

AN ANALYSIS OF THE TWENTY PERCENT SUBCONTRACTING POLICY
IN THE ZAMBIAN CONSTRUCTION SECTOR: ITS EFFICACY IN
DEVELOPING CAPACITIES OF LOCAL CONTRACTORS

by

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DECLARATION

I, Fanizani Phiri, do hereby declare that the work presented in this dissertation is the result of my research work except to the extent indicated in the Acknowledgements and references and comments included in the report and that it has not previously been submitted for any degree at this or another University.

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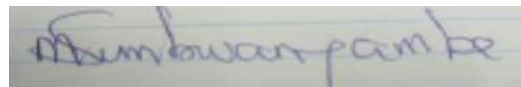
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ABSTRACT

The construction industry has been one of the fastest growing industries in Zambia from 2010 to 2014, recording an average contribution of about 9.9 percent of National Gross Domestic Product (GDP). However, there has been an imbalance in the distribution of works between local and foreign contractors. The foreign contractors, who account for less than 20 percent of registered contractors, have a share of over 80 percent of the works contracts. This has been attributed to inadequate financial and technical capacity among local contractors. In order to enhance the capacities and participation of local contractors in construction sector, Government of the Republic of Zambia in 2012 introduced a 20 percent mandatory subcontracting policy. However, most of the local contractors have had complaints on the operation and implementation of the policy. This study therefore aimed at reviewing and analysing the 20 percent subcontracting policy with the view of developing a framework that increases local participation and capacity. Using literature review, semi-structured interviews and questionnaire, the deficiencies and constraints in the subcontracting policy were established. Through this study, it was established that: it would be difficult to grow capacity of local contractors using the policy; policy statement only covers the road sector and was silent on the other sectors such as building and energy sectors; no measures and implementation framework on how the objectives would be achieved had been developed; and foreign contractors were not willing to build capacities of the locals as there was no incentive for doing that. Possible enhancements included: to modify and have an all-inclusive policy on subcontracting; to prepare a strategic plan on capacity building of local contractors with clearly laid out deliverables. Based on the findings, a subcontracting framework which would enhance local participation and increased capacity was developed. The framework could be used to improve the quality and capacities of local contractors.

Keywords: *Subcontracting, policy, construction industry, contractors, Zambia*

DEDICATION

To my wife and children

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LIST OF ACRONYMS & ABBREVIATIONS

AWP	Annual Work Plan
BEE	Black Economic Empowerment
CEEC	Citizen Economic Empowerment Commission
CIDA	Construction Industry Development Agency
CMAA	Construction Management Association of America
CSO	Central Statistical Office
CIDB	Construction Industry Development Board
CIOB	Chartered Institute of Building
GDP	Gross Domestic Product
FIDIC	International Federation of Consulting Engineers
ICU	Integrated Construction Unit
IPC	Interim payment Certificate
ZMW	Zambian Kwacha
MLGH	Ministry of Local Government and Housing
MoE	Ministry of Education
MoF	Ministry of Finance
MoWS	Ministry of Works and Supply
MMEWD	Ministry of Mines, Energy and Water Development
MYSCD	Ministry of Youth Sport and Child Development
NAMSSC	National Medium and Small Scale Contractors
NAPSA	National Pensions Scheme Authority
NCC	National Council for Construction
NRFA	National Road Fund Agency
OECD	Organisation for Economic Cooperation and Development
PACRA	Patents and Company Registration Agency
PSDA	Private Sector Development Association
RDA	Road Development Agency
SMEs	Small and Medium Scale Enterprises
SPSS	Statistical Package for Social Science
UK	United Kingdom
USA	United States of America

WCFCB	Workers Compensation Fund Control Board
ZNBC	Zambia National Broadcasting Corporation
ZRA	Zambia Revenue Authority

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The construction industry is a very important industrial sector of any national economy. Murie (2007) cited by Mwanaumo (2013), reported that globally, the construction industry is gigantic in nature contributing about three trillion United States Dollars (USD). The global contribution of the construction industry in terms of gross domestic product (GDP) is estimated to account for 10 percent of the GDP (Murie, 2007). The construction sector in Zambia has in recent past seen increased activity in infrastructure development. On average from 2010 to 2014, the construction sector has contributed about 9.9 percent of National Gross Domestic Product (GDP) (CSO, 2014).

The construction sector in Zambia has been dominated by contractors that have origins from China and South Africa (RDA, 2015). According to National Road Fund Agency (NRFA) (2015), over 70 percent of the major roads contracts were acquired by construction firms that are of foreign origins. The National Council for Construction (NCC) (2015), also reported that major contracts either in the construction of schools, Hospitals, and Stadia or indeed the hydro power stations had been carried out by contractors of foreign origin. Between 2011 and 2015, there has been accelerated major construction projects in the country with many construction firms engaged with either Ministry of Works and Supply (MoWS), Ministry of Local Government and Housing (MLGH), Ministry of Education (MoE), Ministry of Mines, Energy and Water Development (MMEWD), Ministry of Youth, Sport and Child Development (MYSCD) or indeed any other implementing agency.

Dominance of foreign contractors has mainly been attributed to deficiencies in the indigenous local contractors (Ministry of Works and Supply, 2012). The Government of the Republic of Zambia in response to this challenge introduced a mandatory subcontracting requirement on all public works in 2012. As part of pronouncements made by the Government of the Republic of Zambia in 2012 of empowering local contractors, the threshold for subcontracting of all major construction works was increased from 10 percent to 20 percent of the contract sums on all major contracts in the country (ibid). The 20 percent subcontracting policy, herein called the policy, was aimed at empowering, building capacities of local contractors and job creation.

According to Emuze and Adlam (2014), the difference in the contractor capacities with regard to institutional registration becomes an impediment which is encountered by the local contractors in the country. Major road construction works are very expensive and as such are limited to grade 1 to 3 contractors according to NCC classification system. As of May 2016, only 34 percent of all the contractors that were registered in grades 1 and 2 were local contractors while 66 percent were foreign companies (NCC, 2016). This disqualifies most of the Zambian owned local contractors in the procurement of works as most of them are registered in category 4 to 6 on the NCC contractors register. Table 1-1 shows the grades and categories and allowable thresholds according to NCC classification system.

Table 1-1: Grades and categories of contractors and their maximum contract values

Grade	Categories of Contractors and maximum contract values						
		B	C	R	M	E	ME
1	ZMW	> 40 m	> 50 m	> 150 m	> 50 m	> 75 m	> 75 m
	US Dollars	> 4 m	> 5 m	> 15 m	> 5 m	> 7.5 m	> 7.5 m
2	ZMW	40 m	50 m	150 m	50 m	75 m	75 m
	US Dollars	4 m	5 m	15 m	5 m	7.5 m	7.5 m
3	ZMW	20 m	25 m	50 m	25 m	30 m	30 m
	US Dollars	2 m	2.5 m	5 m	2.5 m	3 m	3 m
4	ZMW	10 m	15 m	30 m	15 m	15 m	15 m
	US Dollars	1 m	1.5 m	3 m	1.5 m	1.5 m	1.5 m
5	ZMW	6.75 m	10 m	15 m	10 m	10 m	10 m
	US Dollars	0.68 m	1 m	1.5 m	1 m	1 m	1 m
6	ZMW	3 m	3 m	5 m	3 m	5m	5 m
	US Dollars	0.3 m	0.3 m	0.5 m	0.3 m	0.5 m	0.5 m

K = Zambian Kwacha (Currency of Zambia)

Note: 1 USD = K10 as at 27th July 2016; source Zambia National Commercial Bank

Categories of contractors: B - General Building and Housing; C - General civil engineering works; R - General roads and earthworks; M - Mining services; E - General electrical and telecommunications; ME - Mechanical engineering works

Source: NCC contractor registration forms (2016)

1.2 RATIONALE OF THE RESEARCH

Government introduced the mandatory subcontracting policy in 2012 with the aim of empowering and building capacities of local contractors. The idea was to increase local contractor's participation in the construction industry. Through the mandatory subcontracting policy, subcontractors are brought on board either as nominated or domestic subcontractors after the main contractor is already established on site.

However, there is little or no literature on the policies concerning the empowerment and building capacities of local contractors in the Zambian construction sector. In addition, the policy statement only looks at the roads projects and excludes but yet very important construction sectors such as the energy, building and housing sectors.

It has further been argued by Muya *et al.*, (2014) in their study of the Zambian construction industry that many Small and Medium Enterprises (SMEs) contractors would not progress or grow even with the reservation pronouncement to subcontract 20 percent of the main contracts. They contended that many SMEs were only interested in receiving money rather than performing the work. As a result, foreign contractors prefer paying off some subcontracting SMEs, while the main contractor does all the work. The mandatory subcontracting policy would thus fail to meet its objectives in its current state.

In addition, local contractors, who were the intended beneficiaries of this policy have complained that the mandatory subcontracting policy is not working according to the intended purpose (Muya, *et al.*, 2014). According to selected media reports (between 2013 and 2014), local contractors explained that as much as government would want to empower the local contractors, the implementing agencies were failing to implement the policy that was announced by government. The reports further claim that many Zambian subcontractors were not benefiting on contracts as they were subjected to casualisation by foreigners companies. Some local contractors have called for the revision of the mandatory subcontracting policy. They have complained that the mandatory 20 percent subcontracting was not sufficient to sustain the local contractors (Zambia National Broadcasting Corporation (ZNBC), 9th February, 2015). Moreover, the Private Sector Development Association (PSDA) accused commercial banks in Zambia of favouring foreign contractors at the expense of the local contractors when lending money (ZNBC, 2015). The PSDA have argued that foreign contractors were finding it easy to borrow money from Commercial Banks to undertake government projects yet local contractors were denied access to financing by the same banks.

In spite of the above complaints, not much has been done to systematically address the problem especially as it relates to subcontracting. The implementing agencies in the construction sector don't seem to have established frameworks for implementing the subcontracting policy.

As far as the study could establish, there has been no research that has been conducted to analyse the effectiveness of the subcontracting policy and the key players in the construction industry in Zambia. This study therefore, seeks to analyse the subcontracting practices in order to achieve the objectives of the policy by designing a framework that can be used to build capacity and improve the implementation of subcontracting in Zambia.

1.3 RESEARCH QUESTIONS

The research questions emanating from the rationale of the study are as follows:

- (i) What are the current legal and regulatory subcontracting framework for the construction sector in Zambia?
- (i) What are the deficiencies in the 20 percent subcontracting policy/regulatory framework?
- (ii) What would be the possible improvements or modifications to the policy?
- (iii) What would be the best subcontracting framework in the Zambian construction sector?

1.4 THE AIM OF THE STUDY

The aim of the study was to develop a framework for mandatory subcontracting practices which could encourage local contractor capacity development within the construction industry in Zambia.

1.5 OBJECTIVES OF THE RESEARCH

In order to achieve the aim of the study, the following were the objectives of the research:

- (i) examine the current legal and regulatory framework for subcontracting in the construction sector;
- (ii) establish the deficiencies in the current 20 percent subcontracting policy;
- (iii) formulate possible improvements or modifications to the policy; and
- (iv) develop and validate the subcontracting framework for capacity development of local contractors.

1.6 SCOPE OF THE STUDY

Subcontracting is a very common practice in the construction industry and is also used in a number of other industries. However, the scope of this study was limited to the development of the subcontracting framework for the *Zambian* construction industry with a bias to the road and building construction sectors. A total of 40 projects undertaken between 2012 and 2015 in which mandatory subcontracting was applied were investigated.

1.7 RESEARCH METHODOLOGY

The research methodology explains various steps that were taken in studying the research problem. It included the research design with the following stages; Literature review, data collection, data analysis, development of the subcontracting framework and validation of the framework.

The study adopted literature review as a method for secondary data acquisition. Journal articles, conference papers, dissertations and books related to the subject were reviewed and incorporated in the relevant sections of the study. In other instances, internet sources and periodicals were made reference to. Semi-structured interviews and questionnaires were adopted for primary data collection. The instruments for data collection were piloted using four industrial experts prior to their use in data collection. The interviews were preliminary in nature and primarily targeted 30 persons drawn from main contractors, subcontractors, consultants and clients of public construction projects. A total of 26 out of 30 successfully participated in the interviews. The results of the interviews were then used to develop the questionnaire which was distributed to 70 respondents with a response rate of 71 percent.

The results of the research instruments were analysed and documented. The results from the analysis formed part of the basis for the development of the framework and conclusions. Recommendations were then put forward taking into account the research findings.

1.8 ORGANISATION OF THE DISSERTATION

The report is organised in the following chapters.

Chapter 1 outlines the background, rationale, aim and objectives of the study.

Chapter 2 is where relevant literature was reviewed in this study. This was done by reviewing Journals, books, technical papers etc. relevant to the study.

In Chapter 3, highlights of the research methodology, strategies and the justification for the method adopted for the study is presented.

Chapter 4 presents the results of the survey research. The analysis of the results is also presented.

Chapter 5 presents a discussion of the results on the subject.

In Chapter 6, the developed subcontracting framework is presented. The steps and how it works is also presented.

The dissertation ends with *chapter 7* which presents the conclusions, limitations and recommendations of the study.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The previous chapter presented the introduction of the study. It outlined the background, rationale and significance of the study. The aim and objectives of the study were also outlined. In order to have clear understanding of the topic, work that has been published by other scholars on subcontracting was reviewed in this chapter. In order to put the research topic into perspective, the construction sector in Zambia was discussed in detail.

2.2 SUBCONTRACTING IN GENERAL

Hoban and Francis (2010) define subcontractors as specialists hired by the main contractor to perform specific tasks on a project as part of the overall contract. Subcontracting in the construction industry has greatly increased in recent years. According to El-Mashaleh (2009), subcontracting has resulted in main contractors concentrating their efforts on managing site operations rather than employing direct labour to undertake construction work. General contractors are responsible for managing projects such as contract administration with clients, project financing, material and equipment procuring and monitoring the project progress (Benjaoran, 2009) cited by Lew *et al.*, (2012).

Ng *et al.*, (2009) classified subcontractors into two main categories; (i) equipment-intensive subcontractors (who are hired due to their specialised plant and equipment), and (ii) labour-intensive subcontractors (those who are hired as a result of their specialized labour resources). Costantino *et al.*, (2001) established in their study that labour-only subcontractors are beneficial to main contractors as they reduce the cost of mobilisation and purchasing of materials. Furthermore, Mbachu (2008) categorised subcontractors from a contractual point of view as:

- (i) *domestic subcontractors*; those hired by the contractor to perform specific tasks;
- (ii) *selected subcontractors*; subcontractors solicited from a recommended list of potential subcontractors in the tender documents; and
- (iii) *nominated subcontractors*; nominated by the client or client's agent to undertake specified aspects of the main contract.

2.2.1 *Domestic Subcontractors*

Subcontractors that are selected and appointed directly by the main contractor are called domestic subcontractors (Olusola, *et al.*, 2016). These type of subcontractors do not have a contract with the client, but work on site as if they were the main contractor's personnel and are coordinated by the main contractor's site management team. Domestic subcontractors have a responsibility to deliver work that complies with the approval of the client and consultant and are paid by the main contractor for the work done (Olusola, *et al.*, 2016). The payment terms and conditions of the contract are negotiated between the domestic subcontractor and the main contractor. Under this arrangement, the main contractor retains the responsibility for ensuring domestic subcontractors comply with all relevant statutory legislation and is answerable to the client for the works done and materials supplied.

2.2.2 *Selected subcontractors*

Those subcontractors solicited from a recommended list of acceptable subcontractors provided by the client in the tender documents (Mbachu, 2008). They are often used in public sector projects and for projects based on the form of contract where provision for nomination is not possible. The main features of selected subcontracting are as follows: The tender documents include the names of potential subcontractors. The main contractor has the opportunity to reasonably object to any firm on the list. The main contractor leads the tender process for each selected subcontractor package by assembling the tender documents, issuing and receiving tenders, and selecting a subcontractor.

2.2.3 *Nominated subcontractor*

International Federation of Consulting Engineers (FIDIC, 2010), define nominated subcontractor as a subcontractor who is stated in the contract as being a nominated subcontractor or whom the Engineer (consultant) instructs the contractor to employ as a subcontractor subject to objection to notification by the main contractor. Nominated subcontracting may also be used in cases where, at the tender stage, parts of the project had not been fully detailed. Therefore, the use of nominated subcontractors allows the job to go to tender, with the nominated works being dealt with at a later date. The principal differences between domestic and nominated subcontractors are:

- (i) the tender process is organised and run by the Designer who invites suitable subcontractors to submit a tender; and

- (ii) unlike the domestic subcontractor, a nominated subcontractor does enter into a formal contract with the client.

According to Albino and Garavelli (1998), the general contractors' performance is strongly dependent on subcontractors. Mbachu (2003) reinforced this notion and stated that the ability of the general contractor and consultant to deliver the project within time, quality and cost depends largely on performance of subcontractors.

