FACTORS THAT INFLUENCE LATE PAYMENTS IN GOVERNMENT NEW BUILD INFRASTRUCTURE PROJECTS IN GAUTENG PROVINCE, SOUTH AFRICA

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A research report submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, in partial fulfillment of the requirements for the degree of Master of Science in Building.

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DECLARATION

I hereby declare that this research report is my own work. It is submitted for the partial fulfillment of the degree of Master of Science in Building at the University of the Witwatersrand, Johannesburg. It has not been previously submitted for this purpose, or for any other degree or examination at any other university.

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Day of Year

October 20, 2017

ABSTRACT

Payments are an essential component of construction contracts (Murdoch and Hughs, 2015). The nature of the payment regime has an effect on the contractor's cash flow, project performance and therefore achievement of project objectives.

Finance has been claimed as the most important resource in the construction process (Mawdesley et al., 1997). As such, proper financial planning to ensure healthy cash flow during the lifespan of a project is central to its performance and ultimate success. The obligation of an employer is to pay the contractor timeously, as per agreed payment plan and likewise the obligation of a contractor is to produce the build works according to an agreed schedule of works and to set standards of quality. Project finance in its totality is therefore of major importance to the progression of the construction process.

Purpose - The main purpose of this study is to identify current problems in relation to late payment issues encountered by contractors that have been commissioned to construct public infrastructure for the government of South Africa. The paper seeks to highlight the extent of occurrence, to measure, and to assess the extent of late payment, in public infrastructure projects in the Gauteng Province. This study is done with a view to study the correlative relationship between the deviance in contractually scheduled payment time and time of actual payment and to identify factors that influence these.

Design methodology and approach – With regard to research methods, the study adopts a mixed approach. Both Qualitative and Quantitative approaches to the study were adopted. This was done by collecting data through structured questionnaires and the research instruments administered to key personnel in the various Sector Departments as well as the Finance Department and the Gauteng Department of Infrastructure Development. Sample invoices were gleaned and scrutinized from 189 projects with regard to invoice payment data. Respondents were asked to provide information on Invoice Date, Date Invoice Received By Department and Date Invoice Paid On. This information was gathered for approximately half the total number of invoices received per project. Adopting a project by project approach, respondents were asked to provide data and causal factors linked to late payment. The results were then analyzed to determine significant relationships between late payment patterns and the factors that influence these.

Information gathered from questionnaires responses and interview notes were used to help identify the various stages involved in the certification and payment process to assist in the effective evaluation of the extent of late payment, in order to obtain a clear understanding of the causes of late payment in government new build infrastructure projects in the province of Gauteng.

Key Concepts – Late payment, Cash flow, Factors influencing late payment in public construction projects.

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ABBREVIATIONS AND ACRONYMS

AA	Accounting Authority
ACT	Alternative Construction Technology
AO	Accounting Officer
B/M	Brick and Mortar
CAPEX	Capital Expenditure
CFO	Chief Financial Officer
CIDB	Construction Industry Development Board
DG	Director General
DORA	Division of Revenue Act
ECE	Estimate of Capital Expenditure
EPWP	Extended Public Works Programme
GDID	Gauteng Department of Infrastructure Development
GP-IDMS	Gauteng Provincial -Infrastructure Delivery Management System
GPT	Gauteng Provincial Treasury
GRAP	General recognised accounting practice
HoD	Head of Department
IA	Implementing Agent
IRM	Infrastructure Reporting Model
JBCC	Joint Building Contracts Committee Contract
LSEN	Learners with Special Educational Needs
MTEF	Medium Term Expenditure Framework
NEC3	(New Engineering Contract) Engineering and Construction Contract
PFMA	Public Finance Management Act of 1999 (Act 1 of 1999, as amended)
PSP	Professional Service Provider

SAA	Stabilization and Association
SAP	Systems, Applications and Products.
SCM	Supply Chain Management
SCPS	Standard Construction Procurement System
SIPs	Strategic Integrated Projects
SNL	Savings N Loan. Initially, called S&L Securites
SOP	Standard Operating Procedure(s)

GLOSSARY

Accounting Authority	The person referred to in Section 49 of the PFMA
Accounting Officer	The person referred to in Section 36 of the PFMA
ACT	The Public Finance Management Act, 1999 (Act No. 1 0f 1999), as amended
Budget	A quantitative expression of a plan for a defined period of time. It may include planned revenues, resource quantities, costs and expenses, assets, liabilities and cash flows. It expresses the strategic plans of a specific Project/Programme
Budget Control	A control technique whereby actual results are compared with budgets
Chief Financial Officer	This in relation to an institution, means the person designated or appointed as the chief financial officer of the institution in terms of regulation 8(1).
Compliance	The meeting of obligations under laws, regulations, codes or departmental standards.
Control	This means any action, procedure or operation undertaken to increase the likelihood that activities and procedures achieve their objectives. Control is a response to risk and is intended to contain uncertainty of outcome.
Control Budget	This in relation to infrastructure, means the amount of money which is allocated or made available by a client institution to deliver or maintain infrastructure associated with a project, including site costs, professional fees, all service and planning charges, applicable taxes, risk allowances and provision for price inflation which may be adjusted with the approval of the client institution.

Control Point	A documented management decision required at the end of a process before proceeding to the next process.
Delegate	This means the issuing by the accounting officer or accounting authority of an institution to a person of –
External Project/ Programme Manager	External entity engaged by the Department for the management of a specific project/portfolio of projects.
Financial Management	The financial year is a 12 month Accounting period. It varies from organization to organization but may coincide with the calendar year (January to December) or the fiscal year (South Africa -1st April to 31st March). In this study it is defined as the latter.
Internal Project Manager/ Programme Manager	Official in the employ of a Department responsible for the management of a specific project/portfolio of projects.
Lump sum Contract	This is a contract without bills of quantities. Valuations are frequently performed using schedules in which percentages of the contract sum are allocated to various stages of the building process, i.e. foundations, surface bed, brickwork to wall plate level, etc.
Payment advice	A payment advice is a statement issued by the contractor certifying the amount due and payable by the client to the said contractor.
Portfolio Management	Comprises the repetitive combination of, management practices applied to infrastructure assets with the objective of developing, implementing, monitoring, and controlling prioritized works based on long term plans, available budgets and an organization's management capacity. Portfolio Management also includes identifying and managing non-asset solutions to provide the required environment for the delivery of an organization's services.
Principal Agent (Traditional organogram)	The person or entity appointed by the employer and named in the schedule of contract (JBCC).
Project Management	This comprises the supervisory component of the task of delivering the necessary infrastructure for projects identified in the planning processes.
Repudiation	Repudiation as a form of breach of contract is understood as any behavior by a party to a contract indicating that he or she may not honor the obligations under the contract.
SAP	A German software company whose products allow businesses to track customer and business interactions. SAP is especially well-known for its Enterprise Resource Planning (ERP) and data management programs.
Sector Department	The public sector is the part of the economy concerned with providing various governmental services. The composition of the public sector varies by country, but in most countries the public sector includes such services as the military, police, infrastructure (public roads, bridges, tunnels, water supply, sewers, electrical grids, telecommunications, etc.), public transit, public education,

along with health care and those working for the government itself, such as elected officials.

In South Africa the Infrastructure portfolio of the public sector is divided amongst the following Departments; Education, Health, Human Settlements, Social Services, Infrastructure, Roads and Transport, Arts, sports and Culture.

A sector Department is the organizational entity that is responsible for the delivery of a particular public sector service. E.g. Department of Education.

Standard Operating Procedures (SOP's)

a) means a method of functioning that has been established in order to execute a specific task or react to a specific set of circumstances or situation or process; and

b) in relation to an institution to which regulation 6 (c) applies, means the institution's standard operating procedures referred to in that regulation.

1 INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Practitioners in the building industry often suffer from Payment delays and losses. This study examined the extent of late payment in government infrastructure projects in Gauteng, South Africa and their root causes with a view to providing useful recommendations and guidance to the industry. It is desirable that such recommendations may serve to initiate continued study of the phenomenon that can be conducted as part of a separate study.

For more than fifty years, issues of late payment within the South African and global construction industry have been widely acknowledged and are not a new phenomenon. This has been well documented by (Banwell, 1964; Latham, 1994; Wu, 2010; Ye and Rahman, 2010; Wu Kumaraswamy ad Soo, 2011) in former studies. The problem seems generalized and in many cases come in the form of underpayment, late payment or delayed payment or in a number of more serious cases the absence of payment altogether. Non-payment or underpayment refers to the event where a payment is never received and/or is written off in part or fully as bad debt. Late or delayed payment, on the other hand, describes the situation where payment is not made to head contractors or subcontractors on time, in accordance with the timelines agreed between the parties to the contract.

Funding is central to any economic transaction, and as such, late or delayed payment undoubtedly has a variety of influences on the project participants as well as the industry as a whole. The most direct influence late and non-payment has on cash flow is that it forces contractors and subcontractors to commit extra funds in the form of overdrafts, trade credits and other resources.

This research report focuses on the payment process and cash flow as the primary phenomenon that affects the final outcome of a project from a payment perspective. The report also dwells on the phenomenon of Government Sector Department Infrastructure late payment, and the factors that influence this state of affairs.

The project scope was defined as follows; the study was confined to the Province of Gauteng, government infrastructure projects; the study confined itself to projects implemented in the 2013/14, 2014/15 and 2015/16 financial years. Projects that commenced

planning before but were completed during or after this period are also included in this study.

The 2013/14, 2014/15 and 2015/16 period were chosen because thy fall well within the beginning of a radical increase in the production of new infrastructure to complement and/or replace the aging pre-Republic, existing infrastructure. In addition, the scope, complexity and programme demands of these projects provide for well-rounded and sufficiently diverse subjects that provides a wealth of project variables and data for careful study and analysis.

Approximately 800 projects, Gauteng Provincial Government -Estimate of Capital Expenditure (Provincial Treasury, 2013, 2014 and 2015) are currently on the Estimate of Capital Expenditure (ECE) plan for eminent implementation within the next 3 years in the Department of Education alone. The ECE of a particular financial year is a published document that features all the Departments planned infrastructure projects budgeted for under that respective year's infrastructure budget. A comprehensive list of all the infrastructure projects that were under construction in the 2013/14 to 2015/16 financial years are to be found in the Estimate of Capital Expenditure (ECE) of their respective years and under their respective Sector Departments. Of this complement, projects are entered into the Infrastructure Reporting model (IRM) tool which allows tracking of the project at a programme/program managerial level from planning through implementation to completion.

The core sample of projects have been chosen from the IRM document as this not only gives an overview over project information but also financial information in terms of expenditure in relation to contract life and the financial year cycle. The sector Departments that fall within the scope of this research are Education, Health, Social Development, Human Settlements, Roads And Transport, Agricultural and Rural Development and finally Infrastructure Development. Projects are further categorized per sector Department as follows; New Infrastructure, Upgrades and Additions, Rehabilitation and Refurbishments and Maintenance. In addition to the other reasons mentioned above, New Infrastructure projects have also been singled out for particular examination due to their longer contract duration and funding volume. These parameters allow monitoring and data collection over a relatively

extended period to facilitate adequate investigation of the payments phenomena and have therefore been selected as the focus of this study.

