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DEPARTMENT OF REAL ESTATE AND CONSTRUCTION MANAGEMENT

RESEARCH TOPIC:

AN INVESTIGATION OF IMPACT OF CASH FLOW MANAGEMENT ON SMALL AND MEDIUM ENTERPRISE CONSTRUCTION FIRMS

BY:

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DECLARATION

STUDENT DECLARATION

I declare that this research report is my original work based on my own findings and has not been submitted for a degree in any other University.

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SUPERVISOR DECLARATION

This project has been submitted for examination with my approval as a University Supervisor.

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DEDICATION

I wish to dedicate this work to my family for their encouragement and steadfast support all along. I treasure you very much.

ABSTRACT

The challenge of cash flow for small contractors is well documented. Besides management related challenges, lack of capital, limited access to credit, payment delays and lack of proper regulatory framework has bedeviled the capacity of small contractors to have sustainable cash flow. This study therefore sought to analyze cash flow challenges from mobilization phase to closure of a project and the extent of their impact on project performance, assess the impact of payment delays on project operations, identify and analyze challenges of accessing financing from established institutions and to explore the creation of trust fund accounts, mobilization payments and construction banks as alternative solutions.

To address the objectives, the study hypothesized that cash flow challenges were significant at mobilization and implementation phase and have a direct bearing on project performance while establishment of trust fund accounts between clients, contractors and financial institutions will significantly reduce cash flow challenges for small contractors.

The study targeted firms registered under NCA6, NCA7 and NCA8 where a structure questionnaire was sent to 381 firms from which 239 responses were received representing a response rate of 62.7 percent. The study employed a descriptive research design in order to meet its objective. To evaluate the significance of cash flow challenges from mobilization phase to closure and the extent of their impact on project performance, frequency and mode were analyzed against a four to five point likert scale ranging from not a challenge to major challenge while correlation analysis was undertaken to establish their impact on project performance. Further, a Chi-square test was undertaken to establish the extent to which cash flow challenges vary from mobilization to closure.

Analysis was undertaken to establish the impact of payment delays on project performance, challenges of accessing funding from established financial institutions and the creation of trust fund accounts, mobilization payments and construction banks as alternative solutions. The study found that cash flow challenges were more significant at mobilization (τ =0.928, p=0.000) and implementation (τ =0.655, p=0.000) phase and to an extent at closure (τ =0.594, p=0.000). It was also established that cash flow challenges have a direct bearing on project performance given their impact on project operations such as project delays (τ =0.795, p=0.000), defaulting payments (τ =0.626, p=0.000) and declining new contracts (τ =0.548, p=0.000).

The study recommended enactment of necessary policies, laws and regulations geared towards increased allocation of financial resources to the small and medium enterprises in order to fully support growth through easy access. Strategies to lower lending rates from current 15% to what other developed countries have be explored and the government in collaboration with National Construction Authority (NCA) should establish Trust Fund Accounts to stem out the perennial delays in payments across the infrastructure development sector as a whole.

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LIST OF ABREVIATIONS AND ACRONYMS

CBK Central Bank of Kenya

CMA Capital Market Authority

GDP Gross Domestic Product

ILO International Labor Organization

KBA Kenya Bankers Association

MAP Mobilization Advance Payments

MSEA Micro and Small Enterprises Authority

MSEDF Micro and Small Enterprises Development Fund

MSMEs Micro, Small and Medium Enterprises

NCA National Construction Authority

SMEs Small and Medium Enterprises

SMMEs Small, Medium and Micro Enterprises

TACECA Tanzania Civil Engineering Contractors Association

UNTAD United Nations Trade and Development

USAID United States Agency for International Development

KNBS Kenya National Bureau of Statistics

AfDB Africa Development BanK

CHAPTER ONE

1.1 Introduction

Small to Medium Enterprises (SMEs) are a significant sector in every economy. The role SMEs in an economy is critical given that their contribution to employment creation and value addition has a significant effect on the larger national economy (Chilipunde, 2010). SMEs have been are an engine of economic growth and promote development in both advanced and developing economies of the world. The most important aspect of the construction sector is the fact that its labor intensity is much higher than that of large businesses and has a greater employment potential at low capital cost. Thus, the role of SMEs in the economic and social development of a country is very important (Adeyemi & Laraba, 2011).

Small businesses are core to the economic competitiveness of every country. In Kenya, the private sector contributes 97% of GDP and constitutes 80% of the formal employment (African Development Bank, 2014). The Micro, Small and Medium Establishment (MSME) sector is the highest employer in Kenya with an estimated 14.9 million persons (MSME Economic Survey, 2016). According to MSME Economic Survey of 2016, the sector contribution to the Gross Domestic Product (GDP) was Ksh 3,371.7 billion against the country's total of Ksh 9,971.4 billion which represented 33.8 percent (KNBS, 2016).

SMEs though spread across all sectors of the economy, face similar myriad of challenges. According to a World Bank Enterprise Survey, (2010), access to financing is one of the main obstacles to doing business for SMEs. Research has shown financing as a greater obstacle for SMEs than large enterprises more so in developing world (Schiffer & Weder, 2001; Beck et al, 2005; Beck et al, 2006).

Small and medium contractors like SMEs grapple with lack of access to and difficulty in obtaining project financing. Further, small construction companies have higher financial turnover hence greater requirement for short term working capital. This is due to cost of materials, wages and equipment purchase or hiring costs (Evans and Kaka, 1999).

The construction industry is generally considered to have low barriers of entry and permits small undercapitalized businesses to enter and exit at will. This has perpetuated a culture where working capital is created from other ongoing operations, as firms struggle to overcome liquidity challenges. Lack of sustainable cash flow is thus a major factor in driving small and medium construction companies to bankruptcy (Evans and Kaka, 1999).

To compound the cash flow problem further, smallest contractors also experience difficulties in securing credit from financial institutions due to the perceived high levels of bankruptcy and inconsistency in honouring payments in the industry (Miles, 1979). In addition, small and medium contractors have very limited investments and are therefore unable to offer fixed assets as collateral for securing project financing from financial institution which is often the standard requirement (Ofori, 1991).

For startup construction companies in Kenya, the cash flow problem is very pronounced and most often leads to late start of the project which may lead to the contract being terminated for failing to submit a performance bond of 2 – 10% of the project cost. During mobilization, the contractor struggles to put all his/her money on the performance bond, secures the contract but hardly has enough money to service the contract.

The client usually start valuing for payment after 30 days of measurable work and may pay after a further 30 days after works have been measured, evaluated and certified for payment. The contractor may manage to execute work in the first 30 days and have it valued; however,

since the contract stipulates that the period for honouring payment certificates for certified works is 30 days, this stretches a small contractor' finances to a limit rendering any efforts to continue with works impossible unless alternative source of contract financing are obtained.

Whereas financial institutions in Kenya have competing and a wide range of credit facilities and services on offer, the question has always been that of availability versus accessibility. According to USAID (2007), although the Kenya financial sector is far much developed compared with other countries in the East Africa region, accessibility of financing has remained a major obstacle for SMEs. This is occasioned by the stringent requirements and processes employed by financial institution when appraising the risk in credit financing.

Recognizing this challenge, the Kenyan government put in place a regulatory framework through parliament by enacting the MSMEs Act No. 55 of 2012 that established Micro and Small Enterprises Authority in 2013 to address issues related to growth of SMEs in Kenya. However, two years have passed while no funds have been made available for the many SMEs who are unable to access credit facilities from the mainstream financial institutions.

The construction industry is quite fragmented, very sensitive to economic cycles, political environment, and a high rate of business failure (Enshassi, Al-Hallaq & Mohamed, 2006). As opined by Al-Issa and Zayed (2007), small and medium construction companies need sustainable cash flow in order to survive in the industry. Lack of liquidity is therefore a major setback and often a common cause of project delays, poor project performance, construction project failures and ultimately bankruptcy of construction companies.

The custom in addressing cash flow difficulties in any project is to seek for working capital from financial institutions, family savings, friends, or lines of credit from suppliers and the labor gangs. Unfortunately, when applying for a performance bond, the banks will require

100% cash cover for the amount of bond which is not possible to provide for a small contractor already reeling from cash flow challenges. Whereas some banks do accept real property as collateral, higher interest rates are charged and unfortunately the process of charging takes 60-90 days by which time the statutory period of submitting the performance bond of 21 days will have lapsed. On the other hand if applying for working capital, the banks will require the contractor to provide 100% security for the amount borrowed where the security must be charged to the bank and then take 60 – 90 days to process by which time the works will have stalled.

The cash flow problem is further compounded by delays in payments that are as a result of the regulatory frameworks defining the performance of construction contracts, bureaucracies especially in government and unwillingness by big contracting firms to honor payments to small sub-contractors.

This study therefore sought to highlight cash flow challenges facing small contractors in Kenya and thereby contribute to the creation of an enabling environment which would facilitate their growth and development. This when attained would in the short term contribute to a stable construction industry, create more employment opportunities for the youth both in professional and manual levels, increase capacity for infrastructure development and in the long term contribute to vision 2030.

1.2 Problem Statement

SMEs play a significant role in every economy. However, SMEs rate of failure statistics indicate that three in every five (equal to 60%) fail within the first one year of being established (Bowen, Morara & Mureithi, 2009). Whereas there are various challenges that small businesses face, cash flow difficulties or the lack of it, stand out as a significant threat to the survival of SMEs and the construction sector is no exception.