The contribution of subcontractors in construction work can be more than 50 percent (Albino and Garavelli, 1998). In some sectors, it can be as much as 90 percent of the total project value to a construction process (Kumaraswamy and Matthews, 2000). Further studies confirm that subcontractors execute a significant portion of the construction work (Arditi and Chotibhongs, 2005; Wang and Lui, 2005; Ng *et al.*, 2008a; Ng *et al.*, 2008b). Generally, many construction projects whether large or small, public or private are managed through a relationship between a main contractor and subcontractors. Therefore, main contractors normally develop strategies that allow them to control subcontractors effectively and efficiently including procurement, cost, scheduling, quality, and safety and manage the relationship in terms of partnering, leadership style, and communication.

Arditi and Chotibhongs (2005) indicated that the use of subcontracting has proved to be efficient and economical in the use of available resources. Subcontracting might improve quality and reduce project time and costs (Ng *et al.*, 2003). Arditi and Chotibhongs, (2005) argued that qualified subcontractors are usually able to perform their work specialty more quickly and at a lesser cost than the general contractor.

2.3 POLICIES AFFECTING THE CONSTRUCTION INDUSTRY

According to Wells (2000), the construction industry in Africa is characterised by extensive subcontracting; temporary and insecure employment; and poor working conditions-a few workers are protected by labour laws or collective bargaining agreements. In their study of the subcontracting in the South African Construction Industry, CIDB (2013) indicated that legislative and policy interventions around subcontracting should be aimed at improving the environment within which subcontracting takes place.

Many countries are encouraging the promotion of SMEs as they strive to industrialise and bring about economic development for their people. Governments in this regard, can come up with policies one of which is subcontracting (Humphrey and Schmitz, 1995). Though subcontracting is widely used in developed world, it is not well developed in less developed countries (Mlenga, 2002).

In South Africa, many public sector projects have requirements to encourage local economic development and to oblige contractors to adhere to various policy and regulatory conditions such as local employment, socio-economic targets such as training and skills development, and Black Economic Empowerment (BEE) (CIDB, 2013). Contractors feel that such requirements on projects have worked well especially in creating employment, but are very hard to sustain in times of difficult economic and construction industry climate where projects are hard to come by. In addition, such policies have implications for the clients on tender prices, and monetary constraints may thus, affect compliance (ibid).

2.4 KNOWLEDGE AND SKILLS TRANSFER THROUGH SUBCONTRACTING

The skills transfer and knowledge acquisition process takes place through various mechanisms in the construction industry. The participation of local construction firms as subcontractors to foreign firms is an important element in the concept of technology transfer as well as building the capacities of local contractors. One of the major conditions for development is access to new technology. If developing countries are to become industrialised, the overwhelming part of such technology must be imported, at least at the initial stages (Able-Thomas, 1996). However, successful development only happens if both main and subcontractors are intent on long term strategic relationships, as most subcontractors are reluctant to share confidential information with other companies, especially financial information (CIDB, 2013).

2.5 ETHICAL CONSIDERATIONS IN THE CONSTRUCTION INDUSTRY

The construction industry is classified as the most fraudulent industry worldwide (Transparency International, 2005). Studies carried out in various countries such as United States of America (USA) (FMI/CMAA, 2004 and Jackson 2004/2005), Australia (Vee and Skitmore, 2003), South Africa (Pearl, Bowen and Mankanjee, 2005), and Hong Kong (Fan and Fox, 2005) provides evidence that the construction industry is plagued with ethical issues. Adnan *et al.*, (2012) stated in their study that the construction industry

is considered to be one of the most susceptible to unethical practices because it involves substantial capital investments. They further stated that unethical practices can take place at every phase of a construction project i.e. during planning and design, pre-qualification and tender, project execution and operation and maintenance. Such practices can result in projects which when completed are considered unnecessary, unsuitable, overlay complex components, overpriced or delayed (Hamzah *et al.*, 2010).

The effects of unethical practices have lasting impact that is detrimental to the construction and engineering companies such as wasted tender expenses, tendering uncertainty, increased project costs, economic damage, blackmail, criminal prosecutions, fines, blacklisting and reputational risk (Adnan *et al.*, 2012).

Muya and Mukumbwa (2013), in their study reported the prevalent unethical practices which included: collusion; price differentiation; bid rigging; tampering with claims and payment certificates; conflict of interest; bribery; embezzlement; tender manipulation; negligence; lack of integrity; and fraud.

In addition to the highlighted common unethical issues, Transparency International (2005) illustrated that corruption can add up to 25 percent to the cost of public contracting, generating waste of public resources, missed development opportunities and unstable environment for businesses. Within the Zambian construction industry, unethical issues arise from SME's tendency of selling their subcontracted portions back to main contractors (Muya *et al.*, 2014).

2.6 SELECTION OF SUBCONTRACTORS

During the subcontractor selection for the construction contract, it is common that the lowest bid price is usually the key determinant factor (Mbachu, 2008; Jarkas, 2013). Fagbenle *et al.*, (2011) also found out that this main reliance on subcontractor's bid proposal to make a selection decision have been the practice in Nigeria. They further asserted that the practice had contributed to jobs being awarded to incompetent subcontractors. The use of incompetent subcontractors may result in poor workmanship and contribute to construction failure.

Mbachu (2008) and Dolo *et al.*, (2011) suggested that the selection of subcontractors should not be based solely on bid price, but rather, other criteria should play an influencing role in the process to arrive at reasonable construction team members. There

are several methods that can be used to select a subcontractor. Studies on the subject have reported that one main factor to consider in the selection of subcontractors is based on the lowest tender (Latham, 1994; Hartmann *et al.*, 2009; El-Mashaleh, 2013).

However, Kumaraswamy and Matthews (2000) argued that such practice is not the best as experiences have shown that the lowest tender may have originated from wrong estimates, inadequate risk analysis, deliberate decision to use substandard resources and even bad pricing strategies aimed at generating huge claims for extra payments through weaknesses in the contract document. In the *Zambian construction industry*, there are some projects that have been reported to have their contract values almost doubling (Kaliba, 2010).

Other researchers (Ko *et al.*, 2007; Ng *et al.*, 2008a; Ng *et al.*, 2008b; Arslan *et al.*, 2008; Mbachu, 2008) added that performance of relevant previous projects, financial capacity, completion of job within time, prompt payment to labour, quality of production, standard of workmanship, quality of materials used, compliance with site safety requirements, compliance with contract and collaboration with other subcontractors are also paramount factors to be considered in the selection of subcontractors.

2.7 INTERNATIONAL PRACTICES

Over the past 50 years, the United Kingdom (UK) government has sponsored several reviews of its construction industry in order to improve the way the industry is organised and the way construction work is procured (Ashworth and Hogg, 2000; Egan, 1998) cited by Yik *et al.*, (2006). Findings of the reviews though not very explicit signify that problems with “subcontracting”, mainly arising from compartmentalisation of different construction trades or fragmentation of the construction process, were common and needed to be rectified. The following are some of the excerpts on subcontracting (Egan, 1998):

- “... *the extensive use of subcontracting has brought contractual relations to the fore and prevented the continuity of teams that is essential to efficient working.*” (p. 11)
- “*The conventional construction process ... may well minimise the risk to constructors by defining precisely, through specifications and contracts, what the next company in the process will do.*”

Unfortunately, it is less clear that this strategy protects the clients and it often acts as an effective barrier to using the skills and knowledge of suppliers and constructors effectively in the design and planning of the projects.” (p. 22)

- *“... there is not enough multi-skilling. The experience of other industries is that heavily compartmentalised, specialist operations detract from overall efficiency. More building techniques require fewer specialist craftsmen but more workers able to undertake a range of functions based around processes rather than trade skills.” (p. 29)*

According to Yik *et al.*, (2006), the practice of subcontracting in construction offers several advantages, e.g. production efficiency and organisational flexibility, but it adds coordination costs.

The US construction industry is characterised by a myriad of small firms and extensive subcontracting, reflecting the fragmented structure of the industry (US Bureau of the Census, 2004). The construction industry in US is market oriented such that barriers to entry is generally low in general contracting (Oyegoke, 2001).

In Australia, the Construction Industry Development Agency (CIDA) developed the Australian Construction Industry Prequalification Criteria to provide the clients, contractors, consultants and subcontractors with a consistent and objective framework to determine which companies pre-qualify for work or register for particular projects (Yik *et al.*, 2006).

The criteria developed by CIDA adopted the percept of quality management. The criteria are integrated with a number of other management tools including the Project Initiation Best Practice Guide, the Contracts Users’ Guide, the building Best Practice in the Construction Industry Manual, and the Creating Productive Partnerships guide (CIDA, 1995). For contractors, subcontractors and consultants the Australian Construction Industry Prequalification Criteria provides a consistent basis upon which to tender or negotiate for work; recognise excellent performance and reward those organisations which strive for world class performance; and provide the basis for marketing their abilities measured against an objective framework (ibid).

2.8 REGULATORY INSTITUTIONS IN THE CONSTRUCTION INDUSTRY IN ZAMBIA

There are a number of institutions that either regulate or have an impact on the delivery of quality infrastructure in Zambia. The following are the main institutions that deal with legislation and other regulatory functions that were identified:

2.8.1 *Patents and Companies Registration Agency*

The Patents and Companies Registration Agency (PACRA) is a semi-autonomous executive agency of the Zambian Ministry of Commerce, Trade and Industry. Its principal functions are to operate a legal system for registration and protection of commercial and industrial property and to serve as a legal depository of the information tendered for registration. Other functions include: administer and attend to matters incidental to the Companies Act Cap. 388; the Registration of Business Names Act No. 16 of 2011; Patents Act Cap. 400; Trade Marks Act Cap. 401; and Registered Designs Act Cap. 402.

2.8.2 *National Pension Scheme Authority*

It is a requirement by law in Zambia under the provisions of the National Pension Scheme Authority (NAPSA) Act of 1996 that every person who is employed by a company is required to register with NAPSA. Both Zambians and non-Zambians working in Zambia are required to register with NAPSA as members. The employee and the employer are both required to make monthly contributions based on the employee gross earnings.

2.8.3 *Zambia Revenue Authority*

The Zambia Revenue Authority (ZRA) is a government institution that was created to optimise and sustain revenue collection through integrated, efficient, cost effective and transparent systems, professionally managed to meet the expectations of all stakeholders. It is basically an institution that deals with revenue administration. All companies are required by law to pay taxes in Zambia. The institutions dealing with construction companies are linked in one way or the other. For example, any company that seek to register with the NCC must show proof that they pay tax and as such would be required to submit the tax clearance certificate.

2.8.4 *Citizens' Economic Empowerment Act No. 9 of 2006;*

The CEEC Act was aimed at uplifting the targeted citizens who suffered marginalisation by levelling the playing field and increase the participation of citizens in the national economy. The Act was meant to target especially the women, youth and the physically

challenged citizens. One of the key components of achieving the economic empowerment is the transformation of society in order to ensure sustainable development of human resource by recruiting, training and promoting local people into leadership roles in enterprises. In order to promote growth for Small and Medium Enterprises (SMEs) in the construction sector, one of the strategies that government used was through the enactment of Citizen Economic Empowerment Commission (CEEC) Act No. 9 of 2006. The CEEC Act provides for the preferential procurement policy framework for public sector contracts.

a) Citizens economic empowerment (preferential procurement) regulations, statutory instrument no. 36 of 2011;

Section 19 of the Citizen Economic Empowerment Act of 2006 contains part of the regulations hereby cited in part:

4. A State institution may, in evaluating a bid, adjust the bid price in order to facilitate preferential evaluation of a bid as follows:
 - (i) for a citizen-influenced company, by four percent;
 - (ii) for a citizen-empowered company, by eight percent;
 - (iii) for a citizen-owned company, by twelve percent;
 - (iv) for domestically manufactured goods by a citizen-influenced company, citizen-empowered company and citizen-owned company by fifteen percent.

2.8.5 The National Council for Construction

The Government of the Republic of Zambia established by Act of parliament (Act 13 of 2003) the National Council for Construction (NCC), a statutory body to provide for promotion and development of the construction industry in Zambia. NCC is a regulatory body for all contractors in Zambia. It is a body that issues practising certificates annually to practicing contractors. Other main functions of NCC are; to provide for the registration of contractors; to provide for the regulation of the construction industry, to provide for the construction school; to provide for the training of persons engaged in construction or in activities related to construction. Thus, the major tasks of NCC as a regulatory body are to enhance project delivery, improve construction industry stability and industry performance and develop human resources and promote the capacities of Zambian contractors through training

2.8.6 *Workers Compensation Fund Control Board (WCFCB)*

This is a social security scheme responsible for compensating workers in respect of accidents suffered and diseases contracted during the course of employment in accordance with the provisions of the Workers' Compensation Act No. 10 of 1999 of the laws of Zambia. It is by law that construction company's employees are registered with the WCFCB.

2.8.7 *Zambia Public Procurement Authority (ZPPA)*

The Government of the Republic of Zambia established by Act of parliament (Act 12 of 2008) the Zambia Public Procurement Authority (ZPPA) formerly known as the Zambia National Tender Board to ensure transparency and accountability in procurement in order to promote the integrity of fairness and public confidence in the procurement process. The powers of ZPPA include the responsibility of policy, regulation, standard setting, compliance and performance monitoring, professional development and information management and dissemination in the field of public procurement. The Authority provides the standard bidding documents for goods and services to the public institutions dealing with public funds.

2.9 CRITIQUE OF LITERATURE REVIEWED

A series of studies have been done to enhance the subcontracting practices by focusing on either registration, selection, or monitoring (Ng *et al.*, 2008). According to Lew *et al.*, (2012), focus of researchers goes to either determining the constituents of subcontracting or developing new approaches/ techniques to select and/or manage subcontractors. This study however focused on building of capacities through the policy on subcontracting.

The construction industry has been plagued with ethical issues (Muya and Mukumbwa, 2013). Within the Zambian construction industry, subcontractors have been reported to connive with main contractors by selling off their portion of work resulting in lack of knowledge and skills transfer. The studies however, have just identified the problem and no solutions have been put across on how this vice can be curbed.

There has also been little documentation on subcontracting practices in Zambia. Through this study, a contribution to the body of knowledge will be made through documentation of the research findings as well as development of subcontracting framework with capacity building at its core.

2.10 PAPERS REVIEWED

Table 2-1 presents a summary of some of the technical papers reviewed.

Table 2-1: Some of the papers reviewed on subcontracting

No.	Author	Title of Study	Methodology	Findings/Conclusions	Comments, Critique (If Any)
1.	Akanni, and Osmadi, (2015)	Influence of trust attributes in subcontractors' selection in southwestern Nigeria	Literature review Interviews Questionnaire survey	The paper concluded that trustworthiness is one of the values that should be considered in the selection of subcontractors during the construction operation.	Study limited to attributes that should be considered during selection of subcontractors and not policies that should be used to empower local contractors.
2	Kulemeka, (2015)	Critical Factors Inhibiting Performance of Small and Medium Scale Contractors in Sub-Saharan Region: A Case for Malawi	Literature review Questionnaire survey	The study found that the main inhibitors to performance of small and medium sized contractors were economic in nature. The study concluded that small and medium sized contractors will remain unsustainable and their performance unsatisfactory without the intervention of the government. In order to address the challenges faced by the small and medium sized contractors in Malawi, it is critical for the government to continuously review policies with regard to small scale contractor development programmes to ensure that it contributes to the success of small contractors	
3	Mirawati <i>et al.</i> , 2015	Supplier-Contractor Partnering Impact on Construction Performance: A Study on Malaysian Construction Industry	Survey Method using a questionnaire	The study concluded that for many years, the Malaysian construction industry has faced underperformance. The impacts have been significant with a tendency to decelerate the country's transformation into a developed nation by year 2020	The paper focusses on supplier-contractor partnering and its impact on construction performance

No.	Author	Title of Study	Methodology	Findings/Conclusions	Comments, Critique (If Any)
4	Polat and Damci, (2014)	Subcontracting Practices in International Construction Projects: Evidence from Turkish Contractors	Literature review Questionnaire survey	This study revealed that Turkish contractors prefer to work with subcontractors in international construction projects for reducing cost. The survey results indicated that Turkish contractors pay attention to the performances of the subcontractor candidates in previous projects during the subcontractor selection process.	The research was limited to subcontractor selection by Turkish Contractors
5	CIDB (2013)	Subcontracting in the South African Construction Industry; Opportunities for Development	Literature review In-depth interviews	The primary objective of the study was to understand skills development within the subcontracting sector in South Africa. The paper identified the following key challenges faced by subcontractors that influence their performance: lack of security of payment; bid price pressure from main contractors; weak management practices; poor attitudes within subcontracting organisations; and general industry-wide factors, including lack of working capital, high levels of competition and skills shortages.	
6	Marzouk, <i>et al.</i> , (2013)	Factors influencing subcontractors' selection in construction project	Literature review Questionnaire survey	The study identified twelve factors which were determined to be important. The factors included: Flexibility and cooperation when resolving delays, Reputation, delay, Failure to comply with the quality specifications, Quality, Suppliers incompetency to deliver materials on time, Failure to complete contract, Physical resources, Tender price, Contractor's difficulty in reimbursement, Flexibility in critical activities and Safety consciousness on the job site.	