1.2 PROBLEM STATEMENT

The Gauteng Provincial Government is a complex and diverse organization comprising of a number of Sector Departments that are dedicated to providing certain specific services to the public. The output of these sector Departments have one common objective, this is the provision of quality essential services to the public.

A vital component of this set up is the sector Departments Facilities management Directorate or the equivalent. The various sector departments may refer to this service provider differently but essentially it is from this hub that all Programme Planning, Project Delivery and maintenance of a sector Departments facilities portfolio are controlled. All Planning for the future production of the Departments facilities, planned and emergency maintenance services and Capital works are delivered from this unit. The Directorate's mandate is to manage the efficient delivery of the Department's portfolio from project initiation through implementation to project close-out. The Sector Departments' facility management teams work closely with implementing agents to produce this service. In Gauteng, the Department of Infrastructure Development is the appointed Custodian and Implementing Agent for all government public facilities in the province. To this end, it is the Sector Department's Infrastructure Directorate that oversees the acquisition of suitable land, conducts project initiation and feasibility studies, compiles the strategic brief and in some Departments conduct conditional assessments on aging infrastructure. The unit also manages the procurement of PSPs, monitors their output and the procurement of Contractors through the various forms of Tender. It monitors the project management of the various projects by the Implementing Agent during construction and follows the output of the Contractors and the IAs with respect to Scope, Time, Quality, Budget and Health and Safety. Finally, the unit ensures that the closeout process is conducted to finality and that all outstanding accounts are paid in full.

One of the problems that has plagued many Sector Departments delivery effort from early days is the phenomenon of late payments. This problem is arguably the most prevalent cause of project nonperformance and a major barrier to seamless project delivery. It is therefore

necessary to understand the influences and dynamics that bring about this state of affairs in order to determine methods to control or eradicate the problem.

Payments are an essential component of construction contracts Murdoch and Hughs (2015). The Nature of the payment regime has an effect on the contractor's cash flow and the achievement of project objectives and is therefore an essential part of Project Finance. The factors that influence project late payment therefore have a direct bearing on project finance, project performance and ultimately the successful achievement of project objectives. This research report will limit itself only to the factors that influence late payments.

It is not uncommon that a Sector Departments payment regime fails to deliver on its promise to pay a for a particular service at a particular point in time. This is often due to a number of factors, some of them political in nature and outside the scope of this Research Report. The crust of this research report will seek to identify and dwell on salient factors that influence late payment of infrastructure projects across all government Sector Departments within the province of Gauteng. These factors are very important in that they radically affect the payment regime, adversely affecting payment processes and crippling service delivery.

1.3 RESEARCH AIM AND SPECIFIC OBJECTIVES OF THE STUDY

1.3.1 Aim

The aim of this study is to determine factors responsible for late payment in government capital infrastructure projects in Gauteng Province, South Africa. The study also seeks to provide insight into these factors and to provide recommendations for dealing with the problem of late payments. Late payment in the context of this research report is defined as the state of affairs that arises when a Contractor/Service provider is paid after the due date by the Employer, irrespective of contract type. Contracts are however often hedged by a variety of terms and conditions.

1.3.2 Specific Objectives

- **Specific Objective 1: Stages involved in the payment process**

  To identify the various stages involved in the certification and payment process of monthly valuations submitted by contractors contracted by the various Sector Departments to implement New Build construction works.

- **Specific Objective 2: Extent of late payment**

  To evaluate the extent of late payments in New build Infrastructure projects across all Government Sector Departments in the Province of Gauteng.

- **Specific Objective 3: Causes of late payment**

  To determine factors responsible for late payment in Government New Build Infrastructure Projects in Gauteng Province, South Africa.

1.4 ASSUMPTIONS AND LIMITATIONS

Assumptions

- The quality of data and record keeping of the participating public institutions is of good quality.

Limitations

- The success of the research is limited by the type and accessibility of relevant information from the study;
- The study is limited by time constraints and bureaucratic processes necessary to access the data and respondents. To obtain information from the officials in a timely manner involved appointments. Meetings were dependent on availability given the busy schedules of many of these officials. The information obtained was mostly the perspectives of officials of the Sector Departments with little interference from the researcher. It was not always possible to meet with key interview candidates and in some cases these had to be reached telephonically.
- Finally, the study is limited by the sensitivity of the information offered and the reluctance of some officials to expose flaws within the system. e.g. Corrupt practice etc.

1.5 SCOPE OF THE STUDY

The study only focuses on government capital infrastructure projects within the province of Gauteng, South Africa. The findings may not be necessarily applicable in other areas since salient influencing factors may differ from one area to another.

The scope of the study encompassed a sample of public new build infrastructure projects built in the 2013/14 and 2015/16 financial years within the province. The study disregarded cases of non-payment as these are not as prevalent as cases of late payment and often ignite a different set of dynamics.

The National Development Plan 2030, which was published in 2012, seeks to eliminate poverty and reduce inequality by 2030 by drawing on the energies of South Africans, growing an inclusive economy, enhancing the economy of the State and promoting leadership and partnerships throughout society (NPC, 2012). To this end, Gauteng has benefited from a dramatic increase in new build government investment to replace the currently aging infrastructure. The research period was carefully selected to coincide with this period of increased activity.

Typical projects sampled for purposes of this study are Regional and District Hospitals, Clinics, Pharmaceutical depots and warehouses, Mortuaries, Kindergartens, Primary and Secondary Schools, Roads, Public Transport Nodal Transfer Facilities, Rehabilitation Facilities, Old age homes, Youth drop in centers, Early Childhood Development centers, shelters for vulnerable women, Heritage centers, Toilets and Human settlements.

1.6 OVERVIEW OF RESEARCH METHODOLOGY

Introduction

This study addressed the following specific objectives; To identify the various stages involved in the certification and payment process of monthly valuations submitted by contractors contracted by the various Sector Departments to implement New Build construction works; To evaluate the extent of late payments in New build Infrastructure projects across all Government Sector Departments in the Province of Gauteng; To determine factors responsible for late payment in Government New Build Infrastructure Projects in Gauteng Province, South Africa.

Methodology

Mahapa, (2013) cited 'Research methodology is a way to systematically solve a research problem'. To find answers to the research questions, the research was conducted using mixed methods through a combination of part qualitative and part quantitative research, desktop administration, analysis of research instruments, semi structured questionnaires and interviews. Interviews were conducted with key personnel involved in the planning and delivery of public infrastructure projects as well as the payments and finance sections across the various Sector Departments in the province of Gauteng.

Specific Objective 1: Stages involved in the payment process

The research method adopted for this part of the study was Qualitative. Officials directly responsible for the various stages of payment processing were subjected to interview and information about the fieldwork setting and different stages of the payment process recorded and used to set up research instrument (RI-Table C).

Specific Objective 2: Extent of late payment

The research method adopted for this part of the study was Quantitative. The Quantitative method was selected because the study satisfied some or all of the criteria as tabulated for Quantitative methods in Table 1 (Qualitative versus Quantitative Research)

Projects were gleaned from the ECE of 2013/14 and 2014/15 and 2015/16 financial years and sorted under their various sector departments. Approximately half of these projects were randomly selected per sector department for the study. Of these projects approximately half of the invoices per project were then retrieved from both electronic and/or paper archives.

The researcher with input from the respondents completed structured and validated data collection instruments which were designed to allow precise recording and measurement of invoice received dates, invoice payment dates and number of days in excess of the 30 day payment threshold. This information was extracted and entered in dedicated research instrument form (RI- Table C) per project. Provision was made for respondents to enable to highlight delays caused by any particular activity/activities with an indication of time frames involved. Finally, a column was reserved on the data collection instrument to enable the respondent indicate the perceived reasons for the delay.

Specific Objective 3: Causes of late payment

The research method adopted for this part of the study was again Qualitative. Data was collected in the form of participant observations, field notes and reflections and entered directly onto the data collection research instrument form (RI-Table C). Respondents were permitted to select from a list made available to them of pre-identified influencing factors for late payment that they believed were responsible for late payment of a particular invoice. This 'factors that influence late payment list' was compiled on the back of the Literature review.

Presentation &Analysis of Results/Discussion

This section seeks to bring together the different facets of the study. The information provided by the respondents was statistically analyzed by determining the frequency as per 'late payment influencing Factor' and as per 'Sector Department' in order to identify the most and least prevalent factors responsible for late payment in government new build infrastructure projects in the province of Gauteng.

1.7 STRUCTURE OF THE STUDY

1.7.1 Structure of the study

The study is to be composed of six chapters comprising different headings and subheadings.

Chapter 1 (Introduction)

Chapter one dwells on the background to the study. In this chapter the Problem statement, Aims and objectives of the study, Research methodology, Ethical considerations, and Validity of the study are reflected on and discussed.

Chapter 2 (Literature Review)

Chapter two presents a detailed review of relevant literature with a view to locating the study within the existing theoretical body of knowledge. The various factors that influence late payment of project participants especially contractors are identified analyzed and interpreted.

Chapter 3 (Research Design and Methods)

This chapter surveys the research methodologies utilized and presents the selected methods adopted in the study. The research procedure and reliability and validity of the study are explained and ethical considerations clarified.

Chapter 4 (Data Presentation/Analysis)

The findings of the study are presented analyzed and interpreted in Chapter 4. An overview of the setting is also discussed and forms the basis for the discussion in Chapter 5.

Chapter 5 (Discussion)

The findings of the study are discussed in Chapter 5. This discussion forms the basis for the recommendations and conclusions that will be presented in Chapter 6.

Chapter 6 (Conclusion and Recommendations)

The researcher reflects on the findings from Chapter five and concludes the study, then provides recommendations on identified limitations in the Departments payment process and makes further suggestions for future research.

1.7.2 Ethics

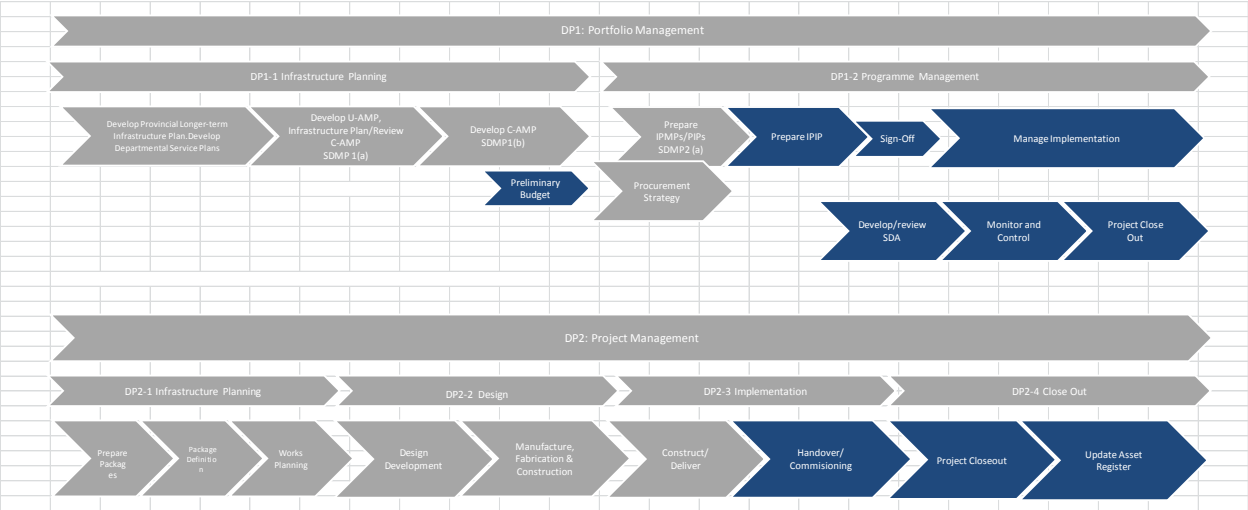
The study adheres to the framework and policies of the School of Construction Economics and Management, University of Witwatersrand, Research Ethics Committee.

