CAUSES OF ROAD PROJECTS’ DELAYS:
A CASE OF BLANTYRE

BY

HENRY DUNCAN JOHN MWAMVANI

A Treatise Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Science in the Built Environment Project Management in the Faculty of Engineering, the Built Environment and Information Technology at the Nelson Mandela University

SUPERVISOR: MISS EMMA AYESU-KORANTENG

April 2019
DECLARATION

I, Henry Duncan John Mwamvani, student number s217851339, hereby do declare that the treatise for Master of Science in the Built Environment - Project Management, is my work and that it has not previously been submitted for assessment or completion of any postgraduate qualification to another University or for another qualification.

Signature: ____________________ Date: 25/03/2019

Henry Duncan John Mwamvani
DEDICATION

This treatise is firstly dedicated to my late father, Mr Jameson Henry Samala Mwamvani, and my mother, Mrs Elinala J. Mwamvani, for all their efforts in insisting and ensuring that my brothers and I, and sisters go to school at whatever cost and against all odds.

Secondly, I dedicate it to my dear wife, Tettie, and our children, Takondwa, Blessings and Gloria, for their love and perseverence during my period of study away from home. I also dedicate it to my sisters, brothers and their families for their financial, social and spiritual support. May the Almighty God, bless them all.
ACKNOWLEDGEMENTS

I am greatly indebted, first, to my research project supervisors Ms Emma Ayesu Koranteng and Professor Winston Shakantu for their unwavering advice, guidance and encouragement throughout my academic research journey.

Secondly, I am grateful to the Government of Malawi for granting me a scholarship to study at this great university, *Nelson Mandela University*.

My further appreciation and gratitude are extended to the following:

- the International Student Office (Nelson Mandela University) staff for facilitating my enrolment and for all other administrative support;
- the Director, the Secretary, all lectures, course coordinators and staff for the School of the Built Environment for the knowledge imparted to me during my studies and for their academic support in many ways;
- the Director, Management and Staff of the Department of Research and Capacity Development for the research skills empowering workshops and research finalisation support;
- Mr Blessings Mwamvani for assisting me with the transcribing work.
- Mr Gregory Steenberg, Mrs Redene Steenberg and Ms Yvonne Thiebaut for their technical and language editing services.
- the Faculty Administrator for the Faculty of Engineering, the Built environment and Information Technology for all the academic administration support;
- the Nelson Mandela Library staff for both North and South campuses.
- the council, management and staff of Blantyre City Council, for allowing me to use their institution as a case study for my research and for their support during the actual field study;
- the contractors and consultants who accepted and participated in the study;
- my pastors, spiritual advisors and my fellow congregants, for their moral and spiritual support; and
- all those who supported me in many ways during this academic endeavour, who are too numerous to mention and should also be recognised and appreciated.
ABSTRACT

The Construction Industry (CI) is recognised as a formidable sector that has the potential of facilitating the growth and development of a nation’s economy by providing the necessary infrastructure that is required to spur the growth of other industries. In many countries, such as Malawi, the city councils (CCs) also influence the implementation and management of such infrastructure as mandated by the Malawi Local Government Act (1998).

Successful projects should be implemented in such a manner that completion of the projects is within the golden triangle of cost, time and quality. This implies that projects are completed within the planned budget, stipulated time and specified quality. City Councils in Malawi, however, face various challenges in their implementation of infrastructure projects leading to delayed project completion, resulting in extended project implementation periods. This study aimed at finding the causes of road projects construction delays in Blantyre City Council, (BCC) which is one of the four CCs in Malawi, the second largest and the commercial capital.

The study followed a qualitative research method using a case study approach. This study combined in-depth, face-to-face interviews of identified stakeholders with general routine work observations and project document gathering to collect the primary data while secondary data was obtained from books, research journal articles, government documents, unpublished theses, some international organisation reports, general internet information and other academic related sources of relevant information.

The participants included council representatives (council service committee chairperson, secretariat management staff), contractors’ representatives and consultants’ representatives. The participants were chosen using a non-probability sampling method of purposive and snowball selection, targeting their involvement in the previous and/or the current project implementation cycles. The study also involved visiting some of the ongoing and completed projects and collecting project photographs.
The findings from the case study revealed challenges the council faced due to a shortage of engineers in conducting detailed proposed projects surveys resulting in incomplete project scope definition (detailed designs) on some projects, before the procurement of contractors as the major cause of project construction delays. Other factors that were identified were: service providers delaying the removal of existing public utility infrastructure from project sites, inclement weather and the client delays in issuing instructions to the contractors during the implementation of the projects. Another factor was the shortage of construction equipment and construction materials by some contractors.

Based on the research findings, the main recommendation is to increase the number of technical employees, especially engineers and other key technical staff such as quantity surveyors by improving the employees’ conditions of service. Improving the service conditions will attract and retain the right quality and quantity of technical employees to undertake the management of the construction projects. Alternatively, all positions for professionals who are deemed as scarce or hard to maintain could be placed on a contract basis, renewable after a period of two to three years. This would be able to attract those professionals who are ready to offer their expertise for a certain period but may not necessarily want to work until the government mandatory retirement. This will be in addition to the engagement of external project consultants to assist in project management, which the council started implementing in 2017. As for the delay in the removal of utility services infrastructure on proposed project sites, the client needs to commence with the process early in the planning and procurement process before handing over the project sites to the contractors. General contractor delay causes can be minimised by raising the selection criteria of contractors to flush out as well as black-listing incompetent contractors.

**Keywords:**

Construction Industry, Economy, Infrastructure, Malawi, City Councils, Project Construction Delays, Council Service Committee, Secretariat, Contractors, Consultants
# TABLE OF CONTENTS

DECLARATION .................................................................................................................. I

DEDICATION .................................................................................................................... II

ACKNOWLEDGEMENTS ...................................................................................................... III

ABSTRACT ........................................................................................................................ IV

LIST OF FIGURES .............................................................................................................. XI

LIST OF TABLES ................................................................................................................ XII

CHAPTER ONE: THE PROBLEM AND ITS SETTING ....................................................... 1

1.1 Introduction and Background of The Study ............................................................... 1

1.2 Problem Statement .................................................................................................... 3

1.3 Primary Research Question .................................................................................... 3

1.3.1 Sub-research questions ....................................................................................... 4

1.4 Primary Research Objective .................................................................................... 4

1.5 Secondary Research Objectives ............................................................................. 4

1.6 Assumptions Of The Study ..................................................................................... 5

1.7 Delimitations Of The Study ..................................................................................... 5

1.8 Abbreviations ........................................................................................................... 6

1.9 Definitions Of Terms ............................................................................................... 7

1.10 Importance Of The Study ....................................................................................... 8

1.11 Outline Of The Treatise .......................................................................................... 9

1.12 Chapter Summary .................................................................................................. 10

CHAPTER TWO: LITERATURE REVIEW ........................................................................ 11

2.1 Introduction .............................................................................................................. 11

2.2 The Malawi Local Government System .................................................................. 11

2.2.1 Historical background and organisational structure of BCC ............................ 12

2.3 General Project Management Theory For Construction Projects ....................... 13

2.3.1 Criteria for project success ............................................................................... 13

2.3.2 Project management techniques ....................................................................... 13

2.3.3 Project management process ............................................................................ 14

2.3.4 Project organisational structure ....................................................................... 14
2.4 General Background And Economic Significance Of The CI ........................................ 16
2.5 The Project Management Problem .............................................................................. 16
  2.5.1 Types of project delays ...................................................................................... 17
  2.5.2 Critical versus non-critical delays .................................................................... 18
  2.5.3 Excusable delays and non-excusable delays .................................................... 19
  2.5.4 Compensable versus non-compensable delays ............................................... 20
  2.5.5 Concurrent delays ............................................................................................ 20
2.6 Major Causes Of Delays In Construction Projects ..................................................... 21
  2.6.1 Client/Owner-related causes ............................................................................ 22
  2.6.2 Consultants-related causes ............................................................................... 24
  2.6.3 Contractor-related causes ................................................................................ 25
  2.6.4 Capacity-related delays .................................................................................... 27
  2.6.5 Communication-related delays ......................................................................... 28
  2.6.6 Materials-related delays .................................................................................. 28
  2.6.7 Labour-related .................................................................................................. 29
  2.6.8 Procurement and contract-related delays .......................................................... 29
  2.6.9 Site-related ....................................................................................................... 30
  2.6.10 Political-related .............................................................................................. 31
  2.6.11 External factors ............................................................................................... 31
2.7 Effects Of Delays On Public Infrastructure Projects .................................................... 32
2.8 Strategies For Averting Or Minimising Delays In Construction Projects ................. 32

CHAPTER THREE: RESEARCH METHODOLOGY AND DESIGN ......................................... 34

3.1 Introduction .............................................................................................................. 34
3.2 Research Approach ............................................................................................... 34
  3.2.1 Deductive approach ....................................................................................... 34
  3.2.2 Inductive approach ....................................................................................... 35
3.3 Research Designs .................................................................................................... 35
  3.3.1 Types of designs ............................................................................................ 35
3.4 Research Strategies ............................................................................................... 36
3.5 The Method Adopted For This Research ............................................................... 38
3.6 The Data, Their Treatment And Their Interpretation ............................................. 38
  3.6.1 Primary data .................................................................................................... 38
3.6.2 Secondary data ................................................................. 39
3.6.3 Population and sampling .................................................. 39
3.6.4 Data collection ................................................................ 45
3.7 Qualitative Research Reliability And Validity ...................... 47
  3.7.1 Data analysis and interpretation ...................................... 48
3.8 Ethical Considerations .......................................................... 51
3.9 Chapter Summary ............................................................... 52

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS .......... 53

4.1 Introduction ......................................................................... 53
4.2 Participants’ Details .............................................................. 53
  4.2.1 Composition of participants ............................................ 53
  4.2.2 Gender representation of the participants ....................... 55
  4.2.3 Education background of the participants ...................... 55
  4.2.4 Period of work experience of the participants .................. 56
4.3 Main Research And Findings And Discussions ..................... 57
  4.3.1 Theme 1: Suitability of organisational structure of BCC in relevance to project implementation .................................................. 57
  4.3.2 Discussions on theme 1; secondary objective (i): ................ 60
  4.3.3 Theme 2: Project management cycle dilemma .................. 61
  4.3.4 Discussions on theme 2; secondary objective (ii): ............... 64
  4.3.5 Theme 3: Procurement process experiences ...................... 66
  4.3.6 Discussions on theme 3; secondary objective (iii): ............. 69
  4.3.7 Theme 4: Project funding and payments experiences ......... 71
  4.3.8 Discussions on theme 4; secondary objective (ix): ............. 73
  4.3.9 Theme 5: Project implementations challenges .................. 74
  4.3.10 Main theme 6: Project construction delay causes ............. 80
4.4 Chapter Summary ............................................................... 83

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .... 84

5.1 Summary ............................................................................. 84
5.2 Conclusions Related To The Objectives Of The Study .............. 85
  5.2.1 Research objective (i) .................................................... 85
  5.2.2 Research objective (ii) .................................................. 86

APPENDIX L: PROJECT CONSTRUCTION DELAYS THEMATIC GROUP NETWORK DIAGRAM (SOURCE: RESEARCHER’S FIELD SOURCE, 2018) ...... 117
<table>
<thead>
<tr>
<th>Figure 2.1: Strong Functional Matrix Organisation</th>
<th>Source: PMI, 2013: 48</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 2.2: Weak Matrix Organisation</td>
<td>Source: PMI, 2013: 48</td>
<td>15</td>
</tr>
<tr>
<td>Figure 2.3: Types of Delays</td>
<td>Source: Trauner et al. 2009: 26</td>
<td>17</td>
</tr>
<tr>
<td>Figure 2.4: Relationship between dependent and independent variables</td>
<td></td>
<td>27</td>
</tr>
</tbody>
</table>

| Figure 2.1: Strong Functional Matrix Organisation | | 26 |
| Figure 2.2: Weak Matrix Organisation             | | 27 |
| Figure 2.3: Types of Delays                     | | 29 |
| Figure 2.4: Relationship between dependent and independent variables | | 39 |
LIST OF TABLES

Table 2.1 Project Management Process Group and Knowledge Area Mapping........33
CHAPTER ONE: THE PROBLEM AND ITS SETTING

1.1 Introduction and Background of The Study

The Construction Industry (CI) plays a significant role in stimulating the economies of many countries. It provides the essential public infrastructure required such as roads, bridges, railway lines, airports, hospitals, schools, community halls, sports stadiums, and public office accommodation, which are the basic physical foundation for urban and rural development (Saidu & Shakantu, 2017: 54). It is also a major source of socio-economic growth of many nations (Antony, 2015:16).

The construction sector (CS) contributes to employment and earnings for substantial percentages of a nation’s population (Ikediashi, Ogunlana & Alotaibi, 2014: 5). Durdyev, Omarov and Ismail (2017: 279) are of the view that the sector has a big capability of employment creation and accommodates millions of unskilled, semi-skilled and skilled labours engaged in formal and informal sectors. Many authors, however, acknowledge that it is always a challenge for most construction projects to be completed on time, within budget, or to the desired quality specifications (Blackstone, Cox & Schleier, 2009: 7029; Assaf & Al-Hejji, 2006: 349; Al-Kharashi & Skitmore, 2009: 1).

Successful projects must be implemented in such a manner that the completion of the projects is within the triangle of cost, time and scope. This implies that projects are completed within the planned budget, stipulated time and specified scope (Assaf & Al-Hejji, 2006: 349).

Many studies have also been undertaken to establish the reasons behind such project completion delays, by understanding and appreciating the reasons and striving to find appropriate solutions for mitigating the problems (Durdyev et al., 2017; Kamanga & Steyn, 2013; Saidu & Shakantu, 2017; Sambasivan & Soon, 2007). While many studies have found similar causes of project delays, most of the studies are country or region specific and pertaining to the local industry, specific geographical factors, socio-economic and cultural issues as well as those specific to the type of project itself (Toor and Ogunlana, 2008, Abd El-Razek, Bassioni and Mobarak, 2008; Shibnai & Salah, 2016).
In Malawi, the change in political dispensation from a one-party state to a multiparty political democracy in 1994, boosted the CI and resulted in an increased number of players in the CS such as contractors and consultants. The CS, just as in other countries, has contributed much to the economy’s growth (Kamanga & Steyn, 2013: 79).

Public Infrastructure Projects (PIP) play a significant role in boosting the CS business in Malawi. Different Project Implementing Agencies (PIAs) implement PIPs, including government ministries and departments, statutory corporations and non-governmental organisations (NGOs) (Banda & Pretorius, 2016: 204). Among these project implementation agencies are the CCs in Malawi.

The Malawi Constitution mandates the CCs in Malawi to spearhead infrastructure development. According to the Malawi National Decentralisation Policy (Malawi Government, 1994: 2), the aim of implementing decentralisation was “to make public service more efficient, more economical and more cost-effective”. The CCs mostly implement infrastructure projects such as construction and the rehabilitation of urban access roads, bridges, sewer systems and community buildings such as public halls, primary school infrastructure, health facilities and farm produce markets (UN Habitat, 2011: 13).

Some projects that the CCs implement however, are said to result in delayed completion, non-completion, or completion in sub-standard quality and cost overruns (The Times Group, 2017). To help improve the situation in the CCs, this study, therefore, aimed at establishing the causes of public roads project construction delays in Blantyre City Council (BCC) as a case study.

The BCC is chosen because it is one of the four CCs and the oldest city in Malawi, the commercial capital and second biggest in the country after the capital city, Lilongwe. It is also the most vibrant council. It is vested with the jurisdiction to plan, design, construct, care and maintain the urban roads within its city boundaries (UN Habitat, 2011: 13). The ‘Roads Authority’, which is a national authority for roads in the whole country, implemented other main roads in the city until 2015, when the mandate was decentralised to the city council.
1.2 **Problem Statement**

There is evidence that some of the projects that the CCs implement are not completed and delivered according to the planned time frame. Banda and Pretorius (2016) alluded to the fact that the Construction Sector Transparency Initiative (CosT) study undertaken in 2010 revealed that most projects had delayed up to 197% time overrun. It further demonstrated that most projects that the government agencies implemented, whether through in-house or outsourcing, failed to be completed on time, within budget and with the required quality. Not much is known to have been investigated and reported on the real causes of such delays in the CCs set up so far.

Leedy and Ormrod, (2015: 50) stressed the importance of the problem statement and compared it to the heart of the research, insisting that it must be precise. The aim of this study, therefore, is to investigate the causes of road construction projects delays’ in the CCs of Malawi by using Blantyre City as a case study. It is the researcher’s opinion that unless the problem of public roads construction delays in the CCs is thoroughly investigated, and the main problem identified, the government will continue to lose substantial resources through payment of cost overruns due to delayed project completion, and the intended beneficiaries of such projects will continue to be inconvenienced by such delays.

1.3 **Primary Research Question**

Creswell (2009: 129) opined that the main research question narrows the general focus presented by the problem statement in the study and indicates what the researcher wants to know most. The researcher poses the research question in consistency with the emerging methodology.

According to the background discussed in the previous sections, the primary research questions this study attempted to answer is: What causes some road construction projects, implemented by BCC, not to be completed on time?
1.3.1 Sub-research questions

The researcher will answer the primary research question by answering the following sub-questions using BCC as a case study: How

i. does the technical capacity of BCC regarding staffing levels and competency affect the timely completion of road construction projects?

ii. does the project management cycle used by BCC affect the timely completion of their projects?

iii. do procurement methods used by BCC affect the timely completion of projects?

iv. do the project funding and payment arrangements used by BCC affect the timely completion of projects?

1.4 Primary Research Objective

This research aimed to investigate the main causes that contribute to road construction completion delays in BCC and to propose ways of mitigating them.

1.5 Secondary Research Objectives

To achieve the aim of the research, the researcher pursued the following specific objectives: To

i. assess the technical capacity of BCC regarding technical staffing and employee competence relevant to the timely delivery of road construction projects;

ii. examine the project management cycle of BCC and identify gaps, if any, that contribute to project completion delays;

iii. identify the effects of the procurement methods that BCC uses in implementing infrastructure projects, on timely completion of projects; and

iv. determine how project funding and payment arrangements affect timely completion of projects.
1.6 Assumptions Of The Study

According to Leedy and Ormrod (2015: 63), assumptions are things that might look obvious to the researcher but need to be stated to avoid being misunderstood by others. The study was approached with the following assumptions that:

i. the selected case study city council would participate in the research and make available the required information for the primary data;
ii. the identified key stakeholders shall participate in the research;
iii. the participants shall be truthful in their responses to interviews; and
iv. there shall be adequate time and resources for undertaking the proposed research methodology.