No.	Author	Title of Study	Methodology	Findings/Conclusions	Comments, Critique (If Any)
7	Ministry of Works & Supply, (2012)	Policy Statement: Empowerment of Zambian owned Local Road Contractors	Literature review	The initiative Government took to empower local contractors, create jobs for the Zambian citizens and create capacity among local contractors.	
9	Abu Bakar and Tufail, (2012).	Transforming Capability of Indigenous Contractors through Technology Transfer: A Malaysia Experience	Desk study and Questionnaire survey	The study revealed that technology transfer does contribute in some way or another to the development of local contractors in a well-structured programme between local and foreign contractors	The study looked at the programme that was put in place and not the policy
10	Yoke-Lian, <i>et al.</i> , (2012)	Review of Subcontracting Practice in Construction Industry	An exploratory study using interviews	The results of the study showed that effective subcontractor selection and monitoring would minimise the problems during construction	Study limited to subcontractor selection.
11	Cheng, <i>et al.</i> , (2011)	Evaluating subcontractor performance using evolutionary fuzzy hybrid neural network	Literature review Questionnaire survey	The study identified 12 significant factors to assess subcontractor performance. The study concluded that with the trained input-output mapping relationship, subcontractor final scores can be provided to general contractor managers directly.	
12	El-Mashaleh, (2011)	Subcontractor Selection Based on Data Envelopment Analysis	Literature review	The study proposed an approach that provides a framework for selection decisions at large. It is well-suited to guide organisations that are exercising selection decisions.	The paper contributes a Data Envelopment Analysis (DEA) model for subcontractors' selection
13	Laryea, (2010)	The evolution of indigenous contractors in Ghana	Literature review Discussions and unstructured interviews	The study revealed that the current construction market in Ghana is dominated by foreign contractors even though local contractors possess sufficient technical expertise. The paper pointed out that many local contractors lack the capacity to carry out major projects because of low capitalisation and poor organisational structures	The study pointed out that government had to do a lot in order to enhance the participation of local contractors on huge contracts in Ghana.

No.	Author	Title of Study	Methodology	Findings/Conclusions	Comments, Critique (If Any)
14	El-Mashaleh, (2009)	A Construction Subcontractor Selection Model	Literature review	The paper contributes a DEA model for subcontractors' selection that addresses the limitation associated with existing models and results in one holistic view for subcontractor evaluation.	The paper was only limited to subcontractor selection.
15	Takim <i>et al.</i> , (2008)	International Technology Transfer (ITT) Projects and Development of Technological Capabilities in Malaysian Construction Industry: A Conceptual Framework	Literature review	The paper developed a conceptual framework for ITT projects in Malaysia	
16	Yik <i>et al.</i> , (2006)	Best Practices in Managing Specialist Subcontracting Performance	Literature review, Interviews & Questionnaire survey	The report provided an overview of the major industry-wide reviews conducted in UK, US, Australia and Singapore. Issues of concern that are specific to individual countries were found to common to other countries. Major issues such as payment terms, conditions in construction contracts and frequent occurrence of conflict and disputes were found to be common. The report concluded by indicating that action was in Hong Kong similar to what was taken in UK, US, Australia and Singapore. Improvement of contract terms and conditions, the establishment of a voluntary subcontractor registration scheme and the enactment of the Construction Workers Registration Ordinance was undertaken.	The report did not look at the policies that may improve subcontracting but about specialist work of subcontracting in the building construction industry of Hong Kong

2.11 SUMMARY

Literature relevant to subcontracting was critically reviewed in this chapter. The international practices on subcontracting were analysed to have a broader view on subcontracting. The policies that affect the construction industry were also analysed. The other documents reviewed included the selection of subcontractors, knowledge and skills transfer from main contractor to subcontractor and ethical issues that may affect the construction industry were also analysed. The next chapter deals with the research methodology and the research design undertaken to achieve the study objectives.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter generally presented reviewed literature on subcontracting in construction projects. This chapter of the study presents the methodology used to carry out the research presented in this dissertation in order to achieve the study aim and objectives. The research methodology further explains how the problem at hand was investigated. It also describes the characteristics of the research population, sampling techniques employed, research instruments and the methods of data analysis employed.

3.2 RESEARCH METHODOLOGY

Research methodology is defined as a way of systematically solving the research problem (Kothari, 2004). It includes the various steps that are taken by a researcher in studying the research problem along with the rationale or logic behind them. The research methodology in this study was designed as shown in the framework illustrated in Figure 3-1.

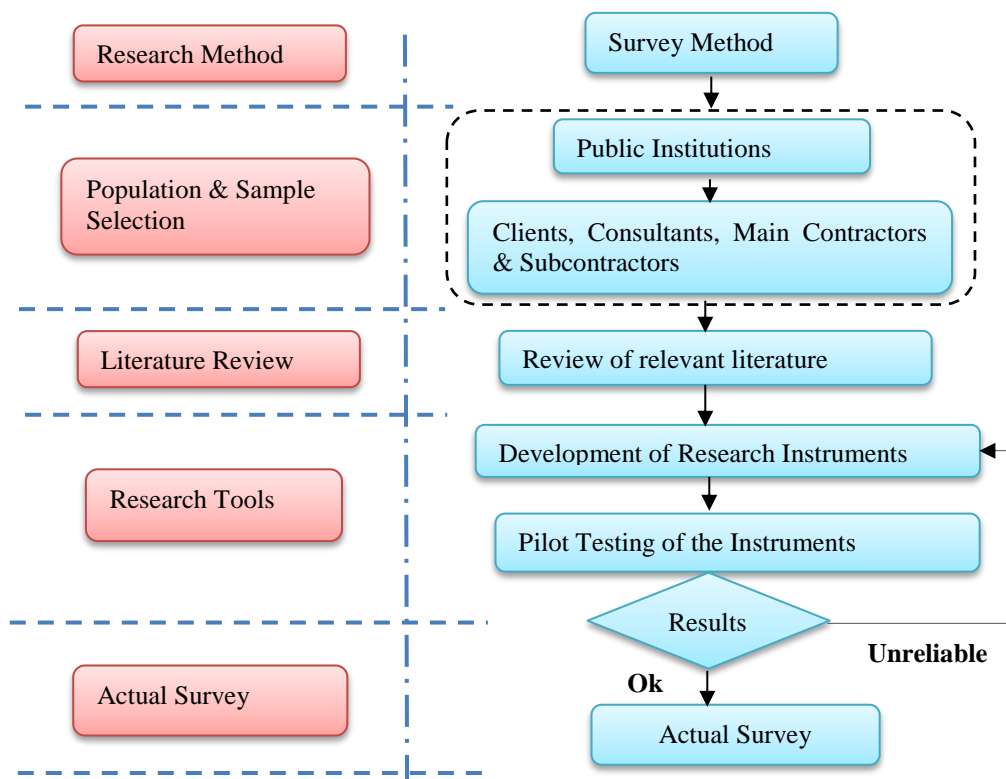


Figure 3-1: Framework for the research methodology

3.3 RESEARCH DESIGN

Kothari (2004) defines research design as the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. It is the scheme, outline or plan that is used to generate answers to research problems (Orodho, 2003). The framework in Figure 3-2 shows the design used in this study.

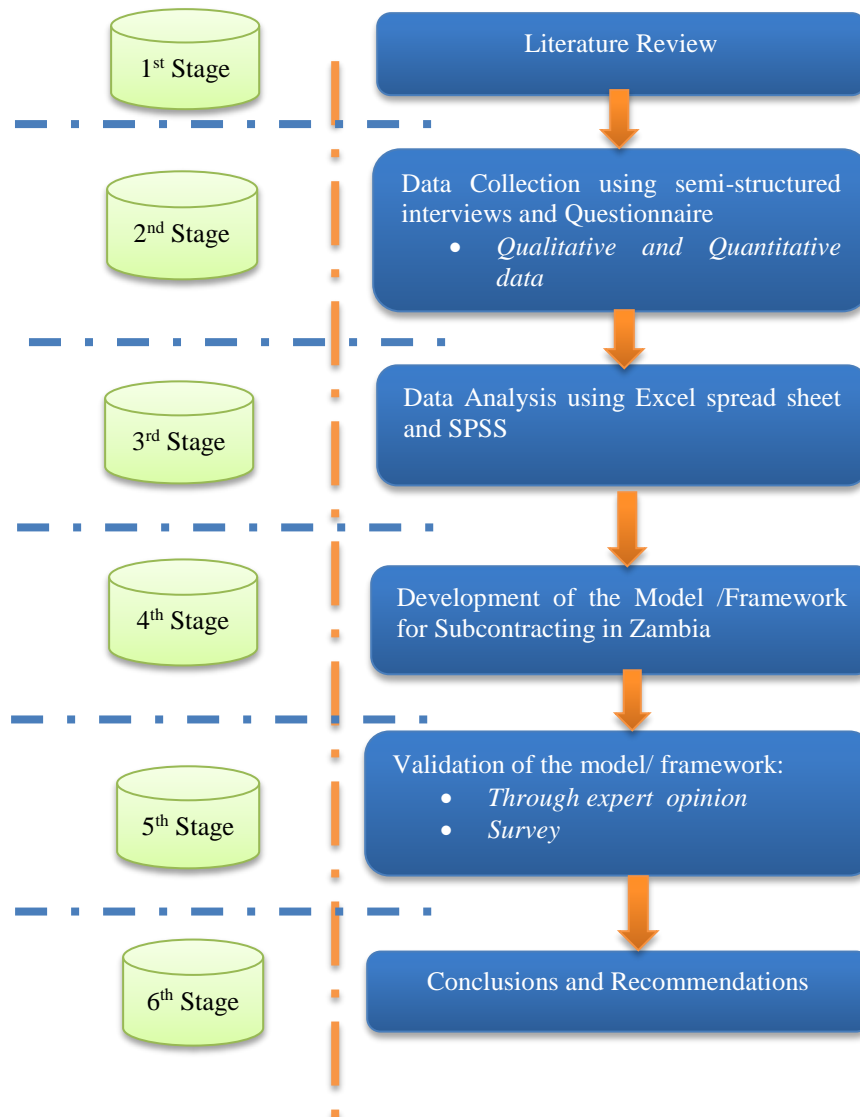


Figure 3-2: Research design framework

The research designed followed a logical sequence. The rationale, aims and objectives of the research were therefore stated at the outset. The study was conducted in five stages. The first stage was reviewing relevant literature on subcontracting. The literature review phase overlapped all the stages as it was important to incorporate even latest information on the research subject. The second stage was data collection which was done through

interviews and questionnaire surveys. The third stage was the analysis of the data collected. The fourth stage was the discussion and development of the subcontracting framework or subcontracting management framework. The framework was designed to improve subcontracting practices in the construction of projects. The information from the earlier stages was used as input data in the fourth stage. The fifth stage was the validation of the subcontracting framework. This was done using expert opinion and questionnaire.

3.4 STUDY POPULATION

Kombo and Tromp (2006) define population as a group of individuals, objects or items from which samples are taken for measurement. In other words, population refers to a total group of persons or the comprehensive collection of items that are relevant to the study (Steyn *et al.*, 1987) cited by Mwanaumo (2013). Walliman (2011) argues that population in research, does not necessarily mean a number of people, it is a collective term used to describe the total quantity of things (or cases) of the type which are the subject of the study. Therefore, population can be certain types of objects, organizations, people or even events.

In this study, the target group was drawn from clients, consultants and contractors who had worked on 40 projects involving mandatory subcontracting in the Zambian construction sector during the period 2012 to 2015. Clients included technical persons working for organisations such as the Road Development Agency, Ministry of Works and Supply, Ministry of Education, Ministry of Local Government and Housing, and National Road Fund Agency. Consultants were drawn from member firms of the Association of Consulting Engineers while contractors were drawn from organisations registered with the National Council for Construction in category B, C and R and grades 1 to 6. A total of 83 potential respondents were identified.

3.5 SAMPLING TECHNIQUES

Non-probability or non-random sampling method was used in this study. Non-probability sampling provides a variety of techniques to select samples, the majority of which include an element of subjective judgement (Saunders *et al.*, 2012). In order to select cases that would best answer the research questions and meet the objectives of the research, purposive sampling was chosen because it purposely targets a group of people believed to be reliable and useful for the study.

3.6 SAMPLE SIZE DETERMINATION

Saunders *et al.* (2012) explained that the size of the sample in non-probability sampling, apart from the quota sampling, is ambiguous and there are no rules. However, they added that a logical relationship between the sample selection technique, the purpose and focus of the research is very important. This means that the sample size is dependent on the research questions and the objectives. Creswell (2007) gives a guide that generally the researcher should undertake between 25 and 30 interviews for a general study. In addition, Saunders *et al.* (2012), gave a further guidance of sample sizes for different types of study as shown in Table 3-1.

Table 3-1: Minimum non-probability sample size

Nature of study	Minimum sample size
Semi-structured/in-depth interviews	5 – 25
Ethnographic	35 – 36
Grounded theory	20 – 35
Considering a homogeneous population	4 – 12
Considering a heterogeneous population	12– 30

Source: Saunders et al. (2012)

Based on the guidance provided in Table 3-1 as well as Creswell (2007), the sample size needed to be a minimum of 25 for interviews and 30 for questionnaires. Since the interviews were preliminary in nature, a sample size of 30 was considered adequate. Scholars such as Nieswiadomy (2002), Lackey and Wingate (1998) recommend obtaining approximately ten participants or 10 percent of the final study size, the final decision to be guided by cost and time constraints as well as by size and variability of the population.

The sample size for the questionnaire was computed at 95 percent confidence level with a 5 percent confidence interval. The total population was 83 experts giving a sample size of 69. A sample size of 70 was however adopted for convenience.

3.7 DATA COLLECTION

In this study, both qualitative and quantitative data was collected by employing three main data collection techniques, namely, literature review and project/contracts document analysis, semi-structured interviews and the questionnaire. Both primary and secondary data sources were used in this study

3.7.1 Literature review

The main objective during literature review was to get a better understanding of subcontracting practices in general. Secondary data was collected and reviewed in order

to lay the foundation of the research work and build upon what has been established by other researchers. The sources of literature used included the following: books, journal articles, research papers, government and parastatal reports, published and unpublished thesis and dissertations.

Project documentation from public and quasi-government institutions implementing infrastructure projects were also reviewed. The documents reviewed included tender documents, design reports, contract documents, minutes of site meetings, interim payment certificates, progress and annual reports. These project documents were analysed in order to understand how subcontracting was being implemented in relation to the subcontracting policy.

3.7.2 Interviews

Semi-Structured interviews were conducted prior to questionnaire surveys. Semi-Structured interviews were conducted between February and March 2016. The interviews were aimed at obtaining preliminary data which was then used to enhance the questionnaire survey. The interview questions developed covered three thematic areas of the company or individuals from the survey sample. The semi-structured interview questions were designed to: (i) collect personal information of respondents; (ii) establish the existing subcontracting practices; and (iii) establish from respondents the laws and regulations governing the construction sector in Zambia. The interviews were conducted after making prior arrangements with the respondents through phone calls and visiting their offices. The interview data was captured by audio-recording the conversations and taking notes.

3.7.3 Questionnaire Distribution and Collection

The self-administered questionnaire survey was adopted based on the advantages that a representative sample would be realised with little time or costs. The questionnaire was developed to cover all aspects needed to accomplish the purpose of the research. The respondents were assured of anonymity which in turn helped them to be honest in their answers. These factors made this method more advantageous compared to the other methods available. However, it was also necessary to ensure that the questionnaire was reliable. Therefore, a questionnaire was pilot tested on four (4) stakeholders involved in subcontracting: client, consultant, main contractor and subcontractor.

The questionnaire, which carried an introductory letter of the subject, was written in one format. The questionnaire survey was conducted between 20th March 2016 and 20th April 2016. A total of 70 questionnaires were distributed. The distribution was as presented in Table 3-2.

Table 3-2: Questionnaire distribution per category of respondents

Group	No. distributed
Clients	10
Consultants	20
Main Contractors (Grade 1 to 3)	10
Subcontractors (Grade 4 to 6)	30
Total	70

Considering that a purposive sampling technique was adopted, an inclusion criteria was established. This was to remove biasness in selection of potential respondents. The inclusion criteria were as follows:

- (i) Respondents should have had a minimum of a technical certificate in any construction related programme;
- (ii) Respondent should have had a minimum of three (3) years' work experience in construction; and
- (iii) Respondent must have been involved on any of the sampled 40 projects which involved mandatory subcontracting.

3.8 DATA ANALYSIS TOOLS

Qualitative data collected from interviews was analysed using a Quick Impressionist Summary technique. This rapid data analysis technique was chosen because of its efficiency and ability to provide the required information which was useful in formulating the questionnaire. The method involves: summarising key findings and noting the frequent responses from respondents; explanation; and interpretation and conclusion on the subject matter.

Quantitative data collected from the survey was analysed using descriptive statistical techniques. In order to arrange the raw data in a systematic and reliable manner, an advanced data management and statistical analysis methods were required. For this purpose, Statistical Package for Social Science (SPSS) software and Excel were chosen as the best options available.