1.8 THE INFRASTUCTURE DELIVERY MANAGEMENT SYSTEM

To understand payments within the context of Government Public Departments in South Africa, it is important to have an overview over the broader programme environment and context within which these financial operations take place. The Infrastructure Delivery Management System (IDMS) describes the processes that make up public sector and procurement management delivery as it applies to the construction industry in South Africa. The model reflects on the various needs of the construction industry, in its bid to respond to the demands placed on it for the delivery of infrastructure and tangible assets for the country. It outlines the core processes associated with the model for delivery and procurement management where the project delivery processes relate to the provision of infrastructure works.

Figure 1.1 presents the distinctly different processes and sub processes that are present in government infrastructure delivery management.

Figure 1.1: Delivery Process in Government Infrastructure Projects (The Infrastructure Development Management System Handbook: 2015)



Sector Departments manage the implementation of their projects through the IDMS. The IDMS comprises four main industry roles namely: Portfolio Management, Programme Management, Project Management (Includes Scheduled Maintenance), Operations (includes Day to Day and Routine Maintenance and Emergency Repairs).

Emphasis is specially placed on the interpretation of roles, responsibilities and strategic decision making points to ensure that 'grey areas' in respect of mandates, functions and responsibilities are clarified. Strategic decision making points are included in the GP-IDMS to facilitate seamless service delivery across and within Departments. A strategic decision making point refers to a time in the project life cycle of a project that a decision/ decisions with required formal authorization must be taken before the project is allowed to proceed from one defined project stage to another.

The Departments are encouraged to work as governance partners and relate to each other within the framework of cooperative governance. The Gauteng Department of Infrastructure Development (GDID) is the Custodian of immovable assets appointed by the premier. As the Custodian of buildings, GDID: Prepare a Custodian Asset Management Plan (C-AMP) to address the provincial departmental needs and achieve optimal space utilization; this Department also keeps and updates a comprehensive asset register for the Province;

Facilitates land acquisition , disposals, approval of building plans and the provision of enabling infrastructure.

Furthermore, GDID must conduct Technical Conditional Assessments of Buildings at east every five years and /or as required by the Occupational Health and Safety Act to inform maintenance plans and update technical information on the conditions of buildings on the Provincial Asset Register. GDID must therefore plan, budget and implement Technical Condition Assessments for Offices and Facilities of Sector Departments. The planning, budgeting and implementation of Technical Condition Assessments of roads infrastructure is the responsibility of Gauteng Department of Roads and Transport (GRT) which includes roads located within the properties owned by GDID, for example hospital complexes or nature reserves. The outcome of Technical Condition Assessments for roads located within the Government Building complexes must be submitted to GPDID for updating on the provincial Asset Register by GDID. The Sector Departments, as users of government buildings are responsible for: Utilization of immovable assets in line with its service delivery requirements and the service plans of the Departments; They are required to establish and update an Asset register for immovable assets as required in terms of PFMA; Plan and budget for optimal utilization of immovable assets by the respective department and prepare a User Asset Management Plan (U-AMP).

GDID is the implementing Agent (IA), referred to as the implementing Department, for all infrastructure delivery within the Province. In the case of Roads construction and intermodal facilities, DRT is the implementing Department.

The Implementing Department accepts full accountability and responsibility for the procurement and delivery of infrastructure programmes /projects on time, within budget and in line with quality assurance standards. The sector Departments and GDID must comply with the capacity requirements stated in the IDMS and functional structures The implementation of procurement for any Professional Service Providers (PSPs) for construction projects and contractors can only be implemented and managed by GDID and /or Department of Roads and Transport-DRT (In the case of roads).

Thus, other sector departments are not allowed to procure PSPs and /or contractors for infrastructure projects, which include maintenance and emergency repairs. In Essence, it

entails the centralization of the procurement function for PSPs and Contractors in GDID for all Provincial Departments (Excluding roads) and the centralization of procurement function for PSPs and Contractors in GRT for all roads projects and intermodal facilities.

The Sector Departments accept accountability and responsibility for the management of the property portfolio and supportive asset management services of the Departments, which include infrastructure planning, aligned to service planning, implementation of infrastructure programmes/ projects aligned to approved norms and standards and spending of funds appropriated for infrastructure in an effective and efficient manner-thus providing value for money.

The Gauteng Provincial treasury (GPT) accepts responsibility and accountability to enforce quality in spending of funds through, inter alia facilitating the implementation of the GP-IDMS, supporting departments in achieving infrastructure goals/ objectives, regulating systems related to construction procurement and monitoring/ reporting on the effectiveness of infrastructure delivery. GPT must develop and ensure a standard construction Procurement System (SCPS) that serves as a standard for the province and customized per the needs of the sector departments to set out a clear /audit trail. GPT will assess the credibility and affordability of Service Plans, U-AMPs, Infrastructure plans, Road Asset Management Plans and C-AMPs with the view to achieve value for money and enforce efficiency, effectiveness and transparency in terms of the management of infrastructure in the Province.

GPT is the Mediator / Dispute mechanism if any of the Departments are not adhering to the Provincial Framework for the implementation of the IDMS and /or signed Service Delivery Agreements (SDAs). Should any dispute or difference arise between the Departments, it will be referred to the head of Department of Provincial Treasury for mediation. The HoD of GPT will as the arbitrator, render a decision, which is final and binding upon the Departments. The HoD of GPT ensure that its decision is not in conflict with the conditions set in DORA and / or the GP-IDMS.

Infrastructure planning is contextualized in relation to and takes direction from the Provincial Growth and Development Strategy (PGDS), Plans and the Provincial Spatial Development Framework. GPT will be responsible, in consultation with the Office of the Premier (OTP) and the Gauteng Provincial Planning Commission (GPC), to coordinate compilation of a

Provincial Infrastructure Plan (with a 20 year outlook) with inputs from all provincial departments involved in infrastructure provision and other stakeholders. The purpose of the longer-term provincial infrastructure plan to provide guidance to departmental infrastructure planning, especially in respect of the integration and focusing of infrastructure investment and service provision in order to achieve the key goals of the Provincial Growth and Development Plan. The plan also addresses the location and sequencing of major integrated infrastructure projects in the Province.

Sector Departments are responsible for the production of strategic departmental plans in the form of five year Departmental Strategic Plans, three year Annual Performance Plans (APPs), Service Plans, U-AMPs, Infrastructure plans (IPMPs) and Road Asset Management Plans. The service plans specify a Department's detailed strategy to deliver the services.

The U-AMPs, Infrastructure Plans and Road Asset Management Plans have a long term outlook but also provide detailed programme and project listings with budgets for the current planning year and the subsequent two years (in line with the requirements of the Medium Term Expenditure Framework). GDID as the custodian department, in response to the U-AMPs, produce a C-AMP with a long-term outlook which indicates how it endeavors to optimally manage the Provincial Government immovable assets across the Province to accommodate the needs of the Provincial Departments.

Sector Departments, in collaboration with the GDID, outline the construction procurement strategies to be followed in the implementation of the programmes and projects. Particularly important in this regard is the initial packaging of infrastructure projects into 'packages 'to reduce programme management complexity, reduce cost and meet the objectives of the sector Departments as well as those of the local, Provincial and National spheres where applicable.

Sector Departments, based on the formulated procurement strategies, develop an infrastructure Programme Management plan (IPMP), which will set out the Departments approach a plan of action for the efficient and effective management of the infrastructure Programme over the ensuing MTEF period. The IPMP will be submitted to the GDID, who will in turn develop an infrastructure Programme Implementation Plan (IPIP) which will outline how, in organizational terms, GDID will deliver on the IPMP.

All Sector Departments and the GDID record their agreements in respect to the IPMP and the IPIP in a Service Delivery Agreement (SDA). SDAs entered into with the GDID as the implementing Department, includes the Custodian responsibilities of GDID towards sector Departments and the user responsibilities of Sector Departments. The individual sector Department, GPT and GDID thereafter have the responsibility for the delivery and performance of infrastructure delivery in terms of the signed SDA.

On signing of the SDA, GDID will further detail and define packages on the basis of feasibility assessments, develop Project Execution Plans (including technical annexures) (PEPs) taking into account the procurement strategies the procurement strategies developed by the sector Departments, GDID together with the sector Department, will finalize an appropriate procurement plan for the particular projects or project packages. Whereas in the past GDID and sector Departments have generally used a 'Design by Employer' procurement option, in the future the use of 'Framework Agreements', 'Design and Construct' and 'Develop and Construct 'procurement options will also be considered. The document furthermore emphasizes that, as far as feasible, public infrastructure projects should be based on standard design drawings and Technical specifications as well as on Space Planning Norms and Standards. This eliminates, or reduces the need for conceptual development of a design and the need for detailed design work. It must be in line with national Guidelines issued in terms of functional and technical norms and standards.

GDID in collaboration with the Sector Departments, implements the chosen procurement strategies from design and construction, through to final handover, commissioning, contracts management and administrative close out. Procurement of PSPs and construction services is the responsibility of the GDID. This is done in line with SCPS issued by GPT. The bid specification and Bid Evaluation Committees comprise of suitably qualified public servants who are conversant with various aspecs of construction procurement. The designated representatives from the Sector Departments are members of the Bid Specification and Bid Evaluation Committees but must include at least one full-time member from the Sector Department appointed by their relevant HoDs.

The budgets for infrastructure programs are located in the budgets of the Sector Departments. Sector Departments are not allowed to use the infrastructure Budget (Equitable Share and

Conditional Grants) for any other purpose other than infrastructure projects and programmes. Similarly, any funding for compensation of employees included in conditional grants and/or ring-fenced in equitable share can only be used for compensation of employees' appointed in the Infrastructure organizational components. No payments/transfers are made to GDID as the implementing Department. The sector departments are accountable and responsible to capture, approve, authorize and release the payment of validated invoices and they must comply with timeframes stated in the GP-IDMS.

Planning for new facilities is based on the entire life cycle of the buildings. Life cycle costs must be developed by GDID. Approval of budgets for new buildings and GPT should only be granted if an appropriate life cycle budget has been allocated taking into consideration limitations posted by MTEF timeframes, and budget availability.

Any scope and /or cost variations are submitted to the Department for approval prior to any instructions being given for implementation of such changes. Variations could be due to changing requirements of the Sector Departments, design changes proposed by the Professional Services Providers (PSPs), unforeseen events that affect the project and/or unforeseen conditions that affect the works.

The determination of job creation targets form an integral part of the infrastructure planning and procurement documentation. GDID plans job creation interventions in consultation with the Sector Department to ensure that appropriate projects and targets can be identified three years in advance in the infrastructure plans. Unified norms and standards for job creation targets can be identified three years in advance in these infrastructure plans. GDID manages the appropriate training programmes in terms of job creation projects for all infrastructure projects.