1.7 Delimitations Of The Study

Leedy and Ormrod (2015: 63) opine that delimitations are the researcher’s declarations of the research boundary of what he or she is going to do and not going to do under the study. The following are the delimitations of this study: This study

- was limited to a case study of one city council only, Blantyre City Council;
- was confined to road construction projects to asphalt pavement, managed directly by the city council itself and not those implemented by other cooperating partners and agencies within the city boundaries such as the RA;
- assessed major projects that have been implemented within the past 3 years; and
- targeted those departments within the city council that deal directly with project implementation, such as the planning department, the engineering department, the administration department, the finance department and contractors who have previously worked on the council’s road construction projects.
<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCC</td>
<td>Blantyre City Council</td>
</tr>
<tr>
<td>CC</td>
<td>City Councils</td>
</tr>
<tr>
<td>CDF</td>
<td>Constituency Development Fund</td>
</tr>
<tr>
<td>CI</td>
<td>Construction Industry</td>
</tr>
<tr>
<td>CS</td>
<td>Construction Sector</td>
</tr>
<tr>
<td>ESCOM</td>
<td>Electricity Supply Commission of Malawi</td>
</tr>
<tr>
<td>GOM</td>
<td>Government of Malawi</td>
</tr>
<tr>
<td>IDF</td>
<td>Infrastructure Development Fund</td>
</tr>
<tr>
<td>LDF</td>
<td>Local Development Fund</td>
</tr>
<tr>
<td>MASAF</td>
<td>Malawi Social Action Fund</td>
</tr>
<tr>
<td>MLGRD</td>
<td>Ministry of Local Government and Rural Development</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-Governmental Organisation</td>
</tr>
<tr>
<td>PIA</td>
<td>Project Implementation Agency</td>
</tr>
<tr>
<td>PMBOK</td>
<td>Project Management Book of Knowledge</td>
</tr>
<tr>
<td>PMI</td>
<td>Project Management Institute</td>
</tr>
<tr>
<td>RA</td>
<td>The Roads Authority (Formerly National Roads Authority)</td>
</tr>
</tbody>
</table>
1.9 Definitions Of Terms

**Change of scope** refers to the adjustment of the original project scope that usually tends to increase the workload, material quantities and the cost of the project (Al-Hazim, Salem & Ahmad, 2017: 18).

**Infrastructure** refers to the fundamental facilities and systems serving a country, city, district or other areas, including the services and facilities necessary for its economy to function (Merriam Webster Dictionary, 2017).

**Local councils** (local authorities) refers to a district council, town council, municipal council or city council constituted under the Malawi Local Government Act, 1998 (GOM, 1998: 5).

**Malawi local government system**: The Malawi Local Government comprises four CCs, twenty-eight district councils, two municipal councils and one town council. “It has a single tier and all councils are on the same level with no subsidiary or supervisory structure and are referred to as districts in their own entity in the Malawi Local Government Act” (Commonwealth Local Government Forum, 2015: 94).

**Project completion delay** refers to the time overrun either beyond completion date specified in a contract or beyond the date that the parties agreed upon for delivery of a project (Assaf & Hejji, 2006: 349).

**Project construction delay** is defined as “making something happen later than expected; causing something to be performed later than planned, or not acting timely” (Trauner et al., 2009: 25).

**Project management** is defined by the PMBOK Guide (PMI, 2013: 5) as “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”.

**Timely project completion** refers to the completion of a project within the planned or contractually agreed time (Kazaz, Ulubeyli & Tuncbilekli, 2012).
1.10 Importance Of The Study

Blantyre City Council plays a pivotal role in the provision of social services to its residents and guests. Good transportation is one of such fundamental social services to the development and growth of the city. The provision of good roads to facilitate movement within and access to the city are, therefore, of significant importance to the sustained growth and development of the city and its economy. Project implementation delays, however, are usually associated with cost overruns and have big economic and social effects.

Project implementation delays tend to deprive the intended project beneficiary’s utilisation of the completed project longer than anticipated. In road projects, this could mean road users being inconvenienced due to the delay in completion of a road project. On the other hand, the associated cost overruns in such projects lead to an over expenditure of planned budgets and a need for increased funding from the government treasury (Samarghandi et al., 2016: 51). The project completion delay brings unnecessary tension between the project stakeholders and sometimes even leads to costly litigation; hence, there are many losers when a project delays because even the contractor equally suffers the consequences.

The Malawi Government is constantly making efforts to improve the efficiency and effectiveness of the local councils in general governance as well as in projects delivery as evidenced by its Public Service Reform drive (Nyale, 2018: 1). While there is much literature about the causes of project delays in the CI in general, there is inadequate research literature about the causes of construction projects delays in the CCs in Malawi in general, and road projects in particular.

This study aimed at establishing the main causes of public road construction project delays in Blantyre City as a representative of CCs in Malawi. Identifying the main causes behind the project completion delays and understanding the real reasons of the project implementation challenges are important in seeking lasting solutions to the problems identified.

It, therefore, is envisaged that the outcome of the study should identify pertinent issues and suggest remedies to minimising the challenges identified as a way of increasing academic knowledge. The results could also be used to improve public infrastructure
delivery in BCC. The results could later be used by policymakers to improve the actual project implementation strategies in other CCs and even other similar project implementation departments or institutions. Timely intervention of causes of the project delays can result in saving scarce government development resources, usually the tax payer’s money or loans from international lending institutions, which are usually lost through cost overruns.

1.11 Outline Of The Treatise

This treatise has five chapters that have the following heading titles and contents:

- **Chapter 1: The Problem and its Setting:** This chapter provides the background of the study. It contains the introduction, problem statement, research questions, sub-research questions, primary research objectives, secondary research objectives, assumptions, delimitations, abbreviations and definitions of terms, the importance of the study and an outline of the treatise.

- **Chapter 2: Literature Review:** This chapter contains relevant literature on the Malawi Local Government System, general background and economic significance of the CI, the project management problem, major causes of delays of construction projects, effects of delays on public infrastructure projects and concluding remarks.

- **Chapter 3: Research Methodology:** This chapter contains the research approaches, research design, research strategies, the treatment and interpretation of data, data collection procedures, data analysis and interpretation, qualitative research reliability, validity, ethical considerations and concluding remarks.

- **Chapter 4: The Research Findings:** This chapter contains the participants’ data, data analysis results, the main research findings and discussion of the findings.

- **Chapter 5: Conclusion and Recommendations:** This chapter contains conclusions related to each objective of the study, general conclusions, recommendations related to each of the objectives and recommendations for areas of further research.
Chapter one has given the background information of the research, presented the problem statement, and has stated the research questions, aims and objectives of the study. This chapter also stated the assumptions, delimitations and provided justification for conducting the study and has given the outline of the research report as a road map.
CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The literature review is an important step for a researcher, as it provides the researcher with an opportunity of ascertaining the importance of the proposed research if it has not been carried out already. It also offers innovative ways and approaches of conducting the research, as well interpreting one’s research findings by referring one’s results to the work of previous studies (Leedy & Ormrod, 2013: 51).

As a preamble to the discussion of the actual causes of the project delays, this chapter gives the background of the organisation under which the study is conducted. It also provides the basic theory of some important project management terminology and describes the types of project delays to give a clear picture of each delay cause in relation to the types of delays explained.

2.2 The Malawi Local Government System

Malawi is situated in the south-eastern part of Africa. It is landlocked, mostly surrounded by Mozambique, and shares its other borders with Zambia and Tanzania. The country has an estimated population of 18 million as of 2016 (World Bank, 2017: 17). Malawi is a democratic republic with two spheres of government, namely national (central) government and local government. Malawi follows the republic system of government and is ruled by a state president (Commonwealth Local Government Forum, 2015: 94).

The Malawi Local Government is founded upon Chapter XIV of the Constitution of the Republic of Malawi (The Republic of Malawi (Constitution) Act, 1994: 62). Malawi’s local government is of the single-tier system and comprises 35 local authorities categorised as 28 district councils (responsible for predominantly rural areas), four CCs responsible for the most urbanised areas, two municipal councils, being the second most urbanised, and one town council distributed through the three administrative regions of the country, namely the northern region, central region, and southern region. The councils are all treated as equal in authority and operate on the same level without a subsidiary or supervisory structure (Commonwealth Local Government Forum, 2015: 94).
The Local Government Act of 1998, which is the principal act, details the structures of the local authorities that were initially known as Local Assemblies before they were amended to Local Councils (GOM, 1998: 6).

Malawi held its first general elections for the democratic dispensation in May 1994. These elections have been taking place every five years since 1994. The first local government elections, however, only took place in 2000. The elected councillors’ terms expired in March 2005, and the local councils had been operating without the councillors until 2014 when there were tripartite elections, which ushered in a second crop of the councillors (Tambulasi, 2010: 1).

The Malawi Local Government Act (1998) empowers councils to generate and collect local taxes, user fees, property rates and other charges. Their revenue bases, however, are small and most of their revenue comes from central government grants, both conditional in the form of sectoral funds and unconditional in the form of general resource funds (Commonwealth Local Government Forum, 2015; GoM, 1998).

2.2.1 Historical background and organisational structure of BCC

Blantyre City is the oldest urban centre in Malawi, established by the Scottish Missionaries in the 1870s and declared a planning area in 1897. It is currently the commercial and industrial capital of Malawi” (UN Habitat, 2011: 11), and situated in the Southern Region of the country. Blantyre City Council generates its resources from rating properties, collecting market fees, licensing fees and parking fees. It sources supplementary funds from central government and development partners in the form of loans and grants (UN Habitat, 2011: 12).

The Local Government Act (1998) mandates BCC to govern and manage the city’s affairs. The governance structure of the city council has two branches. The first branch is the policymaking body that comprises twenty-six (26) elected councillors. Councillors are elected to represent each of the wards in the city for a term of five years. The councillors elect a chairperson who is given the title of mayor. Mayors are non-executive and are indirectly elected by and from among the elected councillors during the council’s first meeting. Mayors serve a term of two-and-a-half years with the
possibility of one re-election (ICEIDA, 2012: 12; Commonwealth Local Government Forum, 2015: 95; UN Habitat, 2011: 12).

The second branch is the technical body that comprises the city management team known as the secretariat. The head of the secretariat is called the Chief Executive Officer. He/she is appointed by the Minister of Local Government and Rural Development and is entrusted with the responsibility for the overall public services development responsibilities of all the areas under the city’s jurisdiction and according to the government’s decentralisation policy (ICEIDA, 2012: 12; Commonwealth Local Government Forum, 2015: 95; UN Habitat, 2011: 15).

2.3 General Project Management Theory For Construction Projects

This section provides a brief general project management theory to assist in the developing of a construct for analysing the data and making recommendations.

2.3.1 Criteria for project success

One of the major factors of a project’s success is its compliance with its estimated delivery time. The other parameters are the cost, quality and scope. A successful project, therefore, is regarded to be the one that is implemented in such a manner where the full scope of work is completed in a quality manner, within budget and time (Clements & Gido, 2012: 4).

2.3.2 Project management techniques

The project management techniques stipulate the planning and control procedures, practices and methodologies for completing projects successfully (Burke, 2013). “The process involves planning the work and then working the plan” (Clements & Gido, 2012: 14). This only shows how important project planning and execution are to all the project cycle phases. The project management techniques include those for developing project management plans, techniques for executing projects, techniques for monitoring and evaluating project progress, techniques for schedule management and risk management (Burke 2013; Clements and Gido, 2014; Project management Institute, 2013).
2.3.3 Project management process

According to Project Management Institute (PMI) (2013), project management processes include initiating processes, planning processes, executing processes, monitoring and controlling processes, and closing processes. These are project management inputs, tools and techniques that are different from the project cycle phases.

2.3.3.1 Project life cycle

According to Burke (2013: 37), the project life cycle is the hierarchical subdivision of the project scope into sequential project phases. These phases assist projects to be delivered efficiently by passing them through agreed standard processes from start to finish. A generic project life cycle has four phases, namely initiating, planning, performing and closing (Clements & Gido, 2012: 9).

The four stages in summary are as follows:

- Initiation phase - identification and selection of projects;
- Planning phase - defining the scope and allocating resources, planning implementation strategy or schedule and budgeting, including risk identification;
- Performing phase - project execution to achieve project deliverables; and
- Closing phase - involves project evaluation to identify lessons learnt.

2.3.4 Project organisational structure

For a project to be implemented efficiently, there is a need for the correct project organisational structure. Burke (2013: 358) acknowledged the fact that an organisational structure needs to be in tandem with the needs of the client regarding the achievement of the business case, the needs of the project (project charter), the needs of the project team and stakeholders, as well as the needs of the individual.

The project organisational structure identifies the relationship between the project participants, together with defining their duties, responsibilities and authority. An illustration is given in Figures 2.1 and 2.2 portraying two types of organisational structures; one with a strong project coordination role because the coordination
authority is at a senior level, and the other one with a weak project coordination role because the coordination authority is junior level.

Figure 2.1: Strong Functional Matrix Organisation (Source: PMI, 2013: 48)

Figure 2.2: Weak Matrix Organisation (Source: PMI, 2013: 48)
2.4 General Background And Economic Significance Of The CI

The CI is recognised as a formidable sector with the potential of facilitating the growth and development of a nation’s economy by providing the necessary infrastructure that is required to spur the growth of other industries (Ofori-Kuragu, Owusu-Manu & Ayarkwa, 2016: 133). Kaliba, Muya and Mumba (2009) believe that a nation’s degree of its infrastructure provision through the CI is a measure of its wealth. The CI is large and complex, and infrastructure investments require massive amounts of financial investments. These are only a few of studies of many that show the CI as being regarded as the engine of economic growth for many nations.

2.5 The Project Management Problem

Ashan and Sakale, (2014: 162) are of the view that the CI is easily affected by changes in economic conditions and it has a variety of players such as contractors, traders, professionals and specialists with considerable influence on its external environment. They also hold the view that construction contractors lack the speed required in implementing modern project management methods to counter the challenges of the changing environment (Ashan & Sakale, 2014: 162). Many commentators echo the view that the CI is slow in adopting modern technology.

Dvir and Shenhar (2007: 4) believe that project management has transformed into a fully-fledged profession with many competent practitioners with professionalism. Even though project team members put their best efforts, however, projects continue being delayed or fail. Although the CS is regarded as the major economic driver of many nations, many studies agree that the CS always faces project delivery challenges in the form of delayed project completion and cost overruns (Abd El-Razek, Bassioni & Mobarak, 2008: 831; Saidu & Shakantu, 2017: 54; Sambasivan & Soon, 2007b: 516; Toor & Ogunlana, 2008: 395). Delays are considered one of the insurmountable challenges haunting the CI (Ibironke et al., 2013: 53).

There are many documented examples of specific project delay occurrences. Omran et al. (2010: 135) report that projects delays are a universal phenomenon in Malaysia in both the public and private sector with more than 90% of Malaysian government projects delayed as per the Malaysian Public Works Department record of 2007.
Gardezi, Manarvi and Gardezi (2014: 196) refer to delays in the CI as “a global phenomenon, and as “one of the most persistent problems throughout the world”.

### 2.5.1 Types of project delays

To better understand the impact of delays on projects, it is important to analyse the types of delays and their implications on the owner and contractor. Trauner et al. (2009) categorised construction delays into four main types:

- critical or non-critical;
- excusable or non-excusable;
- compensable or non-compensable; and
- concurrent or non-concurrent.

Alternatively, Zaki Kraiem et al. (1987) (cited in Indhu & Ajai, 2014a: 108) categorises the delays into three major types:

- compensable;
- excusable; and
- non-excusable.

---

**Figure 2.3:** Types of Delays (Source: Trauner et al. 2009: 26)
2.5.2 Critical versus non-critical delays

The most important types of delay for any project manager are the ones that affect the progress of the whole project or those that threaten the completion of the project. Critical delays are those that can affect the date for achievement of a milestone in project progress or completely hamper the whole project completion. Those types of delays that do not have such a potential of negatively affecting the achievement of milestones and project completion, therefore, are referred to as non-critical delays (Trauner et al., 2009: 25). Hence, critical delays are those that directly affect the activities in the project critical path method (CPM) schedule. All projects in one way or the other are considered as having critical activities.

The critical path is arrived at by identifying the activities with the lowest slack by subtracting the earliest completion time from the latest beginning time for each activity. Subtracting the earliest beginning time from the latest beginning time gives the same result. By identifying all the activities with the lowest value, therefore, make up the critical path activities (Clements & Gido, 2012: 143).

The Critical Path Method (CPM) schedule is composed of a group of interlinked activities that form the main project schedule that is well interwoven in a network diagram (Trauner et al., 2009: 8). The critical path method is a network of all the related activities for the whole project according to their implementation plan sequence.

Critical and non-critical delays, therefore, are assessed by identifying the critical and non-critical activities by:

- The project itself;
- The contractor’s plan and schedule (particularly the critical path);
- The requirement of the contract for sequencing and phasing; and
- The physical constraints of the project – how to construct the project from a practical view.

Considering the reasons behind the causes of delay known as ‘contemporaneous information’ is necessary for any attempt to analyse the project delays. This is the various site information that gives the true picture of the delay-causing situations (Trauner et al., 2009: 26).
2.5.3 Excusable delays and non-excusable delays

All types of delays are regarded as either excusable or non-excusable.

2.5.3.1 Excusable delays

Delays that are due to circumstances surpassing the contractor’s or the subcontractor’s control are classified as excusable. Hence, in most general contract clauses provisions, the delays resulting from the following examples would be considered excusable: general labour strikes, fire, floods, acts of God, owner’s directed changes, errors and omissions in the plans and specifications, and differing site conditions or concealed conditions, unusually severe weather, interventions by outside agencies, and lack of action by government bodies, such as building inspection (Trauner et al., 2009: 26; Ibironke et al., 2013: 3). The above reasons are deemed unpredictable and beyond the contractor’s control.

The most crucial factor when analysing whether a delay is excusable or non-excusable is by referring to the contract document clauses. The contract document should explicitly clarify all factors that are used to recognise delays as genuine to warrant for additional time awarded to the contract completion date. Other contracts are weather insensitive and do not offer any relief for any adverse weather effects.

2.5.3.2 Non-excusable delays

These are factors or happenings that are within the contractor’s or that of his agents’ control and are foreseeable. Non-excusable delays deprive the contractor of any entitlement to any extension of time or monetary compensation. Such delays under this category include delays contributed by subcontractors, improper project planning and project management by the main contractor, supplier-related delays, substandard workmanship by the contractor or subcontractors and project-specific labour strikes due to unfair labour practices (Trauner et al., 2009: 26; Ibironke et al., 2013: 3).

The contract document is supreme in interpreting whether the delay is deemed inexcusable. The owner and those responsible for drafting the contract document have the responsibility to ensure that the contract clauses are clear with no ambiguity. The contractor also has an obligation to ensure that he or she properly understand the
clauses of the contract before signing the contract (Trauner et al., 2009: 28; Fugar & Agyakwah-Baah, 2003: 105).