3.9 RELIABILITY AND VALIDITY TEST

According to Saunders et al (2012), reliability refers to consistency. In this study, the questionnaire was the main instrument and for it to be valid it must be reliable. Pre-testing of the questionnaire is the only way to measure what the researcher intend to measure. In order to establish the validity of the instrument used in this study, the instrument was pre-tested in a pilot survey which was conducted on samples of the respondents. The questionnaire was distributed to four (4) respondents which comprised one main contractor, one subcontractor, one client representative and one consultant for assessment and feedback. The aim of this test was (Jarkas, 2013):

- (i) to assess the clarity, interpretation and appropriateness of the questions provided in the questionnaire concerning the subcontracting practices in Zambia;
- (ii) to assess the internal consistency of the questionnaire; and
- (iii) to determine the efficiency, with which the respondents could complete the questionnaire.

The method of face validity was used to carry out the content validity of the research instrument. The method was used because it is simple and easy to apply in the interest of time. This was achieved by showing the samples of the questionnaires to research supervisors and professional experts in the field. There were minor comments, which were mainly related to removal of unnecessary questions and some contextual interpretations of few questions. Some of the respondents' feedback was positive and their contributions brought some significant improvement to the instrument.

3.10 ETHICAL CONSIDERATIONS

Information obtained from respondents was solely for the purposes of the study. During the study, permission was sought from the clients and other public institutions where data was collected. The research was voluntary and information collected was provided willingly by the respondents. The study was considered sensitive and data collection was structured in such a way that respondents were not required to provide their personal details.

3.11 SUMMARY

In this chapter, information on how data were collected and analysed in order to address the objectives of the investigation is presented. In this regard, the chapter covered the

research methodology, research design and a description of the data collection and data analysis tools employed. The chapter also provided information on the sampling method as well as the reliability and validity of the tools used. The sample size for the semi-structured interviews was determined at 30 while the sample size for the questionnaire survey was determined at 70 using purposive sampling. In the next chapter, data collected using interviews and the questionnaire would be analysed and presented.

CHAPTER 4: DATA ANALYSIS AND RESULTS

4.1 INTRODUCTION

The previous Chapter presented a detailed discussion of the research design and methodology relevant for the success of the researcher's objectives. The chapter covered the research design, a description of the data collection and data analysis tools employed. The present Chapter focuses on the research findings as gathered from the literature review, semi-structured interviews and questionnaire surveys.

4.2 REVIEW OF RELEVANT PROJECT DOCUMENTATION

In order to get a better understanding on how subcontracting was being implemented, the researcher reviewed the documentation for the 40 selected projects. The documents reviewed included tender documents, design reports, contract documents, minutes of site meetings, interim payment certificates, progress and annual reports.

4.2.1 *Tender documents*

The tender documents showed that main contractors were not bidding together with subcontractors because the tenderer was only required to state that 20 percent of the works would be subcontracted. However, foreign companies tendered together with a local firm as required by law. The clients used the statement that the tenderer would subcontract 20 percent of the works as one of the evaluation criteria. Details on how the subcontractors would be engaged were not indicated.

4.2.2 *Subcontract agreements*

A standard sample of contract agreement between the main contractor and subcontractor was provided by clients in the road sector. However, there was no standard sample of contract agreement provided in the building sector. The main contractors drafted the contract agreement which was then used between the parties. The bills of quantities for subcontractors showed that only work items were provided and that preliminary and general items were not included. The study further established that work to be carried out by subcontractors was allocated by the main contractor. The engagement of subcontractors was done after the main contractor was well established on site according to the dates on the contract agreements signed.

4.2.3 *Site meetings*

A good number of site meeting reports showed that subcontractors were not present during site meetings. Out of the 40 projects whose documents were analysed, only 13 projects had included subcontractors in their site meetings.

4.2.4 *Payments*

Subcontractors of the projects that started in 2013 in the road sector were paid directly into their accounts by the client for the works done just like the main contractors. However, the subcontractors in the building sector showed that main contractors were paying subcontractors for the work done.

4.2.5 *Design reports*

It was established from the design reports reviewed that there was no consideration of the type of works to be carried out by subcontractors. All the 40 projects had no mention or indication of what type of work would be carried by the subcontractors despite the designers knowing that 20 percent of the work were to be carried out by subcontractors.

4.2.6 *Reports*

The progress reports showed that subcontractors were not writing reports but their work done was being reported by the main contractors. It was established that for each payment interim certificate submitted by the contractor, there was a progress report attached. The annual reports reviewed basically presented the works done by the contractors and the overall progress on each project.

4.3 INTERVIEW DATA AND ANALYSIS

Semi-Structured interviews were conducted between February and March 2016. The interviews were preliminary in nature and targeted thirty (30) participants. However, only twenty-six (26) out of the targeted thirty (30) stakeholders participated in the interviews. The other four (4) stakeholders who had expressed willingness to take part were not available during the period interviews were conducted. The purpose was to obtain an in-depth understanding of how the various stakeholders in Zambia view 20 percent subcontracting policy.

4.3.1 *The Profile of interviewees*

This section of the findings presents information on characteristics of the respondents with respect to profession, firm/institution they belonged to and years of experience. On

average, the interviewees had more than seven (7) years of experience in the construction sector. Six (6) of the twenty six (26) interviewees were experienced engineers working for consultancy firms with experience in supervising construction projects. Seven (7) were subcontractors who were involved in subcontracting works. Seven (7) of the interviewees were the main contractors while six (6) were from the clients. This provided an insight into the parties involved in the management of subcontracting in construction projects. Most of the interviewees' firms had a long history of involvement in the construction industry. Figure 4-1 shows the summary of interviewees in each category.

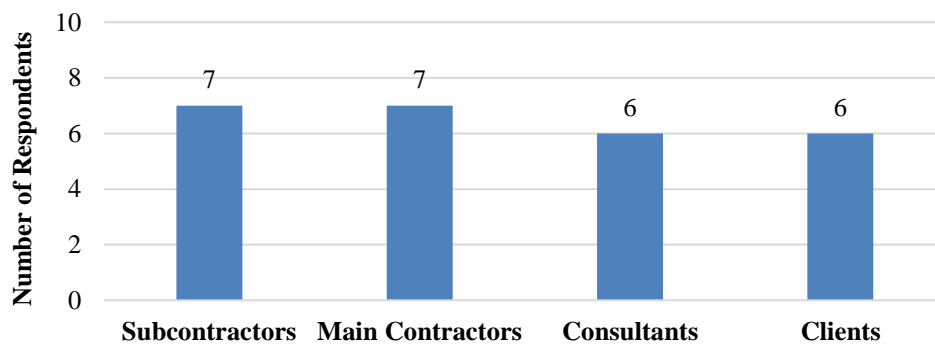


Figure 4-1: Number of interviewees in each category

4.3.2 Educational qualifications

The interviewees had reasonable and fair educational background to understand the policy and also to be able to contribute positively to the development of the subcontracting framework. 36 percent had bachelor's degree while 32 percent had master's degree. 20 percent had craft certificate, 12 percent had diplomas while none had a PhD. The educational qualifications distribution of the interviewees is presented in Figure 4-2.

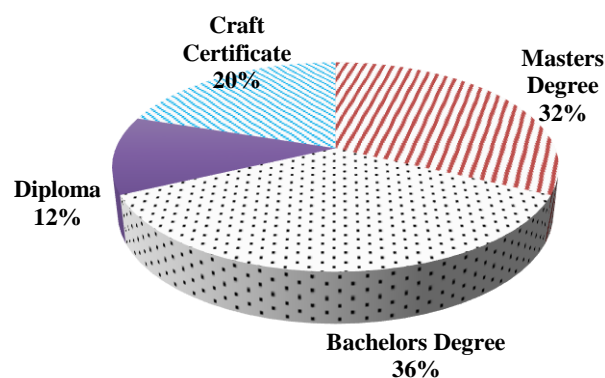


Figure 4-2: Distribution of interviewees' educational qualifications

4.3.3 *Experience of respondent's firms*

Twenty interviewees out of the twenty-six were drawn from contractors and consultants firms. The interviewees' firms had enough experience of involvement in the Zambian construction sector. Two (2) out of the twenty (20) interviewees had over 20 years of experience while one (1) had experience between 16 and 20 years. Ten (10) had experience ranging from 6 to 15 years while seven (7) interviewees had experience between 3 and 5 years, see Figure 4-3.

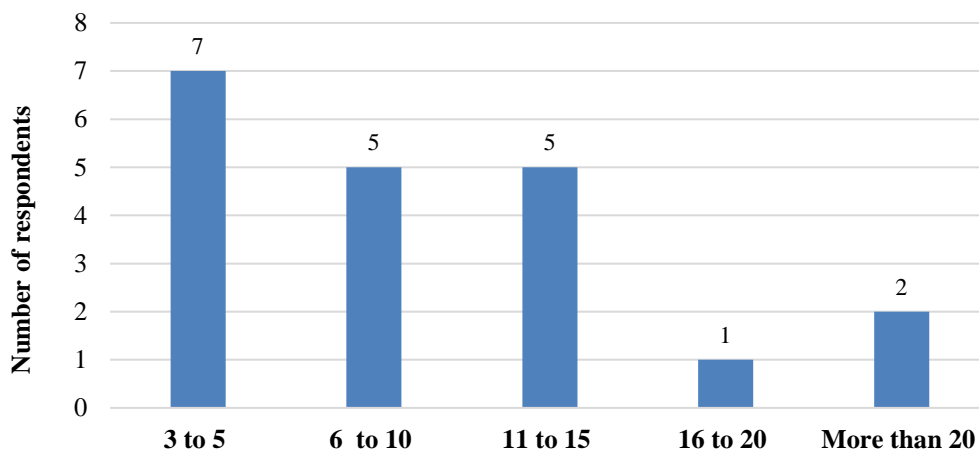


Figure 4-3: Firms' experience in the construction sector

4.3.4 *Engagement of Subcontractors*

This part of the interviews was meant to establish the common method of engaging subcontractors. The results showed that eighteen (18) interviewees preferred subcontractors to be nominated by the client or client representative. Five (5) interviewees stated that they would prefer subcontractors to be engaged directly by the main contractors while three (3) preferred subcontractors to be shortlisted by client and then selected by the main contractor. Figure 4-4 shows the summary of results on the common method of engaging subcontractors.

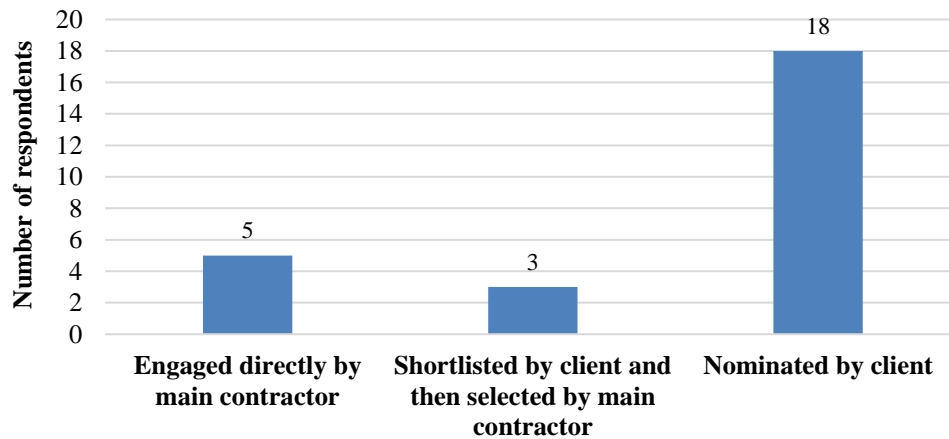


Figure 4-4: Results for establishing the common method of engaging subcontractors.

The interviewees stated that it would be difficult to achieve the objective of empowering and creating jobs for the local contractors if main contractors were left alone to engage subcontractors. Those who preferred nomination by clients stated that it would enhance fairness and reduce the cases of main contractors buying off subcontracts whilst pretending to have subcontracted.

The interviewees further agreed that work allocation has to be done by the Engineer/Consultant at design stage instead of the foreign or main contractors. The main reason forwarded was that of removing bias from the main contractors during work allocation and to prevent foreign contractors allocating poor rates to works they know will be subcontracted out. The subcontractors indicated that they needed to be involved in work allocation. This means that the client must keep a register of subcontractors and their specialisations so that the list is used for allocation of works. The results suggested that main contractors were well aware of this weakness and priced lowly on works that would be subcontracted out and allocate ridiculously high rates on the works that cannot be done by subcontractors.

4.3.5 Awareness of the Subcontracting Policy

The results showed that generally the respondents understood the main features of the 20 percent subcontracting policy. Over 90 percent of the interviewees stated that the main features of the subcontracting policy included:

- (i) mandatory subcontracting of 20 percent of the contract sum to local contractors on public projects provided the contract sum was above Thirty Million Kwacha and contract was awarded to a foreign contractor;
- (ii) aimed at building capacities and empowering local contractors; and
- (iii) foster employment creation for the *Zambian* people.

4.3.6 Assessment of the Policy with respect to interests of contractors

The interviewees were asked whether the mandatory subcontracting policy addresses the interests of both main and subcontractors. Twenty (20) interviewees stated that the current policy does not support the interest of contractors and their subcontractors. Only one (1) stated that the policy addresses the interests of both main and subcontractors while three (3) of the interviewees were not sure. This is illustrated in Figure 4-5.

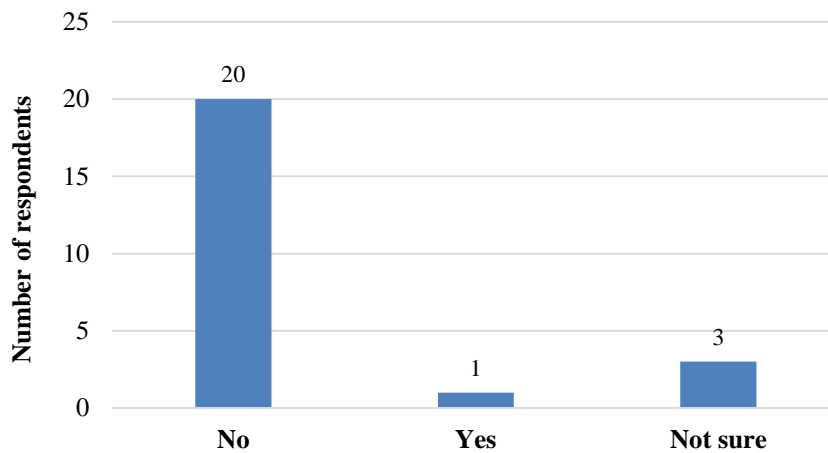


Figure 4-5: Results on whether the policy addresses the interests of contractors

4.3.7 Functionality of laws in the construction sector

The interviewees were also asked whether laws, other than the policy, such as the PACRA, NCC, CEEC, NAPSA, ZPPA and ZRA regulations were implemented properly and fulfilling their purpose. The majority of the respondents at 64 percent answered in affirmative while 36 percent were not sure. Figure 4-6 presents a summary of the findings.

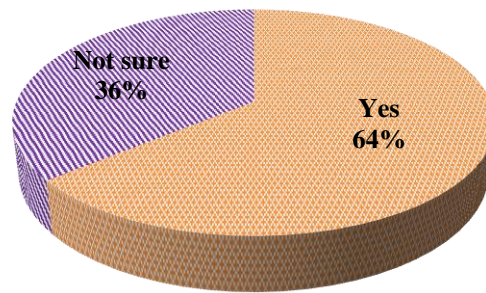


Figure 4-6: Functionality of laws relating to the construction sector

4.3.8 *Subcontracting in relation to project cost*

Interviewees were requested to provide their opinions whether subcontracting affected the cost of the projects. It was established from this survey that 92 percent of the stakeholders were of the view that subcontracting doesn't affect the project cost with none saying it did and 8 percent were not sure as shown in Figure 4-7.

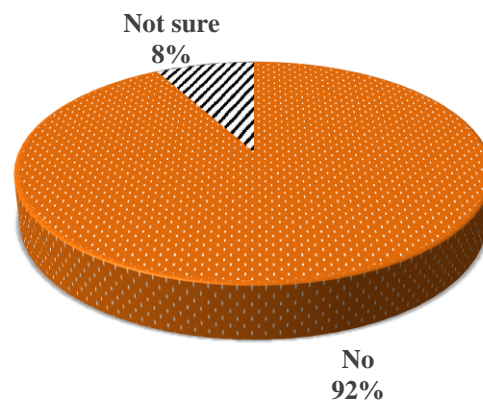


Figure 4-7: Opinion of respondents whether subcontracting affects project cost

4.3.9 *Subcontracting in relation to quality of work*

As to whether subcontracting affected the quality of work, 40 percent of interviewees were of the view that it did while 44 percent of them said it did not with 16 percent not sure. It is interesting to note that the decision by respondents who said that subcontracting did not affect the quality of work with those who said it did was almost equal. Figure 4-8 summarises the findings.