1.9 BUDGET, PAYMENTS AND VARIATIONS

1. The budgets for infrastructure programmes are located in the budgets of the Sector Departments. GPT must adhere to the requirements of DORA. GPT must allocate to the Sector Department the ring fenced equitable share for infrastructure. Sector Departments are not allowed to use the infrastructure budget (Equitable Share) for any other purpose other than infrastructure projects and programmes.

2. Similarly, any funding for compensation of employees included in DORA and /or equitable share can only be used for compensation of employees appointed in the Infrastructure organizational components aligned to the IDMS capacitation framework.
3. No transfers of budgets or advance or advance payments may be made to GDID by the Sector Departments. GDID must validate and approve invoices of Service Providers in terms of:
    - Valid period of Tax Clearance
    - Compliance with milestones (time, cost, quality) in the contract; and
    - Proof that the information as captured in service provider database is still correct.
4. Sector Departments process payments of Service providers based on validated invoices received from GDID. The responsibility and accountability for the funding and payment of compensation arising from any disputes and/or costs pertaining to the litigation and /or late payment of Service Providers will be the Sector Department's. GDID must develop and, maintain a payment progress tracking system. GDID must develop the system in collaboration with the Sector Department.
5. All scope changes must be reported by GDID to sector Departments. Any scope variation must be approved by the sector Department (with the exception of minor technical additions) in line with delegation of the Department prior to written instructions being issued by GDID to Service Providers. This approval must be signed off by the sector Department within seven working days.

    In the case of projects implemented by GDID on behalf of the sector Department, any technical variation must be approved by GDID in line with delegations of the Department prior to written instructions being issued by GDID to Service Providers. This approval must be finalized by GDID within seven working days after the professional opinion has been received. Any cost variation must be within the legally prescribed financial thresholds and must be reported to the sector Department in writing by GDID.

Termination contracts due to poor performance is the responsibility of GDID within ten working days after all contractual requirements about termination of contracts has been complied with.

Variations can be due to changing requirements of the sector Department, design changes proposed by the Professional Services Providers (PSPs), unforeseen events that affect the project and/or unforeseen conditions that affect the works. A PSP and/or Contractor is not allowed to start on changes of scope if not approved in writing by GDID. The sector Department and GDID must implement appropriate delegations for timeous signing off on scope/cost variations to promote seamless service delivery. The approval of variations must be in line with Treasury Regulations and Instructions.

(Source: Gauteng Provincial Infrastructure Delivery Management System, GP-IDMS, 2012)

2 LITERATURE REVIEW

2.1 INTRODUCTION

Finance has been claimed as the most important resource in the construction process (Mawdesley *et al*., 1997). As such adequate financial planning and robust cash flow is central to the survival of any project. A lack of cash flow has also been identified as one of the most common causes of project failure. On the other hand advance payment and deposits that are not governed by contract are a most uneconomic state of affairs and increase client risk exponentially. As such there is a need for accurate timing of funding availability, for fluid cash flow and the deployment of excess funds economically over the life span of the project. To this end, Contractual payments from government to contractors has been selected to form the crust of this research report.

Detailed statutory payment security acts /legislations have been produced by a number of countries to help with the eradication of poor payment practice and the promotion of seamless uninterrupted construction activity. A major development in recent times are the enactments of construction payment specific Acts to address the payment problems in many countries (Cheng et al., 2008). One of such enactments is the Building and Construction Industry Security of Payment Act in New South Wales, Australia. The Act has helped to reduce the frequency of late payments (Brand and Uher, 2008). In New Zealand, the Construction Contracts Act (CCA) was promulgated to curb bad payment practices within the construction industry, especially following the liquidation of some large companies because of non-payment by their clients and developers (Degerholm, 2003). Prior to the CCA in New Zealand, the Wages Protection and Contractors' Liens 1939 Act was in effect and provided security to head contractors, subcontractors and workmen who perform work upon or in respect of any land by claiming a lien over the estate or interest of the owner in the land (s.21). Workmen and subcontractors were entitled to a charge over money payable under any superior contract for the work (s.21). However the repeal of the Act in 1989 left contractors and subcontractors unsecured. The removal of conditional payment provision (pay-if-paid and pay-when-paid) with the repeal of the 1939 Act, enabled subcontractors to get paid on time whether or not lead contractors are paid by the client. This protects contractors also as

they may be in better position to understand the client's financial status and procure necessary security, which may be required in the event of insolvency.

From previous studies such as Late and Non-Payment Issues in the Malaysian Construction Industry – Contractors' Perspective **(**Danuri M S et. Al**),** and Causes of Payment Problems in the New Zealand Construction Industry (Ramachandra T et. al), salient factors that have been identified as influencing factors for late and nonpayment in the construction industry include: delay in certification, paymasters failure to implement good governance in business, underpayment of certified amounts by the paymaster and use of 'pay when paid' clauses in contracts. This set of dynamics can in turn generate problems with cash flow, cause financial hardship and result in immense stress on all participants of the construction team. In addition to this state of affairs, the reaction of some contractors to these conditions has been known to have an adverse effect on their own commercial trade.

Previous studies such as Causes of Payment Problems in the New Zealand Construction Industry (Ramachandra T et. al), pointed to the fact that the most suitable resolution to the late payment and non-payment problem confronted by local contractors include a right to regular periodic payment, a right to a defined time frame for payment and a right to a speedy dispute resolution mechanism, amongst others. Efficient and timely payment in a construction project is central to that project's successful realization. Smooth cash flow promotes effective project delivery, on time and within budget. This is important in order that projects can be completed within predefined time constraints and within the required standards of quality and acceptance.

The problem of payment is regarded by players within the industry with particular concern. A survey of payment performance has identified the construction industry, in particular, as prone to the late payment culture (Johnston, 1999). Late payment induces the severe consequence of cash flow problems, in particular to contractors. Ameer Ali (2005) therefore requests that everyone in the construction industry pay all appropriate amounts due in a timely manner. Failure to pay can quickly become the culture of a particular industry if commonly tolerated by the industry or society in general and can be ascribed to an attitudinal problem. In the united Kingdom, Nicholas (2005) makes mention of a grave warning from a credit manager pointing to the serious risk to small companies due to the late payment culture

in that country. The same report highlighted the significant loss of income because of late payment at 1.6% and the average settlement of invoice time in the United Kingdom as 17.4 days overdue.

Murdoch and Hughes (2015) state that it is not uncommon to find that a contractor or subcontractor who has not been paid what is due threatens to suspend work under the contract until payment is made. The two go on to mention that without clear contractual rights to suspend works, the contractor is not permitted to do so even though the client may have failed to pay him within the time stipulated in the contract. Therefore if the contractor goes ahead and suspends the work, the courts may find him guilty of repudiation of contract.

Kennedy (2005) states that Payment, not unexpectedly, has always been the main subject of disputes. On the other hand (Davis Langdon & Seah Consultancy, 2003) make mention of the domino effect that late/non-payment has on the payment chain of a construction project. They emphasize that Late payment of the contractor by the client will in turn postpone payment of the sub-contractor and materials suppliers who are bound in contract to him. Thus for example, late and non-payment can therefore ultimately lead to formal dispute resolution due to these set of circumstances. According to Bob (2005), 'the claimant was forced to commence arbitration or litigation' in order to retrieve monies owed cumulatively over a period of five years, and further states 'those processes are very costly and take a long time'.

Countries like New Zealand, the United Kingdom, Singapore and certain states in Australia, e.g. New South Wales have laid down laws that govern their very own construction industry specific legislative payment security systems. These rules purposely legislate provisions to assist in the determination of issues of timely payment in the construction industry in order to help eradicate poor payment practices and promote seamless contractor cash flow (Lip, 2005; Ameer Ali, 2005).

In South Africa, the Construction Industry Development Board (CIDB) has through its partnership programme with the National Treasury, Development Bank of Southern Africa (DBSA), and National Department of Public Works (NDPW) developed the Infrastructure Delivery Improvement Programme (IDIP). This programme has identified that delayed payment to contractors is one of the main blockages to infrastructure delivery in the public sector. Failure by the employer to pay contractors within the period stipulated in their

contracts potentially results in, the slowing of service delivery, poor quality of infrastructure built, poor performance of contractors, and the potential demise of contractors due to severe negative cash flow, particularly emerging contractors who are the most vulnerable clients being exposed to the risk of unfinished or poorly finished projects, interest charges being incurred, i.e. fruitless and wasteful expenditure.

Late and non-payment in China, in addition to absent or inadequate security, has been the cause of considerable cash flow difficulty for contractors often leading to the risk of bankruptcy for construction companies (Wu, Kumaraswamy and Soo, 2008). Cautious contractors who may anticipate payment delay from a particular client may include when pricing, a risk factor, to absorb the financial impact in the unfortunate event of late/nonpayment. The back side of this is that it causes contractors to increase tender prices, also if a client has a reputation for late payment (Wong and Hui, 2006). Late and non-payment leads to disagreement and ensuing suspension and termination of works. Research has revealed issues of payment as one of the major causes of disputes in the construction industry (Yates, 2003; Chan and Sen, 2005).

Sheridan, (2003) suggest that the valuation of variations and final accounts as well as the failure to abide by the terms of payment provisions are often the cause of disagreements and disputes in construction adjudication proceedings. Likewise inability to secure adequate funding and the timely renumeration for completed works continues to be a major cause of construction delay and can often be traced to the client, Odeh and Battaineh (2002).

It has been claimed that late and nonpayment is damaging to the output and yield of the industry at large and has more serious consequences for industry players further down the supply chain. Kadir et al. (2005) postulates that slippages in material delivery is caused by payment delays and these circumstances consequently affect labor productivity in the construction industry. It is therefore of extreme importance that matters of late payment and payment default in all its various forms are handled as a matter of priority in the construction industry.

Literature illustrates the many dimensions of the payment phenomenon and points to the concept that identifying the main influencing factors of payment problems is a salient move towards mitigating the problem. Hughs, Hillebrant and Murdoch (1998) suggest that in a

traditional sense, problems linked to payment were due to either the payer not being able to pay, not willing to pay or both. Wu Kumaraswamy and Soo (2011) however insist that late payment problems are not the same across the board and can vary from country to country with respect to their particular, characteristics, economics and political setup.

The construction industry has relatively few barriers to entry and exit. This, it would seem is an inherent characteristic of the industry that encourages payment problems within its sphere of business. This unique characteristic allows individuals with fragile financial resources to start up businesses and quickly run into financial difficulty when payment of their claims become irregular or in the worst cases, absent. Despite the removal of pay-if-paid and pay-when-paid clauses from payment regulation payment problems continue. Latham (1994), Pettigrew (2005), and Wu, Kumaraswamy and Soo (2008) are of the view that the reality of the industry is that subcontractors are paid upon main contractors being paid by project owners and payment follows that chain order: the owner pays the head contractor, who in turn pays the subcontractors and so on down the supply chain in the industry. Wu, Kumaraswamy and Soo suggest that one of the causes of the high business failure rates in the construction industry is its unique characteristic. It is not surprising that the construction industry has the highest business failure rates compared to other industries (Davies, 2009; Ashworth and Hogg, 2007).