2.5.4 Compensable versus non-compensable delays

When a delay entitles a contractor to an extension of time and an additional payment, it is known as a compensable delay. In relation to the excusable and non-excusable delays, it is only excusable delays that are compensable. Where a contractor is entitled to an extension of time but not to additional payment resulting from an excusable delay, it is known as a non-compensable delay. The criteria for determining whether a delay is compensable or not is in the contract agreement clauses. A contract must state in detail as to which kinds of delays are compensable and which are not. It must be pointed out that a non-excusable delay is neither entitled to time extension nor additional payment (Trauner et al., 2009: 28; Fugar & Agyakwah-Baah, 2003: 105).

2.5.5 Concurrent delays

Trauner et al. (2009: 31) defined concurrent delays as “separate delays to the critical path that occur during the same period affecting the critical path during the same time”. The ideal situation of concurrent delays is when both the owner’s and the contractor’s actions are responsible for causing different delays, and both delays affect the same period (Trauner et al., 2009: 31; Muhamad et al., 2016: 2). According to Trauner et al. (2009: 31), determining concurrent delays aims at assigning responsibility for damages associated with delays to the critical path. The project owner and the contractor tend to use the concurrency scenario differently. The owner views it as a reason for issuing a contractor with time extension only without additional payment. The contractor views it as an opportunity for the owner not to effect liquidated damages for the resulting delay (Trauner et al., 2009: 31; Muhamad et al., 2016: 2).

Concurrent delays are categorised in three types: Where

- the excusable and non-excusable delay occur concurrently, the contractor is entitled to an extension of time only;
• the excusable with compensation and excusable without compensation delays occur concurrently, the contractor is entitled to claim an extension of time without delay compensation; and

• two excusable with compensation delays occur concurrently, the contractor is entitled to claim an extension of time and delay damages.

It is a recognised fact that few contract clauses include concurrent delays in their definitions. The CI is also not knowledgeable about the recognition and interpretation of concurrent delays (Trauner et al., 2009: 31).

2.6 Major Causes Of Delays In Construction Projects

The literature is rich with studies of different causes of construction project delays in different geographical settings of the world. They also differ geographically, economically and politically. Most studies have produced many causes of project delays and have presented the results in a categorised manner of groups of similar causes.

For example, in studies by Assaf and Al-Hejjji (2006: 353), their results were arranged in different groups, such as: (1) Project, (2) Owner, (3) Contractor, (4) Design, (5) Materials, (6) Equipment, (7) Labour, (8) External, (9) Political and (10) Financial. Sambasivan and Soon (2007) presented their results in the following categories: (1) Client related causes, (2) Contractor related causes, (3) Consultant related causes, (4) Materials related causes, (5) Labour and equipment related causes, (6) Contract related causes, (7) Contract relationship causes and (8) External causes, while Abd El-Razek, Bassioni, and Mobarak (2008) presented their results in the following manner: (1) Financing (2) Manpower, (3) Changes, (4) Contractual relationship, (5) Environment (6) Equipment (7) Rules and regulations (8) Materials and (9) Scheduling. Obviously, some causes are considered major according to the results of the different studies or surveys while others are considered minor.

The researcher arranged the literature review of this study according to the following relevant topics or themes: (1) client/owner-related delays, (2) consultant-related delays, (3) contractor-related delays, (4) capacity-related delays, (5) materials-related delays, (6) labour-related delays, (7) site-related delays, (8) political factors, and (9)
external factors. Except for a few exceptional cases that have been used to give an overview of the whole scope of the causes of delays, the study has concentrated on the major causes as identified by different researchers and has established a base for assessing the causes in the context of the case study of BCC.

The success of construction projects depends on the competence of the key players such as the owners, the consultants and the contractors at project scope management. Project scope management is “the processes required to ensure that the project includes all the work required, and only the work to complete the project successfully” (PMI, 2013: 61).

2.6.1 Client/Owner-related causes

When the owners and the consultants are not clear during project initiation when authorising the project and develop a written statement in detail about the work to be performed, it results in the revision of the scope of work. Trauner et al. (2009: 3227) argued that delays to a project that are caused by the owner are because of some form of change, such as non-response to requested information, design alteration, and many other changes related to project design, contract award and management. This is supported by various researchers as discussed in the following sections.

2.6.1.1 Change of scope

Many studies have revealed that change of scope, which usually results in an increase in work, is one of the most common causes of project delays. Assaf and Al-Hejji (2006) identified the change of scope as the most common cause of delay in large construction projects in Saudi Arabia. All parties unanimously agreed to this (owners, consultants and contractors). Similarly, change of scope was also highly identified as a major cause of delay among others, such as Kaliba et al. (2009), in Zambia. They established the causes and effects of cost escalation and schedule delays in road construction projects in Zambia. Other researchers who found that the main causes of delays included the change of scope as the main factor are Alinaitwe, Apolot and Tindiwensi, (2013), Kazaz et al. (2012), Kikwasi (2012), and Marzouk and El-Rasas (2014).
The most important effects of change orders on the project are the delay of the initial project schedule, disputes and cost overruns (Alnuaimi et al., 2010). Changes of scope are related to inadequate planning. Inadequate planning by the owners can affect the work progress of the consultant due to poor project conceptualisation. Poor planning by the consultant can affect the contractor due to unclear specifications. Poor planning by the contractor can derail the whole project due to lack of direction or delays in procurement of materials and other factors (Alinaitwe et al., 2013).

2.6.1.2 Delays in Contractors progress payment

Payment delays by the owner to the contractor, after the contractor has fulfilled the required contractual obligations to the point of the agreed payment stage, are identified as a common cause of projects delays. In Tanzania, a study by Kikwasi et al. (2012) also identified delay of progress payment to contractors as a major cause of delays. Other major causes were communication delays, funding and supervision, compensation challenges, and differences on work progress certificate quantities. Other studies that revealed delays in contractor progress payments include those by Kaliba et al. (2009) and Marzouk and El-Rasas (2014).

2.6.1.3 Monetary challenges by owner

Project financing is the lifeblood of any successful project venture. Any challenges related to financing and fiscal management matters have a high potential of derailing the project or causing complete project failure. Some financial challenges arise from the project plan development phase where the project budget is predefined, making it a constraint to the performance of the project (PMBOK Guide, 2000: 43).

Abdul-Rahman, Takim and Min (2009), upholds this view and analysed financial causes of delays in project construction in Malaysia. They identified delayed payment cash flow management challenges, inadequate financial resources and the unpredictability of the financial market as the most crucial factors. Contractors’ financial resource challenges, poor financial and business management, and loan access challenges from financiers including inflation were also regarded as causing potential delays.
Kazaz et al. (2012) support this view as their survey of causes of time extensions in the Turkish CI found that progress contractor claims payment delays and cashflow problems were the most crucial factors. Fugar and Agyakwah-Baah (2010) also concluded that the financial group factors included delays in contractor claims settlement, project financing and an unstable economy. Other studies supporting this cause are by Marzouk and El-Rasas (2014) and Kikwasi et al. (2012).

2.6.1.4 Late revising and approval of site documents/excessive bureaucracy

Late revising and the approval of site documents can place the contractor in suspense and result in unnecessary overhead costs. Marzouk and El-Rasas (2014) investigated the causes of construction delays in Egyptian construction projects. Among their major findings of causes of delays are the owner’s delayed revisions and approval of design documents. Other factors contractors viewed as most important included the contractor’s work tampering by owner, design documents errors and the owner’s project work stoppages including the slow resolution of contract matters.

2.6.2 Consultants-related causes

Consultants play a vital role in the whole project process by interpreting the project owner’s ideas into a project design and communicating the same information for the contractor to construct.

2.6.2.1 Design errors and poor project management

Design modifications and material changes have a significant effect on project delays because such changes happen when the contractor has already planned the work programme and procurement of the desired materials. Kazaz et al. (2012), who identified 34 factors affecting project completion delays in Turkey, supports this view. The other major factors were the delay of payments and cash flow problems.

Kaliba et al. (2009) also identified the modification of the contract, amendments to drawings and specifications as relating to consultant’s challenges. Issues of local government interference, challenges in environmental protection and mitigation, challenges of adverse weather and economic factors were also noted as prominent causes of project delays.
Omran et al. (2010), in their research results, also revealed issues of delayed decisions, substandard designs, partially completed contract designs and schedules. Inferior project management skills were also acknowledged as the most common consultant-related delays. Study results of projects delay causes in Qatar by Emam, Farrell and Abdelaal (2015) are also supportive of these findings. They identified similar challenges of the revision of drawings when projects are already in progress, poor progress control, the management of major changes in design during construction, poor planning and scheduling.

2.6.3 Contractor-related causes

Issues of contractors’ poor planning, poor site management and lack of resources during project construction have a high potential of leading to delays and even the total failure of a project. Sambasivan and Soon (2007), in their study on the causes of project completion delays in Malaysia, identified delay factors and their impact on the CI. Unsatisfactory site management, limited contractor experience and owners’ finance challenges leading to delayed payments of completed jobs were highlighted as some of the most important causes of project delays. Others included challenges in working with subcontractors, material non-availability, including communication challenges between the stakeholders, obviously leading to contractor mistakes (Sambasivan & Soon, 2007).

Durdyev et al.’s (2017) study results of the challenges limiting the performance of the CI in Cambodia, using the Relative Importance Index (RII) are in support of those by Sambasivan and Soon (2007). Durdyev et al.’s (2017) results showed that contractors and consultants ranked issues of owner delays in paying contractors on completed work, inadequate material on site and issues of site hazard risks due to a lack of safety measures as the main causes of project delays in Cambodia. The results are unique in that the architects’ issues are not among the most crucial factors of the delay-causing list.

Poor planning and poor site management seem to be outstanding in their contribution to project delays. No wonder the saying “failing to plan is planning to fail”. Clements and Gido (2012: 3) echo this, stating that “the contractor’s failure to properly identify
needs, examine and secure resources, manage risks and secure schedule of performance puts the project at risk”; risk of failure.

Ikediashi et al. (2014) highlight the issue of poor risk management in their study to identify and classify causes of project failures in Saudi Arabia. Their survey results revealed that the most critical delay factor was “poor risk management”. Budget overruns and management’s poor communication came second and third. Risk management again is proving to be a very pertinent issue as far as mitigating projects delays is concerned. This is because real-world situations do not exist in a normal working situation such that most plans and estimates assumed in a normal situation are bound to go wrong and allowances must be provided for mitigating risks and uncertainties (Burke, 2006: 89). Due to the budget constraints usually faced in construction projects due to its non-advance predictability, risk issues, however, are usually given low priority and allocated limited resources.

Another similar study portraying the significance of the contractor’s issue of financing challenges and the owner’s issue of delayed payment are those by Abd El-Razek, Bassioni and Mobarak (2008: 831). The authors identified the causes of delays in construction projects in Egypt. Their findings indicated that the most important causes were contractor financing challenges during construction, owner delays in paying contractors, clients or client representatives changing drawings and scope, split contractor payments and lack of utilisation of professional construction/contractual management.

Figure 2.4 demonstrates the relationship between the dependent variable, which is the issue of delays in construction, with the independent variables, which are some of the issues as highlighted in the literature review. These issues include late payment, poor cash flow management, insufficient financial resources and financial market instability.
2.6.4 Capacity-related delays

Capacity challenges regarding the qualification of personnel involved in project implementation teams can be one of the major limiting factors to the success of a project. Al-Kharashi and Skitmore (2009) undertook a study in Saudi Arabia of public sector projects delays. The most significant factors of their findings were based on the quality of the technical personnel. They noted that a major delay influencing factor was the scarcity of qualified and experienced personnel. This was due to the construction boom and advanced use of innovation in construction projects, which required competent professionals. Aiyetan, Smallwood and Shakantu (2015: 20) support this perception and are of the view that despite the principle of “Right-First-Time” being effective, as demands “great accuracy and precision”, the reality on the ground is that project delivery depends on the effect of both internal and external forces. Hence, the achievement of the desired accuracy and precision depends on the level of training of the professionals working on the ground.
2.6.5 Communication-related delays

Mitkus and Mitkus (2014: 8) in their analysis of the causes of conflict between the client and the contractor, established that poor communication between the owner and the service provider was the major recipe for conflict in the CI. Communication in the CI is viewed to be in various forms, and one of the major forms is the written contract document. The issue of poor communication and coordination between parties is regarded as a serious one. Burke (2013: 321) argues that poor communication, whether from top to bottom or horizontally, is one of the recipes for conflict, when there is no communication, no action can be carried out or when there is poor communication, decisions taken on incomplete information could result in costly errors. So, if for example, a contractor is failing to get information about the specifications for a certain work section of the project, he/she cannot execute that work, and that could result in delaying the whole project.

2.6.6 Materials-related delays

The availability of construction materials in time, right quantity and quality are some of the health signs of project success. Most projects, however, are faced with issues of delayed material supply, inadequate or shortage of materials and even wrong or poor-quality materials (Sweis et al., 2008: 1). Indhu and Ajai (2014b) established through their study results that factors mostly affecting delay of projects were delays in paying the contractor for work done, material shortage on construction sites and changes of type of material when the project is already in progress. Issues of unpredictability or adversity, labour shortage, frequent changes of staff, professional staff mistreatment and improper site management of material in construction, change in material, the weather condition, and a shortage of labour (skilled, semi-skilled and unskilled labour).

Samarghandi et al. (2016) in their research study in Iran to determine delay factors, established that the most significant delay factors identified in the owner category were lack of attention to inflation and inefficient budgeting schedule. Inaccurate budgeting and resource planning, weak cash flow and inaccurate pricing and bidding were identified in the contractor category as the most pertinent factors. As for the consultants, delay factors such as inaccurate first draft and inaccuracies in technical documents were viewed as having the most delay contributing factors. A different
category of outdated standard mandatory items in cost lists, outdated mandatory terms in contracts and weak governmental budgeting were also identified as contributing the most important delay factors in the law, regulation and other general factors (Samarghandi et al., 2016). Consultant delay factors such as inaccuracies in technical documents usually have the potential of derailing the project due to lack of direction because the consultant is viewed as not in control.

Indhu (2014) also determined in their study results that factors mostly affecting delay of projects were shortage of material in construction, change in material, weather conditions, contractor's payments delays, scarcity of distinct categories of labour manpower such as skilled, semiskilled and unskilled, frequent change of staff, poor site management and improper management of the engineers. Other factors included a delay in submission of drawings, space constraints, and delay in payment by the client, delay in material supply and industrial strikes. Scarcity, non-availability and shortage of material on a project site, therefore, are critical warnings of a pending delay, other factors being equal.

2.6.7 Labour-related

Construction of projects usually depends on short contract or temporary employees. Challenges of labour absenteeism and a shortage of skilled labour were also echoed in a separate study by Abdussalam and Karim (2016: 37) using an online survey to establish the factors causing time and cost overrun in construction projects in Egypt. They determined the five most influential factors as being low productivity of labour, poor communication and coordination between parties, corruption, delay in project financing, change of project scope and use of unskilled labour. This tends to confirm that issues of labour are core to the project’s success (Shibnai & Salah, 2016). The issue of corruption missing in many survey results seems to be a big issue in the CI affecting all the players.

2.6.8 Procurement and contract-related delays

Procurement is critical in determining the success of the project because depending on how procurement is done results in sourcing a competent consultant or contractor. For goods and services, the procurement process involves quantity determination,
selection of the best method for value for money, preparation of procurement plans, specifications of the goods/services, purchasing conditions and quality assurance, selection, delivery and storage (Health Organization, 2006).

After procurement follows the contract management and so, the two issues are related. Alofi, Kashiwagi and Kashiwagi (2016: 1396) strongly stipulate from the results of their research survey, the demerits of traditional procurement methods for Saudi Arabian procurement system. A traditional procurement method has a three-stage process of design, bid and build. This method is responsible for projects delays because it selects inexperienced contractors due to their cheap offers that eventually contribute negatively to the success of the project implementation. Abash (2015) identified the referral of bids to the lowest price, incorrect and inappropriate bid pricing as some of the major causes of project delays. Other factors were the contractor and owner’s cash flow challenges.

The other procurement method is known as the alternative method and represents all the other non-traditional methods such as the Design Build and Operate under Public Private Partnership (Oshungande, Oluwaseun & Kruger, 2015: 3). The Malawi Government procurement system, normally used by local councils like Blantyre City Council, follows the traditional method. The Public Procurement Act (2003) has similar clauses that stipulate that the lowest evaluated bidder should be offered the contract, and the challenges above might be likened to those faced by these councils. A similar study by Cülfik, Sarkinaya and Altun (2014: 1) found the issue of project suspension by the owner, delays in contractor’s progress payment by the owner and unrealistic project duration as the most important causes of project delay by all the stakeholders.

2.6.9 Site-related

Elawi, Algahtany and Kashiwagi (2016) identified 10 risks in their study of the main causes of delays in infrastructure projects in the city of Makkah (Saudi Arabia). These factors were grouped into four categories. The most severe cause of delay was found to be the land acquisition factor while other factors included contractors’ lack of experience, haphazard underground utilities and re-designing.
2.6.10 Political-related

Political and geographical factors also have some bearing on project delay causes, as demonstrated by Mahamid, Bruland and Dmaidi (2012). They conducted research in the West Bank, Palestine. They identified issues of political conditions, split up of the West Bank and movement restrictions between locations as key factors of delay. Other factors included project award to the lowest price bidder, completed work payment delays by the client and inadequate construction equipment on site by the contractor.

2.6.11 External factors

Issues of adverse weather and site conditions are considered external factors that are natural and beyond human control. Al-Momani (2000: 54) determined issues of acute weather and poor site conditions as some of the most influencing factors of delay from a survey of 130 projects in Jordan. The other identified main causes were to do with designers, changes by users, delayed deliveries, issues of the economy and scope changes. The issues of adverse weather and site conditions represent the external causes of delay because the weather cannot be controlled. These factors are also acknowledged by Al-Hazim, Salem and Ahmad (2017) through their desk study of final reports of 40 public projects in Jordan. Twenty (20) factors were identified, and site conditions, weather conditions and change labour scarcity were identified as the top factors causing delay and cost overrun in Jordan. In a similar study, Anastasopoulos et al. (2012: 8) also opined that adverse weather conditions were one of the important delay causing factors.

