therefore, copper, the chief export of Northern Rhodesia, was dispatched by the Rhodesia Railways through Southern Rhodesia to the sea port of Beira in Mozambique.[20]

Wankie supplied over 99 percent of Zambia's coal imports in 1964 and 1965 totalling 1.15 million and 1.35 million tonnes, respectively.[21] The coal was required for the production of copper and by other industries that required higher amounts of energy such as steel and cement manufacturing.

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[16] C. Chongo, 'The Impact of the Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-Political Development, 1965-1979', MA Dissertation, The University of Zambia, Lusaka, 2009, p.51.
[17] Robert C. Good, *U.D.I: The International Politics of the Rhodesian Rebellion* (London: Faber and Faber, 1973), p.88.
[18] Chongo, 'The Impact of the Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-Political Development, 1965-1979', p.52.
[19] Good, *U.D.I: The International Politics of the Rhodesian Rebellion*, p.88.
[20] Chongo, 'The Impact of the Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-Political Development, 1965-1979', p.52.
[21] Griffiths, 'Zambia's New Coalfield', p.415.

The tiny remainder of Zambia's coal import requirements was obtained from South Africa with only 600 million tonnes in reserve.[22] This indicates that Wankie would have remained the sole source of coal in Central Africa were it not for political tensions following the breakup of the Federation.[23]

According to Ian Phimister and Alfred Tembo, the political wind of change that was blowing through Central Africa in the early 1960s was powerful enough to sweep away the short-lived Central African Federation of the two Rhodesias and Nyasaland.[24] The subsequent dissolution of the Federation, in December 1963, resulted into the independence of Nyasaland which became known as Malawi and Northern Rhodesia as Zambia while Southern Rhodesia remained under the white minority rule as Rhodesia, determined to go its own way.[25] This resulted into hostility between Zambia and Rhodesia, as the former was in support of toppling the Smith regime in Rhodesia. As an ardent supporter of the liberation struggle in Rhodesia, Zambia was soon to pay a huge price due to its long standing economic dependence on Southern Rhodesia for imports of commodities such as coal for the copper industry.

As U.D.I. became more and more imminent, Zambia began contingency planning in the various sectors of her economy in anticipation of a showdown with Rhodesia. For instance, in May 1965, the National Coal Supply Commission (N.C.S.C) was established with the aim of planning against a U.D.I. crisis and the development of domestic coal resources to replace coal imports from Wankie in Rhodesia.[26] By August 1965, Zambia had commenced the development of Nkandabbwe

[22] Griffiths, 'Zambia's New Coalfield', p.415.
[23] Griffiths, 'Zambia's New Coalfield', p.415.
[24] I. Phimister and A. Tembo, 'A Zambian Town in Colonial Zimbabwe: The 1964 'Wangi Kolia Strike', *International Review of Social History Special Issue*, No. 23, (2015), p.49.
[25] Phimister and Tembo, 'A Zambian Town in Colonial Zimbabwe', p.49.
[26] Government of the Republic of Zambia, *Economic Report*, 1966, pp.19-20.

after a speedy confirmatory survey.[27] The investigations carried out by Chartered Explorations Limited suggested that these old reports were unduly pessimistic and a bold decision was taken to undertake open cast mining operations at Nkandabbwe coal mine, initially with the objective of creating a stock of 300,000 tonnes of coal.[28] Actual mining started in February 1966 with a total production capacity of 1,600,000 tonnes.[29] Thus, Nkandabbwe became Zambia's first coal mine.

Nearly two months into the mining operations, it turned out that the speculations of the Rhodesian rebellion against the British crown were apparent. On 11 November 1965, Smith rebelled against the imperial government, an act that would have serious economic ramifications for Zambia. Within a month of U.D.I, Rhodesia attempted to impose a royalty of £5 per tonne on coal for Zambia.[30] The following year, the illegitimate Rhodesian regime imposed a frontier leading to seriously impeding the flow of coal into Zambia and by March 1968, a surcharge increased the price of Wankie coal from 53 to 153 shillings per tonne.[31]

All these measures were aimed at punishing Zambia for joining the United Nations (UN) sanctions in the hope of weakening the Rhodesian rebellion. However, Nkandabbwe was already producing coal although not enough to meet Zambia's total demands. Exploration was intensified by using advanced drilling methods and, in May 1966, a larger and richer coalfield was discovered at Maamba (formally Siankodobbo), 20 miles southwest of Nkandabbwe.[32] Later that same year, geological works on Maamba mine began and coal production started in January 1968, making Zambia largely self-sufficient in coal. While Maamba Coal Mine became Zambia's permanent and

[27] Griffiths, 'Zambia's New Coalfield', p.416.
[28] Republic of Zambia, *Economic Report,* p.20.
[29] Republic of Zambia, *Economic Report,* p.20.
[30] Griffiths, 'Zambia's New Coalfield', p.416.
[31] Griffiths, 'Zambia's New Coalfield', p.416 and ,'Zambian Coal:An Example of Strategic Resource Development', *Geographical Review,* Vol. 58, No. 4 (1968), p. 541.
[32] Griffiths, 'Zambia's New Coalfield', p.416.

largest coal mine, Nkandabbwe remained a contingency mine.[33] This episode marked the beginning of commercial mining at Maamba. Therefore, the main purpose of this study is to construct the history of Maamba Coal Mine from 1968-2010.

1.2 Statement of the Problem

A lot of scholarly research has been done on the mining industry in Zambia, although the focus has been on one metal; copper. Scholars such as Austen Bancroft, Francis Coleman, Jean Pappart, Lewis Gann, Larry Butler, Walima Kalusa, Foster Sakala, Bbole Dandule and Hyden Munene confined their studies to copper mining although on different perspectives.[34] The major themes explored in these studies include migrant labour, African mine worker's health, capital and gender. In spite of the coal mining industry playing a significant role in Zambia's economic activities, its study has been reduced to a footnote. Therefore, this study intends to explore the history of Maamba Coal Mine from 1968 to 2010.

[33] In this study, the names Maamba Coal Mine, Maamba Colliery and Maamba Collieries Limited are used interchangeably to refer to a coal mining company in Sinazongwe District.

[34] A. Bancroft, *Mining in Northern Rhodesia: A Chronical of Mineral Exploration and Mining Development*, (Bedford: The Sydney Press Ltd, 1961); J. Pappart, *Labour and Capital on the African Copperbelt*, (Temple: Temple University Press, 1980); Francis, L. Coleman, *The Northern Rhodesia Copperbelt 1899-1962: Technology development up to the end of the Central African Federation*, (Manchester: Manchester University Press, 1971); L.H. Gann, 'The Northern Rhodesian Copper Industry and the World of Copper: 1923-1952' *The Rhodes Livingstone Journal*, 18 (1970) pp. 1-18; W. T. Kalusa, 'Aspects of African Health in the Mining Industry in Colonial Zambia: A Case study of Roan Antelope Mine, 1920-1964', MA Dissertation University of Zambia, 1993;
F. Sakala, 'The Role of Women in Labour Stabilization at Mufulira Mine, 1930-1964', MA Dissertation, The University of Zambia, Lusaka, 2001; B. Dandule, 'Women and Mine Workers on the Zambian Copperbelt, 1926-1964', MA Dissertation, The University of Zambia, 2012; H. Munene, 'A History of Rhokana/ Rokana Corporation and Its Nkana Mine Division', 1928-1991, Ph.D Thesis, University of Free State, 2018; Lawrence Butler, *Copper Empire: Mining and the Colonial State in Northern Rhodesia 1930-1964* (Basingstoke: Palgrave Macmillan Limited, 2007).

1.3 Objectives of the Study

The main objective of this study is to construct a history of Maamba Coal Mine from 1968 to 2010. The specific objectives of the study are to:

1. investigate the origins and development of commercial mining at Maamba Colliery ,
2. investigate how labour was recruited and retained at Maamba Colliery, and;
3. examine the socio-economic impact of Maamba Coal Mine on Zambia.

1.4 Rationale

The rationale for undertaking this study is that it will make an important contribution to the history of the mining industry in Zambia by unravelling the role played by Zambia's own coal resources in the country's socio-economic development. The study is also intended to stimulate interest in other seemingly less important minerals in Zambia. The year 1968 has been chosen as a starting point because it marked the beginning of commercial mining at Maamba. This study terminates at 2010 when Maamba Colliery was sold to Nava Bharat of Singapore, a subsidiary of Nava Bharat Ventures in India.

1.5 Literature Review

Globally, there is an abundance of literature on the history of coal mining. This is because coal played a major role in transforming world economies between the eighteenth and nineteenth centuries in the wake of the Industrial Revolution. Classic works by economic historians such as J.H. Clapham, John Nef, T. S. Ashton, A.R Griffin, Michael Flinn, Roy Church and Edward

Wrigley demonstrate that coal was indeed at the heart of the Industrial Revolution.[35] Scientific inventions such as steam engines, locomotives and factories were all powered by coal. These developments transformed the British economy from an agrarian based economy to a large scale mechanised, manufacturing-industrial power with a myriad of socio-economic effects in Britain and later spread to other parts of the world. These works were informative to this study in providing a broader understanding of the history of coal mining and its socio-economic impact.

Scholars such as Ad Knotter and David Mayer provide a wide-ranging analysis of labour dynamics in coalfield history.[36] Their study shows that the global coal mining industry largely relied on migrant labour and that in the early days skilled labour was often recruited from other mining areas. These scholars also observe that labour migration for the coal mining industry was often closely linked to the transition from agriculture to industry, the creation of a wage-labour market and the formation of an ethnically stratified coal mining proletariat.[37] In a separate article, Ad Knotter further discussed various strategies coal mining companies devised to mitigate labour shortages. He noted that, solutions adopted ranged from the involvement of part-time peasant miners, organised mediation by labour contractors, and systems of forced labour, to state

[35] J.H.Clapham, *An Economic History of Modern Britain* (Cambridge: Cambridge University Press, 1926), John U. Nef, *The Rise of the British Coal Industry*, vol.*s I & II.* (London: Routledge 1932), T. S. Ashton, *The Industrial Revolution (Oxford*: Oxford University Press 1948). Ashton and Joseph Sykes, *The Coal Industry of the Eighteenth Century* (Manchester: Manchester University Press,1964), A.R Griffin, T*he British Coal mining Industry* (Buxton: Moorland Publishing, 1977) Michael W. Flinn, *The History of the British Coal Industry*, vol. 2 (Oxford: Clarendon Press, 1984) Roy Church, *The History of the British Coal Industry, 1830-1913 Vol 3* (Oxford: Clarendon Press 1986). E.A Wrigley, 'The Supply of Raw Materials in the Industrial Revolution,' Economic History Review 15(1), 1-16, 1962. Wrigley, *Continuity, chance and change* (Cambridge: Cambridge University Press,1988) and Wrigley, *Energy and the English Industrial Revolution* (Cambridge: Cambridge University Press, 2010).

[36] Ad Knotter and David Mayer, 'Introduction' *International Review of Social History Special Issues*, No. 23. (2015), p.1.

[37] Ad Knotter and David Mayer, 'Introduction' *International Review of Social History Special Issues*, No. 23. (2015), pp. 4-5.

regulation of national and international migration.[38] This study gained insights from these works as it sought to investigate ways in which Maamba Colliery recruited its labour force.

The study by Erol Kahveci on Turkey's Zonguldak coalfield and Limin Teh on China's Fushun coal mine exemplifies the link between subsitence agriculture and mining labour. Kahveci argues that, due to high labour shortages at the mine, peasants from surrounding villages were obliged to work on mines on rotational basis thereby allowing them to participate in the commercial market.[39] In the same vein, Limin Teh argues that, part-time seasonal migrants were a regular feature at Fushun's coal mine. She further points out that the high mobility of these seasonal migrants to the mining area posed many challenges to the coal mining company. In an attempt to control the challenges posed by high mobility of labour migrants, the Japanese mine management transformed labour contractors from independent third-party contractors to salaried pit foremen with clearly defined responsibilities in labour recruitment and supervision in the period 1907 and 1932.[40] To further administer and control the whole recruitment process, the Japanese government introduced finger printing and identity cards as part of an elaborate system of worker registration in 1924 although not successful.[41] This study greatly benefitted from these works as it sought to investigate whether peasants constituted Maamba's workforce during off-farming seasons in the Gwembe valley.

Tom Arrents' and Norihiko Tsuneishi's work examined the subject of labour recruitment in the Korean peninsular with specific focus on the Miike and Chikuho coal mining companies. Their

[38] Ad Knotter, 'Migration and Ethnicity in Coalfield History: Global Perspectives', *International Review of Social History Special Issues*, No. 23. (2015), p. 12.
[39] Erol Kahveci, 'Migration, Ethnicity, and Divisions of Labour in the Zonguldak Coalfield, Turkey', *International Review of Social History Special Issues*, No. 23. (2015), pp.207 and 216.
[40] Limin Teh, 'Labour Control and Mobility in Fushun Coal Mine, 1907-1932', *International Review of Social History Special Issues*, No. 23. (2015), p.99.
[41] Teh, 'Labour Control and Mobility in Fushun Coal Mine, 1907-1932', pp.111 and 119.

work argues that after Japan's colonisation of Korea in 1910, many Korean peasants lost their land owing to the changes imposed in agriculture and several Japanese coal mining companies started to recruit them as colonial surplus population.[42] While some coal mining companies relied on Korean migrants others did not even when they were offered poor wages. This, in turn caused an uneven distribution of Korean migrants in the mines. The authors noted that the uneven distribution of the Korean workforce in Chikuho during the colonial period was not only due to the monopolisation of convict labour by Miike mine but also depended on capital that was injected in the mines which had a direct effect on their employment strategies.[43] This work is significant as it provided useful insights into the role of capital in recruitment strategies and retention of the workforce.

In the Americas, the study by Joe William Trotter investigated the dynamics of class, race and ethnicity in the United States coal industry while Clarice Gontarski Speranza's work analysed the role European workers played in the making of a working class in the coalfields of southern Brazil between 1850-1950 while focusing on their role in social practices and coal miners' struggles.[44] Since both countries had a long history of slave trade, their coal mining industries experienced a deep racial divide at all levels. Prior to and after World War one, the continents experienced an influx of migrants from Europe. Trotter argued that, although these immigrants were whites, issues of nationality, race, and ethnic differences produced significant levels of economic competion, as

[42] Tom Arrents and Noriko Tsuneish, 'The uneven distsribution of Korean Miners in Japan in the 1920s: Employment Strategies of the Miike and Chikuho Coal Mining Companies', *International Review of Social History Special Issues*, No. 23. (2015), p.121.
[43]Arrents and Tsuneish, 'The uneven distsribution of Korean Miners in Japan in the 1920s: Employment Strategies of the Miike and Chikuho Coal Mining Companies', p.142.
[44] Clarice. G. Speranza, 'European Workers in Brazillian Coal Mining, Rio Grande Sul, 1850-1950', *International Review of Social History Special Issues*, No. 23. (2015), p.167.

well as political conflict in the US coal industry.[45] Despite this competition, these immigrants formed a working class which enjoyed good working conditions at the expense of racially exploited African Americans. These works were helpful in understanding the interaction between expatriates and local labour force at Maamba.

The work by Julia Landau demonstrates aspects of coerced labour in the Kuzbass coal mining region of western Siberia, under the Soviet Union around the 1920s. Struggling to offset a high labour turnover, the local state-run coal company enrolled deportees from other regions of Russia and Siberia, who were controlled by the secret police.[46] Beside deportees, the Kuzbass labour force constituted expatriates from abroad who enjoyed good conditions of service. However, during the great terror, 1936-1938 both groups were persecuted, as they were regarded by the state as disloyal and suspicious.[47] In the years following the war, the state-run coal company still recruited foreigners but this time as prisoners of war. Landau argues that even though they formed the largest part of the workforce, their status kept on shifting due to economic needs and repressive politics.[48] Although coercion was not an aspect of the post-colonial method of labour recruitment in the country (Zambia), this article was informative in providing a broader understanding of coerced labour in coal mining.

Another work significant to this study is that of Philip Slaby. His work focuses on France's premiere coalfields of *Pas-de-Calais* during the 1920s, a period of mass influx of Polish labourers.

[45] Joe William Trotter Jr, 'Dynamic of Race and Ethnicity in the US Coal Industry', *International Review of Social History Special Issues*, No. 23. (2015), p.149.
[46] Julia Landau, 'Specialists, Spies, 'Special Settlers', and Prisoners of War: Social Frictions in the Kuzbass (USSR), 1920-1950', *International Review of Social History Special Issues*, No. 23. (2015), p.185.
[47] Landau, 'Specialists, Spies, 'Special Settlers', and Prisoners of War: Social Frictions in the Kuzbass (USSR), 1920-1950', p.185.
[48] Landau, 'Specialists, Spies, 'Special Settlers', and Prisoners of War: Social Frictions in the Kuzbass (USSR), 1920-1950', p.185.

This study also explores employers'often under-appreciated influence over the inter-ethnic relations, and it reveals the far-reaching effects of managerial policies.[49] Among these policies, working in the coal pits was reserved for immigrants only and the surface for the local people. Slaby further contends that managerial policies inside and outside greatly influenced, though unintentionally, relations between immigrants, coalfield local people and local French officials. In the work place, for example, employer strategies to assign, train and manage Polish workers led French miners to see themselves as distinct and even superior immigrants, a view that impeded workplace ties between the local people and newcomers.[50] This study provides insight to investigate how Maamba Colliery's management policies influenced migrant workers in the Gwembe valley.

The study by Marion Fontaine explores the influence of football on relations between migrants and French miners in *Nord-Pas-de-Calais* (Northern France) between 1920s and 1930s. More generally, it aims at showing how sport was incorporated into industrial coal mining, both in employers' policies and in the mining community.[51] Similarly, a study by Diethelm Blecking on Germany's Ruhr region shows that sport was an intergral part of coal mining communities. Popular football clubs such as Schalke 04 and Borrussia Dortmund emerged from the Ruhr.[52] While Fontaine's study demonstrates that even though segregation and exclusion of immigrants was a salient feature in northern French mining communities, football played a major role in intergrating the immigrants into the mainstream community. This was opposite in the Ruhr where Blecking's

[49] Philip H. Slaby, 'Dissimilary Breeds Contempt: Ethnic Paternalism, Foreigners, and the State in Pas-de-Calais Coalmining, France, 1920s', *International Review of Social History Special Issues*, No. 23. (2015), p.227.
[50] Slaby, 'Dissimilary Breeds Contempt: Ethnic Paternalism, Foreigners, and the State in Pas-de-Calais Coalmining, France, 1920s', p.229.
[51] Marion Fontaine, 'Football, Migration, and Coal Mining in Northern France, 1920s-1980s', *International Review of Social History Special Issues*, No. 23. (2015), p.253.
[52] Diethelm Blecking, 'Intergration through Sports? Polish Migrants in the Ruhr, Germany', *International Review of Social History Special Issues*, No. 23. (2015), p.276.

study reveals that the Poles preferred to organise their own sporting events which, in turn furthered their nationality in the German coal mining region. These studies made a great contribution to the current study as it also set out to investigate the role of sporting activities in intergrating expatriate and the local workforce in Maamba.

In West Africa, Carolyn Brown's study examines the varied workforce at the Enugu Government Colliery in Nigeria, which was operated by the British colonial state. She argues that the coal mines brought together an eclectic mixture of forced labour and voluntary unskilled labour, prisoners, unskilled contract workers, and voluntary clerical workers and artisans.[53] Since the commencement of commercial coal mining at the Enugu Government Colliery between 1915-1917, there was an influx of migrants from different ethnic groups. Among them, the Yoruba from western Nigeria were skilled artisans and clerks, while the Igbo from south eastern Nigeria were regarded as a more civilised workforce. Despite their complex backgrounds, the labour force managed to rise against the coercion perpetrated by the British colonial government by organising strikes against the village men who were also supervisors for exploiting them. This study draws insight from Brown's work as it also sought to understand labour migration and industrial relations at Maamba Colliery.

In examining the dangers of coal mining, the work of Joan Miller is very essential to the study. She attributes the Aberfan disaster of 1967 in South Wales to chronic flooding around the mine area which was ignored by mine managers for some time. Miller argues that the disaster that began by a waste lip-slide in Aberfan, on 21 October 1967, buried 20 houses, a farm, Pantglas Junior

[53] Carolyn A. Brown, 'Locals and Migrants in the Coal Mining Town of Enugu (Nigeria): Worker Protests and Urban Identity, 1915-1929' , *International Review of Social History Special Issues*, No. 23. (2015), p.65.

School, and killed 144 people of whom 116 were children.[54] In addition to this, the work by Ruth Edgecombe enriched the present study. Her work is a comparative study of Dannhauser coal mine disaster that occurred in 1926 in Northern Natal and the Wankie disaster that occurred in 1972 in Rhodesia. She argues that the explosions at the Durban Navigation (DNC) No.2 Colliery near Dannhauser in northern Natal and at Wankie No. 2 Colliery in Rhodesia, both began as methane gas explosions which extended to coal gas explosions, ripping through both mines and killing almost all who were underground at those times.[55] In Wankie's case, of the 425 persons who died in the mine, those who might have survived the force of the explosion must immediately have been overcome by the poisonous atmosphere which filled the workings.[56] These studies offer valuable insights on the dangers of mining which this study benefitted from as it also investigated the environmental effects of coal mining at Maamba.

There are some works that examine aspects of coal mining in Southern and Central Africa. Among them Crush and Soutters' article on stabilisation on the South African coal mines titled 'Natural Family Conditions': Narratives of Stabilisation and the South African Coal Mines, 1910-1970' argues that the history of labour practices on the South African coalfields demonstrates that Copperbelt-like stabilisation could and did develop within the South African economic and political environment.[57] Therefore, recruiting for coal and stabilisation on Witbank coalfields entailed miners to bring their spouses and even dependants at the mine. This study benefitted from this work as it set out to investigate strategies used by Maamba Colliery to retain its labour force.

[54] Joan Miller, *Aberfan: A Disaster and its Aftermath* (London: SCGM Press, 1971), p.26.
[55] Ruth Edgecombe, 'Dannhauser (1926) and Wankie (1972)- Two Mining Disasters: Some Safety Implications in Historical Perspective' *Journal of Natal and Zulu History*, 13 (1990-1991), p.71.
[56] Government of Rhodesia, *Report of the Commission of Inquiry into the Wankie Colliery Disaster and General Safety in Coal Mines, Rhodesia*, 1973, p.15.
[57] J. Crush and C. Souther, 'Natural Family Conditions': Narratives of Stabilisation and the South African Coal Mines, 1910-1970', p.7.

Ian Phimister's work on Wankie Colliery is one of the most authoritative on the history of coal mining in Central Africa. His work outlines the history of Wankie Colliery from its inception up until the 1950s. He argues that Wankie Colliery's most lucrative markets were always the copper mines of Katanga (Shaba) and Northen Rhodesia (Zambia).[58] Most importantly, his work highlights how black labour was mobilised and controlled and of course made it's own history.[59] Phimister's work shows that coercion was a regular feature at Wankie owing to the colliery manager's belief in brutality or corporal punishment as an effective way of maintaining discipline which resulted into the desertion of the colliery. Phimister's work significantly influenced this study as it provides a detailed insight on major themes in coalfield history such as capital and labour which the current study also investigated.