The main cause of construction delays in Malaysia besides manpower shortage has been found to be financial problems (Abdul-Rahman and Berawi (2002). When several head contractors failed to pay 16000 Grade G1 contractors for the roads they had built even though they had been paid in full for their services by the government, many of these small businesses found themselves on the brink of bankruptcy (Suhaini, 2005). Clearly, failure to pay can be linked to an attitudinal problem which, if commonly accepted by the industry or society in general, can become a culture of a particular industry.

The South African construction industry was particularly hard hit when the infrastructure development highs leading up to the 2010 FIFA World Cup were followed by a global recession and/or depressed growth. Statistics detailing the decline of the industry over the last three years have been well publicised. The discrepancy between the performance of the construction index and the Johannesburg Stock Exchange all-share index is stark. Not only has the industry been punished for its lacklustre financial performance in the down cycle, but

also because of public perception following the Competition Commission process, findings and settlement.

Further, Megan van Wyngaardt examines the problem from a South African perspective in his article entitled 'Junk status to increase non-payment in construction industry', (2017) he writes that the already high risk of non-payment in the local construction industry is set to escalate further, owing to South Africa's recent downgrades by international ratings agencies impacting on the industry's credit costs, MDA Attorneys' Chris Bennett has warned. He notes that the "first to feel the pain" of more expensive credit will be the employers, as lenders raise interest rates. This places pressure on employers to fund their projects and reduce their returns, with not many projects being built from cash reserves. "This will mean that more expensive credit will be a widespread blow," says Bennett.
Further, he points out that State construction projects are likely to be the first to be affected, ranging from municipal projects and reaching all State-owned enterprises' projects. "Already, the controversial nuclear build has been placed in doubt on account of the affordability factor. However, other infrastructure projects are also being placed on hold, including those in crucial areas such as water infrastructure," he highlights.
Besides delaying or blocking new builds, the effect on employers already engaged in projects is significant. They must keep funding them, cancel or suspend them, with the associated results of doing so.

Meanwhile, Bennett says pressure is already on employers that are not able to pay their contractors either on time or at all. "This places many contractors in difficult positions, as most contractors will be unable to finance a project beyond 30 days. Those contractors then also take out loans to keep funding the works in anticipation of payment." Smaller to medium-sized enterprises are most at risk, he says. "Non-payment or very late payment of contractors is already a significant problem, particularly in the public sector. We anticipate seeing more of this as a result of our junk status," says Bennett, adding that it will be exacerbated by the lack of regulations ensuring prompt payments. This could possibly lead to increased business rescue and insolvency proceedings in the construction sector.

"Parties should not be afraid to exercise their rights and pursue the contractual dispute procedures, judgment for payment certificates, make demands under guarantees, or even terminating the contracts and proceeding to recover damages," Bennett advised.

The payment cycle in South Africa can be grouped into three broad phases namely: **Payment certification** (evaluation of works and preparation of certificate) normally undertaken by the employer's agent (e.g. Services Manager, Engineer, Principal Agent, Project Manager, Employer's representative) or representative (e.g. works inspector, project manager etc). **Payment authorisation** by the employer's project manager or contract administrator prior to payment processing and finally **Payment processing** by the employer's staff and final release of payment into the contractor's account.

Current infrastructure payment challenges in South Africa include, long periods for the completion of payment cycle; double-handling of certain authorisation actions; limited delegations to authorise payments; financial systems are often offline; lack of systems integration resulting in double capturing of the same information during different stages of payment or contract management; and lack of capacity within the delivery chain including the payment cycle.

CIDB in partnership with National Treasury have formulated the following recommendations in the form of guiding principles for streamlined payment where Implementing Agents are appointed;

The following key guiding principles should be considered in the design of any payment systems where one organ of state implements projects on behalf of another i.e. where a Client Department appoints an Implementing Department; the Implementing Agent must ensure that the contractor is paid on-time i.e. *within the time frames of the contract*; the Implementing Agent must be held responsible for monthly; reporting *in an agreed format with the client*; the procedures for payment including the preparation of VAT invoices and the certification of the payment provided in the various forms of contract must be adhered to; the Service Delivery Agreement (SDA) between the Client Department and the Implementing Agent should address the payment arrangements clearly.

Source: CIDB Practice Note # 19, June 2009 (Version 1 – June 2009)

2.2 CASH FLOW IN CONSTRUCTION PROJECTS

The problem of late payment is closely linked with that of cash flow. In the construction industry, cash flow is critical because of the relatively long duration of projects. Any deviation from the predefined or set programme due to project or cash flow delays can impact the project immensely. Many construction projects are set up as discrete profit units, with their own cash cycle based on the separate and/or cumulative cost of the various activities associated with the project and on remuneration as agreed in the contract.

A client's payment schedule will affect the cash flow of a project. Many construction projects have negative net cash flows until the very end of construction when final or advanced payment is received before starting the project, the delay of payment from owners will affect the cash flow of the contractor and retention withheld by the client will also create cash flow problems to the contractor. When taking into consideration the payment delayed from owners and negative cash flow of contractors, prompt payment from owners in this circumstance is utmost important to minimize financial hardship of a contractor.

Cash flow requires a combination of estimating and planning evaluations in which estimating evaluates the use of resources in terms of time. Adding both of these together is to obtain the cash flow. As cash flow, profits and growth can all be adversely affected. Longer payment periods mean that other participants in the downstream supply chain will and can become cash starved, forcing greater reliance on borrowing. They will also seek to impose longer payment periods on downstream sub-subcontractors and suppliers. In relation to advancing or borrowing additional capital to fund cost overruns, there will be an increment in interest cost in collecting on another defaulted promise.

There is general consensus between all players within the industry that if clients pay their project main contractors timeously, then the timing of head contractors payments to their subcontractors can be considerably improved. The timeliness of payment has further highlighted the significance of prompt payment from clients to main contractors in order to ensure payment requirements further down the supply chain are met.

The daily operations of small businesses can be seriously affected by interruptions in cash flow caused by late payment depending on the magnitude and period of delay. Timely payment is key to ensuring the seamless operation of construction companies. Ministry of Public Works, 1979 General Directorate of Highways, 1979b explicitly states that a vast

number of government agencies and contractors are generally in agreement that monthly payments are not made timeously by these public agencies despite the introduction of standard agreement forms and general provisions as an integral part of the contract. Turkoglu and Egemen, (1980) rigorously explain the scheduling of those payments. They point out that it is worth noting that the timing of payment is a salient part of a company's profitability performance as funding is the most significant part of a construction company's resources.
Efforts to identify factors that contribute to a delay in payment, at a more in-depth level, will guide and help the industry in the search for more appropriate corrective actions to mitigate these problems. The objectives of this research is to provide recommendation to help mitigate late payment problems in the construction industry and to assist understanding of the financial dynamics of the construction industry in developing countries.

2.3 THE RISK OF LATE PAYMENT AND THE CONSTRUCTION INDUSTRY

A construction projects time and/or cost elements are closely impacted by the risk of failure of the client to pay the contractor; Wong and Hui (2006). High levels of uncertainty are often caused by late or delayed payment which can be characterised as financial risk. A projects viability and profitability can easily come under threat if financial and economic risks are not managed carefully. The management of these risks are important because of their potential to negatively impact cash flow. There are several potential sources of financial risk, these can be caused by several different elements and can all lead to possible delays on client payment. The duration and cost of a project is easily impacted by the risk of delayed payment from the client. Such risks have the potential to cause a project's costs to increase exponentially and consequently hinder progression of the project. Zou *et al.* (2007) stressed that project funding risks can be sorted into three categories, these are; cost-related risks, time-related risks and quality-related risks. All three are important factors that massively impact the delivery of the construction project. It is therefore important to recognise the significance of funding problems to the financial health of a project and move to mitigate such cost related risk. Inaccurate cash flow forecasts and unreliable cash flow management often results in stress to the contractor and can frequently be traced back to the delayed payment amongst other salient factors. Adequate and accurate cash flow plays a key role in project welfare even when a firm is not facing financial stress. Contract conditions and penalty clauses are often used to pass risks "down the line" by allocating them to organizations in the supply and

production chain. The organization least able to carry the risk, such as the small specialist contractor has to accept the risk or not win the work. As a result, the parties dependent on main contractor are vulnerable to the risk of late payment.

2.4 SUMMARY OF RESEARCH ON PAYMENT IN CONSTRUCTION CONTRACTS

In summary, Mawdesley *et al*., (1997) states that finance has been claimed as the most important resource in the construction process, therefore a lack of cash flow has been sighted as one of the primary causes of project failure in the construction industry. The above literature review therefore suggests there is therefore a need for precise timing of funding and availability for fluid cash flow from employer to contractor.

A survey of payment performance has shown that the construction industry, in particular, is prone to late payment culture (Johnston, 1999), because of this, some countries have drawn up legislation that specifically targets the late payment phenomenon. Identified factors for late and non-payment include; delays in certification, client's failure to implement good governance in business, underpayment of certified amounts by the clients and use of 'pay when paid' clauses in contracts. Literature review findings also suggest that the most appropriate solutions to overcome the problem of late and non-payment faced by local contractors include; a right to regular periodic payment, a right to a defined time frame for payment and a right to speedy dispute resolution mechanisms.

Ameer Ali (2005) urges 'everyone in the construction industry to pay all appropriate amounts due in a timely manner in order to avoid late payment which in turn causes cash flow problems especially for contractors. It has also been postulated that late and non-payment has a domino effect on the payment claim in that late payment due to the contractor by the employer can result in delayed payments further down the procurement chain. Experts warn that failure to pay timeously can be attributed to attitudinal problems which have the potential to become the culture of the industry.

The literature review also highlights the following with reference to Murdoch and Hughs (2015) who states that 'it is not uncommon to find that a contractor or subcontractor who has not been paid what is due threatens to suspend work under the contract until payment is

made'. It goes on to state that however without a clear contractual right to suspend works the contractor is not so entitled.

The review points to the fact that the causes of payment problems may have many proportions. Hughs, Hillebrant and Murdoch (1998) are of the view that customarily problems that can be linked to payment are due to either the payer being not able to pay, not willing to pay or both. In addition, Wu Kumaraswamy and Soo (2011) emphasize that the causes are variable and differ from country to country dependent on the particular characteristic, economic and political setup of that environment.

Kennedy (2005) states, 'payment, not unexpectedly, has always been the main subject of disputes'. It has to be noted that late/non-payment in the construction industry has a domino effect on the payment chain of a construction project. Davis Langdon & Seah Consultancy, (2003) also suggests that this state of affairs has the potential to lead to formal dispute resolution which is in turn is costly and time consuming.

Prudent contractors that anticipate delay may factor this into their pricing if they deem an employer to have a reputation for late payment. This however has the unfortunate effect of increasing the cost of projects as contractors tend to inflate tender price if a client has a reputation for late payment (Wong and Hui, 2006). Evidence suggests late and non-payment damages the productivity of the industry at large with consequences further down the chain.