While some projects are only delayed by a few days or weeks, others are delayed for months or even several years. For example, one road project in the Central Region of Malawi, Msulira–Nkhotakota road project (African Development Fund, 2006), was scheduled to be executed within 27 months but was finally completed after 41 months. Another example is that of the upgrading of the 102 km Zomba-Jali-Phalombe-Chitakale road in Southern Malawi, which commenced in August 2005 (Kadangwe, 2013) and was not yet completed as of December, 2018. A completion delay of more than 14 yrs. This gives an idea of how bad some projects are managed. With the rapid change of inflation and other economic factors on the market, such projects would end up costing more than twice their original budget or more.
2.7 Effects Of Delays On Public Infrastructure Projects

When a project is delayed, more time is required to complete the contract. Longer time translates into high implementation costs. The party responsible for causing the delay (contractor or owner), usually borne the high-costs or overruns (Trauner et al., 2009: 161). Contractors face challenges in delayed project situations as their resources tend to be locked in such problematic projects due to delay over expenditures.

According to Al-Kharashi and Skitmore (2009: 4), in the process, contractors miss the opportunities to engage in other emerging job opportunities. Usually, the high extend time project implementation are contributed by the extended hire of plant and equipment, increased cost of material might be due to inflation, and loss and damage of construction materials (Assaf & Al-Hejji, 2006). In some instances, the contractor can even go bankrupt due to the over expenditure on the delayed projects (Kikwasi, 2013: 58).

Al-Kharashi and Skitmore (2009) also opined that for a public project, the delay is a source of embarrassment that causes inconvenience in the government’s public development plans. This is due to the cost overrun effect on the project resource envelope allocated by the government, thereby disrupting the implementation of other earmarked projects. Another factor is the inconvenience to the intended beneficiaries for failing to utilise the facility in time due to the delay (Al-Kharashi & Skitmore, 2009: 4).

The effects listed above between client and contractors finally tend to lead to disputes between the contracting parties, which if not handled amicably tend to lead to arbitration and litigation. The most serious result of all is the total abandonment of the project (Sambasivan & Soon, 2007a: 4).

2.8 Strategies For Averting Or Minimising Delays In Construction Projects

The main objective of this study is to investigate the causes of project delays and offer mitigation measures. This section, therefore, concentrates on the existing literature on strategies for averting or minimising delays in construction projects in general but also in public projects construction.
Many causes of project delays have been discussed. Most authors have offered different suggestions for improving or mitigating projects time overruns. Since a successful project is one that is “completed within the constraints of scope, time, cost, quality, resources and risks as approved between senior management” (PMBOK, 2013: 35), it requires that the project implementers should have special skills in project management. Aiyetan and Smallwood (2012: 22), opined that “project management competence level is directly proportional to the level of success a project may attain”.

Gardezi et al. (2014) opined that stable political governments and sustainable economic stability are prerequisites for timely projects completion. Ikediashi et al. (2014) recommend that issues of risk management should be prioritised through expert risk mitigation during the design planning and implementation. They further recommend that contractors should manage to secure enough resources for project implementation and manage the resources well. Clients should ensure that contractors are paid timely to avoid jeopardising the contractors’ efforts to smoothly progress with the work after the completion of a stage requiring payment. Issues of improved communication were also highlighted. Allen and Smallwood (2008) believed that the utilisation of modern technology in the design, such as 3D modelling and 4D planning, can improve the clarification of the project design and simplify its interpretation during construction.

The researcher deems the Project Management Body of Knowledge Guide (PMBOK) practical guides by the Project Management Institute (PMI, 2013) as the most effective guides in improving projects performance. The ten Project Management Areas are presented in Table 2.1 and discussed in the summary after Table 2.1.
CHAPTER THREE: RESEARCH METHODOLOGY AND DESIGN

3.1 Introduction

Research, according to Leedy and Ormrod (2015: 6) is a systematic search of information through the collection, analysis and interpretation of data to discover some new knowledge through the application of various methods and techniques. Hence, research methodology is the process that a researcher uses to collect and analyse data. The research methodology dictates the type of tools that the researcher selects when carrying out the study (Leedy & Ormrod, 2015: 93). It includes taking care of such issues as the choice and use of a specific research method, how data and other records are gathered and stored and how data are analysed.

This chapter, therefore, provides the framework of the research methodology and procedures employed for the study. These procedures include population and sampling techniques, interview protocol formulation, data collection and the data analysis that were followed to achieve the objectives of the study.

3.2 Research Approach

There are two types of research approaches to reasoning. These approaches lead to the acquiring of new knowledge, and these are deductive and inductive approaches.

3.2.1 Deductive approach

A deductive approach is a theory-testing approach where the researcher uses logic with one or two premises. The premises of an argument are then examined, and the resultant conclusions are evaluated. Hence, the researcher works from whole to part, which leads to testing the hypotheses with specific data as a confirmation (or not) of the original theories. The advantages of the deductive approach are that it makes it possible for researchers to build on existing research theory rather than starting over (Leedy & Ormrod, 2015: 99).
3.2.2 Inductive approach

In inductive reasoning, the researcher works the other way around, moving from specific details to broader generalisations and theories. From the observation of data and the analysis of the data collected and with critical thinking, the researcher reaches conclusions about the data collected and finally develops a theory about the population (Leedy & Ormrod, 2015: 99).

The two approaches are said to be attached to two different research philosophies. The deductive approach is associated with positivism theory. This theory is a philosophical position that holds that the goal of knowledge is to describe the phenomena that we experience. Social reality is singular and objective and investigating it does not affect reality (Saunders, Lewis & Thornhill, 2009: 114). The inductive approach is associated with interpretivism theory. This theory assumes that reality exists independently from the knowledge seekers, in other words, that social reality is not objective but highly subjective as it is shaped by our perceptions (Saunders, Lewis & Thornhill, 2009: 107).

This study has used the inductive approach. This is an exploratory way of trying to answer the research questions.

3.3 Research Designs

Research designs are strategies or proposals, according to Creswell (2009: 3), narrowing decisions from broad assumptions to detailed methods of data collection and analysis. Leedy and Ormrod (2015: 92) offered an alternative view, stating that research design, is a general strategy for dealing with the known research problem; a holistic research framework from commencement to conclusion. The research design aims at providing workable decisions for solving the known research problems by offering specific plans to the researcher (Leedy & Ormrod 2015: 92).

3.3.1 Types of designs

Creswell (2009: 3), stipulates there are three types of research designs, namely qualitative, quantitative and mixed methods, although the three methods are never purely distinct. A study tends to be more qualitative than quantitative or the other way
around, while the mixed methods research is a combination of the first two methods (Leedy & Ormrod, 2015: 99-100).

3.3.1.1 Quantitative research

Quantitative research is a method for testing the theory by examining correlations among variables (Creswell, 2009: 4). In the quantitative research method, the researcher formulates an articulated hypothesis. The aim is to generate data that can be analysed using statistical and numerical techniques. Conclusions are then drawn from the deduction process. As a result, quantitative analysis uses an unambiguous, predetermined statistical procedure and produces counts or frequencies that can be tabulated and analysed using standard statistical techniques (Leedy & Ormrod, 2015: 99).

3.3.1.2 Qualitative research

Qualitative research is a method for investigating and interpreting phenomena in terms of the meaning people bring to them. This is achieved by studying things in their natural setting. The researcher uses personal accounts, unstructured interviews or participant observation to understand the underlying motivations and reasons that influence people’s attitudes, preferences or behaviour. The researcher is regarded as the research instrument (Leedy & Ormrod, 2015: 99) who makes the interpretations of the meaning of the data, and data analysis is built from particular to general themes. Creswell (2009: 4) adds that the qualitative report has a flexible structure. The qualitative method uses the inductive approach.

3.4 Research Strategies

Research strategies of enquiry are modes of quantitative, qualitative or mixed methods designs that provide a specific route for procedures in research design (Creswell, 2009: 11). Examples of such research strategies for the quantitative research method are survey research, which is a study of a portion of a population to determine quantitative or numeric depiction of trends, attitudes or opinions of the population. Experimental research inquires whether a specific treatment influences an outcome by providing a specific treatment to one group and withholding it from the other and then determines how the two groups performed on an outcome.
The qualitative research method involves distinctive designs strategies such as case study, ethnography, phenomenological study, grounded theory, narrative research and content analysis (Creswell 2009: 13; Leedy & Ormrod 2013: 143-150).

**In Ethnography**, the researcher studies a group in its natural setting for a prolonged period while collecting primary observable data. The strategy is flexible in the processes for obtaining information and is considered advantageous to an experienced researcher and a disadvantage to a new researcher (Leedy & Ormrod, 2010: 144).

**Grounded theory** involves the researcher to derive a general abstract theory of a process, action or interaction grounded in the views of the participants. This is done through multiple stages of data gathering and refinement (Creswell 2009: 13).

**Phenomenology** research aims at comprehending people’s perceptions, perspectives and understanding of a specific situation. The researcher is dependent on lengthy interviews with purposefully selected sample participants to develop patterns and relationships of meaning (Leedy & Ormrod, 2010: 147).

**Narrative research** is a strategy of investigation where the researcher studies the lives of individuals and asks the participants to provide more information about their lives. Finally, the researcher retells the story in a narrative chronology that is finally combined with the participant’s narrative life views to make a collaborative narrative (Creswell 2009: 13).

**Content analysis** involves a detailed and methodical examination of the contents of a particular body to determine patterns, themes, or bias. This strategy is applied to forms of human communication such as legal documents, films, books, newspapers and personal journals, including diverse types of conversations. Content analysis plays a complementary role to the other methods of research such as being part of phenomenological data analysis (Leedy & Ormrod 2010: 150).

**A case study**, also termed as idiographic research by Leedy and Ormrod (2010: 143), is an extensive data gathering exercise by the researcher on individuals, programs or events, on which enquiries are based. The data could include interviews, documents, audio-visual materials or past records. The data, once gathered, are organised,
categorised, interpreted, patterns identified, the results are generalised, and conclusions are drawn. Case studies are ideal for investigating little known or poorly understood situations (Leedy & Ormrod 2010: 143).

3.5 The Method Adopted For This Research

This study used the qualitative research method because it attempted to answer the research question of what, and sub-research questions of how. The study was conducted using BCC as a case study. The case study was achieved by selecting a sample size of participants out of the total population of the BCC stakeholders through non-probability sampling, requesting the selected members to participate in the study interviews. Semi-structured in-depth interviews, routine work observations in the offices, project site visits and the study of project documents/reports and photographs is what comprised the case study.

The research was based on a topic of “Causes of road projects construction delays in Blantyre City”. The case study approach was found to be appropriate for investigating poorly understood situations (Leedy & Ormrod, 2015: 273) since the city council setups are unique in their own entities and operate using their own rules and regulations different from the other Malawi mainstream central government departments (GOM, 1998).

3.6 The Data, Their Treatment And Their Interpretation

The following section explains the nature of the data, the population and the sample, their treatment and interpretation. Leedy and Ormrod (2010: 96) describe data as a link between absolute truth and the researcher’s inquiring mind. Data are likened to ore, as containing unrefined pieces and await methodology to extract the meanings from them and present it in a research format.

3.6.1 Primary data

Leedy and Ormrod (2010: 80) describe primary data as the original and unprocessed information collected by the researcher through enquiry that is closest to the truth. The primary data for this study were obtained through semi-structured in-depth interviews
with key stakeholders of the CCs projects implementation team. This team comprised selected council directors, councillors, consultants’ representatives and contractors’ representatives, who have been involved with the city council’s projects for at least two years. Other forms of primary data comprised the studying of project report documents, project photographs and general routine work observations.

3.6.2 Secondary data

According to Leedy and Ormrod (2010: 80), secondary data are not the original information (truth) but are derived from the primary data. The secondary data in this study comprised of books, research journal articles, government documents, unpublished theses, some international organisation reports, general internet information and other academic related sources of relevant information. This has assisted in building knowledge about the problem and the several types of research designs available and relevant information that has been included in the compilation of semi-structured research interview protocol. Most of the information was solicited from the Nelson Mandela University Library and Blantyre City Council.

3.6.3 Population and sampling

Population in qualitative research refers to all conceivable elements, entities, entire groups of people, events and observations that are related to a phenomenon that the researcher wishes to investigate (Yin, 2009: 76). In conducting research, researchers do not usually use the entire population. Sampling entails getting a representative sample from a larger population that can enable the researcher to study a small group of the population and draw a conclusion about the larger population. The selected subset is known as the sample of the population (Leedy & Ormrod 2015: 237).

3.6.3.1 Study population

This study adopted a qualitative research methodology approach using a case study strategy. The first stage of the study, therefore, identified a population of four CCs in Malawi, where one city council, Blantyre City Council, was selected for this study and a case study strategy was adopted. Blantyre City Council, which is found in the Southern Region of Malawi, is the oldest urban centre in Malawi. The Scottish
Missionaries established it in the 1870s, and it was declared a planning area in 1897. It is currently the commercial and industrial capital of Malawi (UN Habitat, 2011: 11) and one of the most vibrant cities in Malawi. Then, from the council, a population of council stakeholders associated with project management was identified comprising of councillors, secretariat staff (management) and contractors who had worked on the city’s road projects.

3.6.3.2 Sampling

According to Leedy and Ormrod (2015: 177), sampling designs are appropriate according to the different situations and for different research questions. There are, however, two main types of research sampling techniques, namely the probability sampling and non-probability sampling as follows:

- **Probability sampling or random sampling** involves choosing a sample overall population through random selection. The sample is selected in such a way that each member of the population has an equal chance of being chosen. Random sampling enables the researcher to assume that the characteristics of the sample approximate the characteristics of the total population (Leedy & Ormrod 2015: 177); and

- **Non-probability or non-random sampling** does not offer the researcher any chance of predicting or guaranteeing the representation of each element of the population in the chosen sample and some members of the population have little chance of being selected (Leedy & Ormrod, 2015: 183).

There are several non-probability sampling techniques such as:

- **Convenient sampling**, also known as accidental sampling, has no defined criteria for selecting a subset of its representative population;

- **Quota sampling** selects respondents in the same proportions that they are found in the general population, but not in a random fashion; and

- **Purposive sampling**, where research samples are chosen for a particular purpose determined by the researcher, as the name suggests (Leedy & Ormrod, 2015: 184).
• **Snowball sampling**, also known as chain-referral sampling method is a technique for developing a research sample where existing study subjects recruit future subjects from among their acquaintances. Thus, the sample group appears to grow like a snowball (Dudovskiy, 2015).

The sampling technique that was used to identify participants for this study was a non-probability sampling, a combination of purposive sampling technique and snowball sampling. The BCC was chosen purposefully and used as a case study. Then the internal and external stakeholders associated with the project implementation were identified using exponential non-discriminative snowball sampling. The first participant recruited to the sample group provided multiple referrals (Dudovskiy, 2015). Each new referral was explored until primary data from sufficient amount of samples were collected. The advantage of snowball sampling is that when characteristics to be possessed by samples are rare and difficult to find, this method does assist the researcher to quickly find people who are experts in their fields as often people know others who they work hand in hand on the job. The disadvantage is that snowball sampling is not exact and can produce varied and inaccurate results.

Four categories of participants were identified namely councillors, secretariat staff, contractors and consultants as portrayed in Figure 3.1.
Figure 3.1: Purposive Sample Source of Primary Data (Source: Researcher’s Field Source, 2018)
The second step involved snowball sampling of the frontline individuals in the project implementation as internal and external stakeholders who could participate in the interviews as diagrammatically demonstrated in Figure 3.2. For the councillors’ representation, four key service committees that deal with construction projects were identified, namely the Human Resources Committee, the Finance Committee, the Town Planning Committee and the Works Committee. After close consultations, the Works Committee was identified as the most appropriate of the four committees for this study. Hence, the Works Committee chairperson was identified as a participant.

Thirdly, from the secretariat, four departments were identified as being associated with the construction project planning and implementation, namely the Administration Services, the Planning and Estates Services, the Financial Services and the Engineering Services. When it was established that the road projects funding was being handled by a central government agency, the Road Funds Administration, the Administration Services, the Planning and Estates Services and the Engineering Services were identified as the most appropriate departments and the Financial Services was excluded from the list. The heads of departments (directors) for those three departments were identified as suitable participants. On the external stakeholders, at the planning stage, only the main contractors were included as the most appropriate, and three main contractors were identified to participate in the study. The issue of availability of road consultants was unclear before the commencement of the study. When it was known during the study that there was one road consultant firm assisting the council in its project management, the consultants’ representative was identified as one of the most appropriate participants and was included on the list. Hence, the purposefully and snowball sampled stakeholders of BCC comprised of the selected city council representatives such as representative chairpersons of the appropriate service committees who represented councillors’ opinions, directors of the council, contractor’s representatives, and an external consultant who was identified during the field data collection. The diagrammatic process of the sampling process is presented in Figure 3.2.
Figure 3.2: Detailed Purposive Sampling of Interview Participants (Source: Researcher’s Field Source, 2018)
Purposive sampling is done with a purpose in mind where researchers have one or more specific targets they are seeking (Creswell, 2009: 178). The council senior management officers were those who have worked with the council for a period of more than three years. The contractors are those who have worked previously with the council on more than one paved (asphalt surfaced) road construction project that was above MK500 million (Malawi Kwacha) equivalent to ZAR10 million and consultants who were identified during the field study. The criteria were chosen to ensure that the participants have experience in the actual project management for a reasonable period.

Leedy and Ormrod (2015: 273) state that for lengthy qualitative interviews, a sample of between five and twenty-five participants are adequate to yield reliable results. The total sample size, therefore, comprised seven participants composed of three directors of the council and two contractors out of three main contractors that satisfied the selection criteria (who had done more than one project with the council in the past three years whose contract amount was above MK500 million). The sample also included a council committee chairperson for one of the three most construction projects-oriented technical committees of the council and one representative for the only consultants firm who was working with contractors and on behalf of the client on the road projects.

3.6.4 Data collection

Leedy and Ormrod (2015: 98) state that data and methodology are inseparable. The methodology that was chosen for a particular research problem, therefore, must always consider the nature of the data that will be collected regarding the problem being studied. In other words, the desired data dictate the research method to use. Data collection is a process where the research instruments are used to gather data for the study to answer research questions. The procedure used to collect data must be reliable and valid enough to limit and avoid inaccurate data collection since unreliable data can bring invalid results for the study (Creswell, 2009: 149).

In quantitative research, the validity of a measuring instrument means the extent to which the instrument measures what a researcher intends to measure. Reliability means that when the experiment is repeated, the same result is obtained (Leedy &
Ormrod, 2015: 115). In qualitative research, however, the researcher is regarded as an instrument who sets the boundaries for the study and data of multiple forms is collected through unstructured, semi-structured, and structured face-to-face one-on-one interviews, telephone interviews, focus group interviews, email internet interviews, observations, documents collection or audio-visual materials collection (Creswell, 2009: 178).