Like Phimister, Charles van Onselen also examined labour recruitment at Wankie Colliery. His study is a critical examination of the adverse labour conditions that African mine workers were exposed to due to inadequate investment by the mine owners in the housing and feeding of African workers.[60] His work largely focused on the compound system that posed many challenges to Africans. Van Onselen's work is valuable in understanding labour relations between the mine owners and workers. The present study benefitted from van Onselen's work as it also investigated labour conditions at Maamba Colliery and how African mine workers responded to these conditions.

[58] Phimiter, *Wangi Kolia: Coal, Capital and Labour in Colonial Zimbabwe, 1894-1954*, p.154.
[59] Phimiter, *Wangi Kolia: Coal, Capital and Labour in Colonial Zimbabwe, 1894-1954*, p.155.
[60] Charles van Onselen, *Chibaro: African Mine Labour in Southern Rhodesia 1900-1933* (London: Pluto Press, 1976), p.312.

On the other hand, Ian Phimister and Alfred Tembo demonstrate how nationalist politics in Central Africa influenced the African labour migrants in the decolonisation era to stage a strike at Wankie colliery. For a long time, the colliery relied on indentured (*Chibaro*) labour supplied by the Rhodesian Native Labour Bureau (RNLB), which pooled labour outside Southern Rhodesia. Phimister and Tembo note that while some workers came from Angola, Tanganyika (Tanzania), and Nyasaland (Malawi), the great majority were from Northern Rhodesia.[61] Southern Rhodesia did not contribute much to the colliery's labour force because in the early years of its establishment, the colliery had deservedly acquired a dreadful reputation for appalling conditions in which its black miners worked and the casual brutality with which they were treated.[62]

The underlying grievances that the miners had over wages, working environment and accommodation combined with the tense political mood, that is, the breaking away of the Central African Federation, culminated into a major strike on the mine in 1964. This was the year the two northern territories gained independence. With more migrant workers from Northern Rhodesia, support for Zambia's United National Independence Party (UNIP) was shown by women who were shouting and singing UNIP slogans, a first sign that showed that Zambia's UNIP played a role in the strike at the coal mine.[63] This study offered an in-depth analysis on mine workers' unions and workers' consciousness in fighting for better working conditions in the changing political environment which the present study greatly benefited from as it also examines worker consciousness at Maamba in the midst of industrial conflict.

[61] Phimister and Tembo, 'A Zambian Town in Colonial Zimbabwe', p.41.
[62] Charles Van Onselen, 'The 1912 Wankie Colliery Strike', *Journal of Africa History*, Vol.15, No.2 (1974), pp.275-289 and Phimister, *Wangi Kolia*, p.71.
[63] Phimister and Tembo, 'A Zambian Town in Colonial Zimbabwe', p.51.

Charles Perrings'study examined the policy of labour stabilisation in Katanga and the Copperbelt mines. He argues that the main feature at the heart of the labour stabilisation policy was the replacement of an optional twelve-month engagement scheme for voluntary workers and time expired recruits by a mandatory three-year starting contract for all African employees.[64] Perrings' work is important to this study as it illustrates how mine owners devised a systematic way of retaining labour at the mines in an effort to increase productivity. This study immensely benefited from Perrings' work as it also explored the process of labour recruitment at Maamba.

Austen Bancroft, Rene Pelletier, Francis Coleman and Lewis Gann's[65] works are significant to this study because they provide useful insights on Zambia's early capitalist mining history. In general terms, their studies focused on early mineral explorers at Broken Hill and the Copperbelt. Their works demonstrate how powerful mining magnates such as Edmund Davies of the BSAC, Alfred Chester Beatty of the Selection Trust, and Sir Enerst Oppenheimer of the Anglo-American Corporation (AAC) sourced capital for the development of Northern Rhodesia's copper industry in the 1920s. This capital had a far reaching impact in the history of Central Africa. None of these studies cover coal mining at Maamba – an aspect that the current study investigated in detail.

The study by Ieaun Griffiths explored the early history of coal mining in Zambia from the time coal was first discovered by Livingstone on the north bank of the Zambezi river to the establishment of coal mines. He attributes the development of coal mining in Zambia to the political confrontation that occurred between Zambia and Rhodesia. He states that the new

[64] Perrings, *Black Mine Workers in Central Africa: Industrial strategies and the Evolution of an African Proletariat in the Copperbelt,1911-1941* , p.78.

[65] A. Bancroft, *Mining in Northern Rhodesia*, pp. 112-123 and R.A. Pelletier, *Mineral Resources of South Central Africa* (London: Oxford University Press, 1964), pp.199-203, Francis Coleman, *The Northern Rhodesia Copperbelt 1899-1962: Technology development up to the end of the Central African Federation* (Manchester: Manchester University Press, 1971), p. ix. L. H. Gann, *A History of Northern Rhodesia: Early days to 1953* (London: Chatto and Windus, 1964), pp.204-205.

Zambian coalfields were a significant and strategic development resource that Zambia had, though occasioned by political hostility between Lusaka and Salisbury.[66] Griffiths' work however, is not as detailed as is the case with the current study as he only focused on the events leading up to the establishment of the mine in 1968. This study goes beyond this as it examines the history of the mine in the years from its establishment to 2010.

Similarly, Clarence Chongo's study examined the impact of the U.D.I. on Zambia's economy. He argues that, the government established notable projects such as the Maamba Colliery, Indeni Refinery, hydroelectric power stations at Kafue Gorge and Kariba North Bank and the Tanzania Zambia Railways (T.A.Z.A.R.A) in order to extricate itself from the economic dependence on Rhodesia.[67] The work by Chongo is significant to this study as it provided an underdstanding on the impact of U.D.I on Zambia. Hence, the current study benefitted immensely from Chongo's work as it demonstrates that the development of Maamba Colliery was equally borne out of the country's deliberate need to industrialise as a consenquence of external dynamics set in motion by U.D.I.

Joy Kalyalya's study recounts the history of the Nakambala Sugar Estate with special attention to migrant labour. Kalyalya argues that it was hardly surprising that Southern Province proved to be a poor source of unskilled labour for the estate owing to the fact that they had transitioned into semi-commercial farmers during colonial rule and so there was no need to seek wage employment at Nakambala due to their agricultural prosperity.[68] Furthermore, Kalyalya linked the recruitment

[66] Griffiths,'Zambian Coal:An Example of Strategic Resource Development', *Geographical Review*, Vol. 58, No. 4 (1968), p. 538.
[67] Chongo, The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development', p. 75.
[68] Joy Kalyalya, 'A History of Nakambala Sugar Estate, 1964-1984', MA Dissertation, University of Zambia, 1988, p.37.

of the people from Western Province as cane cutters in relation to the lack of viable economic activities in the province during colonial rule and the closure of the Witwatersrand Native Labour Association (WENELA) by the government in 1966 which threw them into destitution. The present study draws insight from Kalyalya's work in the sense that it sought an understanding of the source of Maamba Colliery's workforce.

The works of Yizenge Chondoka, Patrick Harries and Micheal Gelfand tend to view migrant mining labour in positive light.[69] These scholars seperately contended that Africans were already used to the phenomenon of labour migration long before colonialism. Consequently, when colonial labour migration began, Africans easily embraced it as they were attracted to the positive benefits of the western economy. These scholars note, in separate accounts, that migrant labourers returned home with money, clothes and new ways of living in their villages which they incorporated into their daily lives. However, earlier scholars on this subject, such as Chipasha Luchembe, argued that colonial policies coerced Africans to embark on labour migration.[70] The debate on migrant labour was significant to this study because it also aimed at examining the socio-economic impact of the colliery on Maamba and surrounding areas, and factors that compelled labour migrants to seek employment at a coal mine in Maamba.

A study undertaken by Walima Kalusa examined the major health problems that African mine workers faced in relation to the adverse working and living conditions dictated by the mine

[69] Y. Chondoka, 'Labour Migration and Rural Transformation in Chama District, North-Eastern Zambia,1890-1994', PhD Thesis, University of Toronto, 1992.; P. Harries, *Work, Culture and Identity: Migrant Labours in Mozambique and South Africa, 1860-1910*, (London: James Currey Ltd,1994); and Michael Gelfand, *Northern Rhodesia in the days of the Charter: A Medical and Social Study 1878-1924* (Oxford: Basil Black Well, 1961).
[70] C. Luchembe, ' Finance Capital and Mine Labour: A Comparartive Study of Copper Miners in Zambia and Peru, 1890-1980', PhD Thesis, University Of Carlifornia, 1982, pp.120-3.

owners.[71] Kalusa's study on Roan Antelope Mine demonstrates that ill-health was primarily a product of ecologically determined diseases such as malaria, dysentery, diarrhoea and also diseases linked to poor conditions as well as pathological ones such as silicosis and tuberculosis.[72] The current study is related to Kalusas' findings because like Kalusa's work, this study examined the impact of coal mining on mine workers' health at Maamba Colliery.

Joseph Simweleba's 'The Contribution of Maamba Collieries Limited Towards the Corporate Social Responsibility in Education in Sinazongwe District' attempted to demonstrate the contribution of Maamba colliery in enhancing education and national development in Sinazongwe district. Simweleba argues that Maamba Colliery provided support to educational infrastructure through construction and rehabilitation of schools in the area the company operated in.[73] Simweleba's work enriched this study in that it provided useful insights on the contribution of Maamba Collieries Limited towards its Corporate Social Responsibility in the provision of education in the area.

Separate works by Peter Mhone, Sepo Imakando Musokotwane and Eva-Maria Egger et al examined the soci-economic impact of mining in host communities.[74] These works argue that mining has a positive impact on host communities that brings about the improvement of people's livelihood through the provision of social services such as education, health and infrastructure

[71] Kalusa, 'Aspects of African Health in the Mining Industry in Colonial Zambia: A case study of Roan Antelope Mine,1920-1964', p.vi.
[72] Kalusa, 'Aspects of African Health in the Mining Industry in Colonial Zambia: A case study of Roan Antelope Mine,1920-1964', p.vi.
[73] Joseph Simweleba, 'The Contribution of Maamba Collieries Limited, Towards the Corporate Social Responsibility in Education in Sinazongwe District' MA Dissertation, University of Zambia, Lusaka, 2019, p.49.
[74] Peter Mhone, 'Socio-Economic Impact of Mining on Local Communities: The Case of Kansanshi Mine in Zambia', Msc Dissertation, University of Zambia, Lusaka, 2019, p iv.; Sepo Imakando Musokotwane, 'The Socio-Economic Impact of Mining: A Comparative Study of Botswana and Zambia', Ph.D Thesis, University of Wiwatersrand, Johannesburge, 2016, p.iii; and Eva-Maria Egger, Michael Keller and Jorge Mouco, 'The Socio-Economic Impact of Coal Mining in Mozambique', WIDER Working Paper, No. 2021/108, ISBN 978-92-9267-0481, The United Nations University World Institute for Development, Economics Research (UNU-WIDER), Helsinki, 2021, p.1.

develelopment. Despite these positive impact, these works do not hesitate to state that mining has detrimental effects on the livelihoods of people associated with environmental hazards like air and water pollution. Although not focusing on Maamba Colliery, these works informed this study as it also examined the socio-economic impact of coal mining at Maamba.

With regard to the environmental impact of coal mining at Maamba, the colliery has been subject of numerous studies of which Bunda Besa, Mtonga Mtonga and Mervis Cheelo's stand out in this study. While Besa and Mtonga took the scientific view of the impact of coal mining activities at Maamba, Cheelo used the educational lense in addressing the environmental impact of coal mining at the colliery. These studies demonstrate that although coal mining had a positive impact on the economy, the negative impact from this activity poses serious damage to the environment such as land degradation, pollution of surface water bodies and air pollution which compromised livestock and human life.[75] The present study greatly benefitted from these works as it also placed the impact of coal mining on the environment at Maamba colliery and its surrounding communities at the centre of investigation during the entire period covered by the study.

1.6 Methodology

The study adopted the qualitative method for data collection and analysis. Data for this study was based on archival, oral interviews and published secondary sources. The first part of the research was devoted to collecting published and unpublished data in the University of Zambia library where books, theses, dissertations, journal articles, newspapers and magazines were consulted.

[75] Bunda Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited, In Choma Zambia', MSc Dissertation, University of Zambia, 2001,p.35. M. Mtonga, Technical and Environmental aspects of Coal Mining: A Case study of Maamba Collieries Limited, Zambia and Mervis Cheelo, 'Role of Environmental Education in addressing Effects of Coal Mining in Zambia's Maamba Township', MA Dissertation, University of Zambia, Lusaka, 2015.

Thereafter, data was collected from the National Archives of Zambia (N.A.Z.). Particular reference was made to files related to Maamba Coal Mine. Apart from N.A.Z., the Mining Industry Archives formerly Zambia Consolidated Copper Mines (Z.C.C.M.) Archives in Ndola was consulted for extensive reading of primary sources. Annual reports and mining year books were consulted at the archives.

Data was also collected at Maamba Collieries Limited headquarters in Sinazongwe district and at the Lusaka office where administrative files, monthly reports, newsletters and also Maamba Collieries Limited publications were consulted. These sources provided vital information on operations, production and financial details on Maamba. At MCL headquarters, it was challenging to find year by year statistics because the colliery was run by different companies between 1997-2010. These companies went away with documents once their tenure of office came to an end.

Lastly, oral interviews were conducted in Maamba where first-hand information was obtained from interviewees. Informants included Maamba Collieries Limited employees, former employees and community members. Interviewees supplied useful information on labour recruitment and retention strategies. This supplemented the data obtained from the archives. However, they were reluctant to discuss the conditions of service during the privatisation era because the colliery still has active litigation cases.

1.7 Organisation of the Study

This study is divided into five chapters organised thematically. Chapter One is the Introduction while Chapter Two focuses on the origins and development of Maamba Colliery owing to the political developments in Central Africa which culminated into U.D.I. in November, 1965. Chapter Three investigates how the colliery at Maamba recruited and retained its labour force. It also

highlights some challenges that Maamba Collieries Limited faced during the privatisation era which led to the subsequent retrenchment of some of its skilled labour force. Chapter Four investigates the socio-economic impact of Maamba Colliery on Sinazongwe district and the country at large. The final chapter is the Conclusion, it summarises the main findings of the study and its contribution to the academic discourse on coal mining.

CHAPTER TWO

ORIGINS AND DEVELOPMENT OF COMMERCIAL MINING AT MAAMBA COLLIERY

2.1 Introduction

The establishment of Maamba Coal Mine by the Zambian government in 1968 was aimed at eliminating the dependence on coal imports from the Anglo-American Corporation (AAC) -owned Wankie Colliery in Rhodesia. This chapter argues that the Rhodesian Unilateral Declaration of Independence (UDI) of 1965 triggered the development of commercial mining at Maamba. Zambia's dependence on coal from Wankie had deepened during the Central African Federation (1953-1963), which instigated the clustering of the economies of Northern Rhodesia, Southern Rhodesia and Nyasaland. However, after the dissolution of the Federation in 1963 and the procession of Zambia to independence in October 1964, the threat of UDI in Southern Rhodesia posed a major concern to Zambia's economy which thrived on copper exports mined using coal from Wankie. In order to extricate herself entirely from Rhodesia's economic ties, Zambia embarked on a crash programme that focused on the development of local industries in an event of UDI. Among these projects was the rapid development of domestic coal resources in the country, for UDI was a time bomb because it threatened the country's economic well-being. As Robert Good observed, the mechanism was triggered in Salisbury but the explosive was in Lusaka and the Copperbelt.[1]

[1] Robert C. Good, *UDI: The International Politics of the Rhodesian Rebellion* London: Faber and Faber, 1973), p.87.

2.2 Federation of Rhodesia and Nyasaland, 1953-1963

Long before UDI, the Siankodobbo coalfields in the mid Zambezi valley had been worked by the local people although only on a small-scale. Relatively shallow coal pits around nearby villages suggest that the local people engaged in mining activities that involved the digging of coal in pre-colonial times. An informant noted that, 'when European surveyors arrived in the 1950s, they already found us digging coal.'[2] By then, coal was used for iron smelting which could be carved into different shapes such as hoes and axes. Years later, the coal proved to be a very efficient source of heat in the baking of pan bricks. However, coal deposits at Maamba were not suitable for domestic usage such as cooking and heating owing to their high calorific value which caused damage to braziers and pots as they eventually melted overtime. The discourse above demonstrates that coal mining in Zambia existed before European surveyors arrived in the Zambezi valley beween the 1950s and 1960s contrary to the picture depicted by Ieaun Griffiths, who attributes the origins of coal mining in Zambia to UDI.[3]

However, the event that led to the commercialisation of coal in Zambia has a long history in the Southern Rhodesian politics. In 1953, the Central African Federation was imposed on Africans to fortify British position in Central Africa. This project entailed the amalgamation of the territories of Northern Rhodesia, Nyasaland and the self-governing colony of Southern Rhodesia. It was an experiment by the British government following economic prosperity that was ushered in by the Second World War.[4] Consequently, it ended up tying the economies of the territories together.

[2] Interview, Timothy Siakalizyi, Headman, Siankodobbo Village, Sinazongwe District, 24 October, 2020.
[3] I.L Griffiths, 'Zambian Coal: An Example of Strategic Resource Development', *Geographical Review*, Vol. 58, No. 4 (1968), p. 538; and I.L. Griffiths, 'Zambia's New Coalfield', *Geographical Association*, Vol. 53, No. 4 (1968), p.415.
[4] Vulindlela Mtshali, *Rhodesia: Background to conflict* (New York: Hawthorn Books,1967), p.89. *see also Alfred Tembo's, 'Impact of the Second World War on Northen Rhodesia', pp.181-188.

Federation seemed attractive because it offered economic advantages to the amalgamated territories as the Northern Rhodesian copper industry flourished and the expanding manufacturing industry for southern Rhodesia searched for wider markets.[5]

Moreover, the lucrative Copperbelt had become a large market for Wankie coal causing a trickle-down effect in the Southern Rhodesian manufacturing industries. Politically, Southern Rhodesia needed the prestige and power of leadership to influence and co-ordinate political trends in Central and Southern Africa.[6] In achieving this, the Southern Rhodesian government hoped to remove the irksome interference of the British government in Central Africa which would lead to independence.[7]

Despite the economic merits envisaged by the Southern Rhodesian government, the Central African Federation failed. From its inception, Africans were against it for they feared that the white minority rule in Southern Rhodesia would be extended to Northern Rhodesia and Nyasaland. By the late 1950s, African nationalism was widespread due to the wind of change sweeping across Africa. In the meantime, the federal government passed repressive laws against Africans in order to contain African populist movements. Political parties were banned and arbitrary arrests became the norm of the day. Garfield Todd, the Prime Minister of Southern Rhodesia, went to the extent of requesting the federal government for troops to break the strike action by African miners on the Wankie coalfield in 1954.[8] In other words, government crackdown on remnants of African opposition continued without a break.[9]

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[5] James Barber, *Rhodesia: Road to Rebellion* (London: Oxford University Press, 1967*)*, p.13.
[6] Kenneth Young, *Rhodesia and Independence: A study in British colonial policy* (London: Eyre and Spottiswoode, year), p.34.
[7] Young, *Rhodesia and Independence, A study in British colonial policy*, p.34.
[8] Young, *Rhodesia and Independence, A study in British colonial policy*, p.42.
[9] Mtshali, *Rhodesia: Background to conflict*, p.129.

When the British government faced unprecedented opposition from the growing nationalist movement north of the Zambezi, a special Commission led by Lord Monckton was appointed to investigate the future of the Federation in 1960. The Commission recommended that territories that wished to secede could do so as they were disadvantaged in the Federation. This was particularly true for Nyasaland which did not benefit much from the policies of partnership. In December, 1963, the Federation was dismantled paving way for Nyasaland and Northern Rhodesia's independence the following year. While Nyasaland became Malawi and Northern Rhodesia became Zambia, Southern Rhodesia was left with neither the Federation nor her own independence.[10]

Zambia's political independence did not necessarily translate into economic independence because of the interconnectedness of her economy with Southern Rhodesia arising from the Central African Federation. At the break-up of the federation, Zambia's transport links and trading system evolved around Southern Rhodesia. This entailed that the conveyance of her imports such as petroleum products and exports depended on Southern Rhodesian routes. Oil from the Feruka refinery was also transported through the Rhodesia Railways. In the meantime, hydro-electric-power a key player in the country's energy sector was regulated by Southern Rhodesia at the Kariba South Bank Power station. But more importantly, Zambia's lucrative copper industry depended on coal imports from Wankie colliery, although South Africa also supplied her with coal in order to meet the country's total demands as shown below in table 2.1.

[10] Elaine Windrich, *The Rhodesian Problem, A Documentary Record, 1932-1973* (London: Routledge and Kegan Paul) p, XVI.

Table 2.1: Zambia's Coal and Coke Imports from Rhodesia and South Africa, 1951-1965 (in Metric Tonnes)

Year	Rhodesia	South Africa	Total
1951	786,642	1,696	788,338
1952	860,814	710	861,524
1953	892,125	14,890	907, 015
1964	1,146 399	3,961	1,150,360
1965	1, 342 134	3,234	1,345,377

Source: I.L Griffiths, 'Zambian Coal: An Example of Strategic Resource Development', *Geographical Review*, Vol. 58, No. 4 (1968), p.539.

From the above table, it can be deduced that Rhodesia's Wankie colliery was the major supplier of coal to Zambia's copper industry prior to and after the Federation. At the formation of the Central African Federation, for instance, Wankie colliery supplied the country with 892,125 tonnes of coal while South Africa supplied 14,890. The total consumption of coal in 1953 was 907,015 tonnes. These supplies increased at independence with a total of 1,150,360 tonnes. Table 2.1 shows that at the time of UDI, the country entirely relied on Wankie coal for its energy requirements as it supplied 1,342, 134 tonnes.

After the attainment of independence by Malawi and Zambia, the Rhodesian government too embarked on its own search for independence. But much to the annoyance of the Southern Rhodesian government, the British government was making independent states out of Northern

Rhodesia and Nyasaland while withholding hers. Northern Rhodesia and Nyasaland achieved independence after only the briefest apprenticeship in self-government while Rhodesia was denied similar status after 40 years of responsible home rule.[11] Southern Rhodesia, therefore, could not stand still while less developed and less sophisticated African states were progressing to independence under the British policy of African decolonisation that popularly came to be abbreviated as NIBMAR to mean No Independence Before Majority Rule. [12]

The impetus to gain independence heightened when the Rhodesian Front, which had been established in 1962, formed government in 1964 under the leadership of Ian Douglas Smith. The British government felt that this party consisted of dissidents and conservatives who were only pre-occupied with the issue of independence. James Barber argues that under Winston Field the search for independence had been a predominant issue of Southern Rhodesian politics whereas under Ian Smith it became an obsession.[13] "But even in the early days of Smith's premiership, the question of independence overshadowed all else".[14] Although the British government hoped to negotiate some kind of agreement with the Southern Rhodesian government, Smith argued that he visualised circumstances which could drive him to do something else.[15]

On 11 November 1965, one year and a few days after Zambia's independence, Ian Smith, the white Prime Minister of the colony of Southern Rhodesia, unilaterally declared Independence from Britain, effectively staging a *coup d'état* against the British Crown renaming the country Rhodesia dropping the Southern component of the name.[16] This act had far reaching consequences on

[11] Good, *UDI:The International Politics of the Rhodesian Rebellion,* p.42.
[12] Barber, *Rhodesia: Road to Rebellion,* p.69.
[13] Barber, *Rhodesia: Road to rebellion,* p.249.
[14] Barber, *Rhodesia: Road to rebellion,* p.249.
[15] Good, *UDI*: *The International Politics of the Rhodesian Rebellion,* p.42.
[16] Andrew Sardanis, *Zambia: The first 50 years* (London: I.B Tauris, 2014), p.27.