The discussion highlights that payment problems continue even though pay when paid and pay-if-paid clauses have finally been removed from payment legislation in a number of countries. The construction industry is unique in nature in that subcontractors are paid upon contractors being paid by clients and so on down the supply chain of the industry. Latham (1994), Pettigrew (2005), and Wu, Kumaraswamy and Soo (2008) support this notion by emphasizing that payment default results from the unique characteristics of the industry. They suggest that in reality payments are still made in the order of employer to main contractor, main contractor to subcontractor, subcontractor to supplier etc., and this contributes to very high business failure rates compared to other industries. Promptness of payment is critical to ensure the seamless operation of construction businesses.

Despite the introduction of standard agreement forms and general provisions in some countries (Ministry of Public Works, 1979; General Directorate of Highways, 1979b, the vast

majority of contractors and government agencies are in agreement that monthly payments are not made timeously by public agencies. Turkoglu and Egemen, (1980) clearly define the timing of those payments.

The review cites a right to regular periodic payment, a right to a defined time frame for payment and a right to a speedy dispute resolution mechanism as amongst the most appropriate solutions to the problem of late and non-payment.

The review commences its conclusion by proposing that the late payment problem is interrelated with the problem of cash flow and that cash flow in the construction industry is critical because of the relatively long duration of projects. The Chapter dwells on the issues of late or delayed payment from clients and suggests that these can be categorized as financial risks because they involve high levels of uncertainty.

Finally, Zou *et al.* (2007) points out that project funding problems have been identified as risk related in terms of cost, time and quality which can significantly influence the delivery of a construction project. The review therefore cites that this indirectly suggests the importance of adequate cash flow in a project even in a company's best times. Risk is often passed down the line to smaller and more 'fragile' sub-contractors, specialist contractors etc. who are forced to accept the risk or not win work. Smaller entities down the supply chain are therefore more vulnerable to the risk of late payment.

Table of referenced Literature

	Author	*Year*	*Title of the Paper*	*Journal/Book*	*Vol./Issue*	*Pages*
1	*Ang, S.S.*	*2006*	*Payment issues - The present dilemmas of Malaysian construction industry*	*Malaysia Australasian Journal of Construction Economics and Building*		
2	*Ramachandra,T and Rotimi, J O*	*2011*	*The nature of payment problems in the New Zealand construction industry*	*Australasian Journal of Construction Economics and Building*	*11 /(2)*	*22-33, 32*
3	*Banwell, H. and Ministry of Public Building and Works*	*1964*	*The placing and management of contracts for building and civil engineering work*	*Report of the committee: HMSO, London*		
4	*Barry, S.*	*2010*	*25 firms follow builder into liquidation*	*Retrieved 17 Feb 2016 from http://www.abc.net.au/news/stories/*		
5	*Cheng, T., Soo,*	*2009*	*Security of Payment for Hong*	*Building Journal Hong Kong*		*60-77*

	G., Kumaraswamy, M., and Jin, W.		*Kong Construction Industry – Workable alternatives and suggestions*	*China*		
6	*Davenport, P.*	*2005*	*Security of payment - the pendulum has swung too far*	*Australian Construction Law*	*101*	*36-40*
7	*Egan, J.*	*1998*	*Rethinking Construction: The Report of the Construction Task Force*	*DETR, London*		
8	*Euginie, L.*	*2006*	*Curing the Ills of Non-Payment in the Construction Industry – the Singapore Experience*	*8th Surveyors' Congress, Kuala Lumpur: ISM*		
9	*Gibson, A.*	*2009*	*Fletcher wins judgement in Melview case, New Zealand Herald*	*Retrieved 22 April 2016 from http://www.nzherald.co.nz/business/news/*		
10	*Johnston S*	*1999*	*Debts and Interest in the Construction Industry: A guide to the late payment of commercial debts (interest) Act 1998*	*Thomas Telford Limited, London*		
11	*Kennedy, P.*	*2005*	*Statistics and trends in statutory adjudication in the UK since 1998*	*Paper presented at the meeting of the International forum on construction industry payment Act and Adjudication, Kuala Lumpur, Malaysia, 13-14 September2005*		
12	*Khosrowshahi, R.*	*2000*	*A radical approach to risk in project financial management'*	*Proceedings of the 16th Annual ARCOM conference, Glasgow Caledonian University, September 6-8,*		*547-556*
13	*Latham, M.*	*1994*	*Constructing the team: final report of the government/industry review of procurement and contractual arrangements in the UK construction industry*	*HMSO: London*		
14	*Peer, S.*	*1982*	*Application of cash flow forecasting models*	*Journal of the Construction Division ASCE*	*108,*	*226-232*
15	*Reilly, J.*	*2008*	*Top luxury developer forced into liquidation,*	*Retrieved 3 June 2016, from http://www.independent.ie/national-news/*		
16	*Singh, S. and Lakanathan, G*	*1992*	*Computer-based cash flow model*	*Proceedings of the 36th Annual Transactions of the American Association of Cost Engineers-AACE*	*No.R.5.1-R.5.14*	
17	*Sushani, A.*	*2005*	*No joy for the small builders*	*The Star online, 8 May 2016, Retrieved from http://thestar.com.my/news*		
18		*2008*	*The Dominion Post : Not a cent*	*Retrieved from*		

			for builder's creditors: Big claims, few assets	*http://findarticles.com/p/news-articles/*		
19	*Uher, T. E., and Brand, M. C.*	*2005*	*Analysis of adjudication determinations made under security of payment legislation in New South Wales*	*International Journal of Project Management*	*23 (6)*	*474-482*
20	*Watts, V. M. and Scrivener, J. C.*	*1993*	*'Review of Australian Building disputes settled by litigation',*	*Building Research Information*	*21 (1)*	*59-63*
21	*Abdul-Rahman, A., Munaaim, M.E.C., Danuri, M.S.M. and Berawi, M.A*	*2008*	*Issues affecting payments in the building and construction industry of a rapidly developing economy*	*Building Engineer*	*November*	*4-10*
22	*Cottor, P.*	*2005*	*Late payment: Why it pays to know your customers*	*Experian's Business Information Division*		
23	*Gibson, A.,*	*2000*	*Economic Darwinism calls for intervention. The New Zealand Herald*	*Retrieved [online] 24 May 2016. Available at: http://www.nzherald.co.nz/business/news*		
24	*Hughes, W., Hillebrant, P. and Murdoch, J.*	*1998*	*Financial protection in the UK building Industry. London*			
25	*Kenley, R.,*	*2002*	*Milking the cash cow. The New Zealand Herald*	*Retrieved [online] 17 August 2016. Available at: http://www.nzherald.co.nz/business/news/article.*		
26	*Pettigrew, R*	*2005*	*The legal and contractual background. In: Payment under construction contracts legislation*	*Heron Quay Thomas Telford*		
27	*Wong, J.T.Y. and Hui, M.C.E.*	*2006*	*Construction project risks: further considerations for constructors' pricing in Hong Kong*	*Construction Management and Economics*	*24(4)*	*425-438*
28	*Ye, K.M. and Rahman, A.H.*	*2010*	*Risk of late payment*			
29	*Mawdesley, M., Askew, W. and O'Reilly, M.*	*1997*	*Planning and Controlling Construction Projects: The Best Laid Plans*	*Addison Wesley Longman and The Chartered Institute of Building, Essex*		*42-67*
30	*Ameer Ali,*	*2005*	*Payment in The Construction industry – towards Zero-Default*	*QS National Convention 2005, 10 – 11 August 2005, Hilton Kuala Lumpur*		
31	*Bob, G.*	*2005*	*Construction Industry Payments and Adjudication an Australian Perspective- International Forum On Construction Industry Payment*	*Act and Adjudication Centre, Kuala Lumpur, Malaysia*		
32	*Davis Langdon*	*2003*	*Construction Payment Blues-*		*Volume 3*	

	& Seah Consultancy		*Why That Domino Effect. Executive Summaries for the Practitioner.*			
33	*Kennedy, P.*	*2005*	*Statistics and trends in statutory adjudication in the UK since 1998*	*International Forum on Construction Industry Payment Act and Adjudication*		
34	*Lip, E.*	*2005*	*The Changing Role of the Quantity Surveyor under the Security of Payment Legislation in Singapore.*	*QS National Convention 2005: Sustaining the Profession-towards Diversification, 10-11 August 2005, Kuala Lumpur*		
35	*Murdoch, J. and Hughes, W.*	*1996*	*Construction Contracts Law and Management,*	*E & FN Spon, London.*	*2nd Ed*	
36	*Ameer Ali, N.A*	*2006*	*A Construction Industry Payment and Adjudication Act: Reducing Payment Default and Increasing Dispute Resolution Efficiency in Construction*	*Master Builders*	*3rd Quarter*	*1*
37	*Wong, J.T.Y., and Hui, E.C.M,*	*2006*	*Construction project risks: further considerations for constructor's pricing in Hong Kong*	*Construction Management and Economics*	*24*	*425-438*
38	*Zou, P.X.W., Zhang, G., and Wang, J*	*2007*	*Understanding the key risk in construction projects in china*	*International Journal of Project Management,*	*Article in Press*	*1-14*
39	*Megan van Wyngaardt*	*2017*	*Junk status to increase nonpayment in construction industry*	*Creamer Media's Engineering News*	*On-line*	

2.5 FACTORS CAUSING PAYMENT PROBLEMS

The construction industry is plagued with factors that are responsible for payment default. Hughs, Hillebrant and Murdoch (1998) explain that payment default is largely due to two main reasons; the 'cannot' and 'would not' pay attitude of payers. The 'cannot pay' state of affairs refers to the resulting financial difficulty due to the inability to secure funding or not having sufficient equity to raise funding and inadequate cash flow management. On the other hand, the 'would not' pay situation is an attitudinal problem.

It seems common in these times for clients to postpone payment to contractors and subcontractors in order to allow themselves the opportunity to manage their cash flow to other projects and thereby reduce their utilization of overdraft facilities. Kenley (2002), notes that payment problems are deliberate; payments are delayed by contractors and the money

channeled to fund other projects or for own individual use. Cotter (2005) on the other hand offers that even though this state of affairs could be unintended, the consequences of late payment can be serious for players in the industry. It is well known within the construction industry that it possesses many distinctive characteristics which can add substantially to the problem of payment within the industry.

The construction industry relies heavily on cash flow to sustain operations, has low capital backing and few barriers to entry and exit. Thus, inexperienced companies and individuals are easily able to set up business even though they have little to no experience in the industry (Gibson, 2000; Pettigrew, 2005). In addition to this, it is important to note that a sizable portion (70-75% in many cases) of those that actually implement the construction on any given building project are subcontractors (Gibson, 2000). Further, subcontractors characteristically implement 80-90% of the trade work linked to any particular project. Bottom tier parties to a contract are therefore under considerable duress to source substantial upfront cash funding in order to progress an awarded project. Consequently parties further down the supply chain can be exposed to severe financial difficulty in the event that undercapitalized main contractors are unable to honor their financial commitments to them. Experts suggest that late payments in the industry are essentially caused by cascade payment obligations and a multitier hierarchical structure. Coupled with the ease of access to the industry by unskilled workers with little or no expertise to offer to the industry, the situation is aggravated exponentially. This in turn leads to inadequate financial management, which can then result in cash flow difficulties and ultimately failure to pay trade creditors.