In this study, data were collected after seeking authority to use the institution (Blantyre City Council) for the academic study. This was made possible by a letter of request to use the council as a study case (see Appendix A), the council responded through a letter of approval of the request by the council (see Appendix B) and the letter of request for the actual conducting of the case study served as a final notice of commencement of the field study (see Appendix C). Once the authority was granted with conditions, communications were made with the key targeted would-be participants (some directors of the council). Emails were sent to those who played a significant role in identifying the other groups of key stakeholders (councillors and contractors). From this, the final selection of the targeted participants was selected and again, the targeted participants received communication via emails and WhatsApp messages including phone calls seeking consent to participate in the study. After receiving details of the study and their rights for choosing or not choosing to participate in the research, some accepted, and others declined for distinct reasons. Finally, prior to the period of the case study, advance bookings were made awaiting specific fixation of dates and times during the case study period.

During the field data collection period, it transpired that most of the participants were busy people, as such some appointments had to be shifted several times, but by the end of the data collection period each targeted participant had fulfilled their promise to participate in the study and this was a very big success and the researcher was very grateful for such cooperation.

The main method of data collection was by face-to-face, one-on-one, semi-structured in-depth interviews that were audio recorded using a cell phone audio recorder. The interviews took not more than one hour per participant on average and were very interactive. Semi-structured interviews entailed the researcher developing a set of questions to guide the interview (interview protocol) (see Appendix D). The interview
protocol was designed in such a way to align with the research questions. The research questions were the tools for achieving the specific objectives and the main objective.

The interviews were not entirely based on such questions but acted as a guide on sought content because some questions emanated from the participants' responses which helped the researcher to probe for more information from the respondents where necessary. After each interview the information was quickly transcribed to assess the content gathered and to assist in the planning of the next interview appointment. It also included visiting and taking photos of some of the project sites, collecting old project photos, reading some project reports as well as general observation of the routine council operations mainly related to the project implementation. This procedure is according to Creswell (2009: 179).

Additional information that was being sought from the participants was biographical information (gender and age), including qualification and experience, which was given voluntarily or withheld according to the participants’ choice in exercising their rights. The study only targeted those asphalt paving road projects fully initiated and implemented by the councils and directly funded by the Central Government. These contracts above could not amount to less than MK500 million, and those implemented by other implementation agencies in the council such as the RA were not included to reduce the research project scope.

3.7 Qualitative Research Reliability And Validity

In qualitative research, reliability and validity are two important concepts that define and measure the researcher’s approach consistency or extent of bias and distortion as compared to how other researchers have previously approached similar projects. Reliability is the ability of the research findings to be repeatable. Researchers, therefore, must demonstrate the credibility of data collection during the course of research. This is done through the provision of adequate information on the methods used in the whole research process so that any other researcher could be able to repeat the procedure using the information provided. (Creswell, 2009: 190, Leedy and Ormrod 2015: 312)
In this research, reliability was enforced by providing the information on how the research sample was selected, the interviews were conducted, transcribed and coded. On the data section, it was reported that the transcribed transcripts were checked and when errors were discovered, such as summarised sentences instead of verbatim sentences, they were re-transcribed correctly. The codes used for the analysis of the data were mainly generated from the data content itself, and those requiring definition were adequately defined (Creswell, 2009: 190).

Validity, on the other hand, measures the accuracy of the findings by employing specific procedures to find the accuracy of the findings from the researcher’s viewpoint, the participant and the readership of the report (Creswell, 2009: 191). In this research, validity was achieved by triangulating different data sources by examining the views from different participants and using that to build a solid justification for the themes. For example, in trying to determine whether contractors were always being paid on time, the question was posed to six out of the seven participants and four out of the six said yes, while two said not always. Positive as well as negative information was considered.

The research information that is presented is true and is substantiated by the recorded research accounts, including the audio recorded interviews, observation collections and field project photos taken and collected. While the local (City) council set-up has many types of stakeholders, time and proximity necessitated the selection of those stakeholders that are closest to the project planning and execution location. This included those involved in the actual execution on behalf of the client such as contractors and external road consultants; hence, the purposeful selection targeted such people. The results emanating from the analysis have proved that the stakeholders targeted provided most of the desired information that was being sought.

3.7.1 Data analysis and interpretation

The qualitative data analysis process involves extracting sensible meaning from the transcribed text and images, interpretation and categorisation of data into themes, and analysing data theoretically to answer research questions through data coding (Creswell, 2009: 183). Figure 3.4 summarises the qualitative data analysis process.
The data that were collected during the case study were treated according to its type. Data from interviews were transcribed verbatim to ensure that everything that was discussed was clearly captured to assist in enhancing the analysis of the gathered information. At first, the researcher used some assistants to help with the transcribing to fast track the work and pick up trails that needed follow-ups.

When the transcribed interviews were compared to the recorded voice content, it was noted that some of them had sentences that had been summarised. This resulted in the researcher having to re-transcribe the interviews again or in some cases, edit the already-transcribed but summarised scripts into verbatim transcripts. This worked to the advantage of the researcher because recorded voices became so familiar and meaningful such that it facilitated the quick coding of the transcribed scripts. Some codes were generated automatically from memory after the several voice replays while repeatedly listening to identify skipped portions or summarised sentences of the recorded voices. This further enhanced a deeper understanding and appropriate interpretation of the data as pauses and repetition of words added further meaning to the uttered words, bringing back memories of the distinctive touch and emotional feelings.
The transcribed primary data were combined with other types of case study data such as reports, project photos, and written memos. Using Atlas ti. data analysis software, data was coded, re-organised into code groups and categories according to the themes they portrayed and research questions they were answering. The generated themes were further processed into thematic network diagrams that gave significant meaning to the desired outcomes and thematic network diagrams were exported and presented in the findings and discussions chapter, (Chapter 4). Each specific objective has a thematic network diagram of findings associated with it and the main objective is also associated to a specific thematic network diagram which summarises all the specific objectives. An additional network diagram: project implementation thematic network diagram, has also been used to illustrate the key issues of project
implementation. All the network diagrams comprise of codes of the transcribed texts, using this symbol `Codes`, and the quoted texts associated with the codes using this symbol `Quotes`.

The network diagram basically shows the links between the individual codes in the group and their associated quotations. The linkage of the different codes is shown by the red straight lines, while the link between codes and quotations is shown by black unlabelled lines and the relationship between the different codes is shown by black labelled lines. Hence, all the codes and quotations are joined to the main theme. Further using the relationship manager in Atlas ti., the relationship between the different codes is explained by the labelled black lines.

In summary, the various forms of field data were analysed and presented in the form of pie-charts, networks diagrams and narrative quotations. This assisted the researcher to draw the right conclusions about the research from the survey outcome. Journals, books and internet search articles were consulted to assist with the data analysis.

3.8 Ethical Considerations

Leedy and Ormrod (2015: 121) opined that most of the ethical issues in research fall into four categories such as protection from harm, voluntary and informed participation, right to privacy, and honesty with professional colleagues. This ethical guidance provided the researcher with a good foundation for ethical consideration during the entire study period.

The researcher, therefore, sought authority to conduct the research using BCC as a case study, and only commenced the field work after due permission was granted. The participants were duly informed that their participation was voluntary and that they were free to withdraw at any stage of the study should they feel like, hence they participated willingly. (See attached, the Informed Consent form as Appendix E). They were further discouraged from disclosing their names in any communication media and that the researcher will respect their right to confidentiality unless they voluntarily wished to be identified, hence throughout the Findings and Discussions chapter, (Chapter 4), no names have been used to identify the participants except using
random identities such as P1, P2, P3, P4, P5, P6 and P7 where P stands for *participant* and the numbers were not allocated in any seniority order. The study did not require ethical clearance but was conducted within the premise of the conditions of the study council. The study council and the participants were further assured that the study was purely for academic purposes.

### 3.9 Chapter Summary

This section has defined the research methodology in general, discussed the research approaches, research designs and research design strategies. The chapter also discussed the data, their treatment and their interpretation and elaborated on the study method used in this research, type of data collection procedures and how the data have been analysed and interpreted. Furthermore, it discussed how qualitative research reliability and validity have been ensured and finally, how issues surrounding ethical consideration were handled. The next chapter presents and analyses the research results.
CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter focuses on the presentation, analysis and interpretation of the results of the study. The results are based on the face-to-face, one-on-one, semi-structured in-depth interviews. Each of the participants were interviewed in their conducive environment according to their choice. The interviews were arranged in such a manner as to minimise collusion of information.

4.2 Participants’ Details

4.2.1 Composition of participants

Initially, the total number of participants that were approached to take part in the face-to-face interviews were seven. These participants represented three main sectors of the stakeholders, namely the council directors (3), the councillors representative (chairperson of service committee) (1), and the contractors’ representatives (3). Only three main contractors have so far been involved in the type of projects (roads) that were earmarked for the study.

One of the contractors’ participants declined to take part in the research. Initially, the researcher only knew that the council (BCC) implements its own projects by in-house staff design and supervision only. Later, however, through the interviews, it transpired that the council was now engaging external road consultants to assist it with its project management. The gap of the contractor not partaking could be filled by a road consultant who was not initially included in the programme. So, finally, the participants consisted of one (1) council service committee chairperson, three (3) council directors, two (2) senior contractors’ representatives and one (1) road consultants’ representative. In total, seven (7) participants took part in the face-to-face interviews as presented in Figure 4.1.
The rationale behind the selection of the four groups of participants was to have views of the council policy-makers representatives (councillors) through the directly involved implementation service committee leadership. It was also to get the views of council management through the opinions of the directors closely involved in the project planning and implementation, and the views of the external planners and implementers (external consultants) as well as the actual views of the external implementers (contractors) who are engaged to construct the road projects. With other limitations, the researcher viewed this as being a representative sample of the selected population.
4.2.2 Gender representation of the participants

Being a CI related field, the gender distribution was skewed in favour of males, as demonstrated in the pie-chart in Figure 4.2

![Gender of Participants](image)

**Figure 4.2:** Gender of Participants (Source: Researcher’s Field Source, 2018)

The representation of 86% male participants and 14% female participant representation is indeed worrying because it does not bring out any balanced gender challenges related to the causes of the project delays.

4.2.3 Education background of the participants

The educational attainment of six of the seven participants depicted that the highest qualification of five of the participants was a university master’s degree (33%), followed by a bachelor’s degree (50%) and finally, a secondary (high school) leaving certificate (17%) as depicted in the pie chart Figure 4.3. The qualification indicate that all
participants were able to understand the interview purpose and articulate themselves in response to the research question. One interview was conducted in vernacular language and translated into English language.

**Figure 4.3**: Highest Qualification of Participants *(Source: Reseacher’s Field Source, 2018)*

### 4.2.4 Period of work experience of the participants

The period of work experience for five participants, who were free to share the information after being informed that the information is voluntary is presented in Figure 4.4, where 20% have worked in different organisations and in different capacities for more than 30 years, 40% have worked between 20 to 30 years, another group representing 20% have worked between 10 to 20 years’, and the last group representing another 20%, have worked for less than 10 years.
4.3 Main Research And Findings And Discussions

4.3.1 Theme 1: Suitability of organisational structure of BCC in relevance to project implementation

4.3.1.1 Findings on secondary objective (i): To assess the technical capacity of BCC regarding technical staffing and employee competence relevant to the timely delivery of road construction projects;

Research question (i): How does the technical capacity of BCC Council regarding staffing levels and competency affect the timely completion of projects?
When the participants were asked about whether the BCC Organisational Structure was well-positioned to efficiently implement its road construction projects, all participants interviewed were of the opinion that BCC as a body corporate was well-structured to undertake the functions of project implementation. It was also learnt during the study that all 26 ward councillors were available, including the mayor and his deputy. BCC is one of the few CCs in Malawi, where the chief executive officer and all the key management (directors) were in place and are well qualified for their various positions. Equally, the Department of Engineering had well-qualified civil engineers (four). Each of the engineers had a minimum of a bachelor’s degree in Civil Engineering, mostly graduates were from the Malawi Polytechnic.

BCC had all the necessary structures or departments in place such as the Department of Administration Services, the Department of Planning and Estates Services and the Department of Engineering Services and the Financial Services (Treasury). It also had all the departments required for the full functioning of a technical organisation including the Council as the policymaking body under the leadership of the mayor and the various service committees of the council such as the planning committee, the finance committee, the works committee, and the chief executive officer as the technical head for the secretariat.

Appendix F presents the Atlas Ti generated organisational structure thematic network diagram presentation of the participants’ responses. The excerpts of the transcribed interviews are given below.

“as an organization, as an institution, we have councillors and then we have the secretariat, so the body of the councillors is called the council, is our board, if we were a private company that would be our board, and then the secretariat is led by the management team of course with the leadership of the chief executive officer, under the CEO there are (clears the throat) directors who are responsible for various directorates , and then the overall leadership of the council is provided by the mayor and of course the council works through the arrangement of committees, so there are various committees for example finance committee, public works committee, education committee, environment committee and so on and so forth, so to directly answer your question, yes I think, the council the way it is structured, it is structured in
a way that implementation of projects can be accomplished with ease and without a lot of challenges” said P5.

While P1 said “as council we operate with councillors who are supposed to be heading wards in their respective wards they are supposed to identify various projects be it infrastructure like road projects or bridges or public buildings like health centres” and P6 observed that “Our council acts like a mini National Assembly, where we meet in committees, where every councillor is asked to bring a project that is needed in his area”.

Through the interviews, however, concerns were expressed that as much as the organisational structure of the BCC was well planned and relevant to the service delivery aspirations, there are challenges that the council faces. One such major challenge was the issue of staff retention. Most of the participants spoke in unison, bemoaning the situation, saying the council tries to recruit the right staff with the right qualifications; however, most staff quit for ‘greener pastures’ (better job offers), since as a council, its conditions of services are regulated by the Central government; hence, they are not flexible or negotiable.

“I can say we don’t have enough engineers to handle the works that we are implementing right now.” Says P5 and P3 concurred with P5 saying “it is a challenge here, we are very few engineers and we have been trying to take in more new graduate engineers from the University of Malawi, but they just work for short periods and they go away”.

“Firstly, for one to perform to his or her best ability, there is need for motivation, our staff are currently demotivated due to low salaries or wages, this is across the board, from junior staff to senior staff, therefore for our staff to be motivated there is need for increasing their pay,” P6 observed, while P5 visualised and lamented saying “But if we were to get to a situation where our staff establishment was satisfied, if all the vacant positions were filled then the way our structure is organized and established yes, we would have enough to handle the current workload that we have, but the major challenge is that people come and they leave much quicker than we would have wanted them to stay”.

59
It, therefore, transpired that of all the departments, the Department of Engineering Services, which is the main infrastructure projects implementing department among other duties, was the most affected. Most of the key staff, engineers, do not stay long before quitting to join other organisations with better conditions of services than the council had. It was also alluded to that the problem of staff retention challenges not only affected BCC only but all the local councils in Malawi.

Asked whether the engagement of the external consulting engineers was sustainable regarding resource availability, one of the management participants acknowledged that it was not cheap to engage and maintain consultants on the projects. It, however, was found as technically necessary since the projects being implemented by the city currently were more complex. Their contract sums were also substantial, saying they were above a billion Malawi Kwacha, which is quite big amounts in Malawian standard. The fortunate part was that the resources being used by the consultant were part of the project funding by the Central Government.

4.3.2 Discussions on theme 1; secondary objective (i):

Burke (2013: 358) acknowledges that for a project to be implemented efficiently, there is a need for the correct project organisational structure. He further stipulates the fact that an organisational structure needs to be in tandem with the needs of the client regarding the achievement of the business case, the needs of the project (project charter), the needs of the project team and stakeholders, as well as the needs of the individual. So it was established that BCC organisational structure is suitable for efficient project delivery.

However when an organisation’s established structure is has a lot of vacancies, it tends to affect the desired efficient performance. Therefore the fact that BCC was having a big challenge to maintain it engineering profession staff shows that it cannot perform efficiently as desired. Kaliba, Muya and Mumba, 2009 opine that staffing problems are some of the major contributors of projects delays. It was alluded that at BCC, As a this was a major factor that affected efficient project delivery in the department, as the available staff were usually overloaded with work to cope with all the pressing needs of the project management cycle.
It was further established that central government’s decision to decentralise a big responsibility of the road management mandate of the city, which previously was in the hands of the RA, worsened the capacity challenges of the engineering department. This has only decentralised the responsibility and financial resources but not the human resource part since no engineers from the RA have been assigned to the city directly. This new mandate, however, has brought with it the need for new and upgrading road construction designs and all the other processes associated with it.

The study also found out that the project delivery method BCC approached prior to the new arrangement of using external road consultants worsened the issue of the acute shortage of engineering staff. This old method placed all the demands of the project management from inception to completion on the only few available engineers, without any external technical support. The only thing is that the problem’s magnitude could not be much be appreciated previously (three years ago or so) because the city roads construction works were not yet in the hands of the city council but were being implemented by the RA with the support of external consultants.

So, it was established during the study that, BCC had been using external consultants on its major road projects only from 2017. It was also acknowledged that the coming in of the external project consults had significantly improved the project delivery capacity of the council. However, the external consultancy service was viewed as less sustainable economically than using in house engineers. Hence it was still felt necessary that conducive environment should be put in place at BCC to attract and retain quality engineers. Al-Kharashi and Skitmore (2009) opine that a major project implementation delay influencing factor was the scarcity of qualified and experienced personnel.

4.3.3 Theme 2: Project management cycle dilemma

4.3.3.1 Findings on secondary objective (ii): To examine the project management cycle of BCC and identify gaps, if any, that contribute to project completion delays;

Research question 2: How does the project management cycle approach by BCC affect the timely completion of their projects?
One of the pillars of good project management as per the literature review is the systematic adherence to the set processes of the project management cycle (Burke, 2013). Appendix G is the project cycle thematic network diagram presentation of the participant’s responses as coded in Atlas ti.

4.3.3.2 Projects identification and planning

When participants were asked about how the council identifies, plans and implements its projects, it transpired that the council had two ways of identifying its projects. The first one is by the planning and prioritisation system of the council through the assessment of needs and long-term planning by the council secretariat using urban development plans. Secondly, the councillors are requested to identify projects in liaison with their ward members and submit to the council for the selection for funding (short-term planned projects). Below are quotations from the participants in direct response to the posed questions.

“We first identify the roads which can be done by us the secretariat, but the councillors also select roads in their wards which they need so they are reviewed by the Works Committee and the Budget Committee and they select which roads are to be implemented looking at the money that we have been given” said P3.

“Actually this is a council and it’s a political organisation which is run by councillors and we have the mayor which is the head of this organisation and it is through the councillors that is how we select these roads project so when they have selected from their wards and we finally agree which projects we want to implement according to the resources which are available” P3 further explained.

The following excerpt gives evidence to this fact.