According to Delotte (2016) SMEs in Kenya are hindered by inadequate capital, limited access to markets, poor infrastructure, inadequate knowledge and skills, rapid changes in technology, corruption and unfavorable regulatory environment. Despite these challenges, SMEs continue to play a key role in economic development and creation of jobs. In 2014, 80% of new jobs created in the Kenyan economy were in the SMEs sector (Adeyeye, 2016).

The role of small contractors in the construction industry is very important since they not only undertake construction works ignored by the large contractors most often because of the associated project turnover but also a source of employment to many people (Ruddock, 1992).

In this regard, small contractors often make small profit margins from such projects and therefore continuously operate on very tight budgets from contract to contract. Thus when there is shortage in cash flow as a result of their limited capital, delays in payments or failure to secure financing; the ongoing projects will often stall, be done poorly, or fail totally (Stretton, 1984).

The cash flow problem for small contractors is also aggravated by the fact that most of them have very low financial reserves and therefore use profits from ongoing projects to finance their next projects. This means any short comings in the forecasted cash flow eventually lead to cash flow problems and liquidation in the other projects (Stretton, 1984).

Projects in the construction industry require a large working capital from start to completion. According to Singh and Lokanathan (1992), availability of working capital and liquidity necessary for day-to-day activities is the most pressing problem for most if not all small and start up construction contractors.

Performance of a construction project demands cash flow for mobilization of materials, labor, equipment and other set up costs at the commencement of the project (Kenley, 2003). Further cash flow challenges arise when payments are delayed leading to cash deficit which makes continuing with works impossible not unless financing is sought from financial institutions (Kenley, 2003).

Delays in payments have been cited as a major problem in the construction industry; both by private developers and in the public sector although the latter has been worse (Edmonds & Miles, 1984). Ofori (2009) indicated late payments to contractors as a serious challenge facing the construction industry especially for small contractors.

Difficulties in accessing contract financing from financial institutions are a serious challenge for most small contractors if not all. Commercial financial institutions are known to seek just but one thing; the bottom line which is better profits year after year. Banks' lending policies are purely designed to shield them from credit risks and therefore operate in total abandon of government policy. Whereas financial institutions often boast of myriad competitive credit facilities, their inflexible terms (fixed assets as collateral and high interest rates) and long processes of diligence is often their undoing (Ofori, 2009). This raises the question of availability versus accessibility to contract financing.

Without access to appropriate financing, small contractors will continue to encounter cash flow related challenges and thus their project performance will significantly be affected

leading to construction is delay, compromise of quality, abandonment of projects, loss of livelihoods or even winding-up notwithstanding capital already spent on the client's projects (Carson, 2006).

1.3 Research Objectives

i. To analyze cash flow challenge from mobilization phase to closure of a project and its impact on project performance.

ii. To assess the impact of payment delays on project operations.

iii. To identify and analyze challenges of accessing financing from established institutions (commercial and public).

iv. To explore alternative solutions to address challenges of accessing financing and delays in payments by small contractors.

1.4 Statement of Hypotheses

i. H_O Cash flow challenges at mobilization and implementation phase have a direct bearing on project performance.

ii. H_A Cash flow challenges at mobilization and implementation phase have no direct bearing on project performance.

1.5 Research Questions

This study sought to analyze how cash flow and credit access challenges impacted the performance of small contractors as well as identifying possible solutions. The research questions for this study were:

i. How does the cash flow challenge compare from mobilization phase to project closure for small contractors and to what extent does it affects project performance?

- Cash flow challenges related to access to funding and delays in payments were evaluated in relation to mobilization, implementation and closure phases of a contract.

ii. How severe are payment delays and to what extent are they a challenge in the construction industry especially for small contractors?

- Delays in payments were evaluated at the start, implementation and closure of contracts in relation to client type and its impact on contract performance.

iii. How significant is the impact of financial institutions' (commercial and public) lending policies on cash flow challenges faced by small contractors?

- This involved evaluating the requirements demanded for credit financing and the extent to which they were a barrier to accessing funding by small contractors.

iv. What alternative solutions could be put in place to facilitate access to project financing and eliminate delay in payments for startup contractors?

- Here, the study explored the establishment of trust fund accounts between the client, contractor and a financial institution, requirement for mobilization payments during the onset of the project and establishment of construction banks.

1.6 Significance of the study

The construction industry is a critical sector in an economy given its role in infrastructure development and creation of employment opportunities (Kirmani, 1988).

The advancement of infrastructure is a good indicator of the economic growth of a nation (OECD, n.d). Small contractors in the construction industry have a direct impact on skilled and unskilled employment and it is therefore important that constraints facing them are identified, analyzed and solutions provided accordingly.

1.7 Assumptions of the study

This study assumed that all targeted small contractors were adequately competent in cash flow forecasting and management and therefore challenges of cash flow were as result of their startup status and or external factors. It also assumed that there were no significant differences in lending policies between financial institutions in Kenya and therefore requirements for credit financing are more or less the same. An assumption was also made in regards to the fact that respondents would be honest and candid enough to provide the necessary information in order to make the study a success.

1.8 Limitations of the study

This research sought to investigate the impact of cash flow challenges on small and medium construction firms in Kenya registered under NCA6, NCA7 and NCA8. Since the environment in which small contractors operate in is unique to the construction industry, the findings of the study would be generalized to a larger extent to all other small contractors and generally in the industry at large.

1.9 Delimitations of the study

The study targeted small contractors working in Nairobi County since there were more contractors of the targeted class in the region. In addition, the study employed a combination of purposive and convenient sampling due to tight schedules for the target respondents and lack of physical addresses. Whereas there are other factors that contribute to cash flow challenges such as poor financial management, this study examined cash flow challenges occasioned by limited access to credit financing, delay in payments and lack of functional SME development framework.

1.10 Organization of the study

Chapter One, introduced the whole project, highlighting the role of SMEs in a growing economy, challenges of cash flow, delay in payments and problem statement; research objectives, study hypothesis, research questions, research methodology, limitation and delimitation of the study.

Chapter Two, focused on literature review exploring the role of SMEs in an economy, role of public and private financial institutions, role of government in the formulation of government policy and legal framework. The chapter looked into challenges of cash flow, delayed payments and how they related and affected project performance. The chapter concluded with the conceptual model employed in the study with dependent and independent variables.

Chapter Three, covered research methodology where descriptive research design was used with the survey questionnaire as the data collection instrument. The target population was identified where a sample size of 381 firms was used for firms registered in NCA6 to 8.

Chapter four covered data analysis and tabulation of results. The chapter sought to provide necessary results to address the objectives and hypothesis of the study.

Chapter five covered the summary of the findings, discussion of the results, conclusion and recommendations of the study.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter covered a review of literature in regards to role of SMEs in an economy, role of financial institution in project financing for small contractors, challenges of small contractors, proprietary financing mechanisms for small contractors, conceptual framework and the research gap for this study.

2.1.1 Micro, Small and Medium Enterprises-MSMEs

The definition for small and medium enterprises (SMEs) differ and they often described by their characteristics. In Kenya, a small business is that with 10-49 employees, and a medium business is that with 50-99 employees (Waweru, 2007).

The MSME sector is a significant driving force of economic development and job creation. The role of SMEs in Kenya was first recognized in the ILO report of 1972 on employment, income and equity (ILO, 1972). The report underlined the MSMEs as drivers of income and employment growth.

According to the Micro and Small Enterprises Act No. 55 of 2012 a micro enterprise is a business whose annual turnover does not exceed 500,000 and employs 1-9 people. A small enterprise is a firm whose annual turnover ranges between 500,000 and 5 million shillings and employs between 10-49 people (MSME ACT, 2012). While medium enterprises employ 50-99 people (KNBS, 2016).

In the Kenyan construction industry, contractors are classified based on annual turnover and for the purpose of this study, contractors under NCA8-NCA6 were the target population since their annual turnovers more or less matched the turnover defined by MSME Act of 2012.

Table 1: Study population

Category of works	Turnover in Millions				
	Up to 5	Up to 10	Up to 20	Up to 50	Up to 100
Contractors (Buildings)		NCA8	NCA7	NCA6	
Specialist Contractors	NCA8	NCA7	NCA6		
Roads and other Civil Works			NCA8	NCA7	NCA6

Source: NCA, 2015

2.1.2 The role of SMEs to the Kenyan economy

Close to 99% of all businesses in the world are SMEs. SMEs vary in sizes with some at start up while others may even be listed in stock exchange (CMA, 2010).

The Small and Medium Enterprise (SME) Sector has continued to play an important role in the Kenyan economy given its significant contribution to the Gross Domestic Product (KNBS, 2016). The sector's contribution to the Gross Domestic Product (GDP) has increased from 13.8 per cent in 1993 to 33.8 per cent in 2016 (KNBS, 2016). According to the Economic survey of 2018, 14.7 million jobs were under MSMEs against a total of 16.9 million jobs (KNBS, 2018).

The 2016 economic survey showed that the SME sectors is critical in creation of employment opportunities and wealth creation (KNBS, 2016).

2.2 The role of financial institutions in the construction industry

Short-term loans from banks are a primary sources of financing for small businesses which helps small firms maintain cash flow necessary for business operations (McCarthy, 2014). Further, over 50% of business use finance institution as their primary source of financing (McCarthy, 2014).

Most small contractors function with a low equity base (Sanmuganayagam, 1978). Lack of access to finance is a critical constraint on project performance for small contractors and this

is further worsened by total lack of or inadequate collateral essential for obtaining finances from commercial banks. Eyiah (2001) argue that the most pressing problem for small and medium scale contractors is obtaining working capital for a project.