Issues affecting payments in the construction industry were studied by Abdul-Rahman et al. (2008), consultants and contractors have unlike perspectives on the causes of late payment. The most frequent causes of payment delays according to contractors are; delay in certification, clients' poor financial management, local culture/attitude, clients' failure to implement good governance in business and underpayment of certified amounts by the

clients. The major causes of payment delays identified by the consultants were local culture/attitude, delays in the approval of claims by the client, and underpayment by the client. In summary, poor financial management is responsible for the bulk of the problems mentioned above. In addition, the culture of 'work first and get paid later' further exacerbates

the problem by the addition of another dimension to an already complicated set of circumstances (Pettigrew, 2005). According to contractors and Consultants, other factors that influence late payment are the use of pay-when-paid clauses, disagreements on the valuation of work done, deliberate withholding of payments by clients, budget deficits for the year, poor communication and conflict of interest between parties, delays in submitting contractors' payment claims, and general lack of understanding of contract provisions (Danuri, et al., 2006).

Investigating the above issue further, Ye and Rahman (2010) noted 40 factors that were responsible for late payment in construction projects that were then sorted into 10 main groups. From Ye and Rahmans list, the five most frequent causes of late payment were; cash flow problems due to clients poor financial management, ineffective utilization of funds, lack of capital to finance projects, failure to source money from banks in time of reduced sales, delay in releasing retention monies to contractors, and delay in the evaluation and certification of interim and final payments.

Causes contributing to payment problems in construction projects;

- Cash flow difficulties due to delays and non-payments on other projects;
- Disputes over payment claims and responses;
- Cash flow difficulties due to lack of initial capital;
- Easy exit of players: Little/no liability to creditors;
- Payment culture of the industry: Chain payment & work first get paid later;
- Attitude of the payer: dishonest/unethical conduct;
- Improper supervision and financial control;
- Easy entry of players with little/no capital backing;
- Cost overruns and contract failure;
- Lack of knowledge and experience in the field;
- High capital investment nature: Reliance on loan capital;
- Economic and market conditions;
- Time overrun of projects;
- Receivership and liquidation of parent and related companies;
- Disputes over quality of work;

- Administration/bureaucracy;
- Financial difficulties due to failure to secure contracts;
- Complications from contractual conditions;
- Financial difficulties due to drop in building prices;
- Procurement methods used;
- Contract types used;
- Standard forms of contracts used (right to payment and non-payment provisions);
- Legislative procedures (Construction Contracts Act);
- Disputes with debtors/creditors;
- Structure of the industry: Involvement of many commercial parties;
- Duration of projects (long-run or short-run);
- Internal conflicts/disputes between owners or management team; and
- Political/policy changes.

2.6 CONSEQUENCES OF LATE PAYMENT

In order to deem a project successful it must be delivered within the duration of scheduled time constraints, available budget and specification of quality (Majid, 2006; Owolabi et al., 2014). Sambasivan & Soon, (2007); Owolabi et al., (2014) note that a major challenge with global dimensions that currently faces the construction industry is delay in the completion of infrastructure projects due to late and non-payment. This set of circumstances often leads to increased construction cost due to time extension or acceleration, loss of productivity, disruption of work, loss of revenue through lawsuits between contractual parties and lastly project abandonment.

As a result of delayed completion of infrastructure projects many SAA countries experience billions of dollars in losses. Gutman et al., (2015) makes mention of the fact that this undermines the worthy objective of poverty reduction. Especially in SAA countries, the delay in completing projects can have substantial consequences for its cost and consequently therefore sweeping significance in the lives of its citizens. Costs that come from such delays often result in accumulated interest on loans, high cost of maintaining management staff, in addition to the continuous increase in wages and material prices.

Sambasivan & Soon, (2007); Alaghbari et al., (2007); and Aziz, (2013) conclude from research done in a number of different environments that although delay in the completion of projects is a phenomenon of global proportions, it seems to be more prevalent in developing countries rather than developed countries.

Delay in construction projects is often a natural consequence of late payment since few contactors are able to carry the full financial burden of a of construction project without regular and consistent cash flow.

Delays in the completion of projects have been reported in developed countries such as Britain, Australia, Canada and the United States to mention a few. Tedious legislative procedure, substandard site management by contractors, reduced funding from sponsors and breakdown in communications in Canada for example, have all been perceived as responsible for delays in the completion of infrastructure projects, (De Souza, 2009). SNL Financial (2010) reported delays in the United States in the completion of a pipe line project running from Florida State to the Bahamas due to changes in design; Baldwin and Manthei (1971) attributed such delays, again in the United States, to inclement weather, bad management of subcontractors and inadequate labor supply.

Delays in the completion of infrastructure projects as a consequence of late and inconsistent payment have also been reported in developing countries such as Ghana, South Africa, and Kenya, India, Malaysia, Indonesia, Qatar, Jordan, Egypt amongst others. A government infrastructure Delay report of 2006 in India reported a thirty year delay in the completion of a rail project in West Bengal and a twenty year delay for the completion of a coal project in the same country. These delays were attributed to slow design processes and the late payment of project funds (Government of India, 2006). In Qatar, contractors lack of resources, escalation of construction material prices, prolonged transfer of land ownership rights to contractors, deferral of payments due to design issues, as well as legislative challenges in the procurement of necessary equipment and machinery from overseas markets have all been linked to delays in the completion of about one-third of infrastructural projects (Public Works Report, 2009). Sambasivan and Soon (2007) identified causes of delays in the completion of infrastructural projects in Malaysia as including but not limited to contractor's inadequate planning, poor site management, poor experience, intermittent flow of payments for completed work, poor

management of sub-contractors, inconsistent communication between parties, as well as shortage of materials, equipment, and labor. A South African Government report linked infrastructure project delays to changes in project design, unreliable flow of financial resources and contractor's lack of capacity to deliver (Government of South Africa, 1999). Frimpong, Olowoye, & Crawford, (2003) attribute major factors accounting for 80% of the delays in the completion of infrastructural projects in Ghana to delays in material procurement, delay in payments, poor technical performance, escalation of material prices and poor contractor management. Talukhaba, (1999) argues that delays in the completion of infrastructure facilities in Kenya have been linked to factors such as weak financial management by government agencies, inadequate designs, and poor management of the construction process by contractors. Talukhaba deliberates further that such factors are arguably further exacerbated by secondary factors such as inadequate regard for stakeholders' needs, inadequate recognition and response to risks emanating from the physical and socio-economic environment, as well as poor management of materials and equipment by contractors.

Kisii-Chemosite Road, a project located in the lake region of Kenya was cited amongst other cases by (Abiero, 2010) as an example of delayed infrastructural projects . This project in particular delayed for 15 years in addition to Nyanza Provincial Headquarters, in the same region which stalled for more than two decades.

In Summary, this section of the literature review seeks to link delay in the completion of infrastructure projects to late and inconsistent payment in construction projects in developed and developing countries.

2.6.1 Contract Forms

As mentioned earlier in this report, payment provisions exist in the standard form of contracts to check payment deferent and delays, the industry's position on this matter is that irrespective of the nature and type of contract adopted to regulate a service agreement, a payment is considered late if payment is made later than the time frames allowed for in the contract. However, in matters of local government procurement the PFMA provisions override this rule and allow for 30 day payment terms unless specifically stated otherwise. This measured from the date of receipt of invoice.

Therefore in the sphere of government procurement payment timeframes, PFMA rules prevail with regard to effecting payments within thirty (30) days from receipt of an invoice as required in terms of Treasury regulation 8.2.3.

Table 1 provides an overview of options for service requirements as recommended by the Construction Industry Development Board of South Africa. These have been deployed as the main guiding parameters for choice of procurement strategy for Government Infrastructure projects.

Table 1: Options for government Infrastructure project service requirements

Option	Pricing Strategy	Form of Contract
Construction only	▪ Activity based ▪ Bill of Quantities ▪ Cost Reimbursable ▪ Target Cost	▪ NEC3 Engineering and Construction Contract ▪ NEC3 Engineering and Construction Short Contract ▪ FIDC Conditions of Contract for Construction and Building and Engineering Works Designed by the Employer. ▪ FIDIC Conditions of Contract for Plant and Design. ▪ FIDIC Conditions of Contract for EPC Turnkey Projects ▪ FIDIC Short Form of Contract General Conditions (Short Form) ▪ JBCC Principal Building Agreement ▪ JBBCC Minor Works Agreement ▪ GCC 2010
Maintenance only	▪ Priced contract with a priced list. ▪ Cost reimbursable ▪ Target cost	▪ CIDB General Conditions of Contract ▪ NEC3 Term Service Contract ▪ NEC3 Short Term Service Contract
Maintenance and Construction	▪ As for Maintenance and Construction Services.	▪ NEC3 Engineering and Construction Contract with or without NEC3 Term Service Contracts.
Construction, operation and maintenance	▪ As for Maintenance and Construction Services.	▪ FIDC Conditions of Contract for Design, Build and Operate Projects. ▪ NEC3 Engineering and Construction Contract with NEC3 Term Service Contracts.

The responsibilities for design and management of the construction works are normally allocated between the parties in terms of any of the following contracting strategies;

- Design by employer
- Develop and construct
- Design and construct
- Construction Management
- Management contractor

2.7 CONSEQUENCES OF LATE/NON-PAYMENT-A LEGAL PERSPECTIVE

Many countries experience the serious problem of delay and payment loss in their construction industries. This affects the cash flow of contractors which is an important aspect of their ability to meet their financial responsibilities. The financial collapse of contractors and indeed other elements of the payment chain can be caused by payment defaults by the client. Specific construction industry legislation and other contractual measures have been introduced by most countries to help eradicate these problems but nevertheless these difficulties persist. Payment losses are more common in matters of insolvency but unlike legal disputes, there is no security for these losses. Remedies contained in the security of payment provisions within standard conditions of contract and legislative documents, have found through a series of studies that the construction industry often deploys solutions contained in these sources. Construction project participants normally provide their services first and then are paid for work done as the project progresses through its lifecycle in line with agreed payment schedules and other contract provisions.

Due to the misuse of these payment rights it is therefore not unexpected that delayed and non-payment of invoices have become exceptionally prevalent. Delays to project execution and associated financial difficulties have also been known to be caused by clients making unnecessary deductions on contractor invoices in occasional instances.

In the last forty years studies of note have dwelled frequently upon the commonness of this form of financial in-appropriateness (Banwell, 1964; Latham, 1994; Egan, 1998). Commonly, the construction industry has a culture of delayed payment (Johnston, 1999) where the major cause of disagreement within the industry is often the phenomena of payment delay (Kenndy, 2005; Conlin 1996; Heath et al., 1994; and Watts and Scrivener, 1993). In the UK construction industry for example contractors and subcontractors are highly exposed to such risk and have constantly expressed their unhappiness with the time lag between the receipt of invoices and their final payment (Odeyinka and Kaka, 2005). Postponed and delayed payments of contractors' invoices are not unusual also in New Zealand (Gibson, 2009; Gibson 2004). The numerous negative effects on parties to a construction contract can be experienced when failing to pay complete invoices on time. The success of construction projects and survival of the industry and is heavily reliant on cash flow which in turn is sensitive to payment delay and loss on a project (Ang, 2006; Singh and Lakanathan, 1992;

and Peer, 1982). Recurrent payment delay can lead to additional finance and contractual costs and ultimately bankrupt parties further down the procurement chain (Euginie, 2006). Prompt payment for completed work can conversely be seen as strong motivation to provide quality service and complete projects successfully (Cheng, et al., 2008).