“So, once the projects have been selected, it is left in the hands of the secretariat, then we start doing the designs, the BOQS and the tendering process, which is done by our procurement officer, who does the adverts for open tendering process and calling of the bidders and arranging for evaluation that’s where we the technical people come in and after everything is done the successful bidder is identified and awarded the contract, then the construction starts, we then do implementation and the monitoring” P3 explained.
4.3.3.3 Projects design

Most of the participants from the council said that the projects go through all the required processes and there was evidence of well-completed projects on the ground. Other stakeholder participants, especially the contractors’ side, however, indicated that while the city technical personnel (engineers) try their best to do a good job during project planning, design and implementation, there were many issues that tend to surface during implementation. These issues reflect the lack of thorough planning and design. (Most issues are presented under the implementation heading below).

One of the issues that kept surfacing during the interviews is that although the client (BCC) determines the project scope and sets or fixes the implementation period prior to tendering, it mostly transpired during construction that the estimates were not very realistic. The design had mostly been done with assumptions of uniform underground conditions, which are usually uncommon with road projects. So, in most cases, the project scope changes substantially to when taking into consideration the unforeseen circumstances such as poor underground soil conditions, water-logged in some road sections and underground rock crops in other areas. This tends to affect the project implementation period by increasing it, as well as increasing the project cost since scope, time, cost and quality are all interlinked, and change in one usually affects change in the others.

This was especially common when BCC did not engage any consultants to assist them with the design and management of the road projects. Some of the project progress reports or the project completion reports that were shared verified this. They showed a substantial difference between the initial project time scheduled and the final revised time schedules. The report in Table 4.1 is one such example.

One of the projects that was awarded as a road upgrading project is almost considered as a new road construction project due to its scope, with the actual scope greatly varying with the original scope, to such an extent that even the contractor said it was quite challenging to revise the work quantities and properly re-estimate the new completion date. This was according to one of the participants
4.3.3.4 Closing phase

Most participants during the interviews, did not say much about the importance the BCC attaches to the issue of project closing. The issue was not captured in the interview protocol but when the whole project cycle process as followed by BCC was being reported, one participant mentioned that is also a handover function when the project is finally completed similar to the launching function. The picture that was portrayed, however, seemed to suggest that since there was no adequate time for the implementation of the available projects in the first place, there ordinarily was no time for a thorough analysis of lessons learnt in the previous projects.

4.3.4 Discussions on theme 2; secondary objective (ii):

The main interest on this secondary objective was to establish the processes that the selected projects go through, especially the proposed paved road projects, from selection to implementation completion.

The project management process in the project cycle, from project inception to project handover, provides step-by-step of what needs to be done at every stage, as reflected in the literature review chapter. The literature review (Section 2.3.3.1) identified four main critical stages. The four stages in summary included:

- Initiation phase: Identification and selection of projects;
- Planning phase: Defining the scope and allocating resources, planning implementation strategy or schedule and budgeting including risk identification;
- Performing phase: Project execution to achieve project deliverables; and
- Closing phase: Involves project evaluation to identify lessons learnt.

4.3.4.1 Initiation phase

The issues that came to light regarding project identification and selection were to do with the type of methods of project selection. This refers to that while the projects that are proposed by the secretariat go through very thorough planning, the projects that are presented by councillors usually come at short notice. It, therefore, requires fast processes to get them implemented and this sometimes does not give enough time to the technical staff to go through all the required processes in the project cycle. Another
challenge was reported regarding the interference of the project cycle. This referred to the selected projects not being the actual priorities of the community that is represented by the councillors, which was a sign of flaws in stakeholder engagement.

The responses from the participants indicate that BCC does follow most of the processes required in the different stages of the project circle after selection. These include project planning where the scope is defined, thus detailing what the project is going to be composed of such as the length and width of the road project, the different layers of the road section and required finish quality and types of drainage structures.

Some discussions with some officers who were not included in the list of participants, however, indicated that usually the projects are launched by politicians (councillors) and the secretariat staff.

4.3.4.2 Planning phase

The project planning phase dealt with reports of observation of project feasibility study shortfalls where detailed underground lying conditions were not fully investigated, and most of the real conditions were discovered during the actual project implementation. Secondly, it was also learnt that some projects were not being fully detailed designed before the procurement process, and this usually resulted in the frequent revision of the designs (change of scope) during project implementation. This revision also affected the project contract price and planned delivery period that contributes to project construction completion delays.

The results of the findings reveal that although the BCC seem to follow most of the project cycle processes as presented in the previous sections, however the sentiments by the other participants about the challenges of inadequate project site survey investigations and errors in project scope quantification and the estimation of time for the projects were evident in the projects that were ongoing during the period of the study.

The above findings are also consistent with the research results by Alinaitwe, Apolot and Tindiwensi, 2013, who established that one of the four factors that were ranked as very important in terms of their effects on delays and cost overruns were changes in the work scope.
Kazaz et al. (2012: 35), also observed that tangible evidence was available to which was almost consistently proving that most projects are not completed on time as a result of the combination of under-budgeting, cost and schedule overruns, improper scope and not meeting users' requirements. Marzouk and El-Rasas (2014) are some also alluded to the fact that errors in project scope quantification usually resulted in change of scope which in turn result into project completion delays while Kaliba et al. (2009) also identified the modification of the contract, amendments to drawings and specifications as relating to client/consultant’s challenges.

4.3.5 Theme 3: Procurement process experiences

4.3.5.1 Findings on secondary objective (iii): To identify the effects of the procurement methods that BCC uses in implementing infrastructure projects, on timely completion of projects;

Research question (ii): How do procurement methods used by BCC affect the timely completion of projects?

The procurement process is one of the project cycle processes or stages. Because it is a process on its own, which tends to bridge the planning process and the implementation process and is sometimes handled outside the technical department though in liaison with it, it, however, was treated under its own objective and research question.

Appendix H presents the Procurement Processes Thematic Network diagram with codes and quotations which are excerpts of the transcribed interview responses and some photos associated with the relevant codes in preview form.

The responses on the issues that deal with project procurement at BCC were positive. Most of the participants, both on the council side as well as the contractor’s side, showed some appreciation and satisfaction of the procurement methods used for the selection of the contractors, including the consultants. BCC has its own Internal Procurement Committee (IPC) that does the daily procurement for the council. It uses two types of procurement methods, namely the open tendering system and restricted tendering.
4.3.5.2 Open tendering system

In the open tendering system, the bills of quantities and project specifications are turned into bidding documents by combining them with project contract clauses and are publicly advertised for any eligible entities to compete within the specified eligibility criteria. The eligible entities are further briefed about the project bid requirements in a pre-bid meeting. Once the bids are submitted, they are evaluated, and the lowest evaluated bidder is selected. Upon comparing the bid offer and the available resources, the successful bidder is awarded the contract, usually after some post-bid negotiations to further clarify some technical outstanding issues pertaining to the bid before the final award and project commencement.

“If I am not mistaken, we were given two lots, where we were the lowest, and we had detailed negotiation meeting as well, on both the jobs, in fact submitted price compared to the awarded bid value was very much less, compared with what we had submitted, because they trimmed down the quantities to meet their budget requirements, it’s the same case with the other lots as well, but we were awarded the job after negotiations and scrutiny” explained P2.

4.3.5.3 Restricted tendering (prequalified bidding)

This, according to one of the participants is a method that shortlists potential contractors, suppliers or vendors according to their past experience with the client. Other factors such as financial ability, managerial ability, good reputation and others develop a list of qualified bidders who are regarded as eligible to receive the invitation to bid (ITB) documents. This, it was said, has advantages of fast-tracking the procurement process and sifting out incompetent bidders.

So, while most of the participants expressed satisfaction with the above, there were some sentiment that had to do with issues relating to the procurement process. It transpired that during that process, the contractor can be asked to adjust his bid price to suit the client’s available budget. The client then agrees to reduce the scope of works to be in tandem with the contractor’s new offer. “In fact, the awarded bid value was very much less, compared with what we had submitted, because they trimmed down the quantities to meet their budget requirements, it’s the same case with the
other lots as well, but we were awarded the job after negotiations and scrutiny” explained P2.

In some situations, it was reported a whole project component, such as side drains, could be withdrawn from the project scope to meet the current budget, with the intention of offering the reduced works on a separate contract and budget. “They reduced the scope of works, instead of having full-fledged drainage works under those two roads, they said that drainage works can be covered under a separate lot, so they said that we will carry out with the main drainage structures on the culvert pipe covers and the road works while the side drains and other drainage minor protection works, these they said they can cover it under a separate lot of works in order to accommodate our contract within their budget limitations” it was explained.

Some challenges had to do with the lack of adequate work scope details, especially the underground works, as also discussed in the project cycle section. In some circumstances it drastically increases the scope of works or even brings in new work components that were not in the original tender document/contractors bid, affecting the contract bid price and time schedule.

“Most of the city projects are underestimated in terms of the scope of work, because even in this project, the scope of work on the ground is so massive such that within the period that was given to the contractor to complete the project, cannot be achieved” lamented one participant.

Because the client fixes contract period during the bidding, sometimes the contractors discover when they start the work on site, due to the same missing technical details, that the work cannot be completed within the specified period as earlier planned. The client participants observed that open tendering for the lowest evaluated bidder sometimes can result in awarding the contract to a contractor who is not competent or qualified.

Another issue that the participants reported was that, most of the times the projects being tendered for are usually existing road projects but which sometimes required upgrading through increasing the width and improving the load bearing capacity and surface finish. Upon the award of the contract, however, there were challenges such as the need to transfer some utility infrastructure such as water supply pipes, electricity
power supply poles and some underground ICT cables. Sometimes even the need to demolish some residential or commercial properties. These had often resulted in the delay of the timely commencement of the awarded projects since the utility operators do not act as urgent as the contractors would have preferred. In some instances, the participants reported that usually utility providers wait for compensation or relocation charges payments before moving out the utility infrastructure. In the worst scenarios, it was reported that the issues even end up being contested in court, thereby completely derailing the project progress.

“The other challenges would be that most city projects they are to do with the delays that are caused by the need for the relocation of services, and/ or demolition of houses since many roads have limited space for expansion, and sometimes these have resulted in people obtaining court injunctions against the proceeding of the works which can stop the works for a month or two months, for example, the ongoing project of Chigumula-Mpemba by pass, at kilometre zero, ESCOM is failing to relocate their service poles, and we have been waiting for this for months, and hence this directly affect the project programme and the completion time” lamented one participant.

4.3.6 Discussions on theme 3; secondary objective (iii):

All the participants who were asked on the significance of these two procurement processes expressed satisfaction in their efficiency. But one or two of the participants did hint that indeed sometimes the open tendering process does end up in the selection of a cheap and inexperienced contractor who only qualifies during the evaluation but has an edge over other better contractors because of the cheaper price (lowest evaluated bidder).

Section 2.6.8 of the Literature Review discusses the traditional procurement method as being a three-stage process of design, bid and build. It further says this method is responsible for projects delays because it selects inexperienced contractors due to their cheap offers that eventually contribute negatively to the success of the project implementation. . Alofi, Kashiwagi and Kashiwagi (2016: 1396) strongly stipulate from the results of their research survey, the demerits of traditional procurement methods for Saudi Arabian procurement system. This method is said to be responsible for projects delays because it selects inexperienced contractors due to their cheap offers
that eventually contribute negatively to the success of the project implementation. Abash (2015) also identified the referral of bids to the lowest price, incorrect and inappropriate bid pricing as some of the major causes of project delays.

BCC follows such procurement method, which is called the open tender method. In the research findings, however, procurement was one of the areas that few participants complained about. If anything, it was observed that the open tender process was a lengthy process but otherwise it was alluded as to having good checks and balances. The second method that BCC used for its procurement of services is the restricted tendering (prequalified bidding). As explained earlier, this method pre-selects the service provider or suppliers due to their prior demonstrated capacity and other factors before the bid process.

There were no issues of procurement interference during the procurement process by any senior council authorities, and issues of corruption in the procurement process did not also come forth from any of the participants. This was found to be somehow encouraging or strange because some literature had concurred that political interference and corruption were rampant in most construction projects contracts for example Mantzaris (2014) stated in his work that procurement practices led to corruption in South Africa's national and provincial departments.

The major World Bank Report on Malawi procurement assessment, the Malawi Country Procurement Assessment Report by the World Bank (World Bank, 2004:21), which is a joint undertaking between the Malawi Government and the World Bank to analyse the country's procurement system, recommend appropriate actions to improve the efficiency, economy and transparency of the system. They had highlighted issues of serious lack of capacity in all Malawian procurement entities, and the local council were branded the least equipped to undertake procurement on their own. Below is a quotation of what they had to say:

During the visits to various local government entities, the Mission observed the existence of a number of malpractices within public procurement including inadequate advertising of tenders, excessive use of quotation method and application of non-transparent selection processes, lack of transparency regarding contract
award including lack of publication of contract awards, undue political influence on contract award especially by councillors, and lack of oversight and procurement audits (World Bank, 2004:4).

That was the real situation in a nutshell, but that was 2004, a very long time ago, when the Office of the Director of Public Procurement (ODPP) had just been established through the Public Procurement Act of 2003 (World Bank, 2004:4). A lot of capacity-building programmes in procurement in general and particularly the local councils have been implemented. Hence, the BCC procurement capacity issue can really be trusted, as they have a fully-fledged procurement section within the Administration Department under the leadership of a qualified procurement officer.

Some challenges had to do with the lack of adequate work scope details, especially the underground works, as also discussed in the project cycle section. In some circumstances it drastically increases the scope of works or even brings in new work components that were not in the original tender document/contractors bid, affecting the contract bid price and time schedule.

4.3.7 Theme 4: Project funding and payments experiences

4.3.7.1 Findings on secondary objective (ix): To determine how project funding and payment arrangements affect timely completion of projects.

Research question 4: How does the project funding and payments arrangements used by Blantyre City Council affect the timely completions of projects?

From the project selection to the procurement stage the issue of project funding kept arising. Questions were asked during the interviews about the sources of funds, modes of payment, whether contractors were always paid on time or not and the general challenges associated with project funding. The various responses were coded and presented as Funding Group Thematic Network diagram as Appendix J.

First, it was acknowledged in the literature review section 2.2.1 that BCC does not generate enough resources to enable it to undertake the construction of new road projects or upgrade the existing ones. Although it has a fully-fledged treasury department with very qualified staff, but the funds that are generated locally are used
for other city service provisions such as solid and liquid waste management, street lighting, parks and recreation, as well as for paying its staff. This was secondary source information.

During the research study, it was disclosed that BCC has for the past three years or so started receiving decentralised road construction/upgrading to asphalt surfacing funding. This has enabled the city to implement some of its big road improvement project plans. The following quotations confirms this.

“The Central Government remit some funding so when they have given us the ceilings we work through those ceilings and after that we compare the funds and make analysis on how many roads we can effectively implement, so we compare what the government has given us from what is going to be consumed in terms of how many roads can we effectively implement” said P3.

Most of the funding is from the central government treasury. At the commencement of the financial year, funding ceilings are communicated to the councils so that they can commit the funds to planned projects. Most of the participants including contractors’ representatives acknowledged that the payments for the contractors have in general been smooth and on time. There, however, were occasions where the funding has sometimes been erratic.

While conducting the study, there was a private media report that one of the major road construction projects the city was implementing had run out of funds, and the contractor was threatening to pull out of the project site. Fortunately, the representative of the contractor being mentioned was one of the participants on this study, and when asked about the issue, he insisted that they had no delayed payment issues with the client/government. The city representatives and the consultant’s representative concurred this, which portrayed the media as giving false information. Unfortunately, it was beyond the programme of this study to engage the media and find the truth, since the sources they were quoting were the ones that were saying there was no issue.

On the payment modalities, the project payments are said to have been handled in-house during the first years of the road project funding. During that time, everything was said to have been smooth, no contractor payment delays. Eventually, however,
the system was changed, and the institution that is mandated to manage all the road projects funds in the country, known as the Roads Fund Administration (RFA) finally took over the responsibility. At the time when this data collection was being done, it was learnt that the RFA was paying all the road construction contracts.

Some of the challenges that were associated with this arrangement were that when a contract amount has been awarded and the contract commences, it sometimes becomes a challenge when there are changes in the contract to do with increase in scope due to the situation on site to be readily accepted and considered by the RFA. It required quite a lengthy process. There was an issue of a contractor who had completed and handed over the project in 2017 but had not yet paid up to the period of this primary data collection, because the additional works claims were not approved at first by the Road Fund Administration.

“We haven’t had any problems until the last certificate, because all the certificates were paid through Road Fund Administration, and payments were on time, expect last certificate where there was a query, because as I mentioned to you initially there was an addendum because of the additional works, the addendum was not approved by the respective authorities, and hence the last payment was delayed. Still we are fighting for the last payment, which they reduced it to the contract value deducting certain portions of the amount, so we are still waiting for the final payment” explained P2.

P5 also shared these sentiments: “sometimes we procure the services of the contractor, but because of low funding levels, sometimes we face challenges whereby the contractors come back to us to complain that maybe certain payments are not made on time and they want to continue but they may have some challenges of getting their payments so that they can proceed with the work”.

4.3.8 Discussions on theme 4; secondary objective (ix):

Therefore though viewed positively by some participants, others indicated that there were some elements related to the project funding and contractor payments that were contributing to project construction delays
The literature Chapter 2 (section 2.6.1.3) discusses issues of project funding by stating that project financing is vital for any project implementation dream to be realised. Abdul-Rahman, Takim and Min (2009), upholds this view and analysed financial causes of delays in project construction in Malaysia. They identified delayed payment cash flow management challenges, inadequate financial resources and the unpredictability of the financial market as the most crucial factors. It also states that any challenges related to financing and fiscal management matters have a high potential of affecting the successful implementation of the project or even causing a real complete project failure (PMI, 2013: 43). The earlier literature review section 2.6.1.2, observed that delays in contractors' progress payment by the client to the contractor after the contractor has fulfilled the required contractual obligations to the point of the agreed payment stage are identified as a common cause of project delays.

Gardezi, Manarvi and Gardezi (2014: 203) observe that project funding is one of the main sources that enables parties to a contract to complete the project within time. The delayed payments tend to result into disputes between the Client and Contractor which may later lead to slow down of progress, termination of Contract, Arbitration, Litigations, claims for time extension and cost overrun.

It was observed during the participant’s interviews that the issue of funding and payment delays was very sensitive and people were not very free to discuss it in detail but few participants did acknowledge indirectly that it did exist.

4.3.9 Theme 5: Project implementations challenges

This theme, though it is part of the project cycle has been treated as a standalone theme, which is associated with all the research questions asked before. Project implementation is the product of project identification, design, procurement and funding and is directly affected by the organisational capacity. So, the issues associated with project implementation challenges issues were gathered from the other themes as per the Projects Implementation Thematic Group Network diagram in Appendix K.

When asked whether there have been any challenges with the road upgrading projects BCC has been undertaking, especially during the implementation stage, most
participants were quick to say, not necessarily. Participants indicated that most of the road projects have been implemented successfully on time and finished to the desired quality. When, however, follow up questions were posed as to whether the projects were completed just on the dot of the initially agreed project time frames, there was some additional information alluding to the fact that some of the projects had not been completed on time.