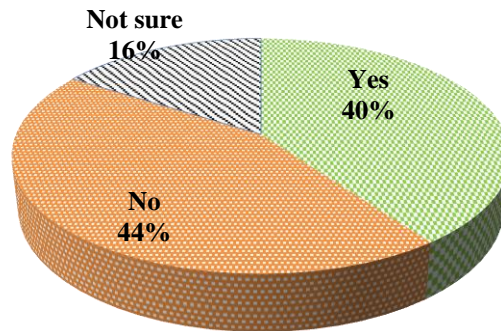


Figure 4-8: Bearing of Subcontracting on the Quality of Work

4.3.10 *Challenges faced in implementing subcontracting policy*

This part of the interviews was meant to establish challenges in implementing the subcontracting policy. The interviewees were asked to bring out the challenges in implementing the subcontracting policy. The data was recoded and analysed qualitatively. The main reasons, in order of importance, attributed to the policy's failure to meeting the interests of the main and subcontractors included:

- (i) lack of interest by Main foreign contractors to build capacity of local contractors;
- (ii) Main contractors view subcontractors as potential competitors;
- (iii) Main contractors not willing to subcontract 20 percent of the contract sum;
- (iv) Main contractors allocate low value works to subcontractors so that they maximise profits;
- (v) lack of experience, personnel, equipment and poor financial resources among local subcontractors;
- (vi) insufficient capacity in project management among subcontractors inhibits the possibility of subcontracting 20 percent of huge or high value projects.

4.4 QUESTIONNAIRE SURVEY RESULTS

The questionnaire survey was carried out over a period of one month from 20th March 2016 to 20th April 2016. A total of 70 questionnaires were distributed with a response rate of 71 percent.

4.4.1 *Questionnaire design*

The questionnaire was designed with six parts. Part one was aimed at collecting data on personal information while part two was establishing the procurement and contractual

methods previously involved in by respondents. Part three to six was aimed at establishing the inadequacies, constraints and possible improvements to the implementation of the subcontracting policy.

The measurement used to collect data was ordinal. The questionnaire had statements regarding the 20 percent subcontracting policy of which respondents assigned numerical values to the ordinal scale with 1 = strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = strongly agree. The formula used for calculating the mean score based on weighted averages is shown as Equation 4-1.

$$Mean\ score = \sum_{j=1}^5 \frac{I_j R_j}{\sum R_j} \dots\dots\dots Equation\ 4-1$$

Where: **I_j** is the importance weight (1, 2, 3, 4 or 5) assigned to option j; **R_j** is the number of respondents who provided responses to option j. The mean score values were further interpreted to reflect the responding rating to aid conversion of continuous data into discrete categories (Kululanga *et al.*, 2002) (cited by Kaliba, 2015). The discrete categories were classified as follows:

4.500 < mean score ≤ 5.000 strongly agree with the statement

3.500 < mean score ≤ 4.500 agree with the statement

2.500 < mean score ≤ 3.500 unsure about the statement

1.500 < mean score ≤ 2.500 disagree with the statement

0.000 < mean score ≤ 1.500 strongly disagree with the statement

4.4.2 Questionnaire administration

The data from the self-administered questionnaire was collected using paper based survey. The questionnaire was accompanied by a covering letter, identifying the type of research and the researcher’s name, explaining the purpose of the study and informing the participants that their personal information shall never be disclosed and that the study was for academic purposes only.

4.4.3 *Characteristics of respondents*

The respondents were drawn from clients, consultants, main contractors and subcontractors. *Figure 4-9* indicates that 20 percent of the respondents worked for client organizations, 40 percent for consulting firms and 40 percent for contractors.

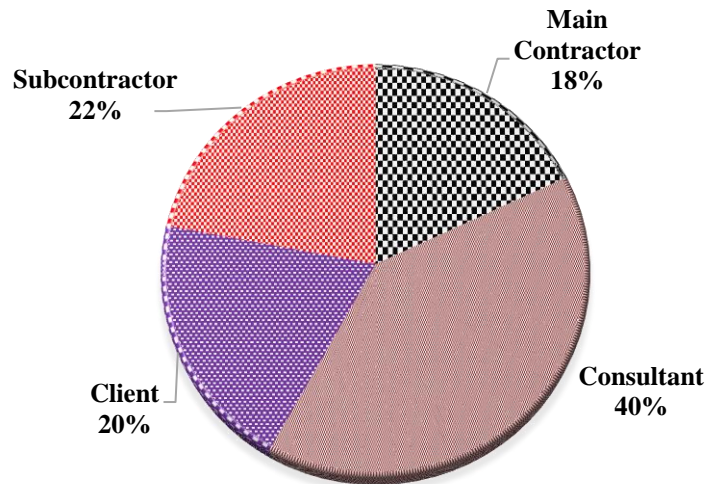


Figure 4-9: Distribution of questionnaire to respondents

4.4.4 *Category and Grade of Companies' registration*

This section of the findings presents information on characteristics of the respondents who were contractors. The results represent the contractors in the Building (B), Civil engineering (C) and roads (R) categories. These are basically the recipients of the many public contracts either in the building of schools and hospitals, health posts, roads and bridges. The highest percentage of the respondents at 27 percent came from the category 4R followed by the category 1R at 22 percent; the category 6R at 14 percent; the categories of 1B, 1C and 6B were at 9 percent and, lastly, those in 5R and 5B categories were at 5 percent. The distribution of contractors according to categories and grades obtained from NCC is presented in Figure 4-10.

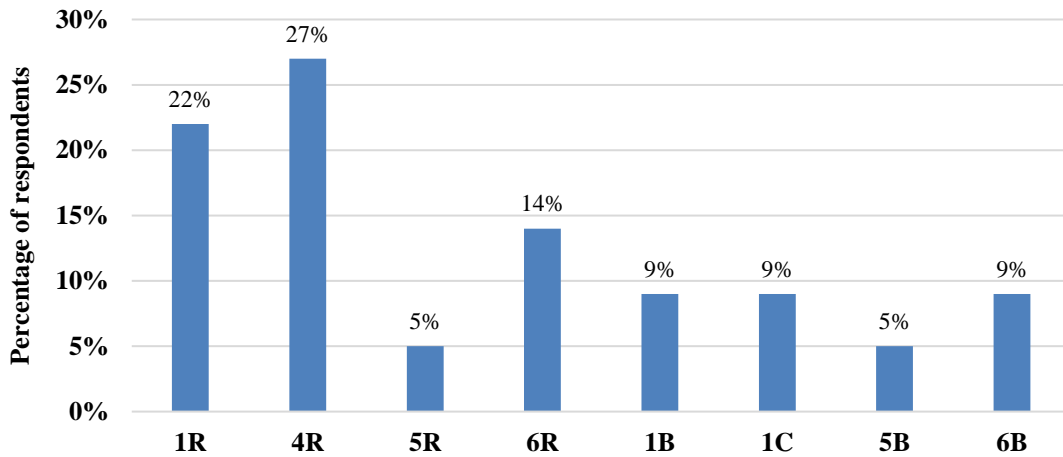


Figure 4-10: Category and Grade of Companies' Registration

4.4.5 Years of experience in the construction sector

The respondents with 3-5 years' experience constituted the highest at 38 percent followed by those in the 6-10 and 11-15 years' categories at 25percent respectively. Those whose experience was over 20 years were at 8 percent while those between 16-20 years' experience were at 4 percent. Figure 4-11 presents a summary of information regarding participants' years of experience.

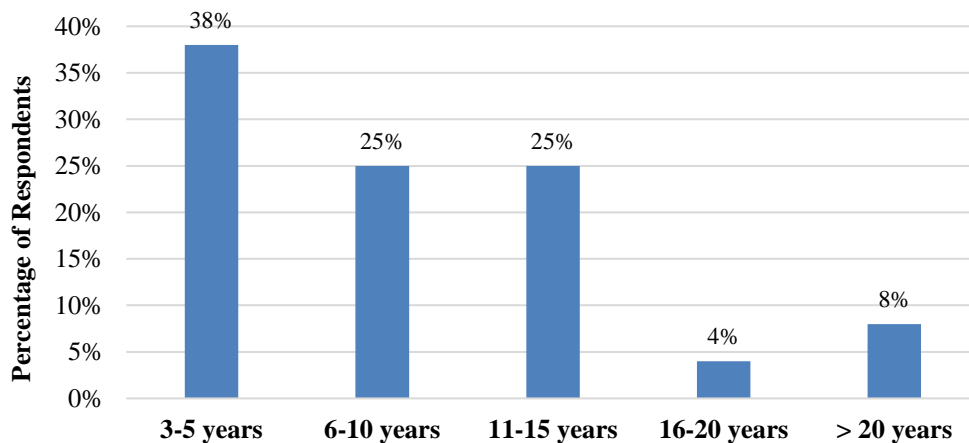


Figure 4-11: Respondents' experience in construction of projects

4.4.6 Contractual arrangements

This section of the findings presents information on the contractual arrangements the respondents had been involved. The proportion of respondents who had been involved in the traditional contractual arrangement was 71 percent followed by those who had been

involved in the design and build at 16 percent. The third common arrangement was the Integrated Construction Unit (ICU) which accounted for 10 percent while three percent had experience in the management contracting method of contracting. Figure 4-12 presents a summary of the findings.

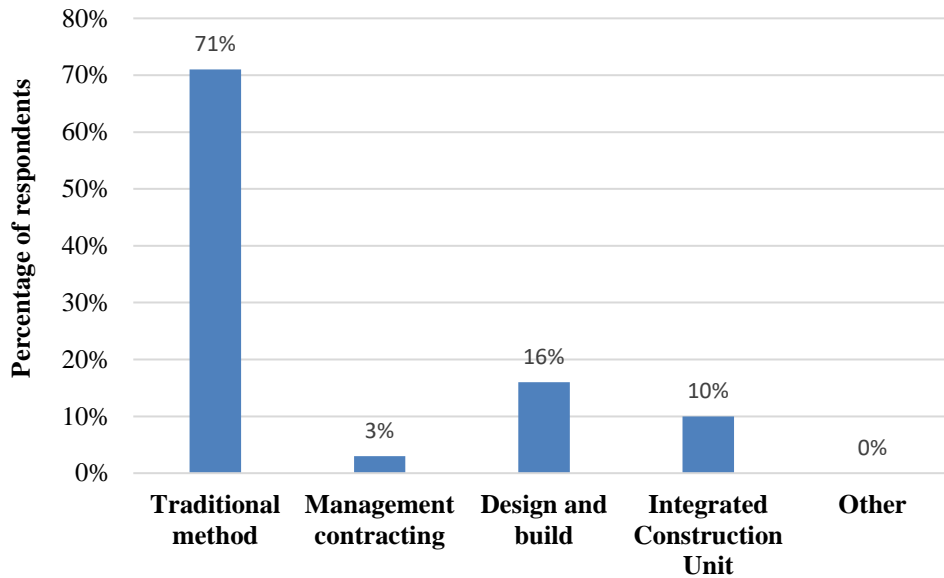


Figure 4-12: Results of respondents based on contractual arrangements

4.4.7 Preferred contractual method for the subcontracting policy

This section of the findings presents information on the preferred contractual method of procurement for the implementation of the 20 percent subcontracting policy. It was established from the survey that 48 percent of the respondents preferred the traditional method of procurement while 45 percent were of the view that the management contracting would be better in implementing the policy. 5 percent stated that Integrated Construction Unit would be better while 2 percent were of the view that the design and build would be a preferred method of procurement for the implementation of the policy. The summary of the results is presented in Figure 4-13.

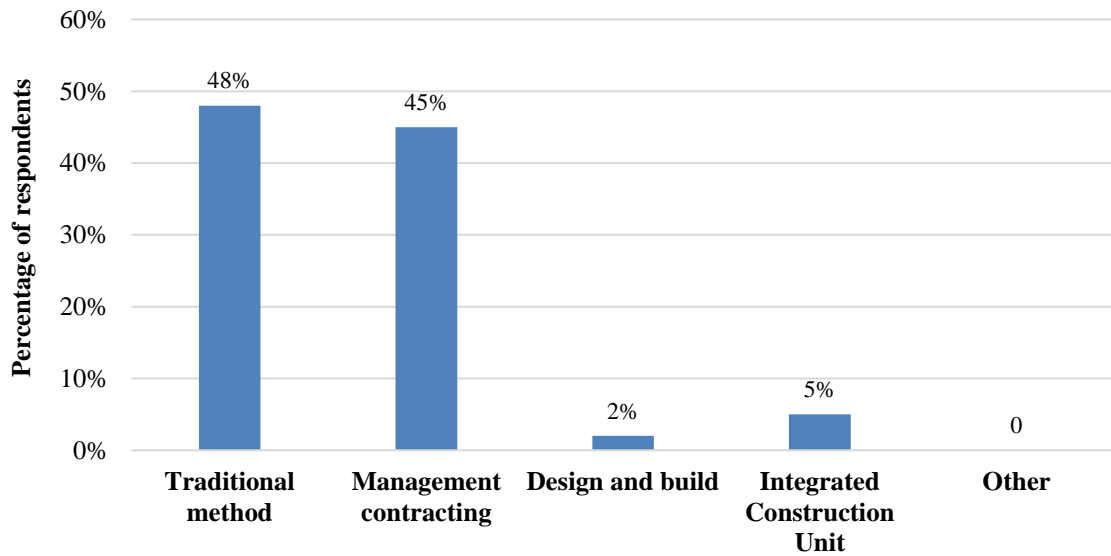


Figure 4-13: Best procurement method for the implementation of the policy

4.4.8 *Analysis on implementation, constraints and improvements to the policy*

A total of 46 statements obtained from preliminary interviews and literature review were adopted for this study. The respondents were asked to rate statements concerning the mandatory subcontracting policy on a Likert scale of 1 to 5.

a) Descriptive statistics of inadequacies in the subcontracting policy

The statements submitted by respondents were analysed with respect to the inadequacies in the current 20 percent subcontracting policy. The preliminary stages in the analysis used descriptive statistics as shown in Table 4-1. There were differences in the way respondents perceived the inadequacies of the mandatory subcontracting policy by different construction practitioners in Zambia.

Table 4-1: Descriptive statistics of inadequacies in the subcontracting policy

No.	Statement	Mean score	Variance	Mean score > 3.5
1	The 20 % subcontracting policy is not legally supported as it did not pass through parliament for ratification	3.39	2.021	-
2	Difficult to grow capacity of local contractors using the 20% subcontracting policy as main contractors are not interested in building capacities of local contractors due to lack of incentives	3.64	1.801	Yes
3	Lack of strategic plan on subcontracting makes it difficult to build capacity of local contractors	3.89	1.445	Yes
4	No participation of subcontractors in the determination of work	3.81	1.815	Yes

5	Main contractors want to retain maximum benefits, thus reluctant to subcontract	4.20	1.672	Yes
6	Main contractors are not willing to impart skills to subcontractors so as to continue enjoying the monopoly	3.48	2.211	-
7	Lack of capacity of local contractors make it difficult for main contractors to build capacity of local contractors	3.00	1.745	-
8	No clear guidelines on the implementation of the policy	3.67	1.546	Yes
9	Subcontractors don't participate in the procurement process and only introduced after contract is awarded	4.10	1.635	Yes

The statements from Table 4-1 were further analysed in order to identify those which were either important or very important. The cut off point for the mean score was set at 3.5 as indicated in section 4.4.1 above. Out of the 9 statements, 6 were found to have a mean score greater than 3.5.

The statements whose mean scores were greater than 3.5 were further tested for significance using the standard t-test. It was established that 4 out of the 6 statements were statistically significant at $p < 0.05$. The statistical test results are presented in Table 4-2.

Table 4-2: Standard t-test results for inadequacies in the subcontracting policy

Statement	Mean	Std. Dev.	N	Std. Err.	Ref.	t-value	df	p
Main contractors want to retain maximum benefits, thus reluctant to subcontract	4.20	1.487	46	0.219	3.5	-0.099	45	0.921
Subcontractors don't participate in the procurement process and only introduced after contract is awarded	4.10*	1.279	49	0.183	3.5	3.296	48	0.002
Lack of strategic plan on subcontracting makes it difficult to build capacity of local contractors	3.89	1.347	48	0.194	3.5	1.607	47	0.115
No participation of subcontractors in the determination of work	3.81*	1.293	46	0.191	3.5	3.649	45	0.001
No clear guidelines on the implementation of the policy	3.67*	1.321	48	0.191	3.5	-2.623	47	0.012
Difficult to grow capacity of local contractors using the 20% subcontracting policy as main contractors are not interested in building capacities of local contractors due to lack of incentives	3.64*	1.202	47	0.175	3.5	2.245	46	0.030

*statistically significant at $p < 0.05$

b) Descriptive statistics for challenges in implementation of the policy

Statements attributed to challenges in implementation of the subcontracting policy were analysed. Descriptive statistics were used in the preliminary stages of analysis. The descriptive statistics are presented in Table 4-3.