Zambia's economy which was knitted tightly into the economic structure of the white-dominated areas to the south; for Rhodesia next door traditionally had served as Zambia's economic warehouse.[17] But more crucially, UDI caught Zambia still dangerously dependent on Rhodesia for each of the three-principal sources of energy on which its copper industry depended: oil refinery from Feruka, coal from the mine at Wankie, and electricity in the jointly-owned power station at Kariba.[18] The Rhodesian U.D.I did not only dominate the political sphere of the region but also caused an uproar in the international community.

2.3 UDI and the International Community

In Salisbury, Smith's declaration of independence was not received with extraordinary excitement. The only outward excitement was the hooting of cars, hand-clapping by some of the European population walking around in the streets. The majority of people including the Africans appeared to be too bewildered to do anything.[19] For the middle class, it was business as usual as they carried on with their daily routine of work even after the proclamation. Meanwhile, the American Embassy in Lusaka issued a statement reminding the public that it had on previous occasions mentioned that it would not recognize any regime in Southern Rhodesia purporting to emerge from U.D.I.[20]

Back in Britain, politicians, particularly Prime Minister Harold Wilson, took an equivocal stance on the Rhodesian problem owing to the pressure he faced from the international community. The British government, still the sovereign power in Rhodesia, declined to use force against the rebels and instead mounted an international campaign of economic sanctions in the foolish belief that the

[17] Good, *UDI*: *The International Politics of Rhodesian Rebellion*, p.89.
[18] Anglin G. Douglas, 'Zambian Crisis Behaviour: Rhodesia's Unilateral Declaration of Independence', *International Studies Quarterly*, Vol. 24, No. 4 (December, 1980), p.587.
[19] *Zambia Mail*, November, 1965, p.1.
[20] *Zambia Mail*, November, 1965, p.1.

country could swiftly be isolated and the regime undermined from within.[21] The British government argued that sanctions were a least hurtful option, for they were enough to afford just enough pressure to induce a return to the negotiating table.[22] With regards to military intervention, Wilson's Defence Minister, Dennis Healy stated that armed intervention against the white minority rulers of Southern Rhodesia was unthinkable [23] for they were Britain's 'kith and kin'. The British stance on the Rhodesian rebellion made many countries in the world believe that Smith and company could rebel at any time of their choosing without fears of armed reprisals from Britain.

The Commonwealth of Nations and other independent states viewed British half-heartedness in dealing with Rhodesia as suspicious and intolerable. The continuous refusal by Wilson to use force on the rebel regime became a contentious topic at the United Nations especially by the Afro-Asian states. Afro-Asian countries were expecting Britain to state the reasons for failing to topple the Smith regime 'in a matter of weeks rather than months' but Wilson maintained that economic sanctions alone would unseat the Smith regime. Therefore, African and Asian delegates at the United Nations failed to come to terms with the decision 'not to use force against a people in a state of rebellion'.[24] To the Afro-Asian states, a campaign for economic sanctions would only prolong the rebellion which would have a negative impact on Zambia's economy.

The arrogance portrayed by Smith's defiance *vis-à-vis* UDI became a major concern for Zambian and British policy makers. These concerns emerged from the options which were brought to the table by the British government in tackling the Rhodesian problem. While many countries felt that the use of force was the only realistic response to the rebellion, the British government thought

[21] Andrew Roberts, *A History of Zambia* (London: Longman, 1973), p.226-227.
[22] Good, *UDI: The International Politics of Rhodesian Rebellion*, p.54.
[23] Interview, Andrew Sardanis, 30 October, 2020 and *Zambia Mail Magazine*, August 13, 1965.
[24] Good, *UDI: The International Politics of the Rhodesian Rebellion*, p.55.

otherwise. Zambia's participation in economic sanctions against Rhodesia, would end up hurting her economy too. Zambia's other option was to ignore the sanctions and continue to conduct business as usual with the rebel colony.[25] However, Kaunda declined to trade with the rebellious state insisting that it was an illegal state that lacked recognition from the international community.

By refusing to conduct business as usual with Rhodesia, Kaunda vowed that Zambia would rather face hardships that would arise from UDI than maintain its import and export relations with Rhodesia. Kaunda confidently stated that, "the government of Zambia cannot be a party to any attempt by the illegal regime in Rhodesia to avoid the effects of economic sanctions."[26] Consequently, Zambia was to face the economic hardship that came along with her participation in economic sanctions against the Rhodesian minority government because of the interconnectedness of the countries' economies.

Therefore, on 13 November, 1965, Zambia joined the United Nations Security Council (UNSC) sponsored sanctions on moral grounds against Rhodesia knowing fully what this action meant for her own economy.[27] Robert Bob Sutcliffe detailed the role of Zambia in participating in economic sanctions when he stated that:

> Zambia's efforts to implement economic sanctions took three forms: the cutting off of imports of Rhodesian goods and the search for new sources of supply; the development of local production to replace Rhodesian imports and the use of transportation routes which did not pass-through Rhodesia and so swell Rhodesian revenues.[28]

[25] Good, *UDI: The International Politics of the Rhodesian Rebellion*, p. 87.
[26] Douglas G. Anglin, 'Zambian Crisis Behaviour: Confronting Rhodesia's Unilateral Declaration of Independence', p. 165.
[27] Clarence Chongo, 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979', p. 57.
[28] R. B Sutcliffe, 'Zambia and the Strains of UDI', *Royal Institute of International Affairs*, Dec., 1967, Vol. 23, No. 12, p.509.

With this policy direction in place, the British government hoped to weaken the rebellion in just a matter of weeks rather than months. They devised a schedule for Zambia to completely cut off her ties with Rhodesia and came up with 15 February, 1966 as the cut-off date, they argued that this would reduce the adverse impact of UDI on Zambia's economy in the long run.

Upon Zambia joining the United Nations sanctions, Smith hit back at the country in an economic offensive. On 18 December 1965, the Rhodesian government banned the transiting of oil and petroleum products to Zambia by preventing any movement of rail tanks. Smith took this action in an apparent move to create his country's oil reserves in the wake of sanctions. [29] The following day, Smith made a pronouncement that made it difficult for Zambia to access coal from Anglo-American's Wankie colliery by demanding six times more in tax payments than before Southern Rhodesia grabbed independence.[30] Further, Smith would not allow the Zambian government to haul the imports and exports of the country without an advance payment of railway revenue in convertible currency.[31]

The United Nations sponsored sanctions failed dismally because of the lack of understanding of the Rhodesian economic structure by the British government. Even when Wilson imposed the economic sanctions on Rhodesia, he never employed an analyst to advise on the strength and weakness of the Rhodesian economy.[32] Smith had already played out the impact of economic sanctions on Rhodesia's economy, for UDI was a calculated move. Smith delayed the proclamation

[29] Chongo, 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979' p.54.
[30] *Zambian Mail*, December 31, p.1.
[31] Chongo, 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979' p.54.
[32] E.E. Mlambo, *Rhodesia: The British Dilemma* (London: Christian Action Publications Ltd,1971), p.26. *See also R. B Sutcliffe, 'Zambia and the Strains of UDI', *Royal Institute of International Affairs*, Dec., 1967, Vol. 23, No. 12, for more information on sanctions.

of UDI because of tobacco farming. Tobacco was one of the pillars of Rhodesia's economy.[33] He only proclaimed UDI after the tobacco farmers had already harvested and exported the commodity to Britain in the earlier months. This miscalculation alone by the British government would make sanctions less effective on the rebel colony because the government was financially sound to cushion the impact of sanctions through remittances from tobacco exports.

The second reason that led to the ineffectiveness of the United Nations sanctions against Rhodesia was that some African countries were either actively encouraging the breaking of sanctions or taking no positive steps to prevent violations.[34] South Africa was the main sanction breaker who openly defied the UN by maintaining normal trading relations with Rhodesia owing to the presence of her industries in the colony. Mozambique also followed suit by declaring neutrality with Rhodesia because of her closeness with South Africa. Further, other countries that benefitted from trading with Rhodesia were obviously turning a blind eye to the activities of companies and individuals who were helping Rhodesia to circumvent the trade barriers erected by the United Nations.[35] With the failure of economic sanctions, Zambia intensified on cutting her ties with Rhodesia through import substitution.

2.4 Zambia's Response to UDI: Import Substitution

It is imperative to state that Zambia's drive for import substitution did not only arise from the adverse impact of UDI on the economy, but also as a measure for self-sufficiency being promulgated by the young government. In a similar fashion, after gaining independence most African countries took measures to establish their own commercial industries that involved the

[33] Mlambo, *Rhodesia: The British Dilemma*, p.26.
[34] Mlambo, *Rhodesia: The British Dilemma*, p.27.
[35] Mlambo, *Rhodesia: The British Dilemma*, p.27.

participation of local people in order to unhook themselves from colonial economic ties. Even before UDI, Zambia's quest to utilise her domestic coal resources was well-known for the reason that after the Second World War, the Copperbelt experienced a complex problem of severe energy shortage and transport. According to Larry Butler, not only did the Copperbelt's produce had to be conveyed to the coast on a railway exhausted by wartime overuse, but large quantities of coal from Wankie in Southern Rhodesia had to be transported to Northern Rhodesia, a journey of 500 miles.[36] This situation restricted the output of the Copperbelt.

In 1936, Rhodesia Railways had signed a contract with the Northern Rhodesia copper companies. Among the terms of the agreement was that coal supplies for the Copperbelt would be supplied exclusively by rail, in return for which the copper mines would receive a favourable freight rate, provided that they did not switch to hydro-electricity as their major energy source.[37] However, the reality on the ground showed otherwise as Rhodesia Railways could not entirely meet the terms of this agreement because of financial challenges it experienced during the war which consequently prevented the modernisation of the railway. No wonder, after 1945, the railway was simply incapable of responding quickly to the Copperbelt's needs.[38]

To further elaborate the incapability of Rhodesia Railways and the impact this had on the Copperbelt, Butler explained that:

> As early as November 1945, the Railways warned the copper companies that their coal requirements could not be satisfied, triggering a suspension of production between January and May 1946. At a time when the Copperbelt needed 47,000 tons of coal per month (expected to rise to

[36] Larry J. Butler, *Copper Empire: Mining and Colonial State in Northern Rhodesia c.1930-1964* (London: Palgrave Macmillan, 2007), p. 120.
[37] *Butler, Copper Empire*, p.120.
[38] I. Phimister, *An Economic and Social History of Zimbabwe, 1890–1948: Capital Accumulation and Class Struggle* (London, Longman, 1988), p. 222–3 and J. Lunn, *Capital and Labour on the Rhodesia Railway System, 1888–1947* (London, Palgrave,1996), p.68.

> 50,000 tons during 1947), the Railways could supply less than 41,000 tons.[39]

Following temporary mine shut downs on the Copperbelt, the British government provided a quick-fix to the problem by providing trucks and other locomotives to help change the situation at the Rhodesia Railways in the hope of improving the delivery of coal on the Copperbelt.

Concomitant with the transport challenges faced by the Rhodesia Railways were the problems at Wankie Colliery. Frequent breakdown of machinery threatened to disrupt coal production at Wankie. This situation did not only worry the Colliery Board but also British policy makers in London who closely monitored the copper prices at the London Metal Exchange (LME). The periodic cuts in coal production at Wankie had far-reaching consequences on the Copperbelt such that between 1947-1948, for instance, the Mufulira smelter lost production amounting to around 27,000 tonnes of copper.[40] However, by this time copper companies had already started conducting a large-scale campaign of cutting wood in the local forests and transporting it to the power plants of the Copperbelt. Though expensive, it was a necessary expedient.[41] To further help the situation on the Copperbelt, the American government offloaded their limited coal supplies in reserves through the port of Beira in Mozambique.

Prior to the Federation, the Copperbelt had continued to record low production of copper due to the deterioration of fuel supplies from Wankie. By then, it was unclear whether coal or transport was the greater obstacle, but "political considerations" in Southern Rhodesia continued to hinder

[39] Butler, *Copper Empire*, p.120.
[40] Simon Cunningham, *The Copper Industry in Zambia: Foreign Mining Companies in a Developing Country* (New York: Praeger,1981), p.162.
[41] R. L Prain, 'The Copperbelt of Northern Rhodesia', *Journal of the Royal Society of Arts*, Vol. 103, No. 4945, 1955 p.208 and *Butler, Copper Empire*, p.121.

effective co-operation.[42] For instance, it was rumoured in Central Africa that Salisbury, eyeing the Copperbelt's revenue-raising potential, was deliberately obstructing the delivery of coal to the mining industry in order to pressurise the copper companies into support for amalgamation of the Rhodesias.[43]

During the Federation, the energy issue resurfaced again due to competition of Wankie coal in the region. The expansion of the Copperbelt by copper companies due to the revenues accumulated from the war increased the demand for Wankie coal together with Southern Rhodesia's growing manufacturing industry and the mines in Belgian Congo. However, this dependence of the Copperbelt on Southern Rhodesia's coal was only emphasised when the latter's production was threatened with disruption, as happened in February 1954, when a strike among African miners at Wankie unexpectedly began.[44]

In order to mitigate the energy problem on the Copperbelt, copper companies sought to develop a long-term solution. The copper mining companies managed to secure energy supplies for the Copperbelt from the hydro-electric scheme on the Lualaba river in the Congo which began producing electricity around 1956. Furthermore, the federal government was keen to develop hydro-electric schemes that would draw both from the Zambezi and Kafue river. Hence, in May 1951, the Central African Council recommended that the Kariba scheme on the Zambezi would be more economical, providing power to both territories while the Kafue project was to be revisited at a later date.[45] The construction of the Kariba hydro-electric power station lasted a decade for it

[42] NA CAB 134/228, EPC 5(51)3, 'Production of raw materials in the Colonial Empire': Cabinet Economic Policy Committee minutes, 9 March 1951, cited in Butler, *Copper Empire*, p.124.
[43] NA CAB,14/29/1, Energy Supplies on the Copperbelt, cited in Butler, *Copper Empire*, p.124.
[44] Butler, *Copper Empire*, p.218.
[45] Butler, *Copper Empire*, p.125.

only came into operation in 1961, the federal authorities deemed it as one of the major achievements of the federation though it became a source of tension when UDI was proclaimed.

Fearing the rampant shortage of coal in the near future, the Northern Rhodesian government's Department of Geological Survey (NRDGS) embarked on coal explorations in the Zambezi valley in the 1950s. Coal explorations were also done in the Luangwa and Luano valleys and also the Kafue flats around the same period. While progress was made, this exercise was usually met with little success. However, Rhodesia's rapture with Britain increased the urgency to develop the country's local industries following import restrictions that were imposed on vital goods at the time of UDI. Clarence Chongo attributes the challenges that came with the UDI to the development of local industries by stating that the new economic challenges imposed by UDI compelled the Zambian government to pursue, with renewed determination and vigour, an industrial policy aimed at promoting import substitution industries.[46]

Following independence, the Zambian government declared its intention to purchase the bulk of its shares in the Northern Rhodesia Industrial Development Corporation (NRIDC) from key foreign owned firms such as the Anglo American Corporation (AAC), British South African Company (BSAC), Roan Selection Trust (RST) and the Commonwealth Development Corporation. This move led to the formation of Industrial Development Corporation (INDECO) in 1966. INDECO was responsible for import substitution and economic diversification through the development of new projects which aimed at managing its operating subsidies and associated companies on a commercial profit-making basis.[47] As a vehicle for economic development in the

[46] Chongo, 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979', p.74.
[47] John R. Craig, 'State Enterprise and Privatisation in Zambia 1968-1998', PhD Thesis, University of Leeds, 1999 p.97.

country, the corporation held in trust the shares of the Zambian government in various import substitution industries.

By December 1965, Kaunda had announced the decision to proceed with the construction of the Kafue Gorge hydro power station. President Kaunda stated that 'in view of the difficulties over Kariba which are likely to continue, my government decided to proceed as urgently as is possible with the construction of the Kafue power scheme'.[48] The Kafue Gorge power station was completed in 1972 and the Kariba North Bank Hydro-Electric Power Station was constructed in 1976 to further increase Zambia's energy demands. The main consultant for the hydro-electric power station constructed at Kafue Gorge was a firm from Yugoslavia, whereas the Italians handled the Kariba North Bank hydro-electric power station.[49] These projects did not only contribute hugely towards meeting Zambia's energy needs but also laid a strong base for the country to become self-sufficient in the energy sector.

The construction of the fuel pipeline was another form of import substitution undertaken by the Zambian government through INDECO. While the British government declined to assist Zambia in building the oil pipeline advising that it would cost 45 million pounds and three years to build, they argued that it was not necessary because the Smith regime would not last that long![50] Against their advice, the Zambian government began the construction of the Tanzania Zambia Mafuta (TAZAMA) pipeline in 1966 after a series of negotiations with the Tanzanian government. It turned out that the estimation given by the British government was way too high, for it only took sixteen months and 16 million pounds for the pipeline to be constructed.[51] The project reached its

[48] *Zambia Mail*, 10 December,1965, p.9.
[49] N.A.Z 1/15/90, Kafue Hydro Electric Scheme. *see also Republic of Zambia, *Third National Development Plan, 1979-1983*, pp.253-255.
[50] Sardanis, *Zambia: The first 50 years*, p.30.
[51] Sardanis, *Zambia: The first 50 years*, p.30.

completion around September, 1968 with the aim of transporting fuel from Dar-es-Salaam to Ndola. This, in turn would automatically end Zambia's dependence on Rhodesia's Feruka Oil Refinery.

The government policy of disengagement with Rhodesia became vivid in 1968 when the discussions to construct the Tanzania-Zambia Railway (TAZARA) started. After the fallout with Rhodesia, the only way Zambia would ensure its economic independence was the construction of the north-east rail link. Although the World Bank and Western powers turned down the proposal to build the railway stating that it was not economically viable, the Chinese government agreed to give Zambia and Tanzania an interest free loan repayable in 30 years totaling 998 million Yuan to cover the cost of constructing the rail line and stations as its supporting infrastructure in 1970.[52] The actual construction of the rail line began in October 1970 though occasioned by technical difficulties and was only completed in June 1975. The construction of the TAZARA rail line signified a complete cut-off of the Rhodesian railway in mitigating Zambia's transport challenges since UDI was proclaimed.

The government, through INDECO moved a step further in ridding itself of the perpetual dependency of oil from the Rhodesian government by commissioning the Indeni oil Refinery in Ndola in 1973 whose construction began in the late 1960s. It was Zambia's first petroleum refinery set to provide fuel for all consumers of the commodity, especially the mining industry. Together with the strategic TAZAMA Oil Pipeline which was completed earlier in 1968, the Indeni Oil Refinery contributed significantly towards eliminating the problem of rampant fuel shortages that

[52] www.com.tazarasite.ourhistory data accessed on 15 November, 2020. *See Clarence Chongo's 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979', pp.73-79 for more information on import substitution.

engulfed the Zambian economy following UDI.[53] To a large extent, this development helped Zambia become self-reliant in the production of petroleum products.

2.5 Establishment of Maamba Coal Mine

Following UDI, contingency operations were intensified in the development of domestic coal resources in the country. A team of experts from Britain, the United States and other international institutions convened in Washington DC to review Zambia's economic vulnerability in her confrontation with Rhodesia. Zambian government officials together with the copper mining companies were part of contingency planning in an attempt to deal with the energy crisis that befell the Copperbelt mines as they could no longer access coal from Wankie, oil from Feruka refinery, and hydro-electric power from Kariba South bank in Rhodesia. The British government as well shared notes with other stakeholders on contingency planning for the reason that Britain's hard-pressed economy, too, depended on imports of Zambian copper.[54]

In dealing with the energy crisis on the Copperbelt, contingency planners continuously reviewed several hypothetical situations presented to them. The first hypothetical situation to be reviewed was to substitute Wankie coal in the smelters for locally produced charcoal. One calculation found that it would take 40,000 workers for the scheme to be of real value, so the proposal was quickly dropped.[55] The second possibility entailed the exploitation of Tanzanian coalfields. This was found to be untenable because Tanzania coal was of lower quality than Wankie. Further, accessability

[53] Chongo, 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979', p.76.
[54] Good, *UDI*: *The International Politics of the Rhodesian Rebellion,* p.86.
[55] Good, *UDI*: *The International Politics of the Rhodesian Rebellion,* p.89.

and transportation of the coal from Tanzania was the real challenge that would make the venture unprofitable due to a lack of a tarred road linking the two states.

Another option discussed by the contingency committee was the replacement of Wankie coal for fossil fuel in copper smelters since the latter produced more copper by weight than coal.[56] The response was that it was doable in the long term provided the installation of new furnaces at the mines was done. But in the meantime, the international community came to the aid of Zambia by airlifting petroleum and diesel for the copper mines and manufacturing industries that were faced with an energy crisis. The Canadian, United States and British governments were at the helm of this rescue mission.[57]

Furthermore, contingency planners posited that 'then why not exploit Zambia's own coal deposits in the Gwembe valley north of Lake Kariba'? The quality was even worse than Tanzanian coal but with enormous effort the coal could be, and ultimately was made possible.[58] Thus the development of Nkandabbwe coal mine commenced in 1966, spear headed by the National Coal Supplying Commission (NCSC) which was established by the Zambian government in 1965 as part of contingency planning to develop coal mining. In the same year, explorations began on the Siankodobbo Coalfields about 32 km south west of Nkandabbwe.