4.3.9.1 Inadequate planning, design and costing/project scope increase

Most of the projects that were not completed on time, were because of the additional scope of work. The main reason for the additional scope of work was cited as due to incomplete scope definition, or incomplete design detailing of the project before the award. This was also a result of a lack of adequate site investigations to determine the actual underground conditions. It transpired that during construction, the contractors would encounter challenges that were not anticipated when they were quoting for the project such as underground rock outcrop, poor road subbase material, waterlogged areas required additional road design specifications and many more. Some of the participants observed that some of the projects were awarded when the designs were still incomplete.

The following observation supports this argument, "usually for you to come up with a Bill of a project you have to do all the necessary surveys that are supposed to be done, but in the case of BCC, I think because of maybe the capacity, or whatever, they were not able to do this, like geotechnical investigations, so I think most of the bills were done like just on a normal situation where by you go on site, and you assume that everything is okay, you do the subgrade, you do the subbase, you do just like that, but there are times when you go on site and you find that the material for the subgrade is not good, you have to take it out, you have to throw it away, so all these things have affected the delivery of the projects” said P7.
4.3.9.2 Delayed utility services supply relocation

As alluded to earlier, some of the participants highlighted that since some projects were in already built-up areas, the need to get some utility supply structures like water pipes, phone cables, electricity meters and others also affected the work implementation and delayed the work completion. The following excerpt demonstrates the point.

“The other challenges would be that most city projects they are to do with the delays that are caused by the need for the relocation of services, and/or demolition of houses since many roads have limited space for expansion, and sometimes these have resulted in people obtaining court injunctions against the proceeding of the works which can stop the works for a month or two months” said P4.

4.3.9.3 Delay in client feedback on site or design challenges

Most participants, including the city representatives, acknowledged that due to the inadequate number of engineers, it was sometimes difficult to timely attend to contractor’s enquiries on site and make a quick decision for the works to proceed. As a result, the contract would be left idling for some time while waiting for a way forward.

“Sometimes decision making becomes very difficult, when issues arise on site and you take them to the client but it takes them very long to make a decision to say this is what we are going to do, or if you suggest something to the client he takes very long to make the decision, so as you are waiting for the client it delays the project” observed one of the participants.

4.3.9.4 Adverse weather conditions

It was acknowledged that inclement weather conditions were also some of the challenges affecting the road projects since the contractor always works under open weather environments. Inclement weather, thus, tended to slow down or even stop project progress.

“It is the ground conditions sometimes and sometimes it is the inclement weather, certain times we face especially in Bangwe we faced some very wet conditions, and the ground conditions, because there was no road initially in Bangwe, so where there
were water logged areas which required draining through building some French drains, to dissipate the water so that the pavement layers are strong enough to sustain the weather, so those were the challenges” said P2.

4.3.9.5 Construction of roads without adequate drainage structure

This challenge might not necessarily cause project completion delay. It was mentioned that sometimes, due to inadequate funds, some planned road structural components such as side drains would be taken off a contract to match the available funds with the possible scope of work. Some participants bemoaned that this sometimes compromises the life span of the completed road project. In the case of BCC, however, it usually replaces the reduced components using other sources of funds.

“Another thing we must know is that most of these road projects come without the drainage package, so you find that a good road has been built but without drainage structures, their life span is completely shortened so you find that within five years, you are going to the drawing board to fix the same road” laments P2, in agreement of the observation.

Therefore project implementation phase is also affected by a lot of challenges leading to project implementation delays

The main research question was:

What causes some road construction projects, implemented by BCC, not to be completed on time?

From the thematic network diagram, many issues have emerged that point towards the causes of the project construction delays. The following excerpt demonstrates the integration of the main theme.

The following excerpts demonstrates acknowledgement that while other projects are completed on time, some do face challenges that require their delivery time to be extended. “It has been varying, some projects have finished well in due time, others they have had time extended, so it depends also with the terrain, some due to lack of equipment, sometimes personnel, so factors range from different reasons to different
reasons, but we have been fluctuating between one finishing within time, some outside time” narrated P3.

The client always fixes the project delivery period prior to tendering but usually this proves underestimated during the project implementation. “Yes, they are the one who fix the period, as contractors we just go with the time fixed already” lamented P2.

Delay in decision making was acknowledged as adding to the causes of delays: “Sometimes decision making becomes very difficult, when issues arise on site and you take them to the client but it takes him very long to make a decision to say this is what we are going to do, or if you suggest something to the client he takes very long to make the decision, so as you are waiting for the client it delays the project” elaborated P7.

Once in a while contractors also contribute to the delays: “Finally, but not least we also face problems in the delivery of the project e.g. the contractor may have labour shortage, even the construction materials which also affect the outcome of the project, but at the end of the day the council is supposed to ensure that the projects are delivered” concluded P1.

Unforeseen underground conditions also play a bigger role in causing the delays: “We encountered rock so we had to use hydraulic pneumatic tools to break the rock because we could not blast since both of them are residential areas and hence it took a bit of time and hence the pavement layers had to be increased because of the nature of the soil, and hence technical committee of BCC had completely discussed and analysed the additional time required for the unforeseen conditions and hence the time period has been extended” said P2.

The following sentiments are putting the blame on the client: “Most of them while the scope is underestimated, I don’t know, because it is as if the scope is just done on paper without any through site investigations, proper site investigations and designs, would reduce all this. But because they just say we want a road here, so long, so it seems the designs have to be done while the project is underway, so that delay, but if they were to properly design and do their own assessment properly, and they would indicate the right quantities and everything and the same would apply to the determination of the duration” said P4.
“But in the case of BCC, I think because of maybe the capacity, or whatever, they were not able to do this, like geotechnical investigations, so I think most of the bills were done like just on a normal situation where by you go on site, and you assume that everything is okay, you do the subgrade, you do the subbase, you do just like that, but there are times when you go on site and you find that the material for the subgrade is not good, you have to take it out, you have to throw it away, so all these things have affected the delivery of the projects” said P7. The above three excerpts points to capacity challenges in the form of inadequate professional staff available to undertake the road project planning, surveying and design works. This results in an incomplete work scope definition and poor schedule estimates, resulting in the need for redesigning and extending the project delivery period.

But the existing situation of shortage of technical staff in the Engineering Department is said to be the major cause of these challenges: “Since we also don’t do roads only there are many, projects associated with engineering department, apart from these there are a lot of maintenance of existing roads, apart from these there are Constituency Development Fund (CDF) projects, apart from these there are Infrastructure Development Fund (IDF) projects, so there a lot of things happening in the construction industry within the council” said P3.

As earlier presented, the delay of the removal of obstacles from the proposed road project site contributes to implementation delays: “The other challenges would be that most city projects they are to do with the delays that are caused by the need for the relocation of services, and/or demolition of houses since many roads have limited space for expansion, and sometimes these have resulted in people obtaining court injunctions against the proceeding of the works which can stop the works for a month or two month” said P4.

Funding and payment challenges delays, though earlier underplayed, were t still acknowledged as having a bearing in the untimely delivery of other projects: “We do have some delays, aah, and, (pause) we can one, relate it to the issue of payments because as I indicated earlier on some funding comes from the central government (interjection: its beyond your control) so, for instance a contractor may work on a certificate, we may approve it and when we send it to the central level authorities, there may be some, (pause).... I don’t want to use the word delay, it will take a bit of
time for them to process it (interruption: yes for it to be processed) to be processed, so you will see that over time these gaps may affect the timely completion of projects, so I wouldn’t want to say that all the implementation challenges or the delays are completely eliminated we still face some. (okay) Yes, that’s is what I would say” explained P5.

4.3.10 Main theme 6: Project construction delay causes

4.3.10.1 The primary research objective of this research aimed to investigate the main causes that contribute to road construction completion delays in BCC and to propose ways of mitigating them.

The main research question was: What causes some road construction projects, implemented by BCC, not to be completed on time?

When the subthemes were combined, the main theme of construction delay causes as illustrated by the causes of project construction delays thematic group network diagram emerges, as presented in Appendix L

From the thematic network diagram, many issues have emerged that point towards the causes of the project construction delays. The following excerpt demonstrates the integration of the main theme.

The following excerpts demonstrates acknowledgement that while other projects are completed on time, some do face challenges that require their delivery time to be extended. “It has been varying, some projects have finished well in due time, others they have had time extended, so it depends also with the terrain, some due to lack of equipment, sometimes personnel, so factors range from different reasons to different reasons, but we have been fluctuating between one finishing within time, some outside time” narrated P3.

The client always fixes the project delivery period prior to tendering but usually this proves underestimated during the project implementation. “Yes, they are the one who fix the period, as contractors we just go with the time fixed already” lamented P2.

Delay in decision making was acknowledged as adding to the causes of delays: “Sometimes decision making becomes very difficult, when issues arise on site and you
take them to the client but it takes him very long to make a decision to say this is what we are going to do, or if you suggest something to the client he takes very long to make the decision, so as you are waiting for the client it delays the project” elaborated P7.

Once in a while contractors also contribute to the delays: “Finally, but not least we also face problems in the delivery of the project e.g. the contractor may have labour shortage, even the construction materials which also affect the outcome of the project, but at the end of the day the council is supposed to ensure that the projects are delivered” concluded P1.

Unforeseen underground conditions also play a bigger role in causing the delays: “We encountered rock so we had to use hydraulic pneumatic tools to break the rock because we could not blast since both of them are residential areas and hence it took a bit of time and hence the pavement layers had to be increased because of the nature of the soil, and hence technical committee of BCC had completely discussed and analysed the additional time required for the unforeseen conditions and hence the time period has been extended” said P2.

The following sentiments are putting the blame on the client: “Most of them while the scope is underestimated, I don’t know, because it is as if the scope is just done on paper without any through site investigations, proper site investigations and designs, would reduce all this. But because they just say we want a road here, so long, so it seems the designs have to be done while the project is underway, so that delay, but if they were to properly design and do their own assessment properly, and they would indicate the right quantities and everything and the same would apply to the determination of the duration” said P4.

“But in the case of BCC, I think because of maybe the capacity, or whatever, they were not able to do this, like geotechnical investigations, so I think most of the bills were done like just on a normal situation where by you go on site, and you assume that everything is okay, you do the subgrade, you do the subbase, you do just like that, but there are times when you go on site and you find that the material for the subgrade is not good, you have to take it out, you have to throw it away, so all these things have affected the delivery of the projects” said P7. The above three excerpts points to
capacity challenges in the form of inadequate professional staff available to undertake the road project planning, surveying and design works. This results in an incomplete work scope definition and poor schedule estimates, resulting in the need for redesigning and extending the project delivery period.

But the existing situation of shortage of technical staff in the Engineering Department is said to be the major cause of these challenges: “Since we also don’t do roads only there are many, projects associated with engineering department, apart from these there are a lot of maintenance of existing roads, apart from these there are Constituency Development Fund (CDF) projects, apart from these there are Infrastructure Development Fund (IDF) projects, so there a lot of things happening in the construction industry within the council” said P3.

As earlier presented, the delay of the removal of obstacles from the proposed road project site contributes to implementation delays: “The other challenges would be that most city projects they are to do with the delays that are caused by the need for the relocation of services, and/ or demolition of houses since many roads have limited space for expansion, and sometimes these have resulted in people obtaining court injunctions against the proceeding of the works which can stop the works for a month or two month” said P4.

Funding and payment challenges delays, though earlier underplayed, were t still acknowledged as having a bearing in the untimely delivery of other projects: “We do have some delays, aah, and, (pause) we can one, relate it to the issue of payments because as I indicated earlier on some funding comes from the central government (interjection: its beyond your control) so, for instance a contractor may work on a certificate, we may approve it and when we send it to the central level authorities, there may be some, (pause)…. I don’t want to use the word delay, it will take a bit of time for them to process it (interruption: yes for it to be processed) to be processed, so you will see that over time these gaps may affect the timely completion of projects, so I wouldn’t want to say that all the implementation challenges or the delays are completely eliminated we still face some. (okay) Yes, that’s is what I would say” explained P5.
4.4 Chapter Summary

This chapter has provided more details about the research participants. It has the presented the research findings as well as interpreted the analysed transcribed textual analysis of the results of observations, written documents and in-depth interviews with BCC primary stakeholders in the road construction projects sector and the other supporting departments. Five minor themes and one main theme have emerged from the results of this case study of BCC. The information gathered has been discussed and has proved adequate to enable drawing conclusions on the study subject. The next chapter presents a summary of the entire study, conclusions of the research as well as some recommendations.
CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This chapter presents a summary of the study content, the conclusions from the findings and the recommendations. The study is presented in five chapters and five appendices. Chapter One presents the research problem and its setting. This includes the introduction, the problem statement, the research question, sub-research questions, primary objectives, secondary objectives, delimitations and limitations of the study.

Chapter 2 outlines the review of the related literature and has the following main headings: Introduction, Malawi Local Government System, General Management Theory for Construction Projects, Significance of the CI, The Project Management Problem, Major Causes of Delays in the Construction, Effects of Delays in Public Infrastructure Projects, and Strategies for Averting or Minimising in the Construction Projects.

Chapter 3 defines the methodology, research designs, types of designs and methodology available, types of research strategies and outlines the one chosen for this study and why. It also discusses the adopted methodology, data collection procedures, data analysis and interpretation of results, qualitative research reliability, validity procedures that were followed and ethical considerations compliance.

Chapter 4 presents the chapter summary followed by the participant's details. Then it presents the analysis of the findings using six themes generated through network diagrams. The first theme deals with the organisational structure, the second theme dwells on the project management cycle, the third theme is focused on the procurement process and the fourth theme is focused on the funding and payment system. Finally, the fifth theme deals with the project management challenges, and all the above themes are amalgamated into the main theme or sixth theme of causes of projects construction delays.
5.2 Conclusions Related To The Objectives Of The Study

5.2.1 Research objective (i)

5.2.1.1. To Assess the technical capacity of BCC regarding technical staffing and staff competency relevant to timely delivery of road construction projects.

This study has established that BCC is indeed one of the most well-established CCs and has a strong functional organisational structure. It has all the departments that make an organisation deliver its mandate in place and being represented at the highest management level and is one of those councils with all councillors for the 26 wards available including a mayor and its deputy. It was also learnt during the study that all 26 ward councillors were available, including the mayor and his deputy. BCC is one of the few CCs in Malawi, where the executive officer and all the key management (directors) are in place and are well-qualified for their various positions.

However, when the issue of capacity was raised, it, quickly became clear that despite the council’s establishment being very dynamic, one of the major challenges affecting its efficient delivery of services was the issue of failure to retain staff due to unattractive conditions of service. This, it was observed, had affected all the city’s staff establishments, and vacancies existed in most of the departments of the council. Therefore although the Department of Engineering had well-qualified civil engineers (four), they are too few and their continued stay could not be guaranteed.

The first research objective, therefore, has been achieved by establishing that the capacity of the city council’s technical (engineering) department has been undermined by the frequent resignations of the recruited engineers. As such, it has continuously suffered key staff shortages that resulted in the few available qualified staff failing to cope with all the work pressure that goes with the planning, designing and managing the implementation of all the new road upgrading projects. This is on top of the other types of construction maintenance projects such as building construction, street infrastructure maintenance and many more others. When urgent project matters are attended timely, the planned projects usually suffer in many ways including not being
planned and designed well and not being well-managed during implementation, which are all causes of delay in projects construction delivery.

5.2.2 Research objective (ii)

5.2.2.1 To examine the project management cycle of BCC and identify gaps, if any, that contribute to project completion delays.

The study followed up the project management process of BCC in its adherence to the project cycle, from project inception to project handover, provides step-by-step of what needs to be done at every stage, as reflected in the literature review chapter.

5.2.2.2 Initiation phase

The issues that came to light regarding project identification and selection were to do with the type of methods of project selection. This refers to that while the projects that are proposed by the secretariat go through very thorough planning, the projects that are presented by councillors usually come at short notice. It, therefore, requires fast processes to get them implemented and this sometimes does not give enough time to the technical staff to go through all the required processes in the project cycle. Another challenge was reported regarding the interference of the project cycle. This referred to the selected projects not being the actual priorities of the community that is represented by the councillors, which was a sign of flaws in stakeholder engagement.

5.2.2.3 Planning phase

The project planning phase as defined under section 5.2.2 was extensively analysed in the previous research findings chapter under the theme of project cycle dilemma. It dealt with reports of observation of project feasibility study shortfalls where detailed underground lying conditions were not fully investigated, and most of the real conditions were discovered during the actual project implementation. Secondly, it was also learnt that some projects were not being fully detailed designed before the procurement process, and this usually resulted in the frequent revision of the designs (change of scope) during project implementation. This revision also affected the project contract price and planned delivery period that contributes to project construction completion delays.
The issue of a shortage of qualified technical personnel was also identified as being one of the major causes of the incomplete planning process. The issue of the initial project implementation strategy has already been addressed in the first section dealing with the organisational structures challenges. The strategy of using in-house technical staff only for the whole project cycle without external technical staff was a major setback.

5.2.2.4 Closing phase

It was just mentioned that there are handover ceremonies during project closure but it was not elaborate how it is implemented hence the degree of importance the BCC attaches to the issue of project closing could not be established. Therefore, while leaving out the procurement and funding components of the project cycle to be concluded under their respective headings, it, therefore, has been demonstrated that the second objective of analysing the project cycle process being followed by BCC and identifying if there are any gaps has been achieved.

5.2.3 Research objective (iii)

5.2.3.1 To identify the effects of the procurement methods used by BCC in implementing infrastructure projects.

The project procurement process is one of the make-or-break processes of the project management cycle. Any mistakes made during project procurement usually have ripple effects that tend to affect the successful completion of a project, since procurement and contract management are related.

BCC follows such procurement method, which is called the open tender method. In the research findings, however, procurement was one of the areas that few participants complained about. If anything, it was observed that the open tender process was a lengthy process but otherwise it was alluded as to having good checks and balances. The second method that BCC used for its procurement of services is the restricted tendering (prequalified bidding). As explained earlier, this method pre-selects the service provider or suppliers due to their prior demonstrated capacity and other factors before the bid process. All the participants who were asked the significance of these two procurement processes expressed satisfaction in their
efficiency. One or two of the participants did hint that indeed sometimes the open tendering process does end up in the selection of a cheap and inexperienced contractor who only qualifies during the evaluation but has an edge over other better contractors because of the cheaper price (lowest evaluated bidder).

Another issue that emerged, related to project implementation delays, was the issue of incomplete designed projects or underestimated the scope and implementation period type of projects. The causes of this have been discussed in various sections of this report. This was considered one of the major challenges of the procurement process as advanced by BCC, especially before the engagement of the external road consultant engineers. This, therefore, is the main issue that the third research objective has achieved to isolate.