Compared to large construction firms, small and medium contractors have limited options for project financing which thus affects their cash flow at any one given time (Siboe, Ngigi, Ogundo, Kibe & Wanyona, 2013).

2.2.1 The State of bank lending in Kenya

Whereas banks offer various project financing facilities, they require adequate security which most small contractors cannot provide (Rameezdeen, Palliyaguru & Amaratunga, 2006).

The banking industry in Kenya witnessed significant growth in the last 10 years which has led to more competition and better products and services (Mwende, 2014).

Despite this growth, approach to providing credit has remained on the basis of having some collateral in either fixed or movable assets which is not feasible for small businesses (KNBS, 2016).

2.3 Challenges facing SMEs

The economic survey of 2016 showed that significant constraint for small business are regulatory environment related (KNBS, 2016). Further, it is often difficult for small businesses to access bank loans due to restrictive lending policies and high interest rates (KNBS, 2016). Lack of operating cash flow was cited as the reason for closure of up to 2.2 million MSMEs businesses from 2011 to 2016 (KNBS, 2016).

2.3.1 Availability versus accessibility to credit

Whereas the major sources of financing for SMEs differ, most of them depend heavily on bank loans (CMA, 2010). Access to financing has remained a significant challenge for MSME due to requirement for collateral (ILO, 1987).

Access to credit in Kenya is highly pegged on collateral, balance statements evaluating cash flow and other banking policies that overly restrictive (CMA, 2010). Small businesses are also viewed as high risk investment due to the high rates of insolvency which does not help with the cost of credit access (CMA, 2010).

Kimutai (2013) showed that 88% of banks rationed credit even among borrowers who had met the general credit access criteria. Further, collateral was reported as a very important factor in credit rationing by commercial banks (Kimutai, 2013).

Beside requirement for collateral, administration costs and credit access processes involved with applications for project financing often discourage small businesses from seeking financing from financial institutions (Levitsky 1993). Limited or lack of cash flow therefore leads failure bidding for contracts, continuing with ongoing works or even liquidation (Thwala & Mvubu, 2008).

2.3.2 Legal and policy frame work

According to 2016 economic survey, the main challenge to small businesses in Kenya was regulatory environment related especially in relation to registration, access to financing and project procurement (KNBS, 2016).

2.3.3 Cash flow

Cash flow is “the actual movement of money in and out of a business. Money flowing into a business is termed positive cash flow and is credited as cash received. Monies paid out are termed negative cash flow and are debited to the business. The difference between the positive and negative cash flows is termed the net cash flow” (Cooke & Jepson, 1986).

Further, in a construction organization, “positive cash flow is mainly derived from monies received in the form of monthly payment certificates. Negative cash flow is related to monies expended on a contract in order to pay wages, materials, plant, subcontractors' accounts rendered and overheads expended during the progress of the work. Also in a construction project, the net cash flow will require funding by the contractor when there is a cash deficit and where cash is in surplus the contract is self-financing” (Cooke & Jepson, 1986).

Lack of liquidity is a major cause of construction project failures (Al-Issa and Zayed, 2007). Most bankruptcy in the construction industry is cause poor cash flow management and lack capacity (Kaka, 1996). Sustainable cash flow is critical in meeting project operational costs as well servicing creditors (Bonny and Frein, 1983).

2.3.4 Delayed payments

Delayed payments are a significant contributor to cash flow challenges faced by small contractors Taylor (1996). Delayed payments have also been established as a key contributor to the erratic cash flow experienced by SME contractors which makes performance of contracts impossible or delay all together (Kapulula, 2008; Uriyo, Mwila & Jensen, 2004).

Due to construction projects being capital intensive, small contractors find it hard to continue with work when payments are delayed leading to stoppage of work (Soon, 2007).

2.4 The Kenyan construction industry

The construction industry is very sensitive to economic ripples and political uncertainty which leads to high rate of bankruptcy (Enshassi, Al-Hallaq & Mohamed, 2006). The industry has low barriers of entry which makes it possible for undercapitalized business owners to enter and exit (Ashman, 1994).

The construction industry is a key pillar in infrastructural development which has seen the government increase its expenditure from 113.2 billion in 2016 to 134.9 billion in 2017 (KNBS, 2018). On the same note, loans provided by commercial banks rose from 104.8 billion in 2016 to 109.9 in 2017 (KNBS, 2018). The industry has experienced significant growth having expanded from 4.8 percent in 2012 to 8.6 percent in 2017 (KNBS, 2018).

2.4.1 The case for small scale contractors

Small, medium and micro enterprises (SMMEs) remain a critical component of the economy given its huge employment base and contribution to GDP (Chilipunde, 2010). Small contractors are unique in the sense that they have reach to areas where big contractors have no interest and have lower operating costs (Thwala & Mvubu, 2008).

Availability of small contractors is an opportunity for meeting the construction gap in the construction industry given their huge numbers and countrywide access (Hillebrandt, 1985). Unfortunately, most small contractors do not grow into larger entities due to lack of enabling regulatory framework and environment (Young, 1993).

2.4.2 Cash flow and project financing problems for small contractors

The challenge of cash flow is pronounced in the construction industry because whereas normal market forces are dynamic in nature, contracts price is often fixed (Arain, 2005). The large insolvency in the construction industry is greatly associated to cash flow challenges notwithstanding others like poor management (Lowe, 1997).

The industry is labor dependent which makes cash flow very critical in all aspects during the whole construction life cycle (Arain, 2008).

Project financing requires access to credit facilities from banking institutions who often than not require collateral as well as healthy balance statements (Zainudeen, Kumari & Seneviratne, 2008).

2.5 Establishment of proprietary financing mechanisms

Various construction industry supports mechanisms in the developed and developing countries have been instituted to address the unique challenges of the construction industry most notably project financing related issues. Contractor mobilization advance payments (MAP) in Sri Lanka, construction trust fund accounts in USA (Whiteford, Taylor & Preston, nd), SME oriented authority UK and establishment of construction bank in China.

2.5.1 A case for mobilization payments framework

Mobilization advance is a payment made to the contractor to commence implementation of a construction project (Palliyaguru, 2006). The concept of MAP came in to being with the objective of overcoming financial difficulties of small and medium scale contractors in the Sri Lankan industry (Palliyaguru, 2006). MAP normally constitutes 20% of initial contract price and is paid to the contractor before any physical work being executed (Rameezdeen, Palliyaguru &

Amaratunga, 2006). Sri Lanka is one of the few countries in the world that grants mobilization advance to construction contractors. Mobilization Advance Payment thus reduces contractors' need for working capital (Rameezdeen, Palliyaguru & Amaratunga, 2006).

During the implementation phase after mobilization payments are made, the client pays to the contractor the sum equivalent to works completed (Rameezdeen, Palliyaguru & Amaratunga, 2006). Eyiah (2001) see availability of MAP as win-win option for clients and contractors due to its positive impact on the latters' cash flow.

The opponents' main weapon is the unfortunate misuse of MAP at the hands of contractors. They also argue that MAP was promoted by the World Bank as a temporary measure to develop small and medium scale contractors in the early 1980's (ICTAD, 1988) and its mission has been accomplished.

MAP has the advantage of minimizing the need for project financing which often lead to ballooning of the construction costs cutting on returns to the contractor (Larcher, 2000**)**.

2.5.2 Establishment of trust fund accounts

Trust fund accounts involves identification of a third party in this case a bank who holds the monies payable to the contractor in trust until works are completed (Nesan, 2006).

Whereas this method is established to eliminate cash flow related challenges occasioned by limited capital, difficulty in access to credit and delays in payments, the requirement for a third party is often viewed as its limitation (Nesan, 2006).

Joint trust funds eliminate noncompliance with payment for goods and services delivered due to the fact all monies payable are already held in trust before commencement of works by the contractor (Nesan, 2006).

In the United States, several states have enacted construction trust fund statutes to ensure contractors and sub-contractors receive payments for construction projects undertaken. Construction fund statutes establish a trust for funds to be paid to contractors and sub-contractors for their benefit upon completion of construction works (Whiteford, Taylor & Preston, nd).

2.5.3 Construction banks

Construction banks are established to support project financing in the construction industry (TACECA, 1997). Whereas construction banks are welcome, the narrow lending base and volatile industry pose a significant risk for failure (ILO 1979).

The first attempt by National Construction Authority at a construction bank ended in bankruptcy due to mismanagement and poor banking procedures (Miles 1982).

According to (Akuffo, 2017), government's desire to close the housing and infrastructure deficit could not be achieved without the necessary finance backbone. In this regard, on June 2017, the government of Ghana launched a Construction Bank fully owned by Ghanaians, with a prime focus on construction and infrastructure development to bridge this gap.

2.5.4 Prompt payment for performed contracts

According to Public Procurement Preference and reservations Regulations of 2013, payments for performed contracts ought to be done promptly as follows:

- "For the purposes of ensuring sustained growth for enterprises owned by youth, women or persons with disabilities, procuring entities shall make prompt payments for all performed contracts through electronic media where possible and shall not delay beyond thirty days".

- “Where delay is inevitable, a procuring entity shall make at least fifty percent part payment and shall give a written explanation for the delay to the enterprises referred in paragraph” (1)
- “Where delay of payments for works performed are likely to happen, a procuring entity may facilitate invoice discounting arrangements with a financial institution for the purpose of achieving credit to the affected enterprises stated in paragraph” (1) (Public Procurement Preference and reservations Regulations, 2013)

2.6 Conceptual framework

The role of cash flow in project performance for small and big contractors cannot be overemphasized (Larcher (1998). Cash flow challenges are aggravated by inflexible lending terms (Ofori, 2009) by financial institutions raising the question of credit availability versus access, delays in contractor payments by both private clients and the government (Edmonds & Miles, 1984) and nonfunctional government policy and regulatory frameworks targeting MSMEs.