The first test on Nkandabbwe coal was carried out in June 1966 when a small quantity of the ore was burnt in Shaft No. 5 at the Mufulira smelters, the coal proved to be more difficult to light up than Wankie coal but once hot, ignition was fairly stable.[59] Combustion tests at Nkandabbwe coal

[56] Good, *UDI: The International Politics of the Rhodesian Rebellion*, p.89.
[57] [57] Chongo, 'The Impact of Rhodesia's Unilateral Declaration of Independence (UDI) on Zambia's Economic and Socio-political Development, 1965-1979', p.60.
[58] Good, *UDI: The International Politics of the Rhodesian Rebellion*, p.89.
[59] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.

mine continued with the aim of assessing the difficulties that could be encountered in carrying out a full-scale test to assess the suitability of the coal in the boilers. However, mining companies on the Copperbelt complained that the produce from Nkandabbwe was low-grade coal and caused their smelters at Mufulira to temporarily close down.[60] In 1967, operations at Nkandabbwe mine were abandoned due to complex geological faulting, steep inclination of the coal seam and inundation of the mine pit by underground water.[61]

It was for this reason that investigations of the coal seam at Siankodobbo coalfields intensified. Initial investigations by geologists at the Siankodobbo coalfields showed that they were of greater economic importance unlike its counterpart, Nkandabbwe because the coal seams were in the same relative position as the Wankie seam, a distance of about 300 miles. That is why geologists such as D.J. Drysdale argued that the coalfield in the mid-Zambezi valley was possibly the same coalfield as Wankie.[62] Geologists argued that the coal seam that existed at the Siankodobbo coalfields represented a valuable addition to the Copperbelt coal supplies not only because of the quality but also because they were reasonably close to the railway which would make transportation easy.[63]

In 1967, explorations and geological works such as mapping, pitting and drilling were still underway on the Siankodobbo coalfield. In the process, an additional coalfield was discovered at Mulungwa.[64] In the same year, the government established the National Coal Board of Zambia by enacting Act No.31 of the National Coal Board of Zambia of 1966, to secure the efficient

[60] *Times of Zambia,* 6 July, 1968. p.5
[61] Maamba Collieries Annual Report, 2015.
[62] N.A.Z 8/11/85, Coal Deposits, 1955.
[63] *Times of Zambia,* 18 February, 1968.
[64] Geological Survey Annual Report, 1967, p.1

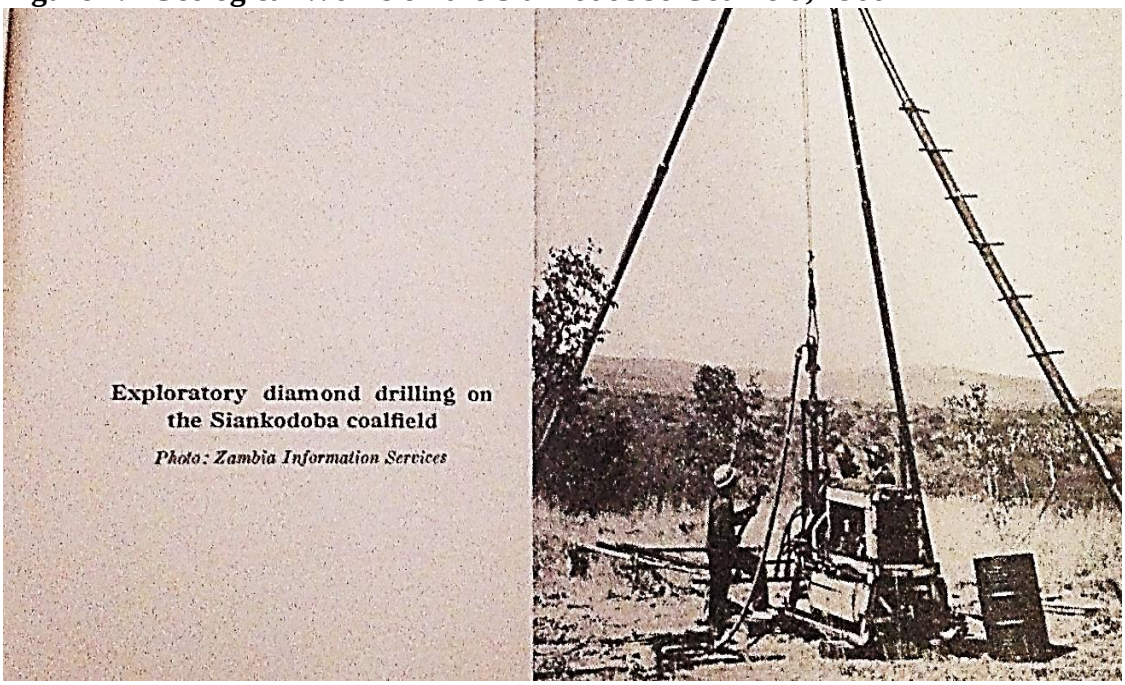
development of the coal mining industry.[65] This board was in charge of overseeing the development of coal mining in the country. Hosea Josias Soko was appointed chairman of the board while Imutowana Ngenda was appointed as secretary to the board.[66]

Sofremines, a French company, was contracted to exploit the coal deposits at Siankodobbo under the supervision of the N.C.B.Z. which operated the mine. France provided a loan of £6 million as initial capital for the development of the mine. The capital cost of the whole mining scheme, excluding Nkandabbwe mine, but including a coal washery at Maamba, was about £14 million.[67] A further sum of K 533,844 was provided by the government to meet the cost of dump trucks with spare wheels which were delivered to the N.C.B.Z in December 1968.[68] The Zambian government provided this money as counterpart funding.

The Siankodobbo coalfields came into full operation in 1968 as an open cast mine focusing on the deposits in the Kanzinze basin. The coal produced during this period was still undergoing consumer testing on the Copperbelt mines although it was generally known that it was high grade in comparison with Nkandabbwe coal. The Siankodobbo coalfields were later renamed as 'Maamba' Coal mine in 1968, after Maamba village, whose headman lived at the time of opening the mine at the current Maamba main bus stop.[69]

[65] Government Republic of Zambia, *The Copperbelt of Zambia, Mining Industry Year Book*, 1967.p, iii.
[66] [66] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[67] Griffiths, 'The New Zambian Coalfield', p.417.
[68] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[69] Maamba Collieries Limited Annual Report (April-June) 2015, p.7.

Figure 2.1 Geological Works on the Siankodobbo Coalfield, 1966.



Source: Geological Survey Annual Report,1965, p.11.

In order to step up production at Maamba Coal Mine, the N.C.B.Z invited international and local firms in 1968 to compete for a K4 million contract to construct a coal washing plant at Maamba Coal Mine.[70] Six firms submitted bids for the tender. These were Centrozap (Poland), General Electric Company (Zambia), Head Wrightson process Engineering (England), Klochner Humbold Deutz, AG (West Germany), Societe Cribln (Belgium), and Venot-Pit (France). The NCBZ engaged the services of Societe Francaise D'Etudes Minieres as consultants to evaluate the bids. Venot Pit of France was awarded the contract to design and erect the coal washery plant at Maamba. The N.C.B.Z anticipated that it would take two years to complete this project. The new plant would make it possible to reduce the ash and sulphur content in the coal. Additionally, PHB

[70] *Times of Zambia,* 24 February, 1968, p.1.

of West Germany was contracted to design and erect the ropeway while Bucyrus Erie of the USA provided earth moving machines such as the draglines.[71]

The cut-off date for using Wankie coal was initially set for June 1970 but copper companies suggested a gradual phasing out of Wankie coal at the rate of 5,000 to 15,000 tonnes per month beginning from August of the same year.[72] The reason for the three months extension by the copper companies was to thoroughly test and prove that Maamba washed coal was working well in the smelters and refineries. After that, the ban to import Wankie coal was effected. This was done to encourage the general industry to support local coal at the new mine. Many companies that still preferred to use Wankie coal were advised to use the Livingstone stockpile that had a storage of Wankie coal.

In 1971, the NCBZ was dissolved and Maamba Collieries Limited was established and incorporated as a limited company in Zambia, wholly owned by the government of the Republic of Zambia.[73] Maamba Collieries Limited (M.C.L) was placed under the Mining Development Corporation (M.I.N.D.E.C.O) whose parent company was Zambia Industrial Mining Corporation (Z.I.M.C.O). The development of Maamba coal mine was a remarkable achievement by the newly formed Zambian government although established under the constraints of UDI.

2.6 Conclusion

In conclusion, this chapter has examined the origins and development of commercial mining at Maamba. The chapter has argued that although most literature attribute the origins of coal mining

[71] Z.C.C.M 21.5.7C Contract between Maamba and Bucyrus Erie for the Supply of Spare Parts.
[72] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971 and Rebublic of Zambia, *Third National Development Plan 1979-1983*, pp.253-258.
[73] Maamba Collieries Limited Annual Report, 2015, p.7.

to UDI, coal had been mined by the people of Siankodobbo village long before the onset of colonial rule. However, political developments in the neighbouring Rhodesia had a far-reaching impact on Zambia's economy. Zambia depended on Rhodesia's Wankie Colliery as a source of coal for her vital copper industry. This dependence was reinforced by the outset of the Central African Federation in 1953 which tied together the economies of Northern Rhodesia, Southern Rhodesia and Nyasaland. After Northern Rhodesia and Nyasaland attained their independence in 1964, a year later Southern Rhodesia declared self-syled independence which imposed restrictions on accessing coal from Wankie. The Zambian government sought ways of utilising its domestic coal deposits initially at Nkandabbwe, and later at Maamba.

CHAPTER THREE

LABOUR RECRUITMENT, RETENTION AND RETRENCHMENT AT MAAMBA COLLIERY

3.1 Introduction

Coal production at Maamba Colliery was a labour intensive activity, thus the mine embarked on a labour recruitment exercise in order to meet the increased demand for coal on the Copperbelt mines and other industries. This chapter examines labour recruitment, retention and retrenchment at Maamba Colliery from 1968 to 2010. It notes that the colliery recruited its workforce from world over, however, the bulk of the skilled manpower was recruited from the Copperbelt province. Unskilled labour was sourced locally. The chapter shows that provision of good conditions of service, recreational facilities and continuous training and development of personnel played a key role in retaining the colliery's labour force. Furthermore, this chapter discusses the challenges that Maamba Colliery faced prior to and during privatisation which led to the subsequent retrenchment of some of its skilled workforce in 1997. The chapter concludes that these challenges stood as bottle necks to the privatisation of the colliery as it could not sustain its operations over the years.

3.2 Labour Recruitment at Maamba Colliery

Maamba Colliery's labour force, like that on the Copperbelt mines, was classified into three broad categories, namely: professional or skilled staff, semi-skilled and unskilled labour. [1] The first group comprised highly trained staff who occupied managerial positions in the colliery's administration. These were the general manager, personnel manager, operations, maintenance manager,

[1] Interview, Maundu Misebezi, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.

accountants and technical staff such as fuel technologists, geologists and engineers. In the early days, most of the professional staff were expatriates. The second group comprised technicians such as machine operators, drivers, carpenters, bricklayers and drillers while the third group was made up of general workers such as pit workers, office orderlies, typists, compound police, messengers, cooks and cleaners. These were locally sourced from Maamba and the surrounding villages. This category formed the bulk of the colliery's workforce as it was easy to access and maintain.[2]

3.2.1 Recruitment of Expatriate Staff

During its formative years, Maamba Colliery recruited its expatriate staff from countries such as France, the United Kingdom (U.K), Germany and the United States. The main recruitment agency for expatriate staff at Maamba Colliery was the Zambia Industrial Mining Corporation (Z.I.M.C.O) Services Limited office in London.[3] The agency processed applications of different international firms and individuals on behalf of the colliery.[4] Expatriates were necessary in the running of the country's coal mining industry for the reason that they not only possessed expert knowledge to do so but were also expected to train Zambians for the future operation of the mine. Andrew Sardanis aptly outlined the lack of skilled manpower at independence when he commented that:

> We had only one black engineer, three black doctors and three black lawyers and some 90 other black university graduates, working mainly as teachers and senior civil servants. We had 884 men and just 77 women qualified at school certificate level, some 4,000 at Form II level, mainly working in the civil service, and a few thousand junior teachers, junior clerks and policemen and semi-skilled workers with just elementary school education. [5]

[2] Interview, Misebezi, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[3] N.A.Z, Z.I.M.C.O 1/2/218, Maamba Collieries Limited Minutes of the 20th Board Meeting 19 November, 1976.
[4] N.A.Z, Z.I.M.C.O 1/2/218, Maamba Collieries Limited Minutes of the 20th Board Meeting 19 November, 1976.
[5] Sardanis, *Zambia: The First 50 Years*, p. 21 and *Zambia Daily Mail*, 1 May 2015.

In view of the foregoing, the government commenced the recruitment of expatriate staff for the sole purpose of developing the coal mining industry in the country. By 31 December 1968, the Colliery had 15 expatriates employed in skilled mining jobs while five were stationed at Maamba head office in Lusaka.[6] These were providing administrative and technical expertise on the operations of the mine. The N.C.B.Z anticipated that the number of expatriate staff would increase in the following years owing to the lack of skilled local labour in the country. Table 3.1 shows the number of expatriate staff recruited at Maamba Colliery between 1968-1980.

Table 3.1. Labour Strength of Expatriate Staff at Maamba Mine, 1968 - 1980

Year	Labour Strength	Engagements	Left Service
1968	15	-	-
1969	24	7	7
1970	53	29	10
1971	83	30	15
1972	69	27	41
1973	48	24	26
1974	42	5	12
1975	37	11	16
1976	38	8	16
1977	33	8	9
1978	30	6	9
1979	21	5	10
1980	17	5	11

Sources: N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971 and Z.C.C.M 12.1.9C Zambia Mining Year Books 1969-1980, pp 36-42.

[6] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.

From the table above, it is clear that the number of expatriate staff continued to increase from 1968 to 1971. However, the number of expatriates declined from 83 in 1971 to 69 in 1972.[7] This decline was largely attributed to the policy of Zambianisation which sought to replace expatriate staff with local skilled staff. The policy of Zambianisation was preceded by the African advancement policy after independence. The policy of replacing expatriate staff with locals only came into full force in 1972 when a manpower planning, training and Zambianisation unit was established at the Copper Industry Service Bureau in Kitwe.[8]

Therefore, young Zambians who graduated from the various training institutions, gradually took-over some positions that had been previously occupied by expatriate staff. At Maamba colliery, the expatriate workforce which stood at 69 in 1972 had been reduced to 17 by 1980 as a result of Zambianisation.[9] Two reasons were advanced for Zambianisation. The first one was to encourage Zambians to take control and benefit from their country's economy. Secondly, the higher remuneration of expatriate staff meant greater cost-cutting per layoff.[10] Table 3.1 also shows that the mine enganged staff on part-time basis during this period. Those who left service did on account of retirement, displinary action or voluntary separation. With the policy of Zambianisation in full force, the government aimed at increasing training programmes in colleges so as to improve the quality of labour in the mining industry.

[7] Z.C.C.M 12.1.9C Zambia Mining Year Books 1969, p.38.
[8] Z.C.C.M 12.2.9A Zambianisation in the Mining Industry, 1966, p.2.
[9] Z.C.C.M 12.1.9C Zambia Mining Year Book, 1980, p.34.
[10] Arup Banerji, David J. Zimmerman, and Mweene Mwiinga, 'Parastatals in Zambia, The conflict of Equity and Efficiency', in Henry Bruton and Catherine Hill (ed.), *The Evaluation of Public Expenditure in Africa*, (London: Longman, 2008), p.49.

3.2.2 Recruitment of Zambian Skilled Manpower

Since Zambianisation took centre stage during the first republic, skilled labour was recruited from different parts of the country. However, Maamba Colliery pooled the bulk of its skilled workforce from the Copperbelt. This was due to the fact that employees from there had acquired working experience from the mines. An informant stated that after completing his Form V (Grade 12), he worked at Nkana mine and then left to join Maamba Colliery in 1970.[11] The proximity of the mining industrial training centres on the Copperbelt to the mines made it a prime area for the colliery to recruit skilled labour from there. The Northern Technical College (N.O.R.T.E.C) and Zambia Institute of Technology (Z.I.T) were the major training institutes that Maamba Colliery recruited skilled labour from. They were established by the government to provide technical skills and support for the country's thriving copper industry. Some of the courses they offered included metal fabrication as well as mechanical, civil and electrical engineering.[12] The N.C.B.Z made it a habit to recruit students who were in their final years at training colleges on attachments until some were eventually employed on a permanent basis.[13]

By 1969, the Maamba Colliery Training Institute had been established in Maamba by the N.C.B.Z for the sole purpose of training its own skilled manpower. The training centre was equipped with necessary equipment to train mechanics, electricians, drillers and other trades necessary for coal production. Dale Sinwyimaanzi stated that "I was actually accepted here for a course in drilling and blasting after leaving Nkana in 1970".[14] Eventually, the training centre became recognised by the Department of Vocational Studies and was registered with the Ministry of Higher Education

[11] Interview, Dale Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[12] Interview, Martin Maate, Retrenched Miner, Maamba Township, Sinazongwe District,19 October, 2020 and Interview, Joseph Muleya, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[13] Interview, Charles Mulomba, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[14] Interview, Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020.

in 1994. This move benefitted the local people who enrolled at the training centre so as to be employed by the mine especially that the bulk of skilled labour was recruited from the Copperbelt.[15]

Another strategy the colliery used to remedy the shortage of skilled manpower was to go round secondary schools to interview pupils who were in Form V (Grade 12) so as to enroll them in technical schools upon completion of their studies. Mukanwa Simunji pointed out that he was offered a place at Maamba Colliery because government institutions were going round schools looking for students to employ.[16] This initiative arose from the policy of Zambianisation which was also the product of the educational revolution which, for the first time, allowed companies to mount secondary school leavers' recruitment programmes which guaranteed a supply of young men and women with General Certificate of Education (G.C.E) 'O' Level passes required for entry into university and technical institutes.[17]

To provide high level technical skills and efficiency in the mining industry, the government established the University of Zambia (UNZA) School of Mines in 1973. Under this school, three departments were established; geology, mining engineering, and metallurgy and mineral processing. In 1974, UNZA School of Mines enrolled 51 students.[18] In the 1980s, Maamba colliery recruited some students from UNZA School of Mines. This was done to speed up the process of Zambianisation. These graduates were appointed in key positions at the mine to reduce dependence

[15] Interview, Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[16] Interview, Mukanwa Simunji, Mine Electrical Engineer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[17] Z.C.C.M 12.2.9A Zambianisation in the Mining industry, 1966, p.4.
[18] Z.C.C.M 12.2.9A Zambianisation in the Mining industry, 1966, p.4.

on expatriates. Notable appointments included that of Edwin Nambula as deputy mining engineer at the Coal Processing Plant (C.P.P) and George Kapasa who worked as a metallurgist.[19]

Besides recruiting skilled manpower directly from training institutions, Maamba Colliery advertised for vacancies at the mine in the media. The *Zambia Daily Mail* played a key role in advertising vacancies for Maamba. Informants such as Joseph Muleya, Maundu Misebezi and Francis Lupiya recalled that they had come to Maamba colliery in response to job adverts in the newspaper.[20] The mine used newspaper advertisements to recruit non-Zambians from neighbouring countries such as Zimbabwe, Tanzania and Malawi. Furthermore, the mine utilised the radio to announce vacancies but this did not work well for local residents in Maamba due to the geographical constraints of the Gwembe valley which had poor radio signals.

3.2.3 Recruitment of Unskilled Labour

With the bulk of skilled manpower coming from the Copperbelt in the early phase of the mine, Senior Chiefs Mweemba and Sinazongwe complained to the mine managers that the local people were being sidelined in the recruitment process.[21] Therefore, between the 1970s and 1980s, a census was conducted by colliery managers to investigate whether the local people were being sidelined in the labour recruitment process at the mine. It was actually discovered that the local Tonga speaking people were the majority of the workforce at Maamba compared to other ethnic groups. This was because the bulk of unskilled labour was pooled from Maamba township and the

[19] Interview, Hyden Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[20] Interview, Misebezi, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020; Interview, Francis Lupiya, Retrenched Miner, Maamba Township, Sinazongwe District, 23 October, 2020 and Interview, Muleya, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[21] Interview, Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020.

surrounding villages. Local labour constituted about 60 per cent of the mine's labour force.[22] Therefore, claims repeatedly made by local senior chiefs that the mine's labour force was mainly derived from the Copperbelt, thus preventing the local people from benefiting from the proceeds of coal production, were dismissed by colliery managers.

There was no specific policy document with regard to the recruitment of unskilled labour. Thus, it was done randomly but mainly through internal memoranda.[23] This method proved to be more effective when recruiting general workers who were employed on permanent basis at the mine. Recruitment of casual or temporary workers, was done through random announcements at the community office popularly known as *Montalvo*, a name given to it by French expatriates. This was due to the fact a lot of young men between the age of 18-35 hangd around *Montalvo* to chance part-time jobs at the mine. Sometimes, these young men gathered around the mine gate waiting for part-time jobs.

Another way the mine recruited unskilled labour was going round the villages to find young men to work at the colliery. This was because the mine experienced a shortage of labour upon the commencement of coal mining in the Gwembe valley. The colliery managers went to an extent of picking up young men who sat under the *Mabuyu* tree near Maamba bus station just to have enough labour to support coal production[24] These young men loaded coal that fell off the aerial ropeway into trucks, cleared logs and performed community works such as road maintenance.

[22] Interview, Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020 and Interview, Matthias Siloongo, Retired Human Resources Manager, Maamba Township, Sinazongwe District, 24 August, 2021.
[23] Interview, Robert Mudaala, Retired General Manager, Maamba Township, Sinazongwe District, 15 November, 2020.
[24] Interview, Siloongo, Retired Human Resources Manager, Maamba Township, Sinazongwe District, 24 August, 2021.

Although medical examinations did not apply for casual workers, selection was based on the fitness of the candidate to do the job which was determined through trials after the presentation of one's National Registration Card (N.R.C). A daily rate of about five to ten Kwacha was paid depending on the assigned task.[25] The absorption of unskilled labour into the colliery's skilled labour force resulted into an increase of the workforce at Maamba over the years as depicted in table 3.2.

Table 3.2. Labour Strength of Zambians and other Africans on Local Conditions at Maamba Mine, 1968-1980

Year	Labour Strength	Engagements	Left Service
1968	34	-	-
1969	125	81	36
1970	547	248	84
1971	730	336	55
1972	760	129	119
1973	817	127	108
1974	943	279	102
1975	1084	175	93
1976	1077	105	114
1977	1103	147	132
1978	1144	140	99
1979	1218	181	128
1980	1170	80	91

Sources: N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971 and Z.C.C.M 12.1.9C Zambia Mining Year Books 1969-1980, pp.36-42.

[25] Interview, Siloongo, Retired Human Resources Manager, Maamba Township, Sinazongwe District, 24 August, 2021.

From this table, it can be deduced that there was an increase in the workforce at the colliery between 1968 and 1980. During this period the number of Zambian staff and other Africans on local conditions increased from 34 to 1170.[26] This increase was largely attributed to the Zambianisation policy which sought to replace expatriate labour with local labour. Table 3.2 also shows that the colliery engaged contractors depending on a particular skill the mine needed at a particular time while others left service for different reasons such as early retirement, displinary action or voluntary seperation. These statistics also take into account female workers who constituted part of the mine's workforce during this period. Although there are scanty statistics pertaining to women's employment at Maamba, an informant, Mathias Siloongo, suggested that women constituted about 10 per cent of the entire labour force of the mine.[27] They worked as typists, cooks and cleaners at the mine school, police, clinic and guest house. Another informant added that there were only two women employed at the department of Mechanical Engineering and three ohers under the department of Electrical Engineering in the mid 1990s.[28]

Ecological conditions of the Gwembe valley played a major role in compelling the local people to seek employment at the mine. Scholars such as Thuyer Scudder and Bennet Siamwiiza argue that the 'Gwembe valley was a harsh, unforgiving environment, hot, dry and dusty for much of the year, rainfall was low and irregular.'[29] Hence, there was high prevalence of crop failure due to crop pests and inadequate rainfall while tsetse flies destroyed livestocks, all of which resulted into

[26] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970 and Z.C.C.M, 12.1.9C Zambia Mining Year Books 1969-1980, pp.36-38.
[27] Interview, Siloongo, Retired Human Resources Manager, Maamba Township, Sinazongwe District, 24 August, 2021.
[28] Interview, Mudaala, Retired General Manager, Maamba Township, Sinazongwe District, 15 November, 2020.
[29]Thuyer Scudder, The Kariba Case Study, Social Science Working Paper No. 1227, Division of Humanities and Social Sciences, California Institute of Technology, Pasadena California, 91125. June, 2005, p.1 and Bennet Siamwiiza, 'Hunger in the Gwembe Valley: A case Study of Mweemba Chieftaincy', 1905-1987 MA: Dissertation, University of Zambia, Lusaka, 1993, p.27.

hunger and periodic famines. This, in the long run made the local people abandon agriculture and seek employment at the mine.