Due to what other literature writes about various issues that affect efficient and value for money procurement, such as on issues of political influence, corruption and illegal procurements, it was interesting that BCC did not have or did not bring to the surface any of such issues. If the situation reported is really what it is on the ground, then this is a very encouraging development because several organisations’ procurement entities have been exposed in the local media for mis-procurement in the past. The major World Bank Report on Malawi procurement assessment and the Malawi Country

5.2.4 Research objective (iv)

5.2.4.1 To determine how project funding and payment arrangements affect timely completion of projects.

The findings in the previous chapter, under Theme 4, project funding and payment experiences, it was mostly reported that all the funding the BCC was using to implement the road upgrading program was external funding from central government. It was further explained that all the projects earmarked for implementation had to first pass through the availability of funding litmus paper test. This is to ensure that each recommended project to be implemented should only commence with the assurance that all the funds for the implementation of the project are committed to it. This is a commendable financial project management prudence.
Secondly, it was learnt that mostly, except for rare occasions, the contractors have always been paid on time. Even the contractors’ representatives themselves corroborated this version. Trusting that the participants were sincere in their reports, this, therefore, portrays a good project management practice because delays in contractor payments can indeed derail a project’s progress. The issue of sincerity about the timely payments is important because during the time of the study there was an issue about the private media portraying a different picture. The media proclaimed that the contractors on some of the ongoing projects were not being paid on time and that some of the projects had no budgeted funds and were dependent on erratic funding.

Some of the participants still acknowledged that the issue of delayed funding or delayed payments of contractors does exist but was not serious and was caused by other contributing factors than the actual lack of project funding. Although the problem did not seem very serious, it, therefore, can be said that the fourth objective has been achieved.

5.3 Overall Conclusion

The various issues that have emanated from the findings, discussions and the conclusions have justified that most of the issues that were highlighted in the literature review, as pertaining to the key issues that tend to cause delays in construction projects implementation and completion, have also been established to have had a bearing in the situation of BCC road construction projects delivery. Issues that were found in the literature review such as poor organisation structure, scarcity of qualified technical personnel, issues of change of scope, delays in revising project documents or delays in giving a contractor a solution to a problem encountered on site, delays in the removal of services from the proposed project site, issues of contractors capacity challenges, effects of adverse weather and contractor payment delays have all been well articulated and have been observed in the field study results.

It, therefore, can be safely concluded that this study has achieved the main objective, which was to investigate the main causes that contribute to road construction completion delays in BCC and propose ways of mitigating them.
5.4 Limitations Of The Research

The first limitation for the study was the short data collection period, due to academic pressure of other ongoing modules during the research period, and the field study only lasted 28 days. Secondly the setup of the Malawi Local Councils including City Councils makes it difficult to have many research methodology options since their systems and operations are unique from the other public institutions hence the qualitative research approach was the only method that was deemed appropriate for this study due to its limited stakeholders who could be eligible to participate in the study. Thirdly the construction industry is well known for its reluctance to responding to research requests for participation hence even out of only four main contractors that were eligible for the participation in this study one still declined through emails and phone conversations to participate in the study interviews, regardless of the assurances of anonymity and confidentiality. Some participants, though they participated in the study were still reluctant for fear of reprisals from their employers in case of uttering contradictory information to their clients’ taste.

Thirdly, most of the participants were very busy people and they kept postponing the appointments.

5.5 Recommendations

Based on the literature review and the empirical findings and conclusions of this study, the following recommendations are made for the improvement of some of the shortfalls that emerged during the study to improve project delivery efficiency in Blantyre City Council.

5.5.1 Recommendations based on the first objective

Assess the technical capacity of BCC regarding technical staffing and staff competency relevant to timely delivery of road construction projects.

The issue of the shortage of engineers at BCC needs to be addressed urgently. It was however encouraging to learn during the study interviews that BCC management has already started solving the problem by engaging with the Local Government Service Commission (LGSC). This will allow them to improve the condition of service for the
engineers by raising the seniority of their point of entry into the service. In doing so, even newly graduated engineers can be taken at a higher rank to motivate them. This is commendable, but it must be expedited so that all the existing vacancies can finally be filled for the achievement of efficiency and effectiveness in the project delivery management.

The Local Government Act 1998 was initially designed so that the councils would be responsible for the recruitment, promotion, discipline and dismissal of all employees, together with the determination of their conditions of service, salaries and allowances. Some amendments, however, were done to this legislation in January 2001, which reverted responsibility for the recruitment of senior management staff from councils to the Local Government Service Commission (LGSC).

It is further being recommended that improving the conditions of service should not only concentrate on the engineers’ welfare alone. The council should strive to implement the general upgrading of their conditions of service to attract quality professionals in all its departments since project management is not a one-man show but a collaborative effort involving all the other relevant departments hence all team players have to be motivated. Alternatively, all positions for professionals who are deemed as scarce or hard to maintain could be placed on a contract basis for a period of two to three years renewal. This means that should they not want to stay until retirement, they can still serve their full service and receive their full benefits.

BCC needs to find a sustainable way of funding the services of external technical consultants as opposed to the current situation where they solely rely on external project funding. In doing so, they can engage and utilise them in other critical project implementation areas such as the building projects in order to free their in-house engineers from the daunting task of project design and costing. This will allow their in-house engineers to concentrate more on the overall project management coordination roles.

5.5.2 Recommendations based on the second objective

*Examine the project management cycle of BCC and identify gaps if any that contribute to project completion delays.*
5.5.2.1 Project identification

BCC needs to improve its project identification and project planning stages to ensure that there is always adequate time between the project identification period and the project planning for implementation period. This will ensure that the technical officers are given ample time to subject the proposed selected project through all the required project management cycle phases without rushing to ensure quality project delivery.

5.5.2.2 Project planning

There is a need for more effort to be placed on road condition surveys, topographical surveys and geotechnical surveys. These are deemed the causes of incomplete designs at project commencement and usually, result in the revision of the designs and change of original scope after contract award. To address contractors and consultants’ concerns on client delays, on the need for changes on project designs during project implementation, there is a need for more effective and efficient management of project sites and supervision works by the client engineers. Expedite arrangements for the removal/relocation of utility supply services that obstruct proposed project sites prior to project award and handover of the site to avoid unnecessary project delays after handover.

5.5.2.1 Project implementation

There is a need to allocate an engineer for each new or on-going road project to ensure that the consultant and the contractor are in constant contact with the client representative whenever there is an urgent issue to be resolved. This will minimise the delays due to waiting for new instructions/delayed decisions, as opposed to the current trend where the engineers keep rotating around the ongoing projects. Contractors too should plan their work in such a way to avoid executing delicate construction procedures during adverse weather condition periods, which increases cases of project construction delays.
5.5.3 Recommendations based on the third objective

Identify the effects of the procurement methods used by BCC in implementing infrastructure projects.

Revise the project-awarding system for contractors to make sure that the selected contractors always have the capacity to undertake the planned project. This can be achieved by raising the qualification criteria for contract awards to flush out non-performing contractors. There is a need to review the open tendering procurement method to improve its efficiency and effectiveness. Although it was not reported as posing challenges, many commentators are of the opinion that for projects involving small, medium and big contractors, the selection based on the lowest bid can leave competent contractors behind. The contract will then be offered to an incompetent contractor since contractors tend to concentrate on outdoing each other on price to such an extent that they sometimes fail to perform when the project has been awarded to them.

Use accurate cost and time estimates when formulating bills of quantities and project scheduling to address contractors’ concerns that prefixed time schedules do not match the actual work on site after the award of the project.

5.5.4 Recommendations based on the fourth objective

Determine how project funding and payment arrangements affect timely completion of projects.

The issue of securing full project funding before earmarking a project for implementation should always be adhered to, and politics should never take precedence on this issue. Contractors should always be paid on time after verifying their project progress payment claims. BCC also has to strategize to start saving financial substantial resources for road project construction in order to fast tract its road-rehabilitation backlog.
5.6 Recommendation For Further Research

This study only focused on Blantyre City Council and although some information such as the issue of scarcity of engineers or the general staff retention challenges were viewed by the some of the participants as affecting all the other local councils in Malawi, scientifically the results might not be representative of other (city) councils. Secondly, the study concentrated on finding out the opinions of what is termed primary duty bearers: councillors’ representative, secretariat management staff representatives, contractors’ representatives and consultants’ representatives. The councils in Malawi, however, are regulated and coordinated by many other authorities in Central Government and non-governmental organisations and even the communities they serve, who may have other opinions on the causes of project implementation delays in the local councils in general.

Further research should, therefore, be conducted to identify the project implementation challenges in all CCs or all local councils and on all the types of projects that they implement and not only road projects. The results of such research would bring some transformation in the project implementation approaches in the councils of Malawi.

5.7 Chapter Five Summary

This chapter presented the summary, conclusions related to the objectives of the study overall conclusion, recommendations and recommendations for further research. The next section presents the references used in this study, as well as the appendices.
REFERENCE LIST


APPENDIX A: LETTER OF REQUEST FOR PERMISSION TO USE BLANTYRE CITY AS A STUDY COUNCIL

Henry D.J. Mwamvani (s217851339) (student)
(hmwamvani2017@gmail.com) Phone: +27 781 236364) (+265 (0) 8851 35288)
Nelson Mandela University
P O. Box 7700
Port Elizabeth
6031
South Africa
2nd January 2018
The Chief Executive
Blantyre City Council
P/bag 67
Blantyre
Attn. Dr Alfred Chanza

Dear Sir,

REQUEST FOR PERMISSION TO USE BLANTYRE CITY COUNCIL AS A STUDY COUNCIL FOR ACADEMIC RESEARCH FOR MY MASTER’S DEGREE IN PROJECT MANAGEMENT

My name is Henry Mwamvani, a long-time Director of Public Works. I have previously worked for Mangochi Town, Mangochi District, Phalombe District and Blantyre District Council. I am currently on study leave pursuing a master’s degree in Project Management at Nelson Mandela University, formerly known as Nelson Mandela Metropolitan University and I have just finished my first year and I am about to start my second year.

During the second year, it is necessary to undertake a research in a field relevant to one's course and profession. In my case, I propose to undertake a research that studies the various challenges that affect public infrastructure project implementation and results in project completion delays in local councils to seek for workable solutions with stakeholders.
Your Council has been earmarked due to its size and magnitude of funding in comparison with the other local councils. The proposed research is purely on academic grounds and shall be conducted in the strictest ethical and confidential manner.

I am indebted on the goodwill of your organisation in supporting me to achieve the academic requirements, as I am pursuing my studies away from the study area and will need the support of stakeholders to undertake the research work.

I promise to abide by council’s regulations when given the opportunity. Detailed information about the scope and time for the research will be provided in due course.

I am looking forward to your favourable response and support.

Yours sincerely

Henry Mwamvani
APPENDIX B: LETTER OF PERMISSION TO USE BLANTYRE CITY COUNCIL AS A STUDY COUNCIL FOR ACADEMIC RESEARCH

Blantyre City Council

29th January, 2018

Henry D.J. Mwamvani (hwamvani2017@yahoo.co.uk)(+27 781236414)(+265(0) 885135288)
Nelson Mandela University
P.O. Box 7700
Port Elizabeth
6031
SOUTH AFRICA

Dear Sir

PERMISSION TO USE BLANTYRE CITY COUNCIL AS A STUDY COUNCIL FOR ACADEMIC RESEARCH

Your letter on the above subject refers.

We are pleased to inform you that permission has been granted for you to conduct a research in Blantyre City Council in order to pursue your Master’s Degree in Project Management at Nelson Mandela University.

The permission has been granted on the following conditions:

- Your research to be done in consultation with the Director of Town Planning and Estates Services.
- The research to be done only on the permitted places.

Yours faithfully

LITTON NKATA
For: CHIEF EXECUTIVE OFFICER

Cc: Commissioner of Police (S), P.O. Box 24, BLANTYRE
P.O. Box 77000,  
Port Elizabeth  
6031  
South Africa  
www.nelsonmandela university.ac.za  
26th July 2018.

The Chief Executive  
Blantyre City Council  
P/Bag 67  
Blantyre

Cc: Mr. C. Chanza - Director of Planning and Estates Services  
Mr. G. Sichali – Director of Engineering Services

Dear Sir,

NOTIFICATION OF PROPOSED ACADEMIC CASE STUDY COMMENCEMENT:  
CAUSES OF ROAD PROJECTS CONSTRUCTION DELAYS – A CASE STUDY OF  
BLANTYRE CITY COUNCIL IN MALAWI

Following my earlier request in January to use your institution for academic research purposes and your consent on the same, I wish to inform you that having gone through a scaling down of my research topic from “Causes of Public Infrastructure Projects Completion Delays in Local councils in Malawi, to “Causes of Public Infrastructure Delays in CCs”, it has been further scaled down to “Causes of Road Projects Construction Delays - A Case Study of Blantyre City Council in Malawi”.

105
The scaling down was necessary to make the research implementable within the available academic time. All the other factors remain equal in that the study is only an academic endeavour to meet the qualification requirements and shall be subject to all ethical issues of professional conduct and confidentiality.

Therefore, having determined the real direction and scope of the field research, I would like to inform you that I am planning to travel to Malawi towards the end of August 2018 to undertake the field work from the early days of September 2018.

As a case study approach, I would like to request for some working space within the Engineering or Planning Departments, Access to Projects Documents for the past five years, and I would like to conduct interviews with the key players in the project implementation cycle. Especially the council management and the contractors who have frequently worked with the council as well as those who may just have worked once with the council during the past five years. If there have been consultants working with the council, I would also like to include them in my programme.

I am looking forward to a successful research encounter and any suggestions on how the research implementation can be improved will be most welcome.

Your sincerely,

Signed-electronically
Henry D.J. Mwamvani - Researcher - Student - +27 781236364

Professor Winston Shakantu - Supervisor/Promoter

Email- Winston.Shakantu @mandela.ac.za
APPENDIX D: RESEARCH INTERVIEW PROTOCOL

RESEARCH INTERVIEW PROTOCOL FOR THE CLIENT REPRESENTATIVES:

Is the Blantyre City Council Organisational Structure well-positioned to efficiently implement its road construction projects?

Are the Planning and Implementation Departments of the Blantyre City Council, adequately staffed for the timely construction project execution and completion?

What challenges are experienced regarding ensuring the availability of adequate technical and qualified staff?

Where it is not possible to have all required technical staff in place, what other means are used to still implement the projects efficiently?

Does the absence of key technical staff have a big bearing on the timely completion of projects?

What processes or phases are followed in planning and implementing the council’s road projects (how are the projects initiated, planned, implemented, supervised and monitored, completed and handed over?)

What types of procurement methods are used to design and implement the projects?

What challenges are experienced during implementation, which are the result of procurement methods?

Are projects delays caused by the client’s fault or the contractor’s fault?

Are project funds fully secured in advance before the commencement of the projects or there are only commitments?

Are contractors always paid in time when they submit their claims after completing an agreed phase?

Can payment delay to a contractor contribute to project completion delay?
RESEARCH INTERVIEW PROTOCOL FOR THE CONTRACTOR REPRESENTATIVES

How transparent and competent are Blantyre City Council’s procurement methods?

Are you given the chance to free estimate how long the proposed project is going to be completed?

Are the project scopes for the procurement projects well-defined during tendering (procurement)?

During the project implementation phase, is the project supervision competently implemented to address your concerns/challenges requiring the clients intervention?

Are your project payment claims honoured within the contract stipulated period?

Does a delay in payment by the client affect the timely completion of a project?

Was the project you implemented completed within the planned completion date or was it delayed?

If it was delayed, what do you think was the main cause of the delay?

What challenges do you as a contractor face that affect the project completion, which has nothing to do with the client’s role?

If given a chance to make some recommendation to Blantyre City Council for improving projects delivery, what would you recommend?
APPENDIX E: INFORMED CONSENT FORM

P.O. Box 77000,
Port Elizabeth
6031
South Africa
www.nelsonmandela.ac.za
Phone number: +27 781236364

Informed Consent Form

Dear Sir / Madam

RE: CAUSES OF ROAD PROJECTS CONSTRUCTION DELAYS - CASE STUDY OF BLANTYRE CITY COUNCIL

Thank you for agreeing to participate in this academic research study, which will take place from October 8, 2018.

This form details the purpose of this study, a description of the involvement required and your rights as a participant.

As part of meeting the academic requirements for the master's degree in the Built Environment, at the Nelson Mandela University, it is required to conduct an academic research and submit a treatise. The purpose of the study being conducted is to learn about the causes of project completion delays in Blantyre City Council, and I have chosen the paved road projects for a case study. Therefore, the research is for purely academic purposes and there are no risks involved in participating in this study.

Participation consists of one interview, lasting one-hour. This interview will be audio recorded, unless otherwise requested by you, the participant. There may be additional follow-up/clarification through email, unless otherwise requested by you, the participant.
Privacy will be ensured through confidentiality. If you, the participant, wish that your full name be used in the study, your request will be adhered to. Participation is voluntary, and the interviewee has the right to terminate the interview at any time.

By taking part in the interviews, you will make a major contribution to the improvement of project delivery of the council, as well as the successful completion of my academic study.

A summary of the results will be available to participants upon request. Please contact interviewer, with any questions or concerns.

_____________________________________
Signature of Interviewee

_____________________________________
Signature of Interviewer
APPENDIX F: ORGANISATIONAL STRUCTURE THEMATIC GROUP NETWORK DIAGRAM (SOURCE: RESEARCHER’S FIELD SOURCE, 2018)

Double-click on thumbnail image to Open, View and Zoom diagram.
Double-click on thumbnail image to Open, View and Zoom diagram.
APPENDIX H: TIME INCREASE OF SOME ROAD PROJECTS IMPLEMENTED BY BCC

<table>
<thead>
<tr>
<th>Contract Name</th>
<th>Contract No.</th>
<th>Length - km</th>
<th>Start Date</th>
<th>Finish Date</th>
<th>Original Contract Period - Days</th>
<th>Revised Contract Period – Days</th>
<th>Extension of Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrading of Asphalt Surfacing of Mbayani to Tam-Tam Road</td>
<td>BCC/MBATAM/2016-2017</td>
<td>2.7</td>
<td>1st Aug. 2017</td>
<td>29th Dec. 2017</td>
<td>120</td>
<td>364</td>
<td>214</td>
</tr>
</tbody>
</table>

(Source: Researcher’s Field study, 2018)
Double-click on thumbnail image to Open, View and Zoom diagram.
Double-click on thumbnail image to Open, View and Zoom diagram.

Double-click on thumbnail image to Open, View and Zoom diagram.
APPENDIX L: PROJECT CONSTRUCTION DELAYS THEMATIC GROUP NETWORK DIAGRAM (SOURCE: RESEARCHER’S FIELD SOURCE, 2018)

Double-click on thumbnail image to Open, View and Zoom diagram.