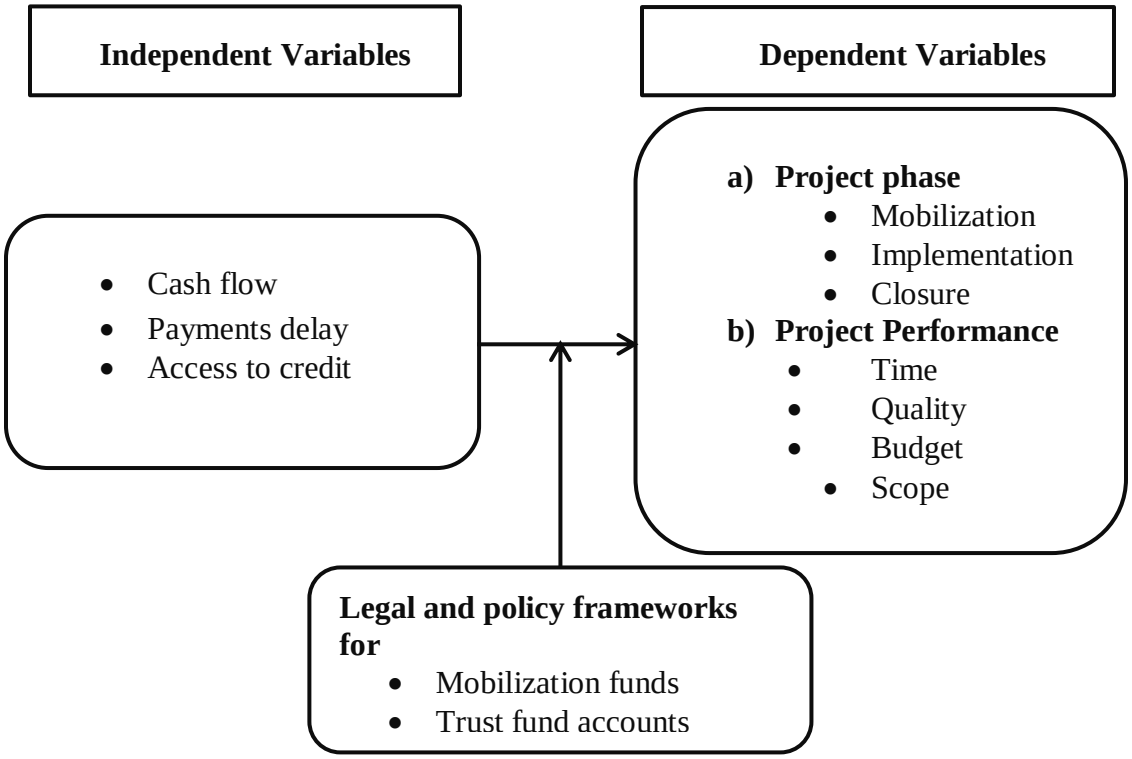

Figure 1: Conceptual framework

Source: Author, 2018

2.7 Research gap

Small and medium size firms seem discriminated by banking institutions as a result of their requirement for collateral and inflexible lending terms Gounden (2000). Lack of external

financing at the critical growth stage of small enterprises deters growth potential and expansion (Nissanke, 2001).

Govender and Watermeyer (2001) argued that the requirement for a performance bond is a significant financial hurdle for small enterprises and due to their greater surety risk factor, the bonds are obtained at significantly higher rates than well-established enterprises.

Contractors face difficulties in financing construction projects due to financial problems related to delays in payment and lack of advance payments during mobilization (Mahommed, 2005).

According to Laryea (2010), most contractors find delays in payment a big problem in regards to managing cash flow. Payment-related delays often mean a contractor cannot predict their cash flow which makes banks consider them as a higher risk thus charging them higher interest on provided project financing. Thus, the cost of contractors acquiring capital is high.

While it was expected that the establishment of the Micro and Small Enterprises Authority (MSEA) in 2013 would soon help to address issues related to growth of SMEs in Kenya, two years down the line no funds have been allocated to the authority and when this will be made seems not to be in the near foreseeable future.

This study therefore sought to explore solutions to drivers of cash flow challenges for small contractors in Kenya from the regulatory and policy point of view since as shown in various studies, delays in payments and access to project financing can be adequately addressed by enacting appropriate legislation and by adopting and actualizing government policy.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter covered research design, study population and sampling technique as well approach to data analysis.

Research methodology encompasses research design, population and sampling, data collection procedures, approach to data analysis and measurement of variables (Mugenda & Mugenda, 2003).

3.1 Research design

Descriptive research design was adopted for this study because it would enable the researcher address the objectives of the study by answering the what, where and how in the study (Cooper & Schindler 2003). The role of descriptive research design is obtaining information on the existing state of the subject under study (Kothari, 2004).

Descriptive research design was employed for the investigation of the state of affairs on the study variables (bank lending policies, construction industry legislation and regulatory frameworks and cash flow challenges) whereas correlation research design will enable establishment of the degree of relationship that exists between them.

3.2 Study Population

This study targeted firms registered by the National Construction Authority (NCA) in NCA6, NCA7 and NCA8 which totaled 7037 firms as of July 2017.

3.2.1 Target Population

The target population of this study comprised construction companies registered under National Construction Authority (NCA) in category NCA6, NCA7 and NCA8 in the building works class in Nairobi County.

Table 2: Firms registered under NCA 6 to 8

Category	Building	Road works
NCA6	1,024	918
NCA7	1,400	1,378
NCA8	1,242	1,075
Total	3,666	3,371

Source: NCA Website (July, 2017)

3.2.2 Sample Size for the Study

Anderson (1996 p.202), Krejcie and Morgan (1970, p.608), Alreck and Settle (1995) posit that given the population size and the margin of error or the confidence interval, the sample size can be computed as shown in table 3.2.

Table 3: Sample Size computation- Adopted from Anderson (1996 p.202)

Population Size	Tolerable Margin of Error			
	%	%	%	%
100	79	85	91	96
500	17	72	40	13
1,000	77	75	16	05
5,000	56	35	97	,622
50,000	81	93	,044	,290
100,000	82	96	,055	,344
1,000,000	84	99	,065	,344

25,000,000	84	00	,067	,400

In this regard, the total sample size for this study was computed based on the total number of firms registered under NCA 6, NCA 7 and NCA 8 contractor categories respectively. For each category, a percentage ratio of the total sample size was computed based on the total population in each category.

Table 4: Research Study Sample Size

Registration Class	Registration Category	Number of Firms Registered	Total Sample Size	Sample Size Per Category	Sample Size Per Category
Building Works	NCA 6	1,024	381	55	198
	NCA 7	1,400		76	
	NCA 8	1,242		67	
Road Works	NCA 6	918		50	183
	NCA 7	1,378		75	
	NCA 8	1,075		58	
Totals		7,037		381	381

Source: Author, 2017

3.2.3 Sampling Technique

Non-probability sampling method was used in this research because the target population was a small cross-section (startup contractors) of the bigger population of contracting firms in the construction industry.

The sample population was first selected using the purposive sampling technique i.e. based on the registration category (NCA6, NCA7 and NCA8). The sampling frame was then selected using the convenient sampling technique based on physical address and availability of the contractor for the interview.

3.4 Data collection

This study employed a questionnaire to collect primary data from the target population. A questionnaire encompassing questions related to cash flow challenges identified in the literature review from mobilization phase to contract closure i.e. limited capital outlay, strict lending policies, delays in payments and legal framework gaps dichotomous was used.

Data on the impact of payment delays i.e. stalled contracts, suspended works, quality compromise, companies winding up, loss of credit worthiness and stalling of other projects was also evaluated using dichotomous (Yes, No) and a four point likert questionnaire.

Similar approach was used to evaluate requirements for contract financing by financial institutions both commercial and public. Such requirements as collateral, strong bank statements, processing periods, fixed assets etc. in relation to access to contract financing were assessed using a four point likert scale ranging from not restrictive, a little restrictive, moderately restrictive, highly restrictive.

The applicability and effectiveness of creation of trust fund accounts, introduction of mobilization payments and construction banks as alternative solutions was assessed through literature reviews and using a dichotomous and likert questionnaire to obtain the views of small scale contractors.

3.4.2 Methods of Data Collection

Survey method of research involves use of structured questionnaire to collect data through face to face interviews or self-administered via email (Babbie, 1992). The survey method was employed in this study to collect data from the sample population composed of small or startup contractors because it provided an opportunity to use a detailed questionnaire

and convenience during its administration. A detailed and objectively oriented questionnaire was developed so that data collected would exhaustively address the study's objectives and research questions.

3.4.3 Reliability and Validity of Instruments

It is critical that data collection instruments are reliable in order to achieve the objectives of the study (Bhattacherjee, 2012: p. 55). For this study, the questionnaire was detailed and objectively oriented as possible to ensure that it encompassed all the aspects of the study. The internal consistency of the questionnaire was tested using SPSS reliability analysis procedure to establish that the research instrument consistently measured the same constructs for each factor under investigation.

3.4.4 Pilot study

Pilot study or survey is a dress rehearsal of the main survey and is undertaken to test the validity, reliability and applicability of the data collection instruments (Kothari, 2004).

A pilot study was undertaken using 10 respondents in order to test for ambiguity, gaps or issues related to validity and reliability. The results led to regrouping of some questions so that a proper flow would be achieved.