Moreover, the establishment of Maamba Colliery further exacerbated the land pressure in the Gwembe valley. Although the construction of the Kariba dam in the 1950s had already taken a huge chunk of arable land from the local people, the development of Maamba coal mine worsened the situation. The mine covered a total area of 5,870 hectares, an area which included the local people's agricultural land.[30] This development led to the loss of that land and the removal of about 2,500 people from the villages of Maamba, Mweela, Siankodobbo and Sikalonzo.[31] The mine pit, offices and compounds occupied the area surrounding the fertile belt of middle Kanzinze river basin which had provided the locals with arable land for their summer fields and seasonal vegetable gardens.[32] This loss of land without a proper resettlement plan of the affected residents by the government left them in destitution, for they were no longer practicing agriculture. Thus, seeking employment in the mine was the only way for them to survive.

Since the labour force from the Copperbelt was a product of migrant labour from all over the country coupled with Kennth Kaunda's policies of ethnic balancing, which encouraged recruitment of labour from all over the country. Maamba colliery therefore, became what Carolyn Brown termed as an eclectic mixture of both skilled and unskilled workforce with varying ethnic groups at the Enugu government colliery in Nigeria.[33]

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[30] Godfrey Haantobolo, 'Ecology, Agriculture and proletarianization: A Study in the Sinazongwe Area of the Gwembe Valley of Southern Province of Zambia, 1900-1989' MA Dissertation: University of Zambia, 1991, p.43.
[31] Haantobolo, 'Ecology, Agriculture and proletarianization: A Study in the Sinazongwe Area of the Gwembe Valley of Southern Province of Zambia, 1900-1989' p.43.
[32] Haantobolo, 'Ecology, Agriculture and proletarianization: A Study in the Sinazongwe Area of the Gwembe Valley of Southern Province of Zambia, 1900-1989' p.43.
[33] Brown 'Locals and Migrants in the Coal Mining Town of Enugu (Nigeria): Worker Protests and Urban Identity, 1915-1929', p.65.

The Lozi speaking people are said to have become part of Maamba Colliery's labour force due to the fishing activities at Lake Kariba. Since pre-colonial times, fishing has been one of the major economic activities of the Lozi on the Zambezi flood plains. When coal mining commenced, they were easily incorporated into the colliery's labour force.

Besides, the proximity of the Nakambala Sugar Estate in Mazabuka to Maamba Colliery also played a huge role in the recruitment of the Lozi speaking people. An informant recalled that the sons of Lozi cane cutters, who were seasonal labour migrants at the Sugar Estate flocked to Maamba upon hearing about the commencement of coal mining in the Gwembe valley in the mid 1960s.[34] Furthermore, Mumbula Mulope pointed out that, there were some cane cutters, especially the unmarried ones who, instead of returning to Western Province, remained in Mazabuka during the off-crop period.[35] Some of these young men trekked to Sinazongwe district to seek employment at Maamba coal mine while waiting for the cane cutting season to begin whereas others decided to settle there for good. Since the cane cutting season ran for eight months, starting from April to November, it meant that from December to March, cane cutters were not bound by any contract at the Sugar Estate.

3.3 Labour Retention Strategies at Maamba Colliery

3.3.1 Salaries and Conditions of Service

Labour retention was key in achieving maximum production and maintaining good industrial relations at the colliery. Provision of good conditions of service played a central role in labour

[34] Interview, Douglas Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.
[35] Mumbula Mulope, 'Labour Migration: A Study of Sugar Cane Cutters at Nakambala Sugar in Mazabuka, 1964-2017', MA Dissertation, University of Zambia, Forthcoming, p.28. see Joy Kalyalya, 'History of the Nakambala Sugar Estate, 1964-1980', MA Dissertation, University of Zambia, Lusaka, p.38, for more details on why Lozi Men dominated as cane-cutters at Nakambala Sugar Estate.

retention at Maamba. The mine management was aware that unless salaries and conditions of service improved, the company would continue facing problems of recruiting and retaining skilled personnel.[36] Having noted this, 'the board resolved that the salaries and conditions of service should be improved to the extent that they be compared favourably with those offered by the two mining companies, Roan Consolidated Mine (R.C.M) and Nchanga Consolidated Copper Mine (N.C.C.M.).'[37] The board argued that the colliery would continue experiencing difficulties in recruiting and retaining technical staff as long as R.C.M and N.C.C.M offered more attractive conditions while performing similar functions as Maamba.[38]

In so doing, Maamba Colliery structured its conditions of service in line with the Copperbelt mines in an attempt to retain the skilled manpower that was mainly recruited from there. It is for this reason that it emerged as one of the best paying parastatals in the country between the 1970s and 1980s. During this period, the colliery witnessed an influx of labour migrants from the Copperbelt.[39] One informant stated that **'**our salaries were so high that I bought my first car at K500 in the 1970s with savings from a salary of K179.'[40] The Mineworkers Union of Zambia (M.U.Z) was so strong that salaries for unionised staff were increased every year through collective bargaining.[41] Besides salaries and allowances, food rations such as mealie-meal, cooking oil, sugar, beans and kapenta were distributed to staff every month-end.

The senior staff were under Z.I.M.C.O conditions of service. They were also referred to as non-represented staff. Z.I.M.C.O conditions of service were divided into two categories, senior

[36] N.A.Z, Z.I.M.C.O 1/22/263, Maamba Collieries Limited 23rd Board Meeting, 1977, p. 2.
[37] N.A.Z, Z.I.M.C.O 1/22/263, Maamba Collieries Limited 23rd Board Meeting, 1977, p. 2.
[38] Z.C.C.M 10.2.1A Maamba Collieries Limited, Agenda and Board Papers, 21 Board Meeting 25 February, 1977, p.5.
[39] Interview, Maate, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.
[40] Interview, Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[41] Interview, Zachariah Chikete, Ward Councilor, Maamba Township, Sinazongwe District, 24 October, 2020.

management (A) and middle management (B). The senior management comprised of the board, managing director, general manager, expatriates and superintendents. The middle management comprised of heads of department, assistant heads of department, section heads, technical staff such as engineers and foremen. While middle management received food rations like the unionised staff, senior management received money in lieu of rations. In an effort to retain more skilled manpower, the colliery introduced new Z.I.M.C.O conditions for senior staff in 1980.[42] Under these conditions of service, the entry salary was about K350.[43] While R.C.M's entry salary for senior management was K390 in the same year.[44]

The mine also provided coupons to its employees. The coupons made it possible for them to survive during hard times. An ex-miner recalled that, if in between a month an employee ran out of food and other basic needs, they were given a demand sheet at the stores department where they wrote down a list of items they needed against the prices. From there, a coupon was granted then at the month-end, the list would be submitted to the company's Accounts Department so as to deduct the amount spent on the goods from the employee's salary. "There was no suffering at all!",[45] exclaimed an ex-miner. Employees used coupons whenever they were stranded.

3.3.2 Recreational Facilities

Provision of recreational facilities was another way through which Maamba Colliery retained its labour force. At the commencement of coal mining, the colliery experienced shortage of highly

[42] Z.C.C.M 14.4.1B Maamba Collieries Limited Annual Report and Accounts for the year ended 31st March 1980. p.3.
[43] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[44] Z.C.C.M 19.2.7A R.C.M Limited, Revised Senior Staff Conditions of Service and Employment Regulations, 1980, p.12.
[45] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.

qualified personnel owing to the isolation of the mine in the Gwembe valley.[46] The National Coal Board of Zambia (N.C.B.Z) emphasised that it was crucial for the colliery to improve the conditions of life on the site, otherwise it feared that the expatriates may not renew their first contract.[47] To avoid this problem, the board organised leisure activities by putting across various recreational facilities at the mine in fear of desertions and to prevent the entire labour force from trekking to urban areas such as the Copperbelt mines.

Recreational facilities at the mine comprised sporting activities such as football which operated in the name of Zamcoal Diggers, (a football club affiliated to the Football Association of Zambia (F.A.Z) Division III), women's club, tennis club, golf club, swimming pool and an amateur boxing club. In addition to this, there would be live music performances which offered entertainment at month ends.[48] Nearly all the miners affiliated themselves in either one or two sporting activities that were sponsored by the mines. By so doing, the colliery had a direct influence on the miners' way of life. Marion Fontaine point out that this kind of employer paternalism commonly practised in French coal mining communities had a pragmatic aim; it was meant to attract workers and reduce the mobility of mine workers, who were frequently looking for better paid and more secure jobs.[49]

To further improve the quality of life at Maamba, a telephonic line was constructed in order to connect Maamba to the outside world.[50] Maamba Colliery also erected a tower that was transmitting television signals from Lusaka to Maamba township. Miners did not have to pay for

[46] Z.C.C.M 14.4.1B Maamba Collieries Limited Annual Report and Accounts for the year ended 31st March 1980, p.3 and N.A.Z 1/6/5, Maamba Collieries Limited Annual Report Draft Budget for the Year 1993/4, p.6.
[47] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[48] N.A.Z, Z.I.M.C.O 1/2/218, Maamba Collieries Limited 18th Board Meeting 27/05/1976.
[49] Marion Fontaine, 'Football, Migration, and Coal Mining in Northern France, 1920s-1980s', *International Review of Social History*, No. 23. (2015), p.257.
[50] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.

subscription every month until 2002 when Televison (TV) levy was introduced by the government at K3.[51] "This was paradise!"[52] reminisced an ex-miner. Furthermore, a company's guest house was built at Maamba and Lusaka to provide adequate and reasonable accommodation and messing facilities to employees and visitors, thereby eliminating hotel expenses.[53] The Lusaka guest house was used almost exclusively by M.C.L employees on company business when in Lusaka or in transit to the Copperbelt.[54]

3.3.3 Training and Manpower Development

Training at local institutions and at the revamped Maamba Colliery Training Institute were rigorously pursued to retain skilled manpower. For insance, Maamba Colliery enrolled its employees at the President Citizenship College (P.C.C) (now Mulungushi University in Kabwe), National Institute for Public Administration (N.I.P.A) and Evelyn Hone college for further training.[55] These were conducted as full-time and distance learning. Employees enrolled in an array of courses such as marketing, industrial relations, social development studies and accounts. To further motivate its employees, Maamba Colliery sent its employees for overseas training. For instance, Mr. Robert Mudaala was sponsored to pursue a bachelor's degree in mining engineering at Nottingham University in the U.K, in 1992.[56]

[51] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[52] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.
[53] N.A.Z 1/6/5, Maamba Collieries Limited Draft and Revenue Budget Proposals for the financial year 1992/93, p.4.
[54] N.A.Z 1/6/5, Maamba Collieries Limited Draft and Revenue Budget Proposals for the financial year 1992/93, p.4.
[55] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[56] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes March, 1978-1997 and Interview, Mudaala, Retired General Manager, Maamba Collieries Limited, 15 November, 2020.

The fact that the mine awarded scholarships to its employees motivated the workforce to remain at the mine. Once sponsored, employees were bonded to remain in employment at the mine for an agreed period of time. Hence, continuous training and manpower development proved to be one of the effective ways for labour retention. Maamba Colliery enjoyed cordial industrial relations over the years until the 1990s, when the colliery was earmarked for privatisation.

3.4 Privatisation of the Company and Labour Retrenchment

Maamba Colliery embarked on a labour reduction programme in the 1990s in an attempt to make the mine efficient and economically sustainable. During this period, the workforce had become bloated. By March 1991, the company's labour strength stood at 1,469. In the same year two expatriates were seconded to the company on management services contract from British Mining Consultants of the UK to help in the restructuring of the mine's human resources.[57] The following year, the colliery's labour force stood at 1,502.[58] While manpower continued to increase over the years, the colliery was experiencing financial challenges resulting from loss of its local and international market, operational problems, poor maintenance and mismanagement by Z.I.M.C.O officials.

The beginning of problems at the colliery coincided with the operational difficulties of the Copperbelt mines towards the privatisation era. It was during this period that Z.C.C.M was operating unprofitably owing to the low copper prices on the international market, high production costs, liquidity problems requiring frequent bail-out from the government, lack of recapitalisation

[57] Z.C.C.M 8.5.4J Maamba Collieries Limited Directors Report financial year ended 31 March 1991, p.4.
[58] N.A.Z 1/6/5, Maamba Collieries Limited Operation and Capital budgets for the year ending 31 March, 1993/4, p.6.

and the subsequent fall in copper production.[59] This was because in the mid 1970s Zambia's economy took a serious downturn on account of a sharp increase in the price of Zambia's main import commodity, oil, in 1973 accompanied by a major collapse in the price of Zambia's main export, copper, which occurred in 1974.[60] This crisis was expected to be short-term and temporary but it turned out to be a long one and spanned the latter part of 1970s way into the 1990s.[61]

The dramatic shift in the world copper prices had far reaching consequences on the operations of Z.C.C.M. It affected the revenue of the conglomerate, thus reducing its capacity to buy equipment, maintain it and replace spare parts. The conglomerate was in deep financial woes such that it needed to raise $2 billion or face closure.[62] In 1995 for instance, the company's copper production was at 350,476 tonnes below the target of 423,825 tonnes and was 41,703 tonnes below the financial year. [63] The low copper production was due to mining shortfalls at Mufulira, Konkola and Luanshya divisions, poor recoveries at Nchanga concentrator and operational constraints at the Nkana smelter.[64] Owing to the state of affairs on the Copperbelt, the colliery's largest market whose monthly consumption of coal was more than 100 metric tonnes in each division, a chain reaction occurred which affected Maamba's future.

To make matters worse, the Copperbelt mines were transitioning to new smelting technologies and discouraged the use of coal in the smelters due to its high ash content. Hydro-Electric Power (H.E.P) was cheaper and cleaner to use compared to coal. As early as 1971, an electric furnace

[59] Daily Parliamentary debates for the Fourth Session of the Tenth Assembly, Friday, 2 October, 2009. https://www.parliament.gov.zm/node/1667 data accessed on 21 May, 2021.
[60] Charles B. Chilufya 'Working Conditions in the Mining Sector in the North Western Province of Zambia'. Jesuit Centre for Theological Reflection, Lusaka, June, 2016, p.9.
[61] Chilufya 'Working Conditions in the Mining Sector in the North Western Province of Zambia'. p.9.
[62] Z.C.C.M 19.2.7C ZCCM Senior Staff Salaries and Conditions of Service, January-February, 1993 and *The Weekly Post*, 8 January, 1993.
[63] Z.C.C.M 5.1.4H ZCCM Annual Report 1995, p.7.
[64] Z.C.C.M 5.1.4H ZCCM Annual Report 1995, p.7.

was installed at the Mufulira smelter. In 1991, the Mufulira smelter was rebuilt and upgraded to replace three coal-fired furnaces.[65] In the same year, the Nkana smelter, the largest consumer of Maamba coal, consuming about 300 metric tonnes per month was facing operational difficulties such that it was placed under care and maintenance and set to be closed in the near future.[66] Meanwhile, Konkola Copper Mines (K.C.M) had commissioned a new smelter at Nchanga in 2008 which did not require the use of coal in its smelters. This resulted into the loss of market for Maamba coal as the Copperbelt mines were its largest consumers.

Furthermore, Maamba's exports began to decline in the late 1980s when countries it exported to developed their own coalfields. Although, countries like Tanzania, Zaire and Malawi began prospecting for coal in the 1960s, they did not produce it on large scale basis. However, in the 1980s these countries started producing it on commercial basis. The development of these coalfields in the region largely affected Maamba's export market. Malawi developed its Mchenga coalfield in 1987 while Tanzania's Kiwira coalfield opened in 1988, thereby reducing coal imports from Maamba. For example, Maamba colliery's exports to the neighbouring countries declined from 40,000 tonnes in 1991 to around 18,000 tonnes in 1992.[67] One other factor that largely affected Maamba's coal exports was the political turmoil in Zaire (now the Democratic Republic of Congo), political turmoil, which led to restrictions on imports into the country being imposed.[68]

Internally, Maamba Colliery experienced operational problems. The mine experienced frequent breakdown of machinery over the years. In 1991, for instance, the dragline, an earth-moving machine responsible for the removal of overburden to expose coal seams for mining, experienced

[65] J. Ross and D. Der Vries, Mufulira Smelter Upgrade Project: Industry Smelting on the Zambian Copperbelt, Working Paper, 2005, p.2.
[66] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes of Meetings, March 1978-1997.
[67] N.A.Z/1/6/5, Maamba Collieries Limited Draft Budget, 1992-1993, p.2.
[68] N.A.Z/1/6/5, Maamba Collieries Limited Draft Budget, 1992-1993, p.2.

a number of breakdowns related to drag armature failures, faulty hoist motor, swing gear and lack of excitation, all of which necessitated the complete rehabilitation of the 21-year-old dragline.[69] Additionally, major mining shovels P & H 190 and Demag H 185 experienced crowd gear box failure and hydraulic pump failure respectively with most rear dump trucks lacking spares for overhauling in the same year.[70] These challenges negatively affected coal production.

Figure 3.1 Dragline at Maamba Collieries Limited, 2010

Source: *Lusaka Times*, 2010.

But even before that, the colliery was facing operational problems. The aerial ropeway, the most efficient way of hauling coal from Maamba to the Masuku railhead, had been under-performing over the years due to embrittlement of the wires causing breakage of the ropes in the long run.[71] Thus, any problems associated with it meant that customers could not receive it on time.

[69] Z.C.C.M 8.5.4J Maamba Collieries Limited Directors Report Financial year ended 31 March ,1991, p.1.
[70] Z.C.C.M 8.5.4J Maamba Collieries Limited Directors Report Financial year ended 31 March, 1991, p.1.
[71] Z.C.C.M 10.2.1A Maamba Collieries Limited Board meeting, 14 March, 1974, p.1.

Furthermore, the transportation capacity of the ariel ropeway was being hampered by the low number of conveyances (buckets) on the line. This resulted from overloading of the buckets with coal. Spare parts could only be procured outside the country which was expensive coupled with delays in waiting for their arrival.[72]

Figure 3.2 Aerial Ropeway at Maamba Colliery, 1988

Source : Maamba Collieries Limited Annual Report, 1988, p.6

Coal dispatches were also very low owing to the inability of Zambia Railways to transport the commodity to consumers on time due to insufficient wagons.[72] This problem persisted from the colliery's early days throughout the 1990s. This made some of Maamba Colliery's customers to opt for road haulage from Masuku to their factories.[73] Even so, the road network to Batoka was bad, thereby hampering the transporation of coal to the market.[74]

[72] Z.C.C.M 10.2.1A Maamba Collieries Limited Board Meeting, 14 March, 1974, p.1.
[73] Z.C.C.M 10.2.1A, Maamba Collieries Limited Board Meeting, 14 March, 1974, p.1.
[74] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.

In 1976, only four years into its commissioning, the Coal Preparation Plant (C.P.P) was already in a poor state, thereby affecting the processing of washed coal as it continued to rely on imported magnetite until a ball mill was installed at MINDECO small mines limited.[75] Magnetite was used in the processing of coal into different grades, no wonder its state impacted on the production of coal directly. The deterioration of the plant and machinery due to wear and tear did not receive urgent attention owing to the lack of funds by the mine.[76]

Furthermore, the performance of the Masuku screening plant was low due to inadequate handling facilities. With the C.P.P not operating at one hundred per cent, affected the quality of coal produced at Maamba mine causing operational problems in other industries. In fact, by 1978, almost all the equipment in the pit, washing plant and ropeway were showing signs of wear and tear due to age.[77] This necessitated a shutdown of the colliery from 1 September to 23 September 1981, for overhaul of the washing plant and dragline.[78] Zachariah Chikete added that one of the reasons for operational problems in most state enterprises, particularly at the colliery, was that Z.I.M.C.O became a cash cow for liberation wars in the 1970s through to the 1980s.[79]

The frequent machinery break-downs largely affected the out-put of the mine even when there was an increase in labour force over the years. For instance, in 1975 coal production was at 789,562 tonnes, at a workforce of 1,080 but it declined to 514,258 tonnes in 1984.[80] Furthermore, Maamba colliery generally recorded low exports during this period owing to the low production of coal. This entailed that the colliery was facing serious financial problems as it could not raise funds to

[75] N.A.Z, Z.I.M.C.O 02//218/6994, Minutes of the 20 Board Meeting of Maamba Collieries Limited Held in Mindeco Board room 9th Floor ZIMCO House Cairo Road Lusaka on 19 November, 1976, p.1
[76] N.A.Z, ZIMCO 1/2/263, Maamba Collieries Limited 23 Board Meeting and Board Papers, 1977, p.2.
[77] Z.C.C.M 21.3.3F Maamba Collieries Limited Annual Report for 1978, p.1.
[78] Z.C.C.M 2.5.3B Maamba collieries Limited plus minutes of meetings March 1978-1997.
[79] Interview, Chikete Retired Miner and Ward Councilor, Maamba, 24 October, 2020.
[80] N.A.Z, Z.I.M.C.O 2/7/38 Coal Policy Papers.

sustain its operations. Table 3.3 below details the decline in coal production at Maamba between 1975 and 1984.[81]

Table 3.3. Decline in Coal production at Maamba Coal Mine, 1975-1984

Year	Production	Local consumption	Export
1975	789,562	732,496	21,046
1976	746,329	643,086	10,639
1977	639,108	597,827	792
1978	582,036	597,794	N/A
1979	598,508	609,679	N/A
1980	570,212	596,555	N/A
1981	508,309	489,343	210
1982	605,598	542,637	20,763
1983	453,603	501,733	18,546
1984	514,258	N/A	N/A

Source: N.A.Z, Z.I.M.C.O 2/7/38 Coal Policy Papers, 1970.

Owing to the operational problems the mine was facing, Maamba Colliery contracted the British Mining Consultants Limited (B.M.C.L) to outline a rehabilitation plan that was scheduled to run from 1985-1990. B.M.C.L recommended $40 million funding for the rehabilitation of the mining complex while the African Development Bank (A.D.B) provided K28 million capital expenditure

[81] Table 3.3 shows the decline of coal production a Maamba between 1975-1984. However, the years 1979, 1980 and 1983 show that the local consumption was higher than the production. This can be justified in terms of stockpiling at Batoka. The mine stored coal for contingency at Batoka that would be used in case of low production in a year.

to provide technical assistance for carrying out specific aspects of mine rehabilitation.[82] This was to cover the cost of mining operations, the Coal Preparation Plant, Aerial Ropeway and Masuku railhead. This programme was financed by means of foreign and local loans.[83] With the injection of this loan, production picked from 511 970 to 572 792 tonnes the following year.[84] Beside the supervision of this loan to ensure that production improved, B.M.C.L also conducted short and long training sessions for key personnel at the mine on how to operate and maintain the new machinery.

By 1990 when the B.M.C.L left, the mining equipment was dilapidated due to the fact that the equipment had a finite life of three to five years before overhaul.[85] Once more, Maamba colliery was dogged with operational problems. The following year, the Movement for Multi-Party Democracy (M.M.D) was ushered into power and earmarked the colliery for privatisation. In 1992, the Zambia Privatisation Agency (Z.P.A) was established to oversee the privatisation of state enterprises. Z.P.A was tasked to find possible buyers of parastatal companies. The government, through Z.P.A, appointed Emmanuel Bwalya Mutati from Z.C.C.M as the interim manager of Maamba colliery in 1992.

In the meantime, operation problems persisted at the colliery such that the mine management abandoned coal mining activities at Kanzinze basin because its economic value had gone down. The increased depth of the coal seams resulted in the high stripping ratio of 1:3 which made it difficult and expensive to operate. In 1992, a truck and shovel operation was started at Izuma

[82] Z.C.C.M 14.4.1C Maamba Collieries Limited Annual Report and Accounts for the financial year ended March,1985, p.3 and N.A.Z/1/2/5, Maamba Collieries Limited Draft Budget 1992/1993, p.1.
[83] Z.C.C.M 21.5.7E Maamba Collieries Limited Annual Report and Accounts for the financial year ended 31 March, 1987, p.6.
[84] Z.C.C.M 14.3.9B Maamba Collieries Limited Annual Report for the year ended 31 March, 1988, p.2.
[85] N.A.Z/1/2/5, Maamba Collieries Limited Draft Budget, 1992/1993, p.1.

basin.[86] This was because coal seams at Izuma basin were relatively on the surface presenting a low stripping ratio.