Table 4-3: Descriptive statistics for challenges in the implementation of the policy

No.	Statement	Mean score	Variance	Mean score > 3.5
1	Main contractor allocates work of low monetary value to subcontractors	3.65	2.023	Yes
2	Too many subcontractors allocated on one project	3.29	1.828	-
3	Main contractor does not help the subcontractors	2.94	2.145	-
4	Main contractor has the preliminary and general items in their bill of quantities while subcontractors are not given and as such find it difficult to carry out works	3.71	2.125	Yes
5	Difficult to grow capacity of subcontractors as main contractors limit work allocation to simple works such as drainages, culverts, block work, rendering etc.	3.85	2.085	Yes
6	No advance payment given to subcontractors	3.63	1.987	Yes
7	Main contractor treats subcontractor as a separate entity and not part of the main contractor	3.57	1.917	Yes
8	Main contractor does not accept 20% subcontracting policy	3.04	1.913	-
9	Main contractor willing to help subcontractors but subcontractors do not have capacity to carry out works	3.02	1.723	-
10	There is no provision of buying equipment for subcontractors in order to enhance their capacities in the current policy	3.53	1.963	Yes
11	Consultants on site not willing to deal with local contractors	2.29	1.875	-
12	Consultants only deal with main contractors and leave out subcontractors to the main contractors	2.69	2.050	-
13	Subcontractors do not understand contract management	2.92	1.993	-
14	Subcontractors engaged by main contractors negotiate low rates because they do not know how to derive the rates	2.94	2.184	-
15	Main contractor must always demand the securities from subcontractors	3.29	1.875	-

The statements whose mean scores were greater than 3.5 were further tested for significance using the standard t-test. It was established that one statement out of the six was statistically significant at $p < 0.05$. The statistical test results are presented in Table 4-4.

Table 4-4: Standard t-test results for challenges in the implementation of the policy

Statement	Mean	Std. Dev.	N	Std. Err.	Ref.	t-value	df	p
Difficult to grow capacity of subcontractors as main contractors limit work allocation to simple works	3.85*	1.444	48	0.208	3.5	1.699	47	0.096

such as drainages, culverts, block work, rendering etc.									
Main contractor has the preliminary and general items in their bill of quantities while subcontractors are not given and as such find it difficult to carry out works	3.71	1.458	49	0.208	3.5	1.029	48	0.309	
Main contractor allocates work of low monetary value to subcontractors	3.65	1.422	49	0.203	3.5	0.753	48	0.455	
No advance payment given to subcontractors	3.63	1.410	49	0.201	3.5	0.659	48	0.513	
Main contractor treats subcontractor as a separate entity and not part of the main contractor	3.57	1.384	49	0.198	3.5	0.361	48	0.720	
There is no provision of buying equipment for subcontractors in order to enhance their capacities in the current policy	3.53	1.401	49	0.200	3.5	0.153	48	0.879	

**statistically significant at $p < 0.05$*

c) *Descriptive statistics for the constraints to subcontracting policy*

The results from this part of the questionnaire were analysed with respect to the constraints faced by construction practitioners in implementing the subcontracting policy. The preliminary stages of analysis used descriptive statistics and results are presented in Table 4-5.

Table 4-5: Descriptive statistics of constraints to the subcontracting policy

	Statement	Mean score	Variance	Mean score > 3.5
1	Lack of financial support to subcontractors by clients	3.90	1.094	Yes
2	High interest rates on loans from the banks	4.54	0.339	Yes
3	Subcontractors depend on the main contractor's good will to succeed as main contractors are the ones to allocate works	3.80	1.332	Yes
4	No legal framework for main contractors who fail to subcontract 20% of their work.	3.81	1.730	Yes
5	Lack of qualified personnel on the subcontractors staff due to no provisions for fixed obligations in their bill of quantities	3.31	1.879	-
6	Delayed payments by construction clients	4.24	1.272	Yes
7	Lack of construction management skills & experience	3.64	1.323	Yes
8	Too many local contractors competing for few jobs on the market	3.56	1.145	Yes
9	Work allocated to subcontractors by main contractors have usually low rates and such subcontractors fail to complete the works	3.88	1.485	Yes
10	No mobilisation and demobilisation is allocated to subcontractors	3.90	1.719	Yes
11	Unbalanced rates in the bill of quantities e.g. Frontloading	3.63	1.686	Yes
12	Subcontractor depend on main contractor to submit the interim payment certificate for payment	4.27	1.032	Yes

The statements whose mean scores were greater than 3.5 were further tested for significance using the standard t-test. It was established that 6 statements out of the 11 were statistically significant at $p < 0.05$. The statistical test results are presented in Table 4-6.

Table 4-6: Standard t-test results for constraints in the subcontracting policy

Statement	Mean	Std. Dev.	N	Std. Err.	Ref.	t-value	df	p
High interest rates on loans from the banks	4.54*	0.582	48	0.084	3.5	12.401	47	0.000
Subcontractor depend on main contractor to submit the interim payment certificate for payment	4.27*	1.016	49	0.145	3.5	5.273	48	0.000
Delayed payments by construction clients	4.24*	1.128	49	0.161	3.5	4.623	48	0.000
Lack of financial support to subcontractors by clients	3.90*	1.046	49	0.149	3.5		48	0.010
No mobilisation and demobilisation is allocated to subcontractors	3.90*	1.311	49	0.187	3.5	2.125	48	0.039
Work allocated to subcontractors by main contractors have usually low rates and such subcontractors fail to complete the works	3.88*	1.218	49	0.174	3.5	2.169	48	0.035
No legal framework for main contractors who fail to subcontract 20% of their work	3.81	1.315	48	0.190	3.5	1.646	47	0.106
Subcontractors depend on the main contractor's good will to succeed as main contractors are the ones to allocate works.	3.80	1.154	49	0.165	3.5	1.794	48	0.079
Lack of construction management skills & experience	3.64	1.150	47	0.168	3.5	0.824	46	0.414
Unbalanced rates in the bill of quantities e.g. Frontloading	3.63	1.299	48	0.187	3.5	0.667	47	0.508
Too many local contractors competing for few jobs on the market	3.56	1.070	48	0.154	3.5	0.405	47	0.688

*statistically significant at $p < 0.05$

d) Descriptive statistics of improvements to the subcontracting policy

The results from this part of the questionnaire were analysed with respect to respondents' perception on possible improvements to the implementation of the subcontracting policy. The initial stages of the analysis used descriptive statistics and the results are presented in Table 4-7.

Table 4-7: Descriptive statistics for the improvements to the subcontracting policy

Statement	Mean score	Variance	Mean score > 3.5
1 Reviewing the existing subcontracting policy to include other key sectors in the construction industry	4.59	0.455	Yes

2	Client to have a strategic plan on how to build capacity of local contractors with measurable deliverables; e.g. 10 grade one contractors in 3 years	4.50	0.511	Yes
3	Client to identify local contractors with capacity to grow and put them on a deliberate programme for 5 years	4.12	1.110	Yes
4	Procure works for identified local contractors to grow through Integrated Construction Unit method of procurement	4.16	0.723	Yes
5	Consultants to be given the responsibility of training the identified local contractors through the identified works	4.00	1.333	Yes
6	Client to procure equipment from suppliers for the identified local contractors and start deducting the cost through interim payment certificates for a medium term period	3.76	1.730	Yes
7	Consultants to be approving all payments to be done by the identified local contractors	4.10	0.802	Yes
8	Training to be incorporated in the project design for the personnel of the local contractors	4.18	0.653	Yes
9	Make work available for the identified contractors for a period of not less than 3 years	4.14	0.833	Yes
10	The subcontracting on other projects to continue for employment and skills development with main contractors	4.27	0.883	Yes

The statements whose mean scores were greater than 3.5 on possible improvement to subcontracting policy were further tested for significance using the standard t-test. It was established that 9 statements out of the 10 were statistically significant at $p < 0.05$. The statistical test results are presented in Table 4-8.

Table 4-8: Standard t-test results for improvements to the subcontracting policy

Statement	Mean	Std. Dev.	N	Std. Err.	Ref.	t-value	df	p
Reviewing the existing subcontracting policy to include other key sectors in the construction industry	4.59*	0.674	49	0.096	3.5	11.331	48	0.000
Client to have a strategic plan on how to build capacity of local contractors with measurable deliverables; e.g. 10 grade one contractors in 3 years	4.50*	0.715	48	0.103	3.5	9.695	47	0.000
The subcontracting on other projects to continue for employment and skills development with main contractors	4.27*	0.939	48	0.136	3.5	5.685	47	0.000
Training to be incorporated in the project design for the personnel of the local contractors	4.18*	0.808	49	0.115	3.5	5.922	48	0.000
Procure works for identified local contractors to grow through Integrated Construction Unit method of procurement	4.16*	0.850	49	0.121	3.5	5.461	48	0.000
Make work available for the identified contractors for a period of not less than 3 years	4.14*	0.913	49	0.130	3.5	4.930	48	0.000
Client to identify local contractors with capacity to grow and put them on a deliberate programme for 5 years	4.12*	1.053	49	0.150	3.5	4.136	48	0.000

Consultants to be approving all payments to be done by the identified local contractors	4.10*	0.895	49	0.128	3.5	4.706	48	0.000
Consultants to be given the responsibility of training the identified local contractors through the identified works	4.00*	1.155	49	0.165	3.5	3.031	48	0.004
Client to procure equipment from suppliers for the identified local contractors and start deducting the cost through interim payment certificates for a medium term period	3.76	1.315	49	0.188	3.5	1.357	48	0.181

**statistically significant at $p < 0.05$*

4.5 SUMMARY

In this chapter, the results obtained from relevant project documents, semi-structured interviews and questionnaire survey were presented. The analysis of the data elaborated some of the subcontracting practices which significantly affect the building of capacities of local contractors. Issues to do with engagement, planning, implementation and regulations in the construction sector in Zambia were analysed. The next chapter presents a discussion on the results.

CHAPTER 5: DISCUSSION OF SURVEY RESULTS

5.1 INTRODUCTION

The previous chapter presented the results and analysis of reviewed relevant project documents, interviews and questionnaire surveys. In this Chapter, a discussion of the findings is presented.

5.2 LEGAL AND REGULATORY FRAMEWORK

It was established that there are a number of laws that govern the construction industry in Zambia. The laws regulating the construction industry in Zambia have been said to be functional and sufficient. This provides an enabling environment for subcontracting. The result agrees with CIDB (2013) who asserts that legislative and policies put in place by governments help to improve the subcontracting environment. The study further agrees with Kulemaka *et al.*, (2015) who assert that creating an enabling environment for small scale contractors includes removal of barriers to entry into the market and to their growth and sustainability. The study findings are in line with what was established from literature (Abu Baker and Tufail, 2012) that developing countries formulate deliberate programmes to help empower the local construction industries.

The level of awareness of subcontracting among technical professionals from clients, consultants, and contractors was high. The results from this study confirm with what other researchers established that subcontracting is widely used (Akanni *et al.*, 2015).

5.3 ENGAGEMENT OF SUBCONTRACTORS

Based on the documents reviewed in this study, it has been established that subcontractors were engaged after the main contractor was already established on site and some works carried out. The allotment of work would also be undertaken at that stage by the main contractor. This is despite the requirement made at tender stage for main contractors to provide a proposal of how they would subcontract 20 percent of their work. It was thus established that there were inconsistencies in the manner in which subcontractors were engaged within the Zambian construction industry. A consistent application of regulation encourages and supports those who must comply with rules and administrative procedures to respect their obligations (OECD, 2010).

The preferred method of engaging subcontractors has been established to be through nomination by the client. It has been argued that it would be difficult to achieve the

objective of empowering and creating jobs for the local contractors if main contractors were left alone to engage subcontractors. This agrees with study conducted by Yik *et al.*, (2006), where nominated subcontract was preferred by the greatest number of interviewees followed by domestic subcontract.

In this study, those who preferred nomination by clients stated that it would enhance fairness and reduce the cases of main contractors buying off subcontracts whilst pretending to have subcontracted. The study findings confirms the findings of Muya *et al.*, (2014) in which subcontracts were alleged to be bought off by main contractors. These results reveal that it is only logical to conclude that if main contractors were left alone to implement the policy in its current state, very few subcontractors would be engaged.

There was little consensus among the respondents in this group about which procurement method would be most suitable for the implementation of the mandatory subcontracting policy. It was established from the results that generally the traditional and management contracting were regarded as both preferable for the implementation of the policy. This study agrees with CIOB (2010) that stated that there is no method that suits in all circumstances. They further asserted that the final choice of the procurement method should be based on the characteristics of the project and the client's requirements. It is only logical to deduce that the method of procurement for the implementation of the policy would be decided by the clients taking into account the objectives of the policy and the characteristic of the project.

5.4 DEFICIENCIES IN THE 20 PERCENT SUBCONTRACTING POLICY

The study identified four major deficiencies of the 20 percent mandatory subcontracting policy. These included:

- (i) difficult to grow capacity of local contractors using the 20 percent subcontracting policy as main contractors are not interested in building capacities of local contractors due to lack of incentives;
- (ii) no participation of subcontractors in the determination of work;
- (iii) no clear guidelines on the implementation of the policy; and
- (iv) subcontractors don't participate in the procurement process and only introduced after contract is awarded.

The findings agree with Eriksson *et al.*, (2007), who asserts that main contractors were not truly interested in developing subcontractors. The findings also confirm the assertion that main and subcontractors operate with the conflict theory which emphasises the existence of opposing forces in the life of individuals, groups, social structures and society in general (Kombo, 2006). The theory views human society as a collection of competing interest groups and individuals, each with their own motives and expectations (Donald and Tromp, 2009). Main contractors normally engage subcontractors to carry out part of their contractual work. Main contractors will normally look for the subcontractors who already have the necessary skill and experience for that particular type of work. This is in contrast with the mandatory subcontracting policy which emphasizes on the transfer of skills and building capacities of local contractors. Thus, even though the policy is in place, the implementation of this policy could be difficult.

This study has established that there has been no clear guidelines on the implementation of the mandatory subcontracting policy. The subcontractors are usually not involved at procurement stage let alone allotment of works. Scholars such as van Rijn (2005) have however argued that often times, it is necessary to engage subcontractors during the design stage. If the subcontractor is appointed too late, it is likely that the work will be delivered late.

5.5 CHALLENGES IN IMPLEMENTATION OF THE POLICY

The study has established that it is difficult to grow capacity of subcontractors using the subcontracting policy as main contractors limit work allocation to simple works. The allocation of higher value works has been impeded by weak business structure, low financial status, inadequate equipment and skilled workers, and insufficient managerial skills (Devapriya and Ganesan, 2002). For the subcontracting policy to work as a means of capacity development, other measures such as advanced technical education and manpower training, affirmative action by government and local research and development have to be considered.

5.6 CONSTRAINTS OF THE SUBCONTRACTING POLICY

The major constraints of the subcontracting policy included: lack of financial support to subcontractors by clients; high interest rates on loans from the banks; delayed payments by construction clients; work allocated to subcontractors by main contractors have usually low rates and as such subcontractors fail to complete the works; no mobilisation and

demobilisation is allocated to subcontractors; and subcontractor depended on main contractor to submit the interim payment certificate for payment. The findings of this study confirm with what other scholars such as Thwala and Phaladi (2009) found on the problems mainly faced by small contractors. Several studies have confirmed that main contractors utilise the services of subcontractors to execute a significant portion of construction work ((Fagbenle *et al.*, 2011; Yoke-Lian *et al.*, 2012; Akanni and Osmadi, 2015; Hartmann, A., 2009). However, this study established that main contractors were not willing to subcontract 20 percent of their work. It can be deduced from the findings of the study that main contractors wanted to retain maximum profit and lessen competition in the industry.

5.7 POSSIBLE IMPROVEMENTS OR MODIFICATIONS TO THE POLICY

The survey results coupled with the contract documentation reviewed showed that there is need for improvements to the existing policy in order to achieve the main objectives of empowering and building capacities of local contractors. In addition, in order to achieve the objective of transfer of knowledge from foreign to local contractors, both parties must agree to enter into a long term relationship (CIDB, 2013). The findings suggest this would be difficult to be achieved due to the different playing grounds for foreign and local contractors. This could be the reason why subcontractors felt that foreign contractors were not interested in building capacity of subcontractors.

Specifically, the following measures have been identified as enhancement factors:

- (i) Reviewing the existing subcontracting policy to include other key sectors in the construction industry;
- (ii) Client to have a strategic plan on how to build capacity of local contractors with measurable deliverables; e.g. 10 grade one contractors in 3 years;
- (iii) Client to identify local contractors with capacity to grow and put them on a deliberate programme;
- (iv) Procure works for identified local contractors to grow through Integrated Construction Unit method of procurement;
- (v) Consultants to be given the responsibility of training the identified local contractors through the identified works;
- (vi) Consultants to be approving all payments to be done by the identified local contractors;

- (vii) Training to be incorporated in the project design for the personnel of the local contractors;
- (viii) Make work available for the identified contractors for a period of not less than 3 years; and
- (ix) The subcontracting on other projects to continue for employment and skills development with main contractors.