3.5 Data analysis, interpretation and presentation

The data collected in this study was entered in Microsoft Excel due to ease of use and analysis done using SPSS. Preliminary analysis focused on providing overall findings through descriptive statistics measures such as mode, frequency, mean and standard deviation.

To test how challenges of cash flow varied from mobilization to closure, a chi-square test for independence was undertaken to establish whether there was any significant differences. To

establish the significance of lending policies of financial institutions (public and commercial) on small scale contractors' cash flow challenges and to determine the impact of delays in payments on project performance, correlation analysis was undertaken to determine the strength and significance of associations.

3.6 Ethical issues

The researcher ensured no ethical issues were breached by being cognizant of respondent privacy and need for consent.

3.7 Chapter Summary

This chapter discussed the research design, study population, sampling design, methods of data collection, data analysis, interpretation and presentation and ethical issues concerning data collection; which were applied in the study in order to achieve a successful study.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter contain the results, discussion and interpretation of the statistical analysis of data collected using mailed or hand delivered survey questionnaires.

The study targeted firms registered under NCA6, NCA7 and NCA8 and sought to evaluate cash flow challenges from project mobilization phase to closure and the extent of their impact on project performance. Further, the study explored the impact of payment delays on project performance, challenges of accessing financing from established institutions (commercial and public) and the creation of trust fund accounts, mobilization payments and construction banks as intervening solutions to cash flow challenges for small and medium contractors in the construction industry.

To evaluate the significance of cash flow challenges from mobilization phase to closure and its impact on project performance, frequency and mode were analyzed against a four point likert scale ranging from not a challenge to major challenge while correlation analysis was undertaken to establish their impact on project performance. Further, a Chi-square test was undertaken to establish the extent to which cash flow challenges varied from mobilization to closure.

Similar analysis was undertaken to establish the impact of payment delays on project performance, identify and analyze challenges of accessing funding from established institutions and to explore the creation of trust fund accounts, mobilization payments and construction banks as alternative solutions.

4.2 Reliability Testing

Table 5:Reliability test of data collection instrument

Scale	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
Project phases	0.834	0.841	3
Consequences of cash flow challenges	0.749	0.758	7
Effect of cash flow on project performance	0.921	0.910	4
Impact of payment delays on operations of small and medium contractors	0.859	0.864	6
Challenges of accessing finance	0.847	0.846	4
Mechanisms for addressing cash flow challenges in the construction industry	0.923	0.927	3

Source: Author, 2017

The reliability analysis of the instrument was undertaken after the pilot study in order to establish the consistence of the scale chosen for the various study variables. The Cronbach's Alpha values for all the variables showed that the scale was internally consistent i.e. (values=>0.70) indicating that all the measures used measured similar underlying constructs.

4.3 Response rate

According to Rubin and Babbie (2009), response rate indicates the representativeness of sampled respondents. This means with a higher response rate, there is a lower probability of response bias. Thus, a response rate of 50 percent or more is typically considered adequate for making inference and reporting. In this study, the questionnaires received from respondents were 239 from 381 sent through physical delivery or mail which represented a response rate of 62.7 percent.

4.4 General information on the small and medium firms studied

4.4.1 Responses by firm's registration category

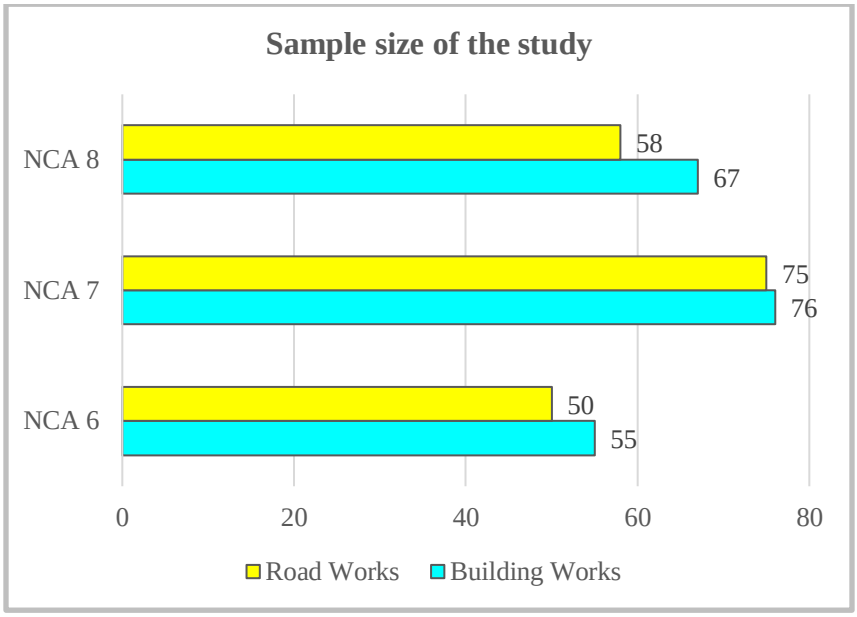

Figure 2: Sample size of the study

Source Author, 2017

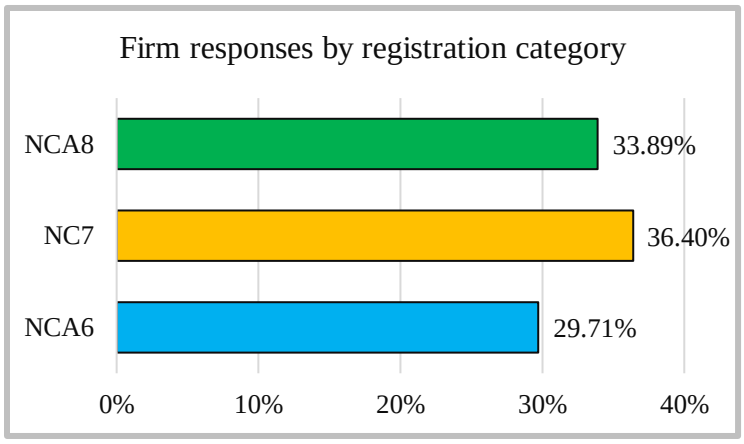

Figure 3: Firm responses by registration category

Source: Author, 2017

There were more responses from firms registered under NCA7 followed by NCA8 and lastly by NCA6.

4.4.2 Firms responses by type of works

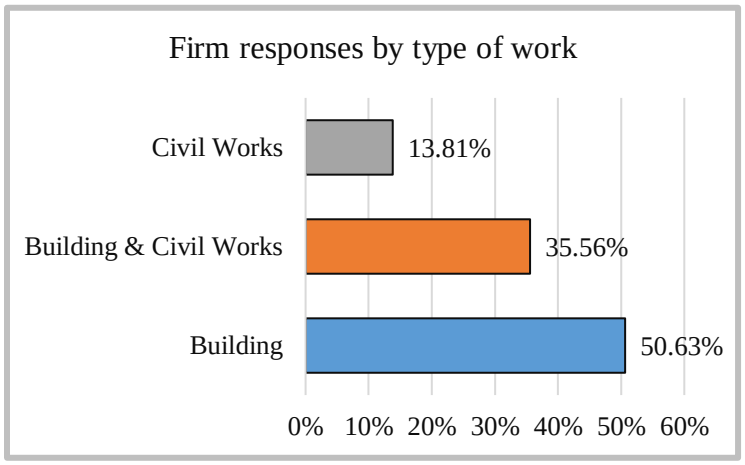

Figure 4: Response by type of works

Source: Author, 2017

The results showed that more than 50 percent of firms studied were registered under building category followed by both building and civil works at 35.56 percent. This pattern was expected given that there are more building works going for commercial and residential use in the study area.

4.4.3 Firms responses by type of works

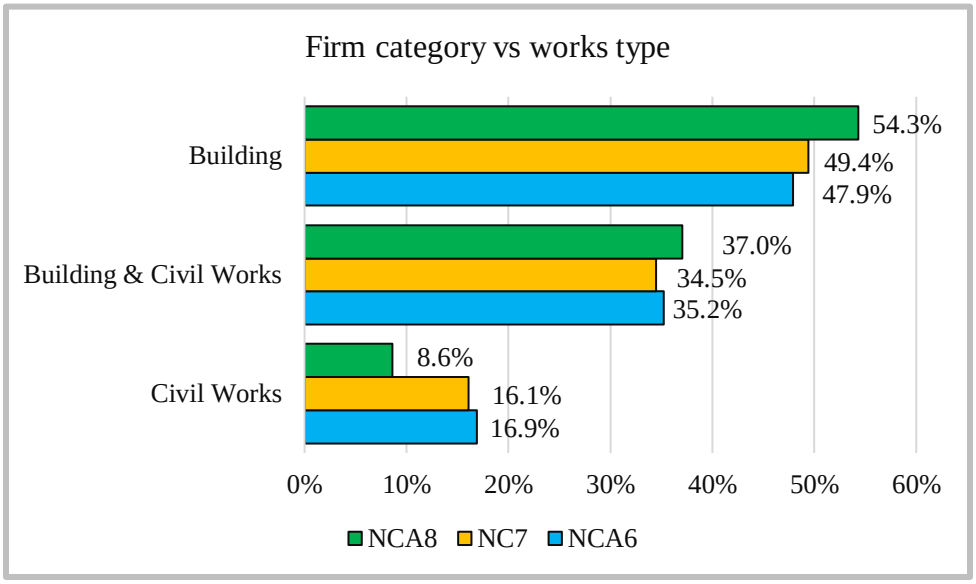

Figure 5: Firms responses by type of works

Source: Author, 2017

The results showed that firms registered in building as well as both building and civil works categories were approximately equal for NCA6, NCA7 and NCA8. Further, the number of firms registered under civil works only in NCA6 and NCA7 was double those registered in NCA8. This may be explained by project sizes by budget involved in most civil works.