During the privatisation era, a lot of feasibility studies were conducted by consultants. This was to assess the viability of the mine in an attempt to entice bidders to purchase the mine. Hence, Maamba colliery called upon John T. Boyd in 1992, a company based in Pennsylvania, USA to take the lead on the World Bank funded study to determine the long-term viability of the mine before committing major funds.[87] John T. Boyd and company began the study scheduled to run for a period of nine months in October, 1992. The results of the study revealed that Maamba colliery had been an unprofitable parastatal that was reasonably managed but could improve productivity if capital was invested in it.[88]

Following the above recommendation by John T Boyd, the government chose Johannesburg Consolidated Investment company (J.C.I) for financial and technical assistance in 1995. JCI entered into a one-year supply agreement as a turnkey contractor. The contract called for the supply of a range of capital goods and spare parts with a value of $9.8 million or 35.6 million Rands.[89] This was to be financed by the Industrial Development Corporation (I.D.C) by way of a Credit Guarantee from South Africa. Charles Mulomba, a retrenched miner added that this financial assistance was crucial as it rehabilitated the washing plants and heavy-duty plants at Maamba.[90]

[86] P.J. Hancox, 'The Coalfields of South-Central Africa: A current Perspecive', *Journal of International Geo-Science*, Vol. 49, No.2 (2016) p.417.
[87] Interview, Muleya, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[88] N.A.Z/1/2/5 Maamba Collieries Limited Draft Budget, 1992/1993, p.3 and John T. Boyd, Report on the Feasibility study of Maamba Collieries Limited, 1992, p.1.
[89] *South Africa News Bulletin,* July 4, 1995 and Interview, Mulomba, Retrenched Miner, Maamba township, Sinazongwe District, 23 October, 2020.
[90] Interview, Mulomba. Retrenched Miner, Maamba Township, Sinazongwe District,23 October, 2020.

However, even with this capital injection, Maamba Colliery did not perform according to its expectations due to the financial mismanagement of the loans by Z.I.M.C.O officials. Z.I.M.C.O's unwillingness to deal with Z.P.A made it difficult to privatise state enterprises under it as it was a holding company. To resolve this problem, the government was forced to close down Z.I.M.C.O in 1995. The closure of Z.I.M.C.O, however, led to new problems. With the removal of a supervisory authority, most parastatal managers were now their own bosses.[91] This autonomy posed a serious threat to the companies they managed, one of them being Maamba colliery. Given that all managers were acutely aware of the fate to befall their companies in the near future and realising that there could be no future for them in the privatised companies, the managers resorted to self-enrichment.[92]

Actually, Maamba Colliery never recorded a healthy balance sheet during the period under this study.[93] As an auxiliary company of Z.I.M.C.O, it enjoyed profits generated by big parastatals like Z.C.C.M and Zambia Electricity Supplying Company (Z.E.S.C.O) even when its external auditors, that is, Coopers & Lybrand continued to reveal losses over the years.[94] Francis Kaunda, a political appointee and the long serving Z.I.M.C.O Chairman, was repeatedly accused by the mine management of not investing back the profits into Maamba Collieries.[95] Lack of re-investment in the long run created the conditions necessary for low production of coal against a painfully overstaffed labour force.[96]

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[91] Caleb, M. Fundanga and Andrew Mwaba, 'Privatization of Public Enterprises in Zambia: An Evaluation of the Policies, Procedures and Experiences,' Economic Research Papers No. 35, 2000. p.9.
[92] Fundanga and Mwaba, 'Privatization of Public Enterprises in Zambia: An Evaluation of the Policies, Procedures and Experiences', p.9.
[93] Maamba Collieries Limited Annual Report, 2013, p.8 and Z.C.C.M 14.3.6A Maamba Collieries Limited Annual Reports and Accounts, 1982-1987, p.2.
[94] Maamba Collieries Limited Annual Report, 2013, p.8.
[95] *The Weekly Post*, 8 January, 1993.
[96] Maamba Collieries Limited Annual Report, 2013, p.8.

Maamba Colliery could thus not raise enough revenue to sustain its operations. An informant mentioned that "what we were enjoying was not equal to the profits we were making".[97] As time went by, the company was unable to meet most of its obligations including salaries, statutory contributions, retirement benefits, payments of suppliers and purchasing of P.P.E.[98] During the privatisation era, the company witnessed a lot of strikes, legal suits as well as "raids" by court bailiffs who seized company property as they pressurised for payments on behalf of various clients.[99] Thus, it became very common for workers to go for two to three months without being paid salaries.[100]

During the privatisation era, Maamba Collieries Limited (M.C.L) followed a labour reduction programme similar to that of Z.C.C.M on the Copperbelt mines. Z.C.C.M employed various labour reduction strategies such as natural wastage; through death, retirement, resignations, non-replacement of employees, dismissal through disciplinary measures, and desertions; voluntary displacement incentives whereby an employee was offered a redundancy package at his/her request and early retirement incentives.[101] This was in line with the conditions laid down by the International Monetary Fund (I.M.F) as part of the Structural Adjustment Programme (SAPs) which advocated for the sale of state enterprises to the private sector so as to maxmise profits from them through recapitalisation and better management.

[97] Interview, Simunji, Mine Electrical Engineer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020 and Interview, Nyembe, Mining Superintendent, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[98] Jetrho Sikalunda and Songwe Nyembe, 'A Walk Down Maamba Collieries Limited Memory Lane', Maamba Collieries Limited Newsletter 2nd Edition, 2017.p.1.
[99] Sikalunda and Nyembe, 'A Walk Down Maamba Collieries Limited Memory Lane', p.1.
[100] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020 and Interview, Misebezi, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020
[101] Z.C.C.M 14.4.3E Labour Reduction Program Prepared for the European Union August 1997, p.6.

Z.P.A hired Coopers and Lybrand in 1997 as consultants to evaluate the labour situation and conditions of service at Maamba.[102] The consultants recommended that 332 skilled workers needed to be declared redundant in order for the company to stay afloat while others were forced into early retirement.[103] Upto 2010, ex-miners had failed to understand the criteria used by section Heads of Departments on who was to be retrenched.[104] For those that survived retrenchment, conditions of service were further cut down and were given a condition to either continue to work or leave if they wished. Owing to this, the colliery, witnessed a massive exodus of qualified personnel who sought fortunes mainly on the Copperbelt.[105] From 1997 onwards, Maamba colliery continued the gradual shading off of its labour in the hope of making the company efficient and entice bidders to purchase it.

Retrenched staff were to continue receiving their monthly salaries until their full retrenchment package was paid. Z.P.A, on the other hand, drafted retrenchment packages for the ex-miners which consisted of three months pay in lieu of notice, three months retrenchment pay for each year served, repatriation costs of K300,000 and pension benefit which would be advised at a later date.[106] A retrenched employee was allowed to occupy the house he or she lived in for the period of four months after the lump sum was paid. Furthermore, terminal benefits were eventually spelt out for different workers' categories. For instance, those who were under Z.I.M.C.O conditions of service or non-represented Staff "A" were set to recieve a total package of K2,380,152,075.80

[102] Coopers and Lybrand merged to form Price-water-house Coppers (PwC) in 1998.
[103] *Lusaka Times*, 6 February, 2006.
[104] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.
[105] Sikalunda and Nyembe, 'A Walk Down Maamba Collieries Limited Memory Lane', p.1.
[106] Maamba Collieries Limited, Retrenchment Letter, 10 January,1998.

each. Those under Z.I.M.C.O non-represented staff "B" and Unionised staff "C" totalled K618,272,860.18 and K7,842,652,785.00, respectively.[107]

The above terminal benefits did not include full wages and allowances but were composed of only salaries. It is for this reason that ex-miners sued Maamba Collieries Limited (M.C.L) for the miscalculation of their total retrenchment package. In 1998, the High court ruled in favour of the retrenched miners when it concluded that it was obvious that the decision by the defendants to pay salaries to the plaintiff instead of wages was wrong.[108] The employer was obliged to pay the redundancy package in full to its former employees. However, since 1998 the company had not paid its outstanding dues to the claimants.

The labour retrenchment programme which occurred in 1997 paved way for Benicon Limited of South Africa to purchase the mine. However, Benicon Limited failed to produce coal optimally not only because of obsolete equipment but also the lack of a market for the product. During its tenure between 1997 to 2000, mining equipment was vandalised and overhauled in the name of having it repaired in South Africa. The sale of Maamba Coal Mine to Benicon Limited hit a snag after the discovery of serious irregularities in the sale agreement. Z.P.A disclosed that Benicon Limited had not paid anything on the $1.5 million agreed as cash consideration.[109] Instead, the firm was said to have been paying itself about $20,000.00 per month as management fees since they took over the mine in November 1997.[110]

[107] Maamba Collieries Limited, Labour Retrenchment terms, pp.79-81.
[108] Maamba Collieries Limited, Terms of Retrenchment packages, p.4.
[109] *Times of Zambia*, 19 April, 2000.
[110] *Times of Zambia*, 19 April, 2000.

Amid these differences, a five-day work stoppage occurred at the mine in 1998 to demand for better conditions of service.[111] Since Benicon Limited was a profit-making company and realised that Maamba colliery had not paid the workers who had attained the retirement age owing to financial challenges, it refused to pay the retirees. The work stoppage came to an end when the company dismissed the M.U.Z local branch chairman for engineering the strike. In addition, 50 other workers were dismissed.[112] Subsequently, Benicon Limited's contract to run Maamba Colliery was terminated by the government due to its failure to secure funds to purchase the mine after Investech, a South African financial Institution refused to give Benicon the $1.5 million purchase price.[113]

Following this episode, a Zimbabwean contractor, Holy Mining took over coal production at Maamba in 2000. However, it faced many operational problems arising mainly from machinery break-down which resulted into low production. Like Benicon Limited, Holy Mining struggled to secure funds for the purchase of the mine, so it had its contract terminated by the government in 2002.[114] After two failed attempts at private ownership since 2000, Maamba Collieries Limited reverted to government ownership in 2002. However, it was later offered for privatisation by Z.P.A with new bids due by 26 September, 2003.[115]

Between 2004 and 2005 Maamba Colliery was again offered to both local and international bidders through Z.P.A. One notable local bidder was Maamba Katuya Consortium. This Consortium was led by Hakainde Hichilema and Costern Chilala believed to be backed by the Anglo-American

[111] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.
[112] Interview, Siloongo, Retired Human Resources Manager, Maamba Township, Sinazongwe District, 24 August, 2021.
[113] *Times of Zambia*, 15 August, 2000.
[114] Interview, Mudaala, Retired General Manager, Maamba Township, Sinazongwe District, 15 November, 2020.
[115] George J. Coakley, 'The Mineral Industry of Zambia' in US Geological Survey, US Department of the Interior, *Minerals Year Book*, 2003, p.34.

Corporation (AAC).[116] However, government threw out Maamba Katuya Consortium's bid for M.C.L. The government noted that Maamba Katuya Consortium was not 'politically correct' on certain issues and used this as the reason for turning down its bid to run the mine.[117] This came as a surprise to the international community who hoped that Zambia would give a chance to its local investors after so many failed bids reviewed by the Zambia Consolidated Copper Mines Investment Holdings (ZCCM-IH) a successor of ZCCM Limited. One of the reason for turning down Maamba Katuya Consortium was that the bidder had been leading the opposition party over the years and government was hesitant to award the contract to its opponent.

By 2006, Maamba Colliery was still plagued with financial problems, such that there was a seven-day work stoppage that saw the removal of Wilbur Simuusa as the interim manager of the mine as workers believed that he was mismanaging the mine. The following year in 2007, Bell Equipment Limited and G & G Services pulled out their equipment from the mine, thereby bringing production to a halt.[118] In the same year, the issue of full payment of retrenchment packages resurfaced. The Maamba Collieries Limited Retrenchees Steering Committee (MCL-RSC) appealed to government to promptly pay them their money to save them from destitution.[119] Ex-miners lamented that government had neglected their plight since their retrenchment in 1998. Among the retrenched workers, four committed suicide while others died of other causes for which their families were not compensated.[120]

[116] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[117] *The Post*, 10 October, 2006.
[118] Thomas P. Dolley and George Coakley, 'The Mineral Industry of Zambia', in US Geological Survey, US Department of the Interior *Minerals Year Book*, 2009, p.29.
[119] *Lusaka times*, February, 2007.
[120] *Lusaka times*, 6 February, 2007.

In 2008, Maamba Colliery did not produce any coal. Keren Mining Limited, a contractor failed to mobilise equipment for production. This company's contract was cancelled by the colliery at the end of the year.[121] Meanwhile, ZCCM-IH, had been bailing out Maamba colliery in terms of workers' salaries, emoluments and other debts the company owed contractors in the hope of resuscitating it. The continued poor performance by the colliery prompted the government to direct ZCCM-IH to take over the operations of the mine by selling its hundred per cent shares in Maamba Collieries Limited at a cost of $4.3 million in 2008.[122]

With ZCCM-IH in charge of the colliery, production resumed in April 2009. Silock Enterprise Limited of Zambia was contracted to produce coal while Oriental Quarries provided mining equipment such as bulldozers, trucks and loaders. Unfortunately, the months of low production, operations and the effects of the international economic recession of 2008 on the country's copper mining industry resulted in the loss of sales contracts for Maamba colliery.[123] Z.C.C.M-I.H announced that at the end of July of that year, it would not be able to cover what Maamba Collieries Limited owed for the Coal Processing Plant and workers' salaries for June and July.[124] Oriental Quarries also pulled out its equipment from the plant due to non-payment for the services rendered.[125]

Following this episode, the government and Nava Bharati Consortium of Singapore, a subsidiary of Nava Bharati Ventures Limited of India began negotiations regarding the sale of the mine. In December 2009, both parties arrived at an agreement to sell the mine. The consortium agreed to

[121] Daily Parliamentary Debates for the Third Session of the Tenth Assembly
Tuesday, 10 February, 2009. https://www.parliament.gov.zm/node/1651 data accessed on 21 May, 2021.
[122] Daily Parliamentary Debates for the Fourth Session of the Tenth Assembly
Thursday, 5 August, 2007. https://www.parliament.gov.zm/node/1833 data accessed on 21, May, 2021.
[123] Dolley and Coakley, 'The Mineral Industry of Zambia' p.42.
[124] Dolley and Coakley, 'The Mineral Industry of Zambia' p.42.
[125] Dolley and Coakley, 'The Mineral Industry of Zambia'p.42.

make an initial payment of about $26 million dollars for a 65 per cent equity interest in Maamba Collieries Limited as well as build a 300MW electricity generating thermal power plant at the mouth of the mine. [126] The remaining 35 per cent was retained by the government. At the end of the year, Maamba Colliery's debts were estimated to be more than $50 million including the determination of the value of Maamba's taxable assets.[127] Nava Bharati was expected to commence production in October, 2010. [128]

However, miners, ex-miners, community members, business men and traditional leaders were disappointed in the sale of the mine for their livelihood depended on it. They expressed so much disappointment because they felt that the mine was sold at a give-away price while it had so much potential if only the privatisation process was done in a transparent manner.[129] While some people cited corruption as the main reason for signing the contract "in the night" between Nava Bharati and the government at the mine, the latter argued that this misunderstanding was a result of the difference in time zones between Zambia and Singapore.[130]

While the privatisation of ZCCM was finalised by the government in 2002, Maamba Colliery was still grappling with financial and operational problems till 2010. One of the reasons advanced to as why it took government two decades to privatise Maamba colliery is that bidders were more interested to purchase copper mines due to the profitability of copper on the international market compared to coal. Secondly, a number of feasibility studies were done by bidders and most of them

[126] *Times of Zambia*, 21 December, 2009.
[127] *Times of Zambia*, 21 December, 2009.
[128] Daily parliamentary debates for the fourth session of the tenth assembly, Thursday, 8th July, 2010 https://www.parliament.gov.zm/node/1535 data accessed on 23 May, 2021.
[129] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[130] Interview, Muleya, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.

opted out due to the negative reports from consultants about the viability of the mine. These negative reports made funding from international agencies difficult to source. [131]

3.5 Conclusion

In conclusion, this chapter has examined labour recruitment, retention and retrenchment at Maamba Colliery from 1968-2010. It has argued that although Maamba Colliery recruited its skilled workforce countrywide, with the bulk of its skilled manpower was recruited from the Copperbelt while unskilled labour was mainly sourced locally. In an attempt to retain its workforce, the colliery strove to be at par with the Copperbelt by providing good conditions, food rations, and provision of coupons. Recreational facilities and staff development through training were other ways labour retention was attained at Maamba. Lastly, the chapter has outlined the challenges that Maamba Colliery faced during the privatisation era which led to the retrenchment of its skilled labour force in 1997. This chapter has concluded that, Maamba colliery was sold to Nava Bharati Consortium of Singapore, a subsidiary of Nava Bharati Ventures Limited of India by the government in December 2009 with a 65%-35% equity interest.

[131] NAZ/1/2/5, Maamba Collieries Limited Capital and Revenue Budget Proposals 1994/1995, p.4.

CHAPTER FOUR

THE SOCIO-ECONOMIC IMPACT OF MAAMBA COAL MINE ON ZAMBIA, 1968-2010

4.1 Introduction

This chapter explores the socio-economic impact of Maamba Coal Mine on the country between 1968-2010. The chapter is divided into three sections. The first section demonstrates that Maamba colliery was keen to develop its local community through the Maamba Development Trust (M.D.T) which ran the mines Corporate Social Responsibility (C.S.R). This department (M.D.T) played a key role in the provision of social services and the development of infrastructure in Maamba. The second section demonstrates that coal mining activities at the colliery had an adverse impact on the environment. Gaseous emissions and dust particles from coal mining compromised human life, livestock and agricultural activities because they polluted the air and water. These emissions often resulted into respiratory infections such as pulmonary Tuberculosis (T.B). Beside noise pollution, drilling and blasting resulted into accidents and damage to infrastructure in the nearby township. The last section argues that despite the negative effects of coal mining on the environment, Maamba Colliery immensely contributed to the country's economy through foreign exchange earning from coal exports and those of the coal-fired industries such as the copper mines, Chilanga Cement, Ndola Lime, Nitrogen Chemicals of Zambia, Zambia Sugar and Zambia Breweries.

4.2 Impact of Maamba Colliery on Maamba Township

Following the development of commercial coal mining at Maamba, the National Coal Board of Zambia (N.C.B.Z) sought to transform Maamba into a township that was suitable for settlement to both expatriate and African employees. Different types of infrastructure was constructed, including roads, housing units, schools, a health facility, police post and trading centre (market). In 1968, a total of K3,000,000 was approved by the government for the development of Maamba township while K250,000 was set aside by the government for consruction of houses in the same year.[1] The government, through the National Coal Board of Zambia (N.C.B.Z) was alive to the fact that the establishment of the mine required infrastructure development to successfully attract and retain labour from different parts of the world. Moreover, contractors were already on site for testing purposes of coal.[2] So they, too, needed infrastructure such as housing to support their activities.

4.2.1 Construction of Housing Units

In August 1967, the government assigned the Zambia Housing Board (Z.H.B) to plan and design housing units at Maamba Colliery. This was to ensure that the workers who were called upon to perform the arduous task of coal mining as well as those who were to provide ancillary services such as catering, sanitation and accommodation were decently housed.[3] The mine designated some areas where these housing units were to be constructed. For instance, single quarters were built at the Top Club while married quarters were built in the old township alongside the trainees' compound.[4] Furthermore, the "Khrons" were designated for management staff.[5] These housing

[1] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[2] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[3] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[4] Interview, Misebezi, Retrenched Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[5] Interview, Siloongo.*The word "Khrons" is derived from a construction company that built the housing units in Maamba township.

units were expected to accommodate many of the 400-500 workers that were required by the end of 1969.[6]

However, by 1977 Maamba Colliery had began facing accommodation challenges. This problem was as a result of an increase in the number of employees recruited by the colliery which exceeded the number of housing units. The housing problem was so severe that 362 employees were not accommodated at the end of that year.[7] This included 310 general workers, 46 Leading mechanics and equivalent, five mechanics and equivalent and one chargehand and equivalent.[8] Clearly, there was need to improve overall accommodation at the mine but looking at the company's financial position at the time, it was recommended that 30 medium low-cost houses be erected at the total cost of K600,000.[9] In so doing, Maamba Colliery would absorb more labour needed to boost production.[10]

The follwing year, the mine constructed 727 housing units to further alleviate the accommodation problem. These were medium cost, medium low cost and low cost built in Maamba, Masuku, Kariba and Lusaka. Specifically, there were 65 medium cost housing units in Maamba, 6 in Masuku, while Kariba and Lusaka had none.[11] There were 47 medium low-cost housing units in Maamba and four at Kariba. On the other hand, no medium low cost was constructed in Masuku and Lusaka.[12] Lastly, the low cost accounted for 551 housing units at Maamba, followed by 51 at Masuku, and three at Kariba.[13] Subsequently, the township had more than 800 houses designated

[6] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[7] Z.C.C.M 10.2.1A Maamba Collieries Limited 21st Board Meeting held on 25/2/1977, p.7.
[8] Z.C.C.M 10.2.1A Maamba Collieries Limited 21st Board Meeting held on 25/2/1977, p.7.
[9] Z.C.C.M 10.2.1A Maamba Collieries Limited 21st Board Meeting held on 25/2/1977, p.7.
[10] Interview, Simunji, Mine Electrical Engineer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[11] Z.C.C.M 10.2.1A Maamba Collieries Limited 21st Board Meeting held on 25/2/1977, p.7.
[12] Z.C.C.M 10.2.1A Maamba Collieries Limited 21st Board Meeting held on 25/2/1977, p.7.
[13] Z.C.C.M 10.2.1A Maamba Collieries Limited 21st Board Meeting held on 25/2/1977, p.7.

for both mine and non-mine employees such as the police, teachers, health workers, agricultural officers and veterinary doctors.[14]

The housing units were maintained by the mine. Water and electricity were supplied for free to all the miners. Housing units for senior staff were fully furnished. In an effort to maintain a high level of cleanliness and tidiness, the colliery conducted house inspections in the township. However, all this changed during the privatisation of the mine. The mine faced financial challenges over the years and lost its capacity to maintain infrastructure. Thus, the houses became dilapidated. The M.M.D government offered most of these houses for sale when it came to power in 1991. An informant, Martin Maate recalled that he bought his house at a cost of K3,000,000."[15] During this period, retrenched staff were allowed to occupy the houses for a period of four months until the lump sum was paid. Since the mine did not pay the retrenchment packages, retrenched staff continued to occupy the houses until the terminal year of this study, 2010.

Earlier in the 1980s, the mine had introduced the home ownership scheme. This scheme was copied from the copper mines which first introduced a similar scheme in 1977. The home ownership scheme was designed to assist Zambian citizens who were employed in the mining industry to own a house during their retirement.[16] The mine designated some residential plots in the municipality that ranged from 15 m x 30 m to 22 m x 25 m in size. Not only did the mine provide loans for the scheme, it also did the actual building of the houses. An interviewee, Albert Hamayuwa, Manager

[14] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[15] Interview, Maate, Retrenched Miner, Maamba Township, Sinazongwe District,19 October, 2020.
[16] Z.C.C.M 19.4.10B Conditions of Service for both Expatriates and Local Zambian Employees, 1983, p.170.