Through the surveys and review of policy documents, it was established from this study that 20 percent subcontracting policy only considered the road sector in the construction industry. It has been generally accepted that the road sector is usually highly mechanised and as such, the contribution of smaller contractors with little or no equipment at all would be minimal. The results of this study suggest the need to review the mandatory subcontracting policy to include all other sectors in the *Zambian* construction industry in order to empower and create jobs for local contractors. The findings of this study agrees with other scholars who asserted that the contribution of subcontractors in other sectors of construction can be more than 50 percent (Albino and Garavelli, 1998), and it can be as much as 90 percent of the total project value to a construction process (Kumaraswamy and Matthews, 2000) especially in building sector. It can be deduced that the objective of empowering local contractors through subcontracting can be enhanced with the review of the policy to include other sectors in the *Zambian* construction industry.

The study established that empowering and developing capacities of small scale contractors involves strategic planning on the part of government. The concept of strategy and strategic planning is very important in the construction industry. Several studies have been done and have put forward the importance of strategic planning and strategic management in the construction industry (Cakmak and Tas, 2012). The findings on this study confirms with the findings of Thwala and Mvubu (2007) who established that the comprehensive and detailed planning processes with set quantitative and qualitative targets guide implementing institutions. Jaafara and Abdul (2005), established in their study that a detailed and comprehensive economic plan with an overall vision and the inputs to be invested with clear detailed outputs within a particular time frame is one of the best practices for the growth of small scale contractors. It has been established in this study that it would be difficult to build the capacities of local contractors without planning and putting a strategy in place.

Thwala and Mvubu (2007), asserted that small scale businesses can be used for creating employment. They further established in their study that other countries considered contractor development programmes because it was widely accepted that small contractors can be powerful instruments of generating job opportunities. Additionally, they indicated that a large number of functional small and medium scale contractors can help decentralise the construction industry dominated by established large contractors and that small contractors can perform small projects at different and remote geographical locations that might be unattractive to big firms or too costly to use big firms.

The problems facing the small scale contractors in Zambia are not unique. The majority of construction companies in Zambia are small scale in nature that rely on outsourced personnel during the execution of their projects. According to NCC contractor register as at May 2016, 90 percent of all registered construction companies in Zambia are small enterprises in nature.

There is a general agreement internationally that small enterprises contribute immensely to economic development (International Labour Organisation, 2001). Other scholars such as Croswell and McCutcheon (2001) argued that small scale contractors can be economically useful if projects were designed to suit their capacity. The findings on this study is in agreement with Croswell and McCutcheon (2001) that works for subcontractors for capacity development needed to be designed by the design consultant. There was a general consensus that works for subcontractors should not be allocated by the main contractor after signing the contract. Works had to be identified at design stage by the consultant and not by the main contractor.

It has been widely accepted that the success of contractor development initiatives has been quite modest. However, Thwala and Phaladi (2009) stated in their study that significant lessons can be drawn from those initiatives that have been done before which include: advocate the interest of emerging contractors and ensure that policies and procedures in the construction industry create an environment conducive to the development and promotion of emerging contractors; increase the participation of emerging contractors in mainstream construction activities; substantially increase the emerging construction enterprises share of work opportunities within the public sector; support emerging contractor's access to business training, finance, tendering information and work opportunities; promote the participation of women in construction Inform the

policies and research agenda by promoting the participation of emerging contractors; pilot models for contractor development programmes; support the establishment and strengthening of the organisational capacity of emerging contractors; persuade, through intermittent interaction, financiers to provide the necessary support to emerging contractors. This explains that to achieve the capacity development programme, require more efforts from government, in terms of enacting policies that will create an enabling environment for this to happen, and the contractor's themselves (Laryea, 2010). There is need for the Zambian government to learn from other contractor capacity development programmes and that a policy alone would not achieve what the country require.

5.8 SUMMARY

This Chapter presented a discussion of the key findings of the study. The discussion of the findings were in relation to what other scholars have established on the subject of subcontracting. Chapter 6 presents the proposed framework that could be used to empower and build capacities of subcontractors.

CHAPTER 6: DEVELOPMENT OF SUBCONTRACTING FRAMEWORK

6.1 INTRODUCTION

In the previous chapter, the results obtained through literature review, interviews and questionnaire surveys were discussed. It was deduced that the current mandatory subcontracting policy could not be used to build capacity of local contractors. However, one of the main research objectives of this study was to design a framework that seeks to address the low capacities of local contractors in the construction industry. The purpose of the framework was to develop and/or upgrade local contractors so that they participate in the implementation of major contracts in the country. The aim of the study was to come up with the framework that could be used to achieve the following:

- (i) build capacities of the subcontractors in the medium term;
- (ii) empower local contractors with the public works;
- (iii) enhance the subcontracting practice in Zambia;

The study established that the majority of construction companies in Zambia are small scale in nature. Thwala and Phaladi (2009) established in their study that there is not one critical success factor that can make small contractors to be successful but a combination of factors. In order to ensure that the capacity is developed in the local contractors, the model was developed to be used in two ways. On one hand, normal subcontracting could still be used for job creation and to empower local contractors with smaller work packages for the lower grades of contractors, i.e. those in grades 6 and 5. On the other hand, projects that could be used for building capacities would have to be designed in such a way that they meet all the pre-established criteria. In this chapter, a subcontracting framework was developed using the research findings in chapter four. The process of validating the model is also discussed in this chapter.

6.2 COMPOSITION OF STAKEHOLDERS IN THE FRAMEWORK

The subcontracting model shown in

Figure 6-1 illustrates the relationship that exist in order to achieve the objectives of the policy. This framework describes the relationships which aim to achieve the objectives of the mandatory 20 percent subcontracting policy. The key stakeholders that are involved in this proposed framework are as follows: the client (public, private or quasi-

Figure 6-1: Subcontracting framework for capacity building

6.3 EXPLANATION OF THE FRAMEWORK

The model is proposed to work in two ways. Firstly, the client makes a preliminary assessment whether the proposed project can be used for capacity building program or not.

6.3.1 *Projects not suitable for capacity development*

Projects not suitable for capacity development have been deemed to be those whose:

- (i) Value is less than Thirty Million Kwacha (K 30,000,000.00), which is the minimum amount reserved for local contractors (CEEC, 2006);
- (ii) Duration is less than three years.

If the project cannot be used for capacity development, then the traditional method of procurement of works would be adopted but with the following proposed modifications: The client would procure the services of the design and supervision consultant to design and prepare the specifications of the proposed project. Then the main contractor would be procured through open tendering process or any other desired method of procurement. Upon appointment of the main contractor, the works would be implemented under the supervision of the consultant. It is during the implementation process that the subcontractors would be engaged by the main contractors through the client or vice versa to help deliver the project.

The kind of subcontracting works on this type of traditional subcontracting would include but not limited to: concrete works; electrical works; air conditioning works; plumbing works; carpentry works; tiling; culvert and drainage construction works, just to mention but a few. These works will have to be identified at design stage by the consultant who will then allocate Prime Cost Sums to the identified works for subcontracting. The allocation of Prime Cost Sums prior to tendering process of the project would help unify prices for the subcontractors so as to avoid cases whereby projects fail due to under quoting just for the aim of winning tenders. Furthermore, it will avoid biases from the main contractors who might be tempted to quote lower prices on works earmarked for subcontractors.

6.3.2 *Projects suitable for capacity development*

When the proposed project is assessed and found to be useful for capacity building, the client would proceed with procurement of a design and supervision consultant whose responsibility would include: designing the project; preparation of project specifications as well as work breakdown packages for the subcontractors; and project supervision. The consultant would then allocate Prime Cost Sums to the identified works for subcontracting. The advantages of using Prime Cost Sums are as explained in section 6.3.1 above. The consultant would also propose the equipment and or key project materials required for the subcontracting works.

The client and other key stakeholders would then review the project design, specifications and the work breakdown packages together with the proposed equipment and or key project materials required for the subcontracting works. After the review stage is successful, the client would then identify and engage the equipment dealers and or key project materials suppliers. The client would also identify the subcontractors who qualify for the capacity building program through a desired method of procurement. These selected subcontractors shall then become the “nominated subcontractors”. Depending on the size and type of the project, the client may engage the capacity building consultant or use the design consultant through a desired method of procurement.

After the above processes, the client would then engage the main contractor through a desired method of procurement. The main contractor would then be required to engage the nominated subcontractors. The nominated subcontractors would then be engaged in a properly designed training program by the capacity building consultant prior to project implementation process of the activities in which they would be engaged. Depending on the project type, the training may be carried out as the work is being carried out. The training would include but not limited to technical and financial issues.

While the training process is in progress, the client on the other hand would secure a line of credit for the identified equipment and or key project materials required for the subcontracting works. This would ensure that subcontractors access what it takes to start the project. The type and size of the project would determine whether equipment and or key materials would be provided at the beginning of the project or provided upon completion of the training. Thereafter, the equipment and or key project materials

required for the subcontracting works would be supplied to the subcontractors at the agreed disbursement period.

The subcontractors would then join the implementation process of the project. During the implementation process of the project, there would be continuous monitoring and evaluation of subcontractors. The stakeholders would have agreed on the monitoring tools for the capacity building programme at design stage. The monitoring process would help in checking whether the training process was successful or not. If the subcontractors were found to be performing well, they would then be upgraded and allowed to graduate from the capacity building programme and would be able to bid for major projects on their own. Nevertheless, if the subcontractor's performance is found to be wanting, investigations would be carried out to establish causes of non-performance.

These subcontractors would then be taken back into the training program which would be tailor-made to tackle the exact problems which were identified as the cause of non-performance. Upon completion of the tailor-made training, the subcontractors would be allowed back into the project implementation process and then later re-assessed. If found to be performing well, they would then be upgraded and allowed to graduate from the capacity building program and thus would be able to bid for major projects on their own. If not, they are then excluded from the capacity development programme.

6.4 KEY POINTS REGARDING THE PROPOSED MODELS

The following are important points to note regarding the above models:

- (i) The client would provide advance payment in the form of cash to the subcontractors to kick start the subcontracting works. However, this advance money would be recovered as the works progresses;
- (ii) After the client engages the subcontractors, a meeting would be set up for all the stakeholders involved. The meeting would be used to explain the roles and responsibilities of all the parties to the contract;
- (iii) During the project implementation process, the cost of the procured equipment/key project materials would be deducted proportionately through the interim payment certificates (IPCs);
- (iv) The authorisation on the use of funds would not be left to the subcontractors alone. The client, consultant and the subcontractors would be involved in the way funds

would be utilised. This would help enhance the implementation of the financial management knowledge acquired during the training process; and

- (v) The client would guarantee contracts for the earmarked subcontractors for the project duration to ensure that the equipment and or key project materials procured during this time would be paid for by the subcontractors from proceeds of the project.

6.5 STAGES AND ROLES OF THE STAKEHOLDERS IN THE FRAMEWORK

6.5.1 *Client*

The client is the employer of the project team members. The client has the responsibility of empowering and building capacities of its citizens. The client will have the overall responsibility and control of the project. The client will have to assess initially if the project can be used for capacity development of subcontractors or not.

6.5.2 *The Project Design and Supervision Consultant*

This consultant will be responsible for designing and supervising the works. The consultant would be responsible for allocating works for subcontracting at design stage. Works to be subcontracted would be reviewed together with the client and other stakeholders upon completion of the designs by the consultant. It will be at this stage that comments on work allocation would be added. This consultant will have the overall responsibility of delivering the project.

6.5.3 *Capacity Development Consultant*

The capacity development consultant will be responsible for supervising and providing training to the subcontractors. The training package would include technical and financial management. The subcontractors would be encouraged to maintain a cadre of qualified personnel. The capacity development consultant would advise and report to the client on all matters relating to subcontracting and capacity development of subcontractors.

6.5.4 *Design review stage*

This stage would be used to review the designs and works allocated to subcontractors. The stakeholders that would be involved in the review process would include the capacity development consultant, design consultant, client and any other stakeholders relevant to the capacity development programme. This stage would eliminate the allocation of low value works to subcontractors.

6.5.5 *Engagement of subcontractors for capacity development*

The client will issue the expression of interest for local contractors. Then the client will have a list of local contractors according to their specialisation. A capacity development criteria would be developed in order to shortlist the local contractors. The subcontractors for capacity development programme would then be nominated from the list of approved local contractors.

6.5.6 *Equipment and key materials suppliers*

The equipment/key materials suppliers will provide materials, equipment and back up spares to the subcontractors through the projects. The suppliers of equipment will provide on-site service and training to subcontractors' personnel for sustainability purposes. Key materials like cement, steel, fuel, bitumen, aggregates to mention but just a few would provide reasonable boost to the implementation of the project by the subcontractors who are usually financially weak compared to major foreign contractors.

6.5.7 *Contractors*

The role of main and subcontractors would be to deliver the project according to the specifications to the client. The subcontractors will have a duty to learn and develop their technical and financial management skills from the main contractors and consultants.

6.5.8 *Commercial Banks/Financial institutions*

The banks/financial institutions will provide the necessary funds for the projects. However, these institutions will have extra responsibility of monitoring the subcontractors' accounts for capacity development programme. The Banks/financial institutions will be a link between the client, equipment suppliers, key material suppliers and contractors in the proposed framework.

6.5.9 *Project Implementation*

The implementation of the project will start after the signing of the contract. The implementation will be done as explained in section 6.3.2. In this proposed framework, the scope of works for subcontractors will be well defined in the contract documents. The contracts will also provide the criteria on how performance and quality required for the works will be measured, methods for performance measurement and acceptance. The terms and conditions for subcontracting will be included in the contract documents, especially payment terms, retention, advance payment bond, defect liability period and

liquidated damages. These terms and conditions will have to be fair and reasonable and means for dispute settlement would be included in the contract documents between main and subcontractors. The framework proposes that subcontractors should not be allowed to provide the performance bonds as this will have to be provided for by the main contractors.

In this framework, the main contractor will still be responsible for the overall responsibility of the project. However, instead of giving the responsibility of building capacity of subcontractors to the main contractor, the capacity development consultant will have this mandate. When it comes to adhering to set specifications and standards, the parties (depending on the project) which may comprise main contractor, subcontractor, capacity development consultant and the project supervision consultant will be responsible. The quality assurance plan for main and subcontractors would have to be approved by the project supervision consultant.

6.5.10 *Monitoring and Evaluation*

The monitoring of subcontractors and the project would be carried out for purposes of checking progress and evaluating the capacity building programme. The evaluation would also be carried out to assess which subcontractors would graduate from the programme. The process would also be used to re-assess those subcontractors failing to perform. Performing subcontractors would be recommended for upgrade according to NCC grades and categories. At the end of the project, it is expected that some subcontractors would have been capacitated and upgraded. The upgraded local contractors would then be assisted to tender jobs with high values especially those who will be in grades 1 and 2.

6.6 VALIDATION OF THE PROPOSED FRAMEWORK

The proposed subcontracting framework was validated using practitioners in the Zambian construction sector. The validation process was mainly focused on the usefulness and functionality of the framework. The sample for validation was drawn from the target group where the surveys for the questionnaire was drawn. A total of 15 construction professionals were purposively targeted for the validation exercise. Responses were received from all the respondents. The respondents were availed with the framework for them to conduct their assessment. An explanation on how the framework would work was also provided.

6.6.1 *Composition of respondents*

Figure 6-2 presents the composition of the respondents who were involved in the validation process. From the results, it shows that the framework was validated by reasonable representation of professionals in the construction industry.

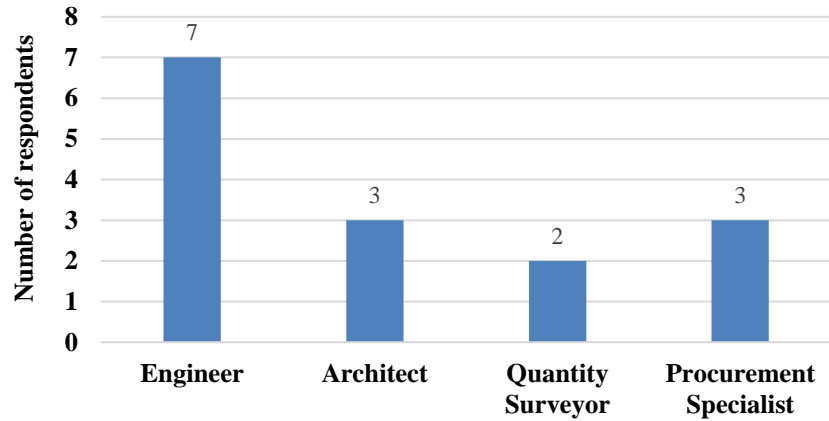


Figure 6-2: Professionals that were involved in validating the framework

6.6.2 *Usefulness of the framework*

Respondents were asked whether the proposed framework could be used to empower and build capacities of subcontractors. Fourteen (14) respondents agreed that the framework could be used to empower and build capacities of subcontractors. Only one (1) respondent disagreed stating that subcontractors should not be nominated by the client but allowed to compete with others. Results can generally be deduced that the framework can be used to empower and develop capacities of subcontractors.