4.5 Cash flow

The results showed that 90.4 percent of the firms studied were experiencing cash flow challenges in their ongoing projects. The proportion of firms that had experienced cash flow challenges was greater in NC8 (93.8%), then NCA7 (92.0%) while NCA6 (84.5%) had the least. This indicates that challenges of cash flow are more common in smaller construction firms.

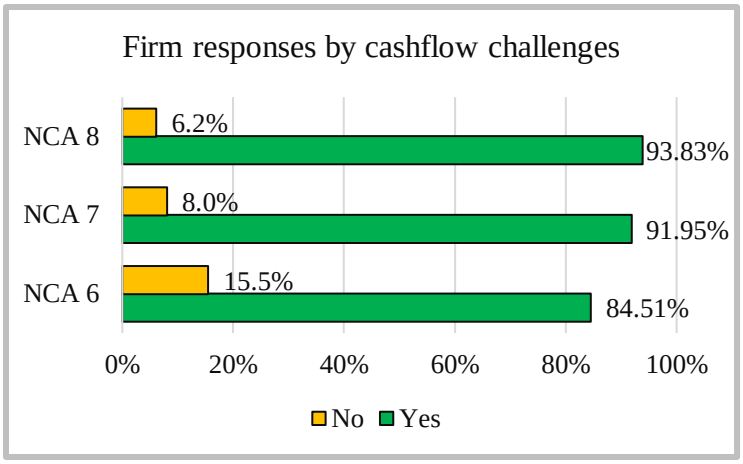

Figure 6: Firms responses by cash flow challenges

Source: Author, 2017

4.5.1 Association between cash flow challenges and project phase

Table 6: Association between cash flow challenges and project phase

Chi-square Test for Association					
Project phase		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Mobilization	Kendall's tau-b	.928	.040	5.634	.000
Implementation	Kendall's tau-b	.655	.059	5.543	.000
Closure	Kendall's tau-b	.594	.057	5.507	.000
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					

Source: Author, 2017

The results showed that cash flow was a greater challenge at mobilization stage (τ =0.928, p=0.000) for small and medium construction firms closely followed by at implementation (τ =0.655, p=0.000) and lastly closure (τ =0.594, p=0.000). Kendall's tau-b is the correlational coefficient for non-parametric data (nominal data).

4.5.2 Consequences of cash flow challenges

The results showed that project delays (very common - 85.5%), defaulting payments (very common - 80.3%) and declining new contracts (very common - 75.7%) were the leading consequences of cash flow challenges. The consequence of cash flow challenges on stalled projects and loss of credit worthiness was also significant with common to very common responses at 95.8% and 66.5% respectively. Majority of respondents indicated that cash flow challenges had little or no impact on winding up and compromise on quality of works.

Table 7: Consequences of cash flow challenges

Consequences of cash flow challenges	Not Common	A little Common	Common	Very Common
Project delays	0.0%	0.4%	13.8%	85.8%
Defaulting payments	0.4%	3.8%	15.5%	80.3%
Decline new contracts	0.4%	3.8%	20.1%	75.7%
Stalled projects	0.0%	4.2%	47.3%	48.5%
Loss of credit worthiness	5.4%	28.0%	33.1%	33.5%
Winding up	25.5%	45.6%	19.7%	9.2%
Quality compromise	73.6%	19.2%	4.6%	2.5%

4.5.3 Association between cash flow challenges and their consequences

Table 8: Association between cash flow challenges and their consequences

Consequences of cash flow challenges	Kendall's tau-b - Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Project delays	.795	.054	5.617	.000
Defaulting payments	.626	.057	5.543	.000
Decline new contracts	.548	.054	5.509	.000
Stalled projects	.293	.036	5.114	.000
Loss of credit worthiness	0.000	.029	0.000	1.000
Winding up	-.020	.060	-.337	.736
Quality compromise	-.512	.052	-5.472	.000

The results showed that there was a significant association between cash flow challenges and project delays (τ =0.795, p=0.000), defaulting payments (τ =0.626, p=0.000) and declining new contracts (τ =0.548, p=0.000).

4.5.4 Addressing cash flow challenges

The results showed that establishment of trust fund accounts (great extent – 90 percent) and provision of mobilization advances (great extent – 87.4 percent) were the strategies that are likely to address cash flow challenges in the construction industry for small firms.

Table 9: Addressing cash flow challenges

Strategy	Great Extent	Moderate Extent	Minimal Extent	None at All
Mobilization Advance	87.4%	12.6%	0.0%	0.0%
Trust Fund Accounts	90.0%	10.0%	0.0%	0.0%
Construction Bank	15.5%	28.0%	56.5%	0.0%

5.5.5 Association between cash flow challenges and strategies to address them

Table 10: Association between cash flow challenges and strategies to address them

Strategy	Kendall's tau-b - Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Mobilization Advance	.861	.048	5.632	.000
Trust Fund Accounts	.693	.080	4.543	.000
Construction Bank	-.249	.039	-4.732	.000

The results showed that there was a significant association between cash flow challenges and provision of mobilization advances (τ =0.861, p=0.000) and establishment of trust fund accounts (τ =0.693, p=0.000). In this regard, introduction of a requirement for mobilization advance and establishment of trust fund accounts would significantly address the challenges of cash flow at mobilization and implementation stage.

4.6 Project performance

4.6.1 Cash flow effects on project performance

Table 11: Cash flow effects on project performance

Firm Category	Yes	No
NCA 6	80.3%	19.7%
NCA 7	87.4%	12.6%
NCA 8	84.0%	16.0%

The results showed that cash flow affects project performance with NCA8 (Yes – 84%), NCA7 (Yes – 87.4%) and NCA6 (Yes – 80.3%).

4.6.2 Effect of cash flow challenges on project performance

Table 12: Effect of cash flow challenges on project performance

	Great Extent	Moderate Extent	Minimal Extent	None at All
Time	77.4%	22.6%	0.0%	0.0%
Quality	75.3%	24.7%	0.0%	0.0%
Budget	64.4%	35.6%	0.0%	0.0%
Scope	0.0%	0.0%	23.8%	76.2%

The results showed cash flow challenges affects project performance in relation to time (great extent – 77.4 percent), quality (great extent – 75.3 percent) and budget (great extent – 64.4 percent). The aspect of time and quality in project performance are significantly affected due to the fact that without sustained cash flow works ceases or contractors' compromises on quality.

4.6.3 Association between cash flow and project performance

Table 13: Association between cash flow and project performance

Chi-square Test for Association					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Time	Kendall's tau-b	.604	.053	5.577	.000
Quality	Kendall's tau-b	.570	.052	5.564	.000
Budget	Kendall's tau-b	.439	.044	5.485	.000
Scope	Kendall's tau-b	.049	.058	.838	.402
a. Not assuming the null hypothesis.					
b. Using the asymptotic standard error assuming the null hypothesis.					

The results showed that cash flow challenges had a greater impact on time (τ =0.604, p=0.000), followed by quality (τ =0.570, p=0.000) and budget (τ =0.439, p=0.000). Cash flow challenges had no effect on project scope.

4.7 Project delays

4.7.1 Firms experiencing payment delays

Table 14: Firms experiencing payment delays

	Yes	No
Firms experiencing delays	90.4%	9.6%

The results showed that 90.4 percent of firms were experiencing delayed payments in their ongoing or completed projects.

4.7.2 Percentage of projects with payment delays

Table 15: Percentage of projects with payment delays

	1-30%	31-60%	All	None
Projects with delayed payments	54.4%	45.6%	0.0%	0.0%

The results showed that all firms studied were experiencing delays in payments in up to 60 percent of their ongoing projects. This means only 40 percent of their ongoing projects did not have delayed payments during the period when this study was undertaken.

4.7.3 Payment delays by clientele

Table 16: Payment delays by clientele

	Very Often	Often	Sometimes	Never
Government ministries	83.7%	16.3%	0.0%	0.0%
Parastatals	20.5%	17.6%	39.7%	22.2%
Fellow contractors	39.3%	39.7%	20.9%	0.0%
Higher learning institutions	35.1%	46.9%	18.0%	0.0%
Private clients'	22.6%	19.2%	33.9%	24.3%

The results showed payment delays were more common in government related entities i.e. ministries, institutions of higher learning and parastatals closely followed by fellow construction contractors. There were respondents who indicated they had not experienced delayed payments with some parastatals as wells some private clients.

4.7.4 Impact of payment delays on project performance

The results showed delays in payments were more significant in the implementation phase followed by post mobilization and lastly project closure.

Table 17: Impact of payment delays on project performance

	Very Severe	Severe	Moderately Severe	Not a Problem
Post mobilization	17.2%	46.0%	25.1%	11.7%
Implementation	53.1%	22.2%	24.7%	0.0%
Closure	19.7%	18.4%	38.9%	23.0%

4.7.5 Impact of payment delays on a contractor

The results showed delay in payments had a very significant impact on operations related to a project i.e. paying site workers, creditors, suppliers and continuing with works. Bidding for new contracts was found to be independent from challenges faced with delayed payments.