Maamba township services, stated that this project was successful because about 25 houses were constructed in designated residential areas.[17]

4.2.2 Provision of Educational Services

In 1969, Maamba Colliery established its own training institute on the company premises. It also constructed a pre-school under its Corporate Social Responsibility (C.S.R). The school was established in 1971 to cater for the growing population of young children of the mine employees.[18] It was initially meant for children of French expatriates who were contracted to develop the mine. However, years later the school was opened for enrollment to every miner as a motivation to settle in the remote Gwembe valley. The school offered pre-reading, writing and other learning skills to children between the ages of 3 to 6 years.[19] The mine provided teaching and learning materials at the pre-school. By 2010, over 100 toddlers had enrolled at the pre-school.

In 1974, the mine commissioned Maamba Private School. This was the school where pre-school children graduated into grade one after spending three years at the pre-school. The school started with ten pupils and three teachers.[20] The school was initially meant for senior staff members' children and prominent business men in the community. However, as employment grew, doors were opened to unionised members. Years later, it was opened to the whole community as long as a guardian was able to pay the school tuition fees. The mine funded the school entirely, 'we did not get any grant from the government, all the teaching and learning materials and salaries were

[17] Interview, Albert Hamayuwa, Manager, Maamba Township Services, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[18] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[19] Sikalunda and Nyembe, 'A Walk Down Maamba Collieries Limited Memory Lane', p.20.
[20] Interview, Sikalunda, Development Trust Manager, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.

provided by the mine'[21] "My salary was two and half times more than teachers employed in government schools".[22] In 1991, the school was upgraded to become a junior secondary. By 2010, the mine's capital expenses and operating budget stood at K2,587, 196.31 million with an enrollement rate of over 500 students including the toddlers at the pre-school.[23] In addition to this, Maamba colliery provided education support services to Maamba Special School for children with special needs. Apart from teaching and learning materials, the mine donated wheel chairs and toys to support children living with disabilities.

Although the mine maintained these schools (Maamba pre-school and Maamba Private school and offered support to Maamba Special School), the school infrastructure was in a deplorable state prior to privatisation due to inadequate finances to carry out meaningful rehabilitation of the infrastructure.[24] This situation began to change for the better after Nava Bharati took over the operations of the mine in 2010.

4.2.3 Provision of Health Services

In addition to the construction of schools, the colliery endeavoured to provide health services to meet the demands of employees and the nearby community at large. As coal mining was an occupational hazard, it was imperative that the mine establish a health centre to mitigate the source of the problems faced by miners and surrounding communities. Hazards arising from drilling and blasting produced emissions that were dangerous to miners' health. Hence, the mine clinic was

[21] Interview, Sikalunda, Development Trust Manager, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[22] Interview, Sikalunda, Development Trust Manager, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[23] Interview, Siloongo, Retired Human Resources Manager, Maamba Township, Sinazongwe District, 24 August, 2021.
[24] Sikalunda and Nyembe, 'A Walk Down Maamba Collieries Limited Memory Lane', p.20.

established between 1968 and 1969 as a first aid clinic.[25] The first aid clinic was important for quick response to accidents that were imminent at the coal mine. This clinic only treated minor conditions. For severe cases, the mine transferred affected patients to Choma General Hospital. Apart from providing day-to-day care for mine workers, the first aid clinic also aided with pneumoconiosis check-ups which were done once or twice a year, as charged by the Pneumoconiosis Bureau.

However, by the early 1970s Maamba township experienced a population explosion such that it was estimated at 6,020 compared to 3,336 in 1969.[26] The population growth entailed that the first aid clinic could not cater for the entire population for it only catered for mine workers. While visiting Maamba in 1970, the Permanent Secretary reiterated that the concentration of people on the mine called for urgent measures to put up either a clinic or a health centre unless this was immediately done an outbreak of an epidemic disease was quite imminent with far reaching consequences.[27] This development prompted the government to open Maamba Mine Clinic in 1971. This health facility was headed by a resident doctor who was seconded there by the Ministry of Health.

Additionally, a furnished house for the doctor and medical assistant [officer] were made available. Once employed at the mine, the medical assistant's role was to treat non-mine employees. This was a temporary arrangement until such a time, when the government built a health centre which would cater primarily for non-coal mine employees.[28] In other words, government would provide

[25] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[26]Wilma S. Nchito, 'Migratory Patterns in Small Towns: The Cases of Mazabuka and Kalomo in Zambia', *Environment and Urbanisation*, vol 22 (No.1) April (2010), p.94.
[27] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[28] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.

a full-time doctor and medical assistant only if a new clinic facility was made available to the rest of the community in Maamba township and not just the miners.[29]

Further, the government borrowed K8.04 million from the African development Bank (A.D.B) to construct a 250-bed hospital at Maamba coal mine in 1990.[30] The loan was disbursed the same year and the construction of the rural hospital commenced at a cost of K5,025,359,72.[31] This health facility included martenal and child health services, a theatre and pharmacy. It was envisaged that after the completion of this project, Maamba residents would access the health facility with ease unlike travelling to Choma General Hospital as was the case all along. The hospital began operating in 1997 after the Mine Clinic became submerged following a flooding incident. The local people benefited from this hospital in that the ambulance picked up any sick person in the community to receive treatment.[32] The hospital was officially commissioned in 2002 by President Levy Mwanawasa.

4.2.4 Provision of Security Services

Provision of security services was essential after the development of the mine in Maamba township. A police post was thus set up in close proximity to the mine between 1970 and 1971. Maamba mine police post played a major role in maintaining security because by 1970, Maamba colliery had about 300 employees excluding personnel engaged by contactors on the site.[33] Further, owing to the unprecedented developments in the valley area, it was estimated that over 7,000

[29] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[30] N.A.Z 1/6/5, Eighth quarterly progress report to African Development Bank 1st April 1992-30 June 1992-Rural Health services project.
[31] N.A.Z 1/6/5, Eighth quarterly progress report to African Development Bank 1st April 1992-30 June 1992-Rural Health services project.
[32] Interview, Sinwyimaanzi, Retired Miner, Maamba Township, Sinazongwe District, 20 October, 2020.
[33] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.

people had settled on the mine premises.[34] It was, therefore, necessary that police presence be established immediately to intensify patrols in the township and the mine area so as to safeguard company property.[35]

4.2.5 Banking Facilities

In the 1980s, the Zambia National Commercial Bank (Z.N.C.B) embarked on its branch expansion in rural areas where there were no banking facilities to promote economic activities. In 1987, the Z.N.C.B announced that plans were fairly well advanced to open sub branches at Maamba, Lundazi and Namwala.[36] The bank became the only service provider in Maamba hence, miners had the convenience to withdraw and deposit their money within the township. Initially, they had to travel to Choma to access banking services. Banking facilities supplemented the Post Office which was the only method of conducting financial transactions. Other than that, Maamba residents utilised the Post Office for all the correspondence that was coming into and outside Maamba in form of mails, telegrams and telephone services.

4.2.6 Promotion of Local Businesses

The establishment of Maamba colliery created employment opportunities for the local people. As a result, Maamba township began recording growth in business activities as locals ventured into various income generating ventures. During month-ends, the township experienced a boom in local trade as miners spent their salaries on groceries, foodstuffs and others spent it in local taverns. Fish

[34] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1970.
[35] N.A.Z/Z.I.M.C.O 1/2/263, Maamba Collieries Limited 23rd Board Meeting, Board Agenda and Board Papers, 1977, p.8.
[36] Zambia National Commercial Bank Limited, Annual Reports and Accounts for the year ended 31 March, 1987, p.4.

trading proved to be the most lucrative business among the local people. Justine Sikale, a fish trader from Maamba township stated that he made profit from fish sales such that was able to take care of his family. He added that by 2008, he sold his fish at K45,000 (unrebased currency) per kilogram making a profit of K6,750,000 in a month after selling 150kg of fish.[37] His target market was Maamba township where he sold his fish on credit to miners, and sold some to people in Lusaka. Apart from fish, cattle, goats and vegetables, were also sold in the township. This suggests that local businesses directly benefitted from Maamba colliery.

As local trade boomed in Maamba, some miners invested their salaries in businesses. Some opened grocery shops while others opened taverns. Dale Sinwyiimaanzi a retired miner, opened his grocery shop in the township. Other individuals who were prominent business men in Maamba were Aaron Chitonka and Isaac Chipaila. They also opened retail shops and taverns in Maamba township. Owing to the growth of local businesses, Maamba became a transit point to Zimbabwe, some business men crossed to Binga in Zimbabwe through Namafulu border as they were only separated by a lake.[38] During its best days, news reporters described Maamba as "a city in the jungle" because the township had schools, a hospital, bank and small businesses.[39]

4.2.7 Community Development Programmes

The colliery also made a positive contribution to the community through its community initiative programmes. From inception, the colliery engaged its community members through sports and recreation. Zam-Coal Diggers the mine-sponsored soccer team, became affiliated to the Football

[37] Interview, Justine Sikale, Fish Trader, Maamba Township, Sinazongwe District, 15, November, 2020.
[38] Interview, Sikalunda, Development Trust Manager, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[39] Interview, Sikalunda, Development Trust Manager, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.

Association of Zambia (F.A.Z) in 1971. The mine built Kanzinze stadium in 1974. In 1977, Zam-Coal Diggers were second on the league table for division III Southern zone and qualified for quarter finals in the Independence Cup.[40] Overtime, it became a nursery for well paying clubs for players.[41] It produced some of Zambia's well known footballers such as Edmund Mumba and Honour Janza. Years later, the club was proud for setting up junior careers in international football for Toaster Nsabata and Spencer Sautu.[42] Other than football, community members participated in golf, tennis, squash, netball, swimming and boxing clubs as well as in cultural and theatre clubs. This resonates with Marion Fontaine and Diethelm Bleckings' studies which argued that sports played an integral part in coal mining communities of France and Germany.[43]

Apart from sports and recreation, an adult literacy and skills training centre was established in the 1970s.[44] This was due to high levels of illiteracy among the mining community and the surrounding villages. Three classes were opened at the local hall (gym hall) which were conducted after office hours. The mine appointed three community development assistants to conduct lessons at this centre. Students who performed well enrolled for night school classes at the Maamba Mine School (formerly Maamba Catholic School) to further their education. The skills training centre had various sections which included gardening, poultry and crafts work. The skills centre played an important role in providing basic literacy and life survival skills to community members so as to improve their livelihoods.

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[40] N.A.Z/Z.I.M.C.O 1/2/263 Maamba Collieries Limited 23rd Board Meeting, Board Agenda and Board Papers, 1977, p.8.
[41] Interview, Chimense Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020, and *Zambia Daily Mail*, 8 May, 2017.
[42] *Zambia Daily Mail*, 8 May, 2017.
[43] Blecking, 'Integration through Sports? Polish Migrants in the Ruhr, Germany', p.275 and Fontaine, 'Football, Migration, and Coal Mining in Northern France, 1920s-1980s', p.253.
[44] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.

By 1976, a Women's Club had been opened to provide lifelong skills to miners' wives and other women in the community. It offered two courses; the elementary course which ran for six months and the advanced course for eight months. In 1977, the mine bought five sewing machines and sewing materials for the women's club.[45] Four community development assistants were employed by the mine to run women affairs by providing classes in home economics at the domestic training centre.[46]

Besides the pre-school established by Maamba colliery, preschool services were also offered under the Welfare Society. The pre-school was meant for children in the community whose parents could not afford to pay school fees at the private school. The school had six classes and was run by the community development office at the Gym Hall.[47] More so, the colliery went a step ahead to support the community library by providing books for children and the community at large. The mine employed two librarians at the community library and donated books every year.[48] The community largely benefited from the pre-school programme as most of the children who were not in school successfully enrolled and proceeded to grade one.

Between the 1980s and 1990s, the mine brought up the concept of cooperatives. There were five cooperatives in Sinazongwe district that were being supported by the mine. Four cooperatives were formed in Maamba and one in Masuku. Among the four cooperatives in Maamba, three were empowered with hammer mills, and one was a multi-purpose business with a bar called Nkungwe

[45] N.A.Z/Z.I.M.C.O 1/2/263, Maamba Collieries Limited 23rd Board Meeting, Board Agenda and Board Papers, 1977, p.8.
[46] N.A.Z/Z.I.M.C.O 1/2/263, Maamba Collieries Limited 23rd Board Meeting, Board Agenda and Board Papers, 1977, p.8.
[47] N.A.Z/Z.I.M.C.O 1/2/263, Maamba Collieries Limited 23rd Board Meeting, Board Agenda and Board Papers, 1977, p.8.
[48] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.

Hill Club Bar.[49] The Chipange cooperative in Masuku successfully bought hammer mills for each member of the cooperative and did a lot of business in the locality. With the help of the colliery, cooperatives contributed largely to the community in that hammer mills not only became a source of income but also employment for the local people.

4.3 Impact of Maamba Colliery on the Environment

Notwithstanding the fact that Maamba Colliery had a positive socio-economic impact in Sinazongwe district, it also affected the environment in a negative way. The environmental impact of the mining activities in the area included land degradation, pollution of surface water bodies and air pollution via dust particles and gaseous emissions.[50] The gaseous emissions from the mine did not only have a negative impact on the health and safety of miners but affected the natural composition of soil fertility and water bodies which often resulted in poor agricultural yields. Wildlife and livestock were also affected due to the lack of grazing land caused by the removal of the overburden to expose coal seams at both Kanzinze and Izuma basins. Rock blasting not only caused accidents but also noise pollution which compromised some miners' ability to hear.

For a long time, environmental issues at Maamba Collieries Limited remained unaddressed because of not having compelling environmental regulations when mining started.[51] Another reason that contributed to the lack of urgency in addressing environmental issues can be seen in light of the parastatal status and relationship of Maamba Collieries Limited *vis-à-vis* other

[49] Interview, Chimense, Community Service Officer, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[50] Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia,' p.35.
[51] Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia', p.35.

government bodies and economic pressures in the past. A relaxed approach had been applied relative to the interpretation and enforcement of governing environmental regulations. [52]

There were two major air pollutants at Maamba Colliery that resulted from mining operations. They were particles of coal dust and silica dust. Both came from drilling and removal of overburden of coal, blasting and loading operations. Studies revealed that both coal and silica dust concentrations in the air at Maamba were above the acceptable standards of 900 ppcc and 350 ppcc.[53] Therefore, miners who were exposed to this atmospheric pressure were prone to suffer from respiratory illnesses which were commonly referred to as "black lung".

The most common occupational disease at the colliery was pulmonary Tuberculosis. It came as a result of exposure to silica dust for an extended period of time resulting into inflammation of the lungs causing bronchitis, and excessive production of mucus. In turn, this led to bronchial infection, long-term cough and shortness of breath.[54] When left untreated, these respiratory diseases resulted into silicosis, a respiratory illness that appeared after many years of exposure to silica dust. Another major health issue that resulted from the absorption of coal dust was pneumoconiosis. It was a chronic disease of the lungs that affected miners at Maamba. In terms of mitigating the disease, there were disturbing reports from the government official that:

> It must be made clear that the provisions of the pneumoconiosis ordinance will apply, though special arrangements will have to be made for testing. Reports from the mining department indicate that insufficient attention is being paid to the problem of dust, both in the

[52] Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia', p.35.
[53] Central Statistics Office, Environmental Energy Statistics in Zambia, 27 March, 2007, p.13.
[54] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.

> open pit and at the screening plant. Special attention must be given to the use of water sprays.[55]

Hence, the Pneumoconiosis Medical and Research Bureau and the Pneumoconiosis Compensation Board (established in 1950) insisted on carrying out periodical examinations in all mines whereby all working miners had to be examined annually.[56] Miners who were diagnosed with such an illness were changed to different working stations that were commonly referred to as non-scheduled areas. This was to avoid dust inhalation from scheduled areas. But if the disease advanced, they were laid off but continued getting their salaries. In the event of death, the government compensated his family as stipulated by the Pneumoconiosis Compensation Board. These findings resonate with Walima Kalusa's study who examined the impact of occupational diseases on miners' health at Roan Antelope mine in Luanshya. The table below summarises respiratory ailments at Maamba colliery resulting from high exposure to coal and silica dust.

Table 4.1. Disease Diagnosis at Maamba Colliery, 1998-2002

Disease/Diagnosis	**1998**	**1999**	**2000**	**2001**	**2002**
Respiratory infections	1503	1626	1342	1652	998
Cadio-vascular diseases	20	29	14	30	10
Pulmonary Tuberculosis	3	1	7	11	16

Source: Central Statistics Office, Environmental Energy Statistics in Zambia, 2007, p.13.

Table 4.1 shows a progressive increase in respiratory infections at Maamba colliery in the period between 1998 and 2002. However, in 2000 there was slight drop from 1626 in the previous year

[55] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[56] N.A.Z 1/18/121, The Pneumoconiosis Medical and Research Bureau and the Pneumoconiosis Compensation Board, Annual Report for the Year, 1968, p.5.

to 1342 in 2000.[57] The year 2002 recorded the least respiratory infections at the mine. This was attributed to vigorous supervision of working conditions that were carried out that year. Despite vigorous supervision of working conditions, cardiovascular and pulmonary diseases were generally on the rise during this period.

It is imperative to mention that the mine provided Personal Protective Equipment (P.P.E) to mitigate these diseases as stipulated by the Occupational Safety and Health Act (O.S.H.A) and the Mines and Minerals Act. These included overalls, safety boots, safety glasses, ear plugs and respirators.[58] To further alleviate these diseases the mine provided a pint of milk every morning to miners who worked in scheduled areas. This worked well in the early days because the mine received funding from local and international agencies. During privatisation however, the mine experienced financial problems and could not afford to buy milk for its workers, instead it supplemented the milk with *tobwa* a local drink brewed with maize. Furthermore, owing to the environmental conditions at the colliery, the Commissioner of Taxes approved the retirement age of miners to be reduced from 55 to 50 years.[59]

Land degradation was another negative impact of coal mining at Maamba. The clearing of vegetation and bushes by heavy mining machinery in the process of overburden removal resulted in the loss of vegetation at the mine area. According to Bunda Besa, loss of vegetation cover in Kanzinze basin due to open pit mining operations greatly contributed to the loss of wildlife in Maamba area.[60] He further pointed out that vegetation removal often interfered with normal

[57] Central Statistics Office, Environmental Energy Statistics in Zambia, 27 March, 2007, p.13.
[58] Interview, Mudaala, Retired General Manager, Maamba Township, Sinazongwe District, 15 November, 2020.
[59] N.A.Z 1/6/5, Maamba Collierires Limited Operation and Capital Budgets for the Year ending 31 March, 1993/4, p.5.
[60] Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia,' p.35.

existence of flora and fauna leading to migration of wildlife from the affected areas to quieter and less disturbed habitats far away fron Sinazongwe district.[61]

One other significant concern of coal mining at Maamba was its alteration of natural soil nutrients that supported agricultural activities. The removal of overburden soil using giant shovels resulted into the loss of top soils leading to erosion.[62] Erosion of soil meant the loss of soil nutrients which were needed for agricultural production. Most of the land in Maamba was consumed by mining activities but the coal mine allocated some pieces of land to residents of Maamba township for agricultural purposes.[63] But owing to mining operations near the allocated pieces of land, the soil became infertile and could not support agricultural activities. Further, the gaseous fumes such as sulphur oxide and nitric oxide changed the chemical composition of the soil resulting in poor yields which affected the overall output of farmers. An informant added that stunted growth was a common feature in crop yields at Maamba.[64]

To make matters worse, the coal waste dump and slurry made the water in the Kanzinze and Izuma rivers unfit for human and livestock use. For instance, such dumped materials combusted during periods of high temperatures and produced gaseous emissions which had a chemical reaction on the environment. When the gaseous fumes which were mostly sulphur oxide and nitrate oxide came in contact with rain water, this led to the formation of sulphuric and nitric acid that eventually affected the vegetation, water bodies as well as the soil and livestocks.[65] Apart from the acid lowering the pH of the water in the stream at Izuma basin, there was also the danger of

[61] Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia,' p.35.
[62] * The term Overburden means the material that lies above the coal seam which is stripped during mining.
[63] Interview, Hamayuwa, Manager, Maamba Township Services, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[64] Interview, Hamayuwa, Manager, Maamba Township Services, Maamba Collieries Limited, Sinazongwe District, 22 October, 2020.
[65] Besa 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia,' p.41.

contaminating ground water resources as a result of seepage of acidic water from the dump site. This acidic water seeped through the ground and contaminated the water system and nearby streams especially during the rainy season.[66] In order to mitigate this challenge, the mine stationed hydrants in the township which contained clean water from which residents could draw water at least three times a day.

The dust particles from the mine also had negative effects on the infrastructure in the townships. Air pollution in the long run caused corrosion and discolourations of buildings in the mine areas.[67] This state of affairs led to the maintenance of buildings by mine authorities becoming costly. Furthermore, rock blasting resulted into the formation of cracks in many residential buildings. Songwe Nyembe stated that some houses and buildings built in the 1970s were cracked due to blasting activities on the mine.[68] It was for this reason that houses were sold at a cheaper price to ex-miners during privatisation as they risked collapsing on occupants.[69]

Maamba Colliery operated as an open cast mine therefore, it did not experience any methane explosion. The gaseous emissions freely escaped into the air leading to no accumulation of methane gas that caused explosions at Wankie and Natal colliery in the 1980s.[70] In contrast to Maamba, Wankie and Natal operated an underground coal mine that had a major risk of explosions due to gases such as methane. But this does not mean that Maamba colliery did not experience occasional accidents from blasting, electrocution and technical failures. Over the years, Maamba has had casualties and fatalities resulting from these accidents. Between 1993-1994 Maamba

[66] Besa, 'Environmental Impact of Coal Mining at Maamba Collieries Limited in Choma Zambia'. p.41.
[67] Interview, Maate, Retrenched Miner, Maamba Township, Sinazongwe District,19 October, 2020.
[68] Interview, Nyembe, Mining Superintendent, Maamba Collieries Limited, 22 October, 2020.
[69] Interview, Sikalonga, Retrenched Miner, Maamba Township, Sinazongwe District, 19 October, 2020.
[70] Edgecombe, R. 'Dannhauser (1926) and Wankie (1972)- Two Mining Disasters: Some Safety Implications in Historical Perspective', p.71.

Colliery recorded an accident from electrocution which claimed the life of one miner.[71] The miner died due to faulty installation of electrical cables in the section he was working from.

As early as 1968, the Ministry of Mines had begun receiving disturbing reports from the government mining engineer and his department regarding the standards of safety at Maamba.[72] It was reported that the standard of workmanship on some of the installations was below those required by the mining ordinance.[73] However, the draft contract between the Ministry of Mines and Sofremines (the French contractor) read in part that:

> Sofremines shall carry out all the engineering required with the highest international standard and according to the up-to-date methods in all parts of the project. We shall construe the phrase highest international standard as applying just not to the engineering aspect but also to the safety (*sic*). Contravention of the mining regulations will be regarded as the breach the contract.[74]

Even with this binding contract Maamba colliery continued to record accidents. To make matters worse, the first aid equipment indicated a disturbing state of affairs. This was a serious problem because it meant that in any case of an accident, the first aid clinic could not handle such. Worse still, the nearest hospital was in Choma, 100 Kilo Meters away. Therefore, management was expected to institute a vigorous first aid training programme on the mine. Table 4.2 summarises the numbers of casualties and fatalities at the mine between 1969-1980.