6.6.3 *Functionality of the framework*

Respondents were asked whether the proposed framework was user friendly and can function properly according to the intended objectives. Fourteen out of the fifteen respondents agreed. One disagreed and stated that under the traditional method of procuring a contractor, the consultant would be the best to recommend the type of equipment and plant for the proposed project for subcontractors once the design is completed and approved by the client. Based on the results from the survey, it can be concluded that the framework would function properly and would be user friendly.

6.7 PROPOSED CONSIDERATIONS/IMPROVEMENTS TO THE FRAMEWORK

The respondents identified the following key points that should be considered for the developed framework:

- (i) client to negotiate for reduced interest rates for contractors;
- (ii) contractors to be technically trained before being considered for capacity development;
- (iii) establishment of the construction Bank in the medium to long term.

6.8 SUMMARY

In this chapter, the proposed subcontracting framework was developed that can be used to empower and develop capacities of subcontractors. The framework was validated by 15 experts in the construction sector that were involved in the implementation of projects. It was deduced that the proposed framework could be used to enhance empowerment and improve the capacities of subcontractors.

CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

The previous chapter discussed the subcontracting framework in detail. The chapter provided the explanation and interpretation of how the proposed framework can be used to build capacity of subcontractors. The framework was validated by 15 experts in the construction industry in Zambia. This chapter provides the study conclusions and recommendations. This research aimed at developing a framework which could be used to build capacity of subcontractors. The study was set out to:

- (i) examine the current legal and regulatory framework for subcontracting in the construction sector;
- (ii) establish the deficiencies in the current 20 percent subcontracting policy;
- (iii) formulate possible improvements or modifications to the policy; and
- (iv) develop and validate the subcontracting framework for capacity development of local contractors.

7.2 CONCLUSIONS

The mandatory 20 percent subcontracting policy was formulated to help bridge the gap between contractors of foreign origin and Zambian contractors. Through this study, the legal and regulatory framework for subcontracting in the construction sector was examined. The study established that there are institutions that are legally empowered to control and regulate the construction industry in Zambia. The institutions are PACRA for company registration, NAPSA and WCFCB for the social security of employees and employers, ZRA for tax issues, ZPPA for regulation of public procurement, CEEC for citizen empowerment and NCC for contractor registration and regulation.

The study established that the current mandatory subcontracting policy has deficiencies in as far as achieving the policy objectives is concerned. The flaws start from the policy itself. The policy only dealt with the road sector which is highly mechanised during its implementation compared to other sectors such as the building construction sector which can absorb a large number of work force thereby helping to achieve the objectives of the policy. The study established that there is need to strengthen the subcontracting policy by including other sectors in the industry. It was also established from this study that the local contractors lacked the capacity to participate in huge tenders in the construction sector in Zambia. The main objectives of the subcontracting policy was to empower local

contractors, create jobs for the citizens and create capacity among local contractors so as to contribute to sustainable development as stipulated in the Citizen Economic Empowerment Regulations of 2011. According to this study, achievement of these objectives depends on a number of factors. The study established that for subcontracting to be successful a good relationship between the main and subcontractor must exist. This relationship must be based on a long term basis. This is because bigger projects may take up to 3 to 4 years or more, especially roads projects.

The research also revealed weaknesses in the implementation of the policy in the public institutions that are managing projects on behalf of government. The management of subcontracting processes were ineffective in the areas of subcontractor engagement, work allocation, content and context of subcontractors' bills of quantities and contract agreements among others. This offers an explanation as to why local contractors abandon project sites, produce poor quality of work or fail to complete their works. Further, the study brings out an explanation why local contractors complain that the policy is not working.

The study further established that foreign contractors cannot build capacity of local contractors. It was established from the findings that people in business cannot do social responsibility functions where there is no gain. Moreover, staying with status quo on local contractors may reduce competition. Training and building capacities of local contractors can only be achieved if the government can have a deliberate plan to build capacities of these local contractors. The study established that use of management contracting may help build capacity of small scale contractors. The study further established that small scale contractors lack access to construction equipment, cannot employ qualified personnel and have little or no access to financial resources. This explains why only foreign companies are the ones accessing bigger projects in the country. The research established that this trend may not change until government deliberately helps the local contractors.

In view of the above, the policy cannot meet most of its intended objectives in its current form. Despite creating awareness of the policy, government needs to do more to enhance the subcontracting practices in Zambia. It was established from the study that lack of the framework on how capacities of local contractors would be achieved disadvantaged the local contractors. Based on the study findings and literature, a framework for enhancing

capacities of local contractors was developed. The subcontracting framework was validated by 15 experts in the constructions industry. Generally, the construction practitioners upheld the usefulness and functionality of the framework. It was deduced from validation that the subcontracting framework would help enhance employment creation and capacities of local contractors in Zambia.

Therefore, in conclusion, the local contractors will remain unsustainable and their performance unsatisfactory without the intervention of government. In order to address the challenges faced by local contractors in Zambia, it is important for government to review the policy with regard to capacity building of local contractors. The little success that has been achieved so far after the policy was introduced has been affected by the negative perception by the public that local contractors are not up to the task in the construction industry in Zambia.

7.3 LIMITATIONS OF THE STUDY

The research was limited to the study of subcontracting practices in the Zambian construction industry with a bias to the road and building construction sectors. Only 40 projects undertaken between 2012 and 2014 in which mandatory subcontracting was applied were investigated. In addition, the study was limited to the development of the subcontracting framework for the Zambian construction industry. However, the framework developed in this study could be applied to other construction sectors.

7.4 RECOMMENDATIONS

There was need to understand the deficiencies in the mandatory subcontracting policy in order to successfully address them. It was also important to understand why local contractors were not being upgraded from grade six (6) to grade one (1), and why local contractors perform badly and why they don't finish on time. The study established that there are number of causes to that effect and performance can be achieved if these factors are known and addressed. The results of the study reported in this dissertation can help project managers, clients and government at large to re-design the empowerment programmes in the country.

7.5 SPECIFIC RECOMMENDATIONS

The following specific recommendations should be considered going forward:

- (i) The subcontracting framework developed needs to be adopted for implementation by government.
- (ii) Government to modify the existing subcontracting policy to include all sectors in the construction sector.
- (iii) Government to compel all implementing agencies to prepare a strategy on how to grow the capacities of local contractors. The strategy should include the numbers of local contractors to be upgraded in different categories from grade 1 to 3.
- (iv) Implementing agencies to deliberately engage local contractors as an affirmative action.
- (v) Government to consider establishing a Bank for contractors to access finances at very low rates. This will ensure continuity in the implementation of projects should government delay in paying for work done.

7.5.1 *Recommendations for further studies*

- (i) The criteria for selecting projects for capacity development needs further study;
- (ii) The capacity building packages needs to be properly developed.

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Appendix 1: Interview Guide

1. What position do you hold in this company/organisation?

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2. What is your highest education qualification you possess:

- a. Primary
- b. Secondary
- c. Trade Certificate
- d. College Diploma
- e. University Degree
- f. Master Degree
- g. PhD

3. How long have you been working in this company/organisation?

.....

4. Years of your company's construction experience in Zambia:

- a. 0 – 5 years
- b. 6 – 10 years
- c. 11 – 15 years
- d. 16 – 20 years
- e. > 20 years

5. In what category and grade is your company registered with NCC?

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6. When did you start this project:

.....

7. In your own words, what is subcontracting?

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8. How many subcontractors are involved in this project?

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15. What other laws or regulations are you aware of which exist in the construction industry?

16. Do you think these laws and regulations are being implemented properly and are fulfilling their purpose?

17. Does subcontracting affect the project cost?

18. Do you think subcontracting affect the quality of work?

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19. What do you think causes bad practices in subcontracting?

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20. How can they be avoided in the construction sector?

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Appendix 2: Questionnaire



**The University of Zambia
School of Postgraduate Studies
Department of Civil Engineering**

Questionnaire

RESEARCH TITLE:

An Analysis of the Twenty Percent Subcontracting Policy in the Zambian Construction Sector: It's Efficacy in Developing Capacities of Local Contractors

Researcher: Fanizani Phiri: (+260978 163057/ 0955 998460)

Dear respondent,

This questionnaire is designed to study subcontracting in the Zambian construction sector for academic purposes only. You have been identified as one of the valuable stakeholder in the Zambian construction sector to provide valuable input to this study. I wish to request for some information provided by you through answering some questions outlined below. Kindly note that the information you provide will help in understanding of the 20 percent subcontracting policy.

Please be assured that the information obtained from this research will be purely used for academic purposes. I request you to respond to the questions frankly and honestly. Please be rest assured that your response will be kept *Strictly Confidential*.

After the collection and analysis of data from all the questionnaires, interested parties of this study will be given feedback to the findings on request.

Thank you very much for your time and cooperation. I greatly appreciate your help in furthering the endeavours of this research.

Cordially,

Fanizani Phiri

PART 1. PERSONAL INFORMATION

Please respond to the following questions either by ticking appropriately or by writing your answer in the space provided.

Please note the answers should be based on your experience in construction projects and all information provided will be treated in the strictest of confidence.

1.1. Which of the following best describes your profession?

- A. Main Contractor
- B. Consultant
- C. Client/ Client representative
- D. Subcontractor
- E. If Other (please specify) _____

1.2. If contractor/subcontractor, kindly indicate the grade and category in which you are registered with NCC?

1	2	3	4	5	6

1.3. How long have you been working in construction industry?

- A. 0 - 5 years
- B. 6 -10 years
- C. 11 - 15 years
- D. >15 years

PART 2. PROCUREMENT AND CONTRACTUAL ARRANGEMENTS

2.1. What contractual arrangement(s) have you previously been involved in? (you may select more than one)

- A. Traditional method (Design – Bid – Construct)
- B. Management contracting (All works are subcontracted except the management responsibility)
- C. Design and build
- D. Intergrated Construction Unit (A consultant bid together with contractor)

- E. If Other (please specify)_____
- 2.2. Which contractual method do you think is the best for the implementation of the 20% subcontracting policy?
- A. Traditional
- B. Management contracting(All works are sub-contracted except the management responsibility)
- C. Design and build
- D. Intergrated Construction Unit (A consultant bid together with contractor)
- E. If Other (please specify)_____

PART 3. THE CURRENT 20 PERCENT SUBCONTRACTING POLICY

This part of the questionnaire intends to establish the inadequacies to the current 20 % subcontracting policy.

On a scale of 1 = strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = strongly agree, how would you rate the following statements on the 20 percent subcontracting policy.

	Statement	1	2	3	4	5
3.1	The 20 % subcontracting policy is not legally supported as it did not pass through parliament for ratification					
3.2	Difficult to grow capacity of local contractors using the 20% subcontracting policy as main contractors are not interested in building capacities of local contractors due to lack of incentives					
3.3	Lack of strategic plan on subcontracting makes it difficult to build capacity of local contractors					
3.4	No participation of subcontractors in the determination of work					
3.5	Main contractors want to retain maximum benefits, thus reluctant to subcontract					
3.6	Main contractors are not willing to impart skills to subcontractors so as to continue enjoying the monopoly					
3.7	Lack of capacity of local contractors make it difficult for main contractors to build capacity of local contractors					
3.8	No clear guidelines on the implementation of the policy					
3.9	Subcontractors don't participate in the procurement process and only introduced after contract is awarded					

PART 4. PROJECT IMPLEMENTATION

This part of the questionnaire intends to measure the implementation of the subcontracting policy.

On a scale of 1 = strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = strongly agree, how would you rate the following statements on the implementation of subcontracting in Zambia

	Statement	1	2	3	4	5
4.1	Main contractor allocates work of low monetary value to subcontractors					
4.2	Too many subcontractors allocated on one project					
4.3	Main contractor does not help the subcontractors					
4.4	Main contractor has the preliminary and general items in their bill of quantities while subcontractors are not given and as such find it difficult to carry out works					
4.5	Difficult to grow capacity of subcontractors as main contractors limit work allocation to simple works such as drainages, culverts, block work, rendering etc.					
4.6	No advance payment given to subcontractors					
4.7	Main contractor treats subcontractor as a separate entity and not part of the main contractor					
4.8	Main contractor does not accept 20% subcontracting policy					
4.9	Main contractor willing to help subcontractors but subcontractors do not have capacity to carry out works					
4.10	There is no provision of buying equipment for subcontractors in order to enhance their capacities in the current policy					
4.11	Consultants on site not willing to deal with local contractors					
4.12	Consultants only deal with main contractors and leave out subcontractors to the main contractors					
4.13	Subcontractors do not understand contract management					
4.14	Subcontractors engaged by main contractors negotiate low rates because they do not know how to derive the rates					
4.15	Main contractor must always demand the securities from subcontractors					

PART 5 : CONSTRAINTS IN SUBCONTRACTING

This part of the questionnaire intends to establish the constraints in the implementation of subcontracting in the construction sector.

On a scale of 1 = none, 2 = Minor, 3 = Moderate, 4 = Major, 5 = Severe, how would you rank the following statements

	Statement	1	2	3	4	5
5.1	Lack of financial support to subcontractors by clients					
5.2	High interest rates on loans from the banks					
5.3	Subcontractors depend on the main contractor's good will to succeed as main contractors are the ones to allocate works					
5.4	No legal framework for main contractors who fail to subcontract 20% of their work.					
5.5	Lack of qualified personnel on the subcontractors staff due to no provisions for fixed obligations in their bill of quantities					
5.6	Delayed payments by construction clients					
5.7	Lack of construction management skills & experience					
5.8	Too many local contractors competing for few jobs on the market					
5.9	Work allocated to subcontractors by main contractors have usually low rates and such subcontractors fail to complete the works					
5.10	No mobilisation and demobilisation is allocated to subcontractors					
5.11	Unbalanced rates in the bill of quantities e.g. Frontloading					
5.12	Subcontractor depend on main contractor to submit the interim payment certificate for payment					

PART 6 : IMPROVEMENT TO SUBCONTRACTING POLICY

This part of the questionnaire is intended to establish improvements to the subcontracting policy and how to build capacity of local contractors in the construction sector.

On a scale of 1 = strongly disagree, 2 = Disagree, 3 = Unsure, 4 = Agree, 5 = strongly agree, how would you rate the following statements on the improvement in implementation of subcontracting in Zambia.

	Statement	1	2	3	4	5
6.1	Reviewing the existing subcontracting policy to include other key sectors in the construction industry					
6.2	Client to have a strategic plan on how to build capacity of local contractors with measurable deliverables; e.g. 10 grade one contractors in 3 years					

6.3	Client to identify local contractors with capacity to grow and put them on a deliberate programme for 5 years					
6.4	Procure works for identified local contractors to grow through Integrated Construction Unit method of procurement					
6.5	Consultants to be given the responsibility of training the identified local contractors through the identified works					
6.6	Client to procure equipment from suppliers for the identified local contractors and start deducting the cost through interim payment certificates for a medium term period					
6.7	Consultants to be approving all payments to be done by the identified local contractors					
6.8	Training to be incorporated in the project design for the personnel of the local contractors					
6.9	Make work available for the identified contractors for a period of not less than 3 years					
6.10	The subcontracting on other projects to continue for employment and skills development with main contractors					

End of questionnaire

Appendix 3: Validation Questionnaire



The University of Zambia
School of Engineering
Department of Civil & Environmental Engineering

4th July 2016

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Dear Sir/Madam,

Validation of the proposed subcontracting framework for empowering and building capacity of local contractors

I am a student currently studying for a Master of Engineering Degree in Project Management at the University of Zambia. This is a follow up to my earlier questionnaire which was forwarded to you. The purpose of writing to you is to seek for your assistance in the validation of the proposed framework for enhancing the subcontracting practices in Zambia. The framework proposes the use of the modified traditional method of procurement of works for normal subcontracting and nominating local contractors for subcontracting on the capacity building programme.

The validation will assess the functionality, usefulness and friendliness of the proposed framework. The information collected will be used purely for academic purposes and will be held in the strictest confidence possible. I will be more than grateful if you could kindly study the proposed model and answer the accompanying questions.

Yours faithfully,

Eng. Fanizani Phiri

Contact Nos.: (+260978 163057/ 0955 998460)

QUESTIONNAIRE

An Analysis of the Twenty Percent Subcontracting Policy in the Zambian Construction Sector: It's Efficacy in Developing Capacities of Local Contractors

This questionnaire is intended to validate the functionality of the proposed subcontracting framework for empowering and building capacities of local contractors in the construction sector in Zambia. Please study the proposed model and answer the accompanying questions by ticking in the boxes or writing in the spaces provided.

1. Which of the following best describes your profession?

Engineer	Architect	Quantity surveyor	Procurement Specialist	If Other specify

2. Do you think the proposed model can be used for empowering the local contractors?

Yes	No

If 'No', state the reasons why?

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3. Do you think the proposed model can be used to build capacities of local contractors in Zambia?

Yes	No

If 'No', state the reasons why?

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4. State any improvements that can be incorporated in the model to enhance capacity building and empowering of local contractors.

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5. Do you think the proposed model is user friendly?

Yes	No

If 'No', state the reasons why?

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6. State any other comments with regard to the proposed model.

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Name: **Signature:** **Position:**