Table 18: Impact of payment delays on a contractor

Elements of work	Very Significant	Moderately Significant	A little Significant	Not Significant
Paying site workers	82.0%	14.6%	3.3%	0.0%
Servicing creditors	78.7%	16.3%	5.0%	0.0%
Continuing with works	78.2%	15.5%	6.3%	0.0%
Paying suppliers	77.8%	15.9%	6.3%	0.0%
Paying for machinery	74.9%	15.5%	9.6%	0.0%
Bidding for new contracts	22.2%	17.2%	26.8%	33.9%

4.7.6 Association of delayed payments with project operation elements

The results showed there is a significant association between delay in payments and execution construction operations i.e. paying site workers (τ =0.657, p=0.000), servicing creditors (τ =0.573, p=0.000), continuing with works (τ =0.554, p=0.000) and paying suppliers (τ =0.546, p=0.000).

Table 19: Association of delayed payments with project operation elements

Parameters	Kendall's tau-b Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Paying site workers	.657	.060	5.546	.000
Servicing creditors	.573	.058	5.488	.000
Continuing with works	.554	.058	5.458	.000
Paying suppliers	.546	.057	5.454	.000
Paying for machinery	.473	.055	5.342	.000
Bidding for new contracts	-.207	.034	-4.466	.000

4.8 Project financing

4.8.1 Financing restrictions

Majority (79.9 percent) of the firms studied indicated they had sought project financing from financial institutions while 79.1 percent of these indicated they found the lending conditions restrictive.

Table 20: Financing restrictions

	Yes	No
Sought contract financing	79.9	20.1
Finds lending conditions restrictive	79.1	20.9

4.8.2 Restrictive requirements

The results showed request for collateral (τ =0.831, p=0.000), lending rates (τ =0.767, p=0.000) and bank statements (τ =0.620, p=0.000) as the most restrictive basis for accessing project financing.

Table 21: Restrictive requirements

	Kendall's tau-b Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Collateral	.831	.034	14.273	0.000
Lending Rates	.767	.037	13.721	0.000
Bank Statement	.620	.037	12.173	0.000
Time taken to process credit	-.020	.063	-.309	.757

4.8.4 Availability versus accessibility to financing

The results showed that requirements for collateral (τ =0.879, p=0.000), lending rates (τ =0.837, p=0.000) and bank statements (τ =0.768, p=0.000) have contributed significantly to financing being viewed as available but inaccessible.

Table 22: Availability versus accessibility to financing

	Kendall's tau-b Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Collateral	.879	.042	6.471	.000
Lending Rates	.837	.042	7.660	.000
Bank Statement	.768	.053	7.493	.000
Time taken to process credit	.047	.059	.800	.424

4.8.5 Alternative sources of project financing

The results showed that most small and medium size contractors mostly source for financing from friends and family 67.8 percent, chamas 67.4 percent and suppliers 49.4 percent when they fail to secure it from financial institutions. Plant owners 65.6 percent, shylocks 61.4 percent and labor gangs 49.8 percent were reported as financing sources of last resort due to reasons not explored in this study.

Table 23: Alternative sources of project financing

	Never	Last Resort	Some Times	Most Times	Always
Shylocks	10.5%	49.8%	39.7%	0.0%	0.0%
Friends & Family	0.0%	0.0%	32.2%	31.0%	36.8%
Suppliers	0.0%	23.8%	26.8%	33.1%	16.3%
Labor Gangs	27.2%	22.6%	27.2%	23.0%	0.0%
Plant owners	35.1%	30.5%	34.3%	0.0%	0.0%
Chamas	0.0%	0.0%	32.6%	34.3%	33.1%

4.8.6 Micro and Small Enterprises Authority

The results showed that 70.7 percent of firms studied were not familiar with MSEA, 84.1 percent did not know its roles while only 12.1 percent had ever sought for financing from them.

Table 24: Micro and Small Enterprises Authority

	Yes	No
Aware of MSEA	29.3%	70.7%
Roles of MSEA	15.9%	84.1%
Sought financing MSEA	12.1%	87.9%

4.9 Summary of the results

This chapter explored challenges of cash flow, delayed payments and access to project financing for small and medium building and construction firms registered under NCA6, 7 and 8 category in Kenya. The results showed that cash flow was a greater challenge at mobilization stage (τ =0.928, p=0.000) for small and medium construction firms closely followed by at implementation stage (τ =0.655, p=0.000).

In addition, the study established that cash flow challenges affects project performance more significantly in relation to time (great extent – 77.4 percent), quality (great extent – 75.3 percent) and budget (great extent – 64.4 percent). The results also showed that cash flow challenges were significantly associated with project delays (τ =0.795, p=0.000) meaning the aspect of time in project performance would greatly be affected by this.

The results showed that 90.4 percent of firms studied were experiencing delayed payments in their ongoing or completed projects. Further, there was a significant association between delay in payments and execution construction operations i.e. paying site workers (τ =0.657, p=0.000), servicing creditors (τ =0.573, p=0.000), continuing with works (τ =0.554, p=0.000) and paying suppliers (τ =0.546, p=0.000). In this regard, delayed payments would have a greater impact on the aspect of time in relation to project performance.

Majority (79.9 percent) of the firms studied indicated they had sought project financing from financial institutions and requirements for collateral (τ =0.831, p=0.000), lending rates (τ =0.767, p=0.000) and bank statements (τ =0.620, p=0.000) were the most significant challenges in accessing project financing. Further, 70.7 percent of firms studied were not familiar with MSEA, 84.1 percent did not know its roles while only 12.1 percent had ever sought for financing from them.

The results showed that establishment of trust fund accounts (great extent – 90 percent) and provision of mobilization advances (great extent – 87.4 percent) were the strategies that are likely to address cash flow challenges in the construction industry for small firms to a greater extent. Further, there was a significant association between cash flow challenges and provision of mobilization advances (τ =0.861, p=0.000) and establishment of trust fund accounts (τ =0.693, p=0.000).

In this regard, introduction of a requirement for mobilization advance and establishment of trust fund accounts would significantly address the challenges of cash flow at mobilization and implementation stage faced by small and medium size contractors.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter contains a summary, discussion, conclusions and recommendations reached in regards to cash flow challenges faced by small and medium building and construction firms in NCA6, 7 and 8 from mobilization phase to closure of a project and the extent of their impact on project performance. It also encompasses an analysis of the impact of payment delays on project operations, challenges of accessing funding from established financial institutions (commercial and public) and explores the creation of trust fund accounts, mobilization payments and construction banks as alternative solutions.

Descriptive research design was used in this study and firms registered under NCA6, NCA7 and NCA8 categories were studied. The data was collected using a questionnaire that predominantly used a four point likert scale that sought to measure the impact of cash flow, payment delays and limitations of access to project financing. The study targeted firm within the Nairobi County and the questionnaires were sent by email or hand delivery.

The study population was 7,037 firms and a sample size of 381 firms was used in this study from which 239 responses were received translating to 62.7 percent response rate.

The data analysis approach employed entailed computing descriptive statistics and statistical analysis to explore associations between various variables in the study as guided by objectives and hypothesis. The results were presented in tabular and graphical formats accompanied by brief discussions.

5.2 Discussion of summary and findings

5.2.1 Objective I: To analyze cash flow challenges from mobilization phase to closure of a project and the extent of their impact on project performance.

In this study, the project phases were divided into three groups i.e. mobilization, implementation and closure. The study sought to compare the severity of cash flow challenges across these three phases and the extent to which they affected project performance i.e. time, budget and scope.

The results showed cash flow was a greater challenge at mobilization stage (τ =0.928, p=0.000) followed by at implementation stage (τ =0.655, p=0.000) and closure (τ =0.594, p=0.000).for small and medium construction firms in Kenya. Further, the study established that cash flow challenges affects project performance more significantly in relation to time (great extent – 77.4 percent), quality (great extent – 75.3 percent) and budget (great extent – 64.4 percent).

In addition, cash flow challenges had a greater impact on project performance in relation to time (τ =0.604, p=0.000), followed by quality (τ =0.570, p=0.000) and budget (τ =0.439, p=0.000). Cash flow challenges had no effect on project scope.

5.2.2 Objective II: To assess the impact of payment delays on project operations

The findings of this study showed that 90.4 percent of firms studied were experiencing delayed payments in their ongoing or completed projects. Further, there was a significant association between delay in payments and execution of construction operations i.e. paying site workers (τ =0.657, p=0.000), servicing creditors (τ =0.573, p=0.000), continuing with works (τ =0.554, p=0.000) and paying suppliers (τ =0.546, p=0.000). In this regard, delayed payments are

a great contributor of cash flow challenges and has a greater impact on project performance especially in relation to time followed by budget due to inflation of prices of materials.

5.2.3 Objective III: To identify and analyze challenges of accessing financing from established institutions (commercial and public)

The results showed that majority (79.9 percent) of firms studied had sought project financing from financial institutions and almost an equal population i.e. 79.1 percent found lending conditions restrictive to very restrictive.

Request for collateral (τ =0.831, p=0.000), lending rates (τ =0.767, p=0.000) and bank statements (τ =0.620, p=0.000) were the most restrictive requirements for accessing project financing by small and medium size building and construction firms. Despite the lending rates having been capped, majority of the respondents still considered this as the second greatest hindrance to access to project financing.

5.2.4 Objective IV: To explore the creation of trust fund accounts, mobilization payments and construction banks as alternative solutions

As the literature review showed, trust fund accounts have successfully been implemented in the construction industry in the United States, mobilization payments in Sri Lanka and construction banks in Ghana and China. These solutions have contributed significantly in the bridging of the deficits in the construction industry.

The findings showed that establishment of trust fund accounts (great extent – 90 percent) and provision of mobilization advances (great extent – 87.4 percent) were the strategies that were highly likely to address cash flow challenges in the construction industry for small and medium size firms to a greater extent.