[71] Interview, Nyembe, Mining Superintendent, Maamba Collieries Limited, 22 October, 2020.
[72] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[73] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[74] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.

Table 4.2. Maamba Casualties and Fatalities, 1969-1980

Year	Casualties	Fatalities
1969	32	-
1970	33	-
1971	9	-
1972	107	2
1973	93	1
1974	104	-
1975	57	4
1976	81	-
1977	55	1
1978	59	1
1979	26	-
1980	29	-

Source: Z.C.C.M 12.1.9C Zambia Mining Year Books, 1973-1980, pp.36-42.

Table 4.2 shows that between 1969 and 1970, there were 32 and 33 accidents that occurred at the mine respecively. These figures dropped to nine in 1971, the lowest figure of accidents recorded by the colliery during this 20 year period. This can be attributed to the vigourous first aid training. The years 1972 and 1974 recorded the highest accident occurrences at the colliery due to faulty installations at the mine. From 1975 onwards, table 4.2 shows that there was a significant reduction of accidents. In some cases, as the table shows above, there were also fatalities recorded.

Furthermore, Maamba Colliery was unable to prevent or handle disasters at the mine and surrounding areas due to limited financial resources.[75] For example, the Coal Processing Plant had almost become obsolete to a level where it could no longer serve its purpose. Leaking pipes and

[75] Sikalunda and Nyembe, 'A Walk Down MCL'S Memory Lane', p.5.

bursting slime ponds discharging into the environment became a common norm.[76] This made the area to be unfit for any economic activity at the mine.

Figure 4.1 The Coal Processing Plant in 2005

Source: 'A Walk Down MCL's Memory Lane', Maamba Collieries Limited Newsletter 2nd Edition, 2017, p.4.

Due to mining activities, Maamba Colliery and the surrounding areas experienced flooding during the rainy season. One of the major flooding incidents occurred in 1997. The flood left 100 villagers homeless and destitute, damaged the two main bridges linking the district to other parts of Zambia, and swamped a coal mine, forcing it to close temporarily.[77] The then Maamba Coal Mine Managing director, Austin Chipenzi, added that floods had also damaged the mine's control centre as well as X-ray equipment, computers and medicines worth more than K100 million at its health clinic, which serviced the entire Maamba area.[78] Furthermore, at least 13 patients were evacuated from the clinic to a primary school, where patients laid on the floor as nurses and other medical personnel looked on helplessly since all the medicines had been swept away by the floods.[79] In 2007, another flooding incident occurred. It destroyed agricultural produce which threatened the

[76] Sikalunda and Nyembe, 'A Walk Down MCL'S Memory Lane', p.5.
[77] *ZANIS News*, 27 January, 1997.
[78] *ZANIS News*, 27 January, 1997.
[79] *ZANIS News*, 27 January, 1997.

food security of the local people and damaged infrastructure in the township. Figure 4.2 flooded Izuma Bridge.

Figure 4.2 Washed-away Izuma "B" Bridge due to heavy rain, 2007

Source: 'A Walk Down MCL's Memory Lane', Maamba Collieries Limited Newsletter 2nd Edition, 2017, p.5.

These developments show that mining activities at Maamba had a negative impact on its immediate environment and surrounding communities. The mine management's effort to mitigate against these environmental concerns proved futile in most cases due to financial challenges faced by the mine.

4.4 Impact of Maamba Colliery on Zambia's Economy

Despite the negative effects of coal mining, Maamba Colliery contributed immensely to the country's economy through its exports and those of coal-fired industries. From its inception, Maamba Colliery was put to the test to meet the energy demands of the country after Zambia's fall out with neighbouring Rhodesia which had been the traditional source of coal. Hence, between the 1970s and the 1990s Maamba Colliery emerged as the largest supplier of coal to the country's

copper mines on the Copperbelt. In 1970, for instance, Maamba increased its output of coal to 623,000 tons compared to 391,000 tons from both Maamba and Nkandabbwe in 1969.[80] This increase in coal production meant that the copper mines would have a continuous supply of coal from Maamba and the Livingstone stockpile of Wankie coal even before the cut-off date of coal supplies from Wankie arrived. As a result of the increase in coal production, the Copperbelt mines had an uninterruptable production of copper even when the country was still grappling with the effects of UDI.

As Zambia's economic backbone, the copper mining industry accounted for more than 80 per cent of the country's foreign exchange earnings, over 50 per cent of government revenue and at least 20 per cent of total formal sector employment.[81] This growth was as a result of the high demand for copper on the international market throughout the 1960s. Even though this state of affairs began to change in the mid 1970s due to the fall in copper prices, copper mines continued to play a crucial role in the generation of foreign exchange earnings and government revenue. This foreign exchange and government revenue through taxes was then used among others to pay foreign debt, build infrastructure and support social services like health and education. In this regard, this study argues that the country's copper production could have been hampered if Maamba Coal Mine did not embark on mining coal. This, in turn could have hurt the Zambian economy.

In terms of employment, the copper mining industry made a substantial contribution to wage employment in Zambia. Since the emergence of the Copperbelt in the late 1920s, Africans from all walks of life migrated to the Copperbelt to seek employment on the mines. Over time, the

[80] N.A.Z 1/17/103 Mines Department Annual Report, 1970, p.6.
[81] Neo Simutanyi, 'Copper Mining in Zambia: The Developmental Legacy of Privatisation', Institute for Security Studies (ISS Paper, 165), July 2008, p.1.

Copperbelt mines became the largest employer in the country. For instance, a year after independence, the Copperbelt had employed 39,680 Zambians, this number increased to 55,990 by 1975 and 55,640 in 1983.[82] These figures depict the country's reliance on the copper industry for wage employment.

Besides the foreign exchange and revenue generated from the copper mines, Maamba Colliery also contributed to the country's revenue through its exports to neighbouring countries. Mbeya cement factory in Tanzania, copper mines in Katanga and tobacco farmers in Malawi relied on Coal imports from Maamba. For instance, between 1984-1985, Maamba colliery exported 10,689 tonnes of coal to neighbouring countries which resulted in foreign exchange earnings of millions of Kwacha.[83] This shows that the mine made a substantial contribution to the country's economy during its peak days.

The construction industry also heavily depended on Maamba coal as a source of energy. Chilanga Cement factory emerged as the second largest consumer of coal after the Copperbelt mines owing to the fact that the cement manufacturing process is an energy intensive process. Chilala Habeenzu pointed out that the initial factory at Chilanga utilised water to produce a paste called slurry that was then heated at high temperature to evaporate the water content and all the moisture from the paste.[84] During the colonial period, fired wood was the main source of heat in the cement kilns but the factory occasionally imported coal from Wankie before UDI.[85] However, after UDI Coal from Maamba was used as the main source of fuel in the burning process in kilns both at the cement

[82] Simson, *Zambia: A Country Study*, p.38.
[83] Z.C.C.M 14.3.6A Maamba Collieries Limited Annual Report, 1984, p.2.
[84] Chilala Habeenzu, 'A Historical Study of the Impact of Chilanga Cement Factory on Chilanga Township', MA Dissertation, The University of Zambia, Lusaka, 2016, p. 104-105.
[85] Habeenzu, 'A Historical Study of the Impact of Chilanga Cement Factory on Chilanga Township', p.104-105.

factory in Chilanga and its Ndola works. Between 1977 and 1981 for instance, Maamba colliery supplied over 84,000 tonnes of coal to Chilanga Cement.[86]

Another company that relied on Maamba coal is Ndola Lime Company Limited (NDC) . It was established in 1931 by the Northern Rhodesia government for the sole purpose of supplying quicklime to the copper mines. Its kilns were also powered by coal. Lime was one of the valuable ingredients in the copper smelting process and floatation, for without it, copper could not be produced.[87] Moreover, lime was one of the major ingredients in the cement manufacturing process, no wonder the company was located adjacent to Chilanga cement in Ndola. The kilns at Ndola Lime consumed more than 36,000 tonnes of Maamba coal in 1985.[88] Besides the mining industry, limestone was also widely used in the agricultural industry to improve the efficiency of fertilizers so as to enrich the soils.

Fertilizer production at Nitrogen Chemicals of Zambia (NCZ) required the use of coal owing to the fact that the conversion of ammonia into urea in the fertilizer making process is energy intensive and requires coal to cut the cost of production from using either electricity or diesel. NCZ was established in September 1967 to construct and operate a coal-based ammonium nitrate plant at Kafue, some 45km south of Lusaka.[89] The coal which was a major input in the fertilizer production process was procured locally from Maamba Colliery in Southern Province, while gypsum was sourced from Chambishi Metals on the Copperbelt Province.[90] A guaranteed supply of coal by Maamba colliery to N.C.Z made the latter company to have an uninterapted production

[86] Zambia Issues and Options in the Energy Sector, Report of the Joint UNDP/World Bank Energy Assessment Programmes, January, 1983, p.40.
[87] N.A.Z 2/1/291, Maamba Coal Mine and Jack Mills, 'A Technical Discussion of Mining in the Lime and Cement Industries of Zambia and Malawi', PhD Thesis University of Nottingham, 2000, p.81.
[88] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes of the Meetings, 1978-1997.
[89] World Bank Staff Appraisal Report, Fertilizer Industry, Restructuring Project, February, 1986, p.17.
[90] World Bank Staff Appraisal Report, Fertilizer Industry, Restructuring Project, February, 1986, p.17.

of chemical fertilizers at a profit. In 1976 for instance, N.C.Z made a net profit of K489,000.00 as compared to the budgeted profit of K352,000.00.[91] The following year, 75,000 tonnes of coal were supplied to N.C.Z. by the colliery.[92]

Another industry that thrived due to operating coal-fired boilers is Zambia Breweries Limited. For a long time, this company had been using coal fired energy to brew beer such that in 1975, it purchased a low operating coal fired boiler from Dar es salaam to beef up its energy requirements.[93] With all these measures in place, the company's contribution to government coffers was second to the copper industry. This was reflected by the excise duty of K42.79 million paid to the government in 1974-1975 and K71.85 million on projected forecasts for 1975-1976, that was to be paid to government.[94] In 1984, Zambia Breweries Limited consumed a total of 30,000 tonnes of Maamba coal so as to maximise production.[95]

Zambia Sugar is another major company that utilised coal fired boilers in the sugar refinery process. From its inception, in 1965, Zambia Sugar Company emerged as the country's largest sugar producer and in this way contributed to the country's economy through job creation, and various taxes paid to the state. By August 1969, Zambia Sugar had consumed about 600 tonnes of Maamba coal.[96] Like other companies struggling to meet their energy requirements, Zambia Sugar supplemented its energy needs with bagasse, a waste product in sugar processing. In 1976, the company commissioned another boiler so as to increase its energy intake.[97]

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[91] N.A.Z/Z.I.M.C.O 1/2/269, Nitrogen Chemical of Zambia Limited 39th Board Meeting 1977.
[92] Zambia Issues and Options in the Energy Sector, Report of the Joint UNDP/World Bank Energy Assessment Programmes, January, 1983, p.40.
[93] N.A.Z/Z.I.M.C.O 1/1/57, Zambia Breweries Limited, 1975,p.5.
[94] N.A.Z/Z.I.M.C.O 1/1/57, Zambia Breweries Limited, 1975, p.5.
[95] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes of the Meetings, 1978-1997.
[96] N.A.Z 2/1/291, Maamba Coal Mine, 1969-1971.
[97] N.A.Z/Z.I.M.C.O 1/1/70, Zambia Sugar Company Limited, 1976-1978, p.2.

Coal also played a critical role in the transportation sector in Zambia. The importance of coal in the transport industry emanates from the industrial revolution when steam engines made it possible to transport goods from one place to another. Trains run by Zambia Railways utilised coal as fuel to produce steam which powered the engines. The railway company was crucial in the transportation of coal to the copper mines and other coal fired industries.[98] In the 1980s, the railway company consumed an estimated 3,500 tonnes per month.[99]Although Zambia Railways experienced operational problems over the years that led to its ineffectiveness, many companies used it to ferry their commodities as it was cost effective compared to road haulage.

Other sectors of the economy that utilised coal as a source of fuel were: Zambia Clay Industry (ZCI) which utilised coal in processing and manufacturing of bricks.[100] Dunlop Zambia is one other industry that used coal in the manufacturing of tyres.[101] Coal has been an essential fuel in mixing rubber at high heat to form a black gummy that is shaped into tyres when dried. Coal also played a major role in the Brick and Tiles manufacturing industry.[102] The process of manufacturing tiles involve cement which requires high heat to dry. Therefore, over the years coal had been the cheaper source of energy for these industries. With this contribution to the key industries in Zambia, it is without doubt that Maamba Colliery had a far-reaching impact on the country's economy. Table 4.3 shows coal supplies to coal fired industries between 1996-2002

[98] Z.C.C.M 12.1.7B Coal and Fuel, 1971.
[99] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes of the Meetings, 1978-1997.
[100] NAZ/Z.I.M.C.O 1/1/36, Zambia Clay Industries Limited, Report on the Affiars of the company, 1973.
[101] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes of the Meetings, 1978-1997.
[102] Z.C.C.M 2.5.3B Maamba Collieries Limited Plus Minutes of the Meetings, 1978-1997.

Table 4.3. Coal Supplies by Customers in Metric tonnes, 1996-2002

Type of Customer	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Mines	60,578	101,825	88,806	46,892	50,560	32,801	38,232
Chilanga Cement	51,302	50,434	72,183	55,037	79,501	63,598	64,521
Other Manufacturing	30,196	8,283	5,030	6,271	7,240	6,236	4,625
Breweries	15,780	15,799	14,481	13,239	15,035	11,583	4,896
Others	29,393	41,851	24,932	21,170	14,736	23,908	23,453
Exports	1,462	377	1,681	6,160	10,292	12,536	0
Total	**188,711**	**218,570**	**207,113**	**148,770**	**177,364**	**150,663**	**135,727**

Source: Central Statistics Office, Environmental Statistics in Zambia, Lusaka, 2007, p.11.

From the table above, it can be deducted that the major consumers of coal were the copper mines with about 60,000 metric tonnes in 1996. Table 4.3 shows that Chilanga Cement was the second largest consumer of coal in the country during this period. Other manufacturing industries and the breweries were third and fourth, respectively. Lastly, table 4.3 shows that Maamba Colliery exported a total of 135,727 tonnes of coal to neighbouring countries such as Tanzania, D.R Congo and Malawi during this period.

4.5 Conclusion

In conclusion, this chapter has argued that Maamba Colliery was keen to develop the area of its operation through its Corporate Social Responsibility. In this regard, the mine built housing units, schools, health centres and other infrastructure. This chapter has also shown that the mine supported community development programmes through the formation of clubs and cooperatives. Residents of Maamba benefitted through these community initiatives as they brought about job creation. The chapter has demonstrated that owing to the development of coal mining, Maamba emerged as a business centre in Sinazongwe district due to money circulation from miners' income.

Secondly, the chapter has argued that coal mining activities at Maamba had a negative impact on the environment. Maamba Colliery was often faced with occupational diseases resulting from dust emissions. The common ones were pulmonary tuberculosis, silicosis and pneumoconiosis. Noise pollution also emerged as a serious occupational health hazard as it resulted in the loss of hearing. Mine activities also deprived wildlife and livestock from grazing land owing to the removal of overburden. Overburden of the coal seams resulted in soil erosion which affected agricultural activities in the area. Gaseous emissions from waste dumps reacted with oxygen which led to pollution of water bodies and formation of acidic rains. Dust particles through blasting, caused corrosion and discolouration of buildings in Maamba township. Like other mines, Maamba colliery recorded accidents that resulted in casualties and fatalities due to electricity faults, blasting and technical failures.

Lastly, this chapter has concluded that Maamba Colliery had a far-reaching impact on the country's economy. Maamba Colliery emerged as the largest coal suppllier to the Copperbelt mines which were Zambia's major foreign exchange earner and employer. Besides the copper mines, major

industries in the country that were powered by coal include Chilanga Cement, Ndola Lime, Nitrogen Chemicals of Zambia, Zambia Breweries Limited, Zambia Sugar and Zambia Railways, all of which made substantial contributions to the country's economy.

CHAPTER FIVE

CONCLUSION

The development of Maamba Colliery arose from the need by the government of Zambia to become self-reliant in coal after UDI was pronounced in neighbouring Rhodesia. For a long time, Zambia depended on coal imports from Southern Rhodesia. However, after the dissolution of the Federation of Central Africa in 1963, there was political tension in the region which culminated into UDI which posed a threat to coal supplies for the Zambian copper industry. This study aimed at constructing the history of Maamba Colliery from 1968-2010. Specifically, it sought to examine the origins and development of the mine, to investigate how the mine recruited and retained its labour force, and lastly to examine the socio-economic impact of the coal mine on Maamba township in Sinazongwe district and the country at large.

Most scholarly work on the study of coal mining in Zambia attributes the origins of coal mining to UDI. However, this study has shown that coal had been mined by the people of Siankodobbo village long before the onset of colonial rule. Shallow coal pits around the village are evidence to this assertion. In pre-colonial times, coal was used as a source of heat in the smelting of iron. The smelted iron would be carved into different shapes in the making of agricultural implements such as hoes and axes. Another use of coal in pre-colonial times was the baking of pan bricks as it was discovered to be a very efficient source of heating clay into bricks.

Several conclusions have been drawn from this study. In examining the origins and development of commercial coal mining in Zambia, the study brought into historical context the key drivers which necessitated the establishment of Maamba Colliery. The study has shown that creation of the Central African Federation in 1953 tied together the economies of Northern Rhodesia,

Southern Rhodesia and Nyasaland. Northern Rhodesia's copper industry relied on Southern Rhodesia for its key energy sectors. These were Wankie Colliery, Feruka Oil refinery and Kariba South Bank Hydro Electric Power station. However, the Federation faced opposition from Africans leading to its dissolution in 1963, paving way for Nyasaland and Northen Rhodesia's independence the following year. This created tension in the region as Southern Rhodesia was denied independence by the British government. After Northern Rhodesia and Nyasaland attained their independence, a year later Southern Rhodesia proclaimed the Unilateral Declaration for Independence which imposed restrictions on accessing coal from Wankie. Hence, the new Zambian government sought ways of developing domestic coal reserves, initially at Nkandabbwe and later at Maamba so as to protect its vital copper industry.

The study has observed that from inception, the colliery was run by the National Coal Board of Zambia until 1971, when it was incorporated into a limited company as Maamba Collieries Limited during the process of nationalisation. The new limited company was placed under MINDECO a subsidiary of ZIMCO. This development resulted into the colliery to be run under a parastatal model which gave the government of the republic of Zambia authority in decision making of the mine as the president was the chairman of the board.

Another conclusion reached by this study is that Maamba Colliery pursued the policy of Zambianisation in the recruitment of the colliery's labour force. Zambianisation, in its real terms entailed the replacement of expatriate staff with qualified local staff to ensure that Zambians took over the country's mines. The study has shown that owing to the lack of training characterised by local Zambians in the early days of the mine, the process of Zambianisation was slowed down. In fact, the government ended up recruiting expatriate staff from different parts of the world in the case of Maamba Collieries Limited.

This study has demonstrated that although the government was keen to recruit labour from different parts of the country for the colliery, the bulk of skilled labour was recruited from the Copperbelt province. The Copperbelt became an attractive source of skilled labour not only because of the experience obtained by workers from the copper mines but also the presence of technical colleges such as Northern Technical College (NORTEC) and the Zambia Institute of Technology (ZIT). Another conclusion drawn from this study is that the bulk of unskilled labour was recruited from Maamba township and surrounding villages beacuase it was easily accessible. Ecological conditions of the valley compelled the local people to seek employment at the mine.

In order to retain its labour force, Maamba Colliery provided competitive salaries and good conditions of service to its employees. Food rations were also provided every month. With these conditions of service, Maamba Colliery emerged as one of the best paying parastatals in the country such that some workers left the perceivably rich Copperbelt to join the colliery. The provision of recreational facilities such as entertainment and sports at the mine also played a huge role in the retention of both skilled Africans and Expatriates.

Other strategies used by the colliery managers to retain its labour force were the provision of recreational facilities and training of staff through the Staff Development Department. Recreational facilities included sporting actitivities, concert and cultural clubs while the Staff Development Department encouraged staff to seek further training in local and overseas institutions in order to the improve productivity of the mine. The mine sponsored employees who underwent training while in employment.

The study has also demonstrated that Maamba Colliery faced many challenges prior to and during the privatisation era which subsequently led to the retrenchment of some of its skilled labour force in 1997. Internally, Maamba Mine experienced financial problems resulting from over borrowing and mismanagement by ZIMCO officials which consequently led to operational problems. Frequent break-down of machinery resulted into low production of coal at the mine. Externally, the problems at Maamba Colliery coincided with the fall of the Copperbelt, its largest market. The Copperbelt began changing its smelting technology which did not require coal as the main fuel for the copper mines. This further exacerbated its financial problems because sales to the copper mines declined. The study also showed that Maamba Colliery lost its export market owing to the fact that neighbouring countries began producing coal commercially in the late 1980s. This further reduced its capacity to run operations at the mine due to low income.

Owing to these problems, this study has concluded that the privatisation of Maamba Colliery was problematic. The government failed to secure a buyer for the colliery for two decades partly because bidders were more interested in the copper mines due to the profitability of the commodity compared to coal. This study has shown that the reports made by consultants about the viability of the mine made funding difficult to source for its recapitalisation.

In a bid to successfully privatise it, the study has concluded that Maamba Colliery changed hands several times between 1997-2010. The first company to purchase the mine was Benicon Limited of South Africa in 1997. In 2000, Holy Mining Limited of Zimbabwe took over the operations of the coal mine. When these companies left, Maamba Colliery was placed under care and maintenance and reverted to government ownership in 2003. Since government was struggling to recapitalise the colliery, it directed ZCCM-IH to take over the mine's operations. In 2009, ZCCM-IH pulled out of the deal as it struggled to pay workers in terms of salaries, retirement and

retrenchment packages. It also did not have funds to recapitalise the mine. Finally, in December, 2009, Nava Bharati of Singapore and the Zambian government reached an agreement to purchase Maamba mine in a 65-35 per cent equity share. The mine was re-opened in 2010.

The study has demonstrated that coal mining activities at Maamba had a negative impact on the environment. Air pollution resulting from blasting often caused respiratory illnesses such as tuberculosis, pneumoconiosis and silicosis. Blasting often caused cracks in buildings around the coal mine. The study has shown that other than respiratory infections, water pollution affected agricultural yields and livestock diseases. The mine worked hand in hand with the community to mitigate some of the negative effects of coal mining at Maamba

Lastly, although Maamba Colliery faced many challenges, this study has concluded that it had far-reaching effects in Maamba township and the country's economy at large. In the early days, the colliery constructed various infrastructure and supported community development programmes in Maamba township. The study has further shown that Maamba became a business hub where local businesses thrived due to circulation of miners' income. Maamba contributed largely to the country's economy through its exports. Additionally, it supplied coal to the copper industry on the Copperbelt which is still Zambia's chief forex earner. The Copperbelt became a source of employment for people in the country. Other coal fired industries which had a substantial impact on the country's economy were; Chilanga Cement, Nitrogen Chemicals of Zambia, Ndola Lime, Zambia Railways and Zambia Sugar.

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