Further, there was a significant association between cash flow challenges and provision of mobilization advances (τ =0.861, p=0.000) and establishment of trust fund accounts (τ =0.693, p=0.000). In this regard, introduction of a requirement for mobilization advance and establishment of trust fund accounts would significantly address the challenges of cash flow at mobilization, implementation and closure stage faced by small and medium size contractors.

5.3 Conclusions

Cash flow challenges were more significant at mobilization (τ =0.928, p=0.000) and implementation (τ =0.655, p=0.000). It was also established that cash flow challenges have a direct bearing on project performance given their impact on project operations such as project delays (τ =0.795, p=0.000), defaulting payments (τ =0.626, p=0.000).

Delayed payments were a great contributor to cash flow challenges and has a greater impact on project performance given their effect on execution of construction operations i.e. paying site workers (τ =0.657, p=0.000), servicing creditors (τ =0.573, p=0.000), continuing with works (τ =0.554, p=0.000) and paying suppliers (τ =0.546, p=0.000).

In regards to access to project financing, collateral (τ =0.831, p=0.000), lending rates (τ =0.767, p=0.000) and bank statements (τ =0.620, p=0.000) were the most restrictive requirements for accessing project financing by small and medium size building and construction firms.

Introduction of mobilization payments (τ =0.861, p=0.000) and establishment of trust fund accounts (τ =0.693, p=0.000) between clients, contractors and financial institutions would significantly reduce cash flow challenges for small and medium size building and construction contractors in Kenya.

Further, having established cash flow challenges were more significant at mobilization and implementation and that they have a direct bearing on project operations the study concluded that cash flow challenges at mobilization and implementation phase have a direct bearing on project performance.

5.4 Recommendations

i. Enact necessary policies, laws and regulations geared towards increased allocation of financial resources to the small and medium enterprises in order to fully support growth through easy access.

ii. Explore strategies to lower lending rates from current 15% to what other developed countries have.

iii. The government in collaboration with National Construction Authority (NCA) should establish Trust Fund Accounts to stem out the perennial delays in payments across the infrastructure development sector as a whole.

5.5 Areas for further studies

Further studies should be undertaken to establish the policy and legal frameworks that have made construction banks work in other construction industries in the world and therefore what model is feasible for the Kenyan context.

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APPENDICES

Appendix I: Research questionnaire

Questionnaire No:		

DATA COLLECTION QUESTIONNAIRE

University of Nairobi

College of Architecture and Engineering

School of the Built Environment

Department of Real Estate and Construction Management

INTRODUCTION

My name is Maisori Marwa K. I am student at the University of Nairobi undertaking a study to establish the impact of cash flow problem on project performance by small construction firms in Kenya. This is as part of my partial fulfillment for a Masters of Arts (M.A) in Construction Management. The information collected will be used specifically for academic purposes and will be treated with utmost confidentiality.

INSTRUCTIONS:

(a) For absolute confidentiality do not write your name anywhere on this paper.

(b) Please feel free and be as honest as possible.

(c) Please answer all questions; remember there is no right or wrong answer.

(d) Tick the answer that best suits your response and/or briefly explain where

Research Objectives

v. To analyze cash flow challenges from mobilization phase to closure of a project and its impact on project performance.

vi. To assess the impact of payment delays on project operations.

vii. To identify and analyze challenges of accessing financing from established institutions (commercial and public).

viii. To explore the creation of trust fund accounts, mobilization payments and construction banks as alternative solutions.

BASIC INFORMATION ON THE CONSTRUCTION FIRM

1) Your firm is registered in which category?

	Building	Specialists	Roads & Civil Works
NCA6	☐	☐	☐
NCA7	☐	☐	☐
NCA8	☐	☐	☐

2) What is the average annual turnover for firms registered in your category?

Up to 5 million ☐ 6 to 10 million ☐

11 to 20 million ☐ 21 to 50 million ☐

Over 50 million ☐

3) What is the average number of employees in your firm (in construction sites and office)?

1 to 25 Workers ☐ 51 to 100 Workers ☐

26 to 50 Workers ☐ Over 100 Workers ☐

4) How many projects are you currently executing?

1 to 2 Projects ☐ 3 Projects ☐

4 Projects ☐ Over 5 Projects ☐

5) Do you have ongoing or completed projects?

YES ☐ 1 County ☐ 2-3 Counties ☐ 4-5 Counties ☐

6 or More Counties ☐

NO ☐

CASH FLOW CHALLENGES

1) **Are you experiencing cash flow challenges in your ongoing projects?**

YES ☐

NO ☐

2) **How does cash flow challenges compare from mobilization phase to project closure?**

	Major Challenge	Moderate Challenge	Minimal Challenge	Not a Challenge
Mobilization	☐	☐	☐	☐
Implementation	☐	☐	☐	☐
Closure	☐	☐	☐	☐

3) **What are the consequences of cash flow problems and how often are they?**

	Very Common	Some Times	A Little Common	Not Common	
Project delays	☐	☐	☐	☐	
Stalled projects	☐	☐	☐	☐	
Winding up	☐	☐	☐	☐	
Loss of credit worthiness		☐	☐	☐	☐
Quality compromise		☐	☐	☐	☐
Defaulting payments		☐	☐	☐	☐
Decline new contracts		☐	☐	☐	☐
…….	☐	☐	☐	☐	
…….	☐	☐	☐	☐	

4) **To what extent would establishing the following mechanisms, address cash flow challenges for small and medium contractors?**

	Great Extent	Moderate Extent	Minimal Extent	No Impact
Mobilization Advance[1]	☐	☐	☐	☐
Trust Fund Accounts[2]	☐	☐	☐	☐
Construction Bank[3]	☐	☐	☐	☐
…….	☐	☐	☐	☐

PROJECT PERFORMANCE

1) **Do cash flow challenges affect project performance?**

YES ☐

NO ☐

2) **To what extent does cash flow affect project performance?**

	None at all	Minimal Extent	Moderate Extent	Great Extent
Time	☐	☐	☐	☐
Quality	☐	☐	☐	☐
Budget	☐	☐	☐	☐
Scope	☐	☐	☐	☐

PAYMENT DELAYS

1) **Have you experienced payment delays in the last six months on ongoing or completed works?**

YES ☐ NO ☐

[1] Funds availed to the contractor at the commencement of the project.

[2] This a joint account between the client, contractor and financial institution where the client posts payments prior to commencement of work to cushion delays in payment.

[3] This is a financial institution specially tailored to provide financing for the construction industry.

2) What proportions of your projects have delayed payments?

None ☐ 1-30% ☐ 30-60% ☐

Over 60% ☐ All ☐

3) How often have you experienced payment delays with the following categories of construction clients?

	Never	Sometimes	Often	Very often	
Government	☐	☐	☐	☐	
Parastatals	☐	☐	☐	☐	
Construction sub-contractors		☐	☐	☐	☐
Higher Learning Institutions		☐	☐	☐	☐
Private clients'	☐	☐	☐	☐	

4) How severe are payment delays for small and medium contractors in the Kenyan construction industry?

	Not a Problem	Moderately Severe	Severe	Very Severe	
Post Mobilization		☐	☐	☐	☐
Implementation	☐	☐	☐	☐	
Closure	☐	☐	☐	☐	

5) How significant is the effect of delayed payments on the following:

	Not Significant	A little Significant	Moderately Significant	Very Significant	
Paying site workers	☐	☐	☐	☐	
Paying suppliers	☐	☐	☐	☐	
Paying for machinery		☐	☐	☐	☐
Continuing with works		☐	☐	☐	☐
Servicing creditors	☐	☐	☐	☐	

Bidding for new contracts ☐ ☐ ☐ ☐

CREDIT FINANCING BY FINANCIAL INSTITUTIONS

1) **Have you ever sought for contract financing from financial institution to bolster your cash flow?**

   YES ☐

   NO ☐

2) **Do you find financial institution lending policies in Kenya restrictive for small and medium construction contractors?**

   YES ☐

   NO ☐

3) **What particular requirements do you find more restrictive especially for small and medium contractors?**

	Not restrictive	A Little restrictive	Moderately restrictive	Restrictive	Very restrictive
Collateral	☐	☐	☐	☐	☐
Bank Statement	☐	☐	☐	☐	☐
Time taken to process credit	☐	☐	☐	☐	☐
Lending Rates	☐	☐	☐	☐	☐

4) **To what extent has the following core lending requirements and timelines of financial institutions contributed to the question of availability versus accessibility of credit by small and medium contractors?**

	None at all	Very Little	A Little	Moderately	Greatly
Collateral	☐	☐	☐	☐	☐
Bank statement	☐	☐	☐	☐	☐
Processing Time	☐	☐	☐	☐	☐
Lending Rates	☐	☐	☐	☐	☐

5) **When you fail to access credit from financial institutions, which is the most common alternative source of financing?**

	Never	Last Resort	Some Times	Most Times	Always
Shylocks	☐	☐	☐	☐	☐
Friends & Family	☐	☐	☐	☐	☐
Suppliers	☐	☐	☐	☐	☐
Labor Gangs	☐	☐	☐	☐	☐
Plant owners	☐	☐	☐	☐	☐
Chamas	☐	☐	☐	☐	☐
……		☐	☐	☐	☐ ☐

ROLE OF MSEA IN CREDIT FINANCING

1) **Are you aware about the establishment of Micro and Small Enterprises Authority (MSEA)?**

YES ☐

NO ☐

2) **Do you know the role of Micro and Small Enterprises Authority (MSEA)?**

YES ☐

NO ☐

3) **Have you sought for any credit financing from MSEA?**

YES ☐

NO ☐