The development of trust and collaborative effort can be assisted through timely and precise payment, thereby helping achieve value for money for construction clients. All too often unfortunately, delayed or deferred payment of invoices is used by the upper tiers in a contract as a source of funding (Uher and Brand, 2005; Odeyinka et al., 2003). A key driver to the development of the many legal and contractual solutions available to the industry is inherent in the recognition of the nature and consequence of payment delay and losses. There are payment provisions in standard form of contract, bonds and guarantees, insurance and enactments of construction payment specific Acts etc., for example. Nevertheless, the payment problem remains widespread within the construction industry and there are suggestions that the problem persists because of the absence of tangible solutions and the nature of the industry (many participants, hence conflict of interests and disputes) hence the promotion of sharp practices, these problems persist.

The payment problem however persists despite these steps (Sushani, 2005). Sushani's 2005 study also revealed that despite government (the project owner and client) having paid main contractors in full, these main contractors failed to honor payment claims to over 16000 subcontractors who consequently suffered near bankruptcy. In other reports from the UK, Australia and New Zealand citing (Reilly, 2008), (Barry, 2010) and (The Dominion Post, 2008) respectively, similar circumstances have been recounted and present the impact insolvency can have on trade creditors in the event of delayed payment.

As explained earlier, the recognition of the nature and consequences of payment delays and losses within the construction industry, led to the development of legal and contractual solutions in many countries. Payment provisions exist in standard form of contracts to check payment deferent and delays. Bonds and guarantees, and insurance provisions also exist to provide protection against the risk of non-payment in construction contracts. In recent times, construction payment specific Acts have been put in place to enact payment problems in a number of countries (Cheng et. al., 2008). This has been a major development in the industry.

The Building and Construction Industry Contracts Act in New South Wales, Australia is an example of such an enactment and this has helped to lessen the frequency of late payments (Brand and Uher, 2008).

The Construction Contracts Act (CCA) in New Zealand, was created to check bad payment practices within the industry, this following the insolvency of some large construction companies because of non-payment by their clients (Degerholm, 2003). The Wages Protection and Contractors Liens 1939 Act was in effect prior to this and provided a measure of protection to main contractors, subcontractors and workmen who implemented works in respect of any land by claiming a lien over the estate or interest of the owner in the land. Workmen and subcontractors were entitled to a charge over money payable under any superior contract for the work. However the repeal of the Act in 1989 left contractors and subcontractors unsecured. The removal of conditional payment provisions (pay-if paid and pay-when-paid) with the repeal of the 1939 Act, enabled subcontractors to get paid on time whether or not main contractors were paid by the client. In the event of the insolvency of a client, this provides more robust cover for contractors in that they are better placed to understand a client's financial status and procure the necessary security.

Albeit in different forms, and in spite of these enactments, there is anecdotal evidence that suggests that the payment problem still persists. Davenport (2005) commenting on the Building and Construction Industry Security of Payment Act in New South Wales, explains that the payment mechanism in that Act could lead to disputes. These disputes may derive from non-issuance of payment schedules and variance between claimed and schedule amounts. Such disagreement in some cases often leads to payment delays and ultimately loss to claimants.

2.8 CIDB KEY PERFORMANCE INDICATORS – AN OVERVIEW OF PAYMENT TRENDS IN ALL PUBLIC DEPARTMENTS (2004-2015)

CIBD Construction Industry Indicators (CIIs) are measures of the performance of the industry, focusing on clients, the client's agent/consultant and contractors. The CIIs have been captured annually since 2003 and are currently being captured by the CIBD in partnership with the Department of Quantity Surveying and Construction Management of the University of the Free State. The summary results covered reflect selected indicators

measured for projects completed over a number of years with a view to identifying particular trends. The indicators presented cover; client satisfaction; contractor satisfaction; profitability and payment delays; procurement indicators; and health and safety. This research focuses on payment delay trends in the provincial sector since this is of direct relevance to the areas the researcher wishes to explore.

In the 2015 survey, 40 % of payments to contractors were made within 30 days of invoicing, 49% between 30 to 90 days and 11% over 90 days. This reflected a noticeable deterioration in payment practices over the period 2012 to 2015. Within the public sector, national, provincial departments and metropolitan council's regional/district councils had the highest payment rates within 30 days or less. Within the public sector, the highest levels of prompt payment occurred in the Northern Cape and KwaZulu-Natal, while the highest payment delays occurred in the Eastern Cape followed by the Western Cape and Gauteng. In General, 60% of payments to contractors were delayed for longer than 30 days after invoicing, which reflects a noticeable deterioration in prompt payment practices over the period 2012 to 2015.

In the 2011 survey, 45% of payments to contractors were made within the 30 days of invoicing. 47% between 30 to 90 days, and 7% over 90 days. Within the public sector, national departments and public corporations had the highest payment rates within 30 days or less. Within the public sector, payment rates were reasonable across all provinces, with the highest payment rates taking place in the Western Cape, Limpopo and Mpumalanga.

In the 2010 survey, 52% of payments to contractors were made within 30days of invoicing, 42% between 30 to 90 days, and 6% over 90 days. This reflected an improvement over 2008 and 2009. Within the public sector, regional and district councils were the slowest to pay contractors in the 2010 survey, followed by metropolitan councils, provincial departments, national departments and public corporations. In the 2009 survey, 42% of payments were made within 30days of invoicing, 48% between 30 to 90 days, and 9% over 90 days. Payment delay trends in 2009 showed quite a significant deterioration over payment delays in 2007 and 2008. Payment delays recorded in the 2009 survey were highest in the public sector and with national departments and lowest in metropolitan councils.

In 2007 57% of final payments were made within 30 days of practical completion, and 38% within 30 to 90 days. 6 % of payments were delayed by longer than 90 days. There was a

decrease from 24% to 9 % in the number of all projects where payments were made quickly within 14 days where 2004 results are compared with 2007 results. In 2007 the private sector clients were the worst early payers with payments made within 30 days on only 35% of their projects. The best performing client categories with 59% and 56% of project payments made within a month were the public private partnerships and provincial departments respectively. The percentage of projects with payments that took more than 30days increased from 2004 to 2007 from 43% to 56%. In 2007, the contractors for 20% of all public corporation projects and 21% of all private sector ad provincial department projects were ony paid after 60 days. There was an encouraging reduction in the percentage of payment done later than 120 days from 13% to 3%if the 2004 and 2007 projects are compared. It is of great concern that only 44% of all contractors in 2007 were paid on time within 30 days. Contractors refrain from standing up to their contractual right to be paid on time for fear of losing job opportunities in the future. This creates cash flow problems for contractors.

(See Annexure I).

2.9 RECOMMENDED STANDARD OPERATING PROCEDURES FOR ` PAYMENT PROCESSING

Guidelines for the proper execution of payment processes have been issued by the Department of Finance. The document is not a Treasury Instruction. It is however crafted as the foundation upon which Sector Departments and other government institutions are encouraged to draft their own instructions, policies and procedures as required by Treasury Regulations. The document is a template that may be used by individual Institutions to adjust their existing policies if needed. They do not necessarily include every possible instruction, process or procedure that might be necessary to comply with the requirements of the Treasury Regulations. It therefore remains the entity's responsibility to ensure that its specific processes and procedures encompass all necessary instructions, processes and procedures, to ensure it complies with the requirements of the Treasury Regulations.

The purpose of these Instructions / Policies and Standard Operating Procedures is to foster a culture of responsibility and accountability in the processing of payments in the various Sector Departments serving the province. It serves to outline the responsibility of each employee in the policy (ies), procedures and the processing of payments and aims to ensure

uniformity in its application. It also serves as a reference tool for educational and training purposes.

These Institutional Instructions / Policies and Standard Operating Procedures are applicable to all employees of all sector Departments, including all Accounting Officers and Accounting Authorities.

2.9.1 Financial management governance and regulatory framework

- Legislation;
- The Public Finance Management Act 1 of: 1999;
- Public Service Act of 1994;
- Income tax Act; and
- Regulatory Framework.

The AA / AO and CFO are responsible for establishing of a system of internal control, and processes for the effective and efficient risk assessments in their institution. The following Treasury Regulations (2016) must be complied with in the execution of these Instructions / Policies and SOPs.

Para 6 - Institutional instructions and standard operating procedures

Para 9 - Functions of Chief Financial Officers

Para 16 - System of internal control [sections 38(1) (a) (i) and 51(1) (a) (i)]

Para 17 - Control environment

Para 18 - Risk assessment [sections 38(1) (a) (i) and 51(1) (a) (i)]

Para 19 – Control activities

Para 90 - System for expenditure management

Para 91 - Approval of expenditure and commitments

i. Provincial Treasury Instructions are those instructions issued by a Provincial Treasury in terms of the PFMA, for and in respect of provincial institutions of a province.
ii. General Recognised Accounting Practice (GRAP) are standards issued by the Accounting Standards Board in terms of the PFMA, to regulate the reporting and accounting frameworks for municipalities and public entities.
iii. The Modified Cash Standard (MCS) is "GRAP" for departments and any other entity that claims compliance with the modified cash basis of accounting. The MCS, as

prescribed by the National Treasury: Office of the Accountant-General, sets out the principles for the recognition, recording, measurement, presentation and disclosure of information required in terms of formats prescribed by the National Treasury.

It is important to note that although Institutions adhere to different reporting frameworks, i.e. the Standards of GRAP and the MCS, these Instructions / Policies and SOPs serves as a foundation of good practices to aid in compliance with either framework.

Other Instructions and SOPs to be considered with the recommendations manual, include but are not limited to the following;

- General Concepts, Definitions and Principles;
- Accounting and Month-end SOP;
- Public Service and Administration (DPSA) financial handbook;
- Ministerial Handbook; and
- Chief Financial Officers Handbook.

Detailed Systems and / or business processes, relating to these Standard Operating Procedures, are to be developed by the individual Sector Departments to supplement the high level processes as recommended by the Department of Finance.

2.9.2 Sector Departmental instructions/policies: Payments processing

The CFO and his/her delegates must:

i. Evaluate whether existing controls for payments processing are appropriate. He/she must assess the risks facing the institution, and introduce the necessary changes to the systems of internal control.
ii. Ensure that they adhere to all internal control measures whether manual or electronically, to ensure compliance with financial management governance and regulatory frameworks and guides.
iii. Implement an effective system to maintain electronic procedures that will enable the effective tracking of all invoices received and the subsequent tracing of progress with the processing of each invoice.
iv. Where the electronic procedures are not adequate or where the delegated employee needs additional control manual registers must be maintained to log all creditor invoices on the date of receipt, and to monitor the movement of the invoices between

SCM and Financial Management. The register must at least contain the following detail:

- The date the valid and correct invoice was received,
- The date on invoice was paid
- The time period between the date of receipt and date of payment.

v. Ensure that all payments are made within 30 days of receipt of a valid and correct invoice, except if the contract agreement stipulates a different payment term or In the case of civil claims, from the date of settlement and court judgment.

vi. Ensure that segregation of duties be adhered to in that the person capturing payments and / or orders may not be the same person authorising such payments and / or orders. This control applies to both the supply chain management system and the accounting system.

vii. Before approving requisitions and commitments to spent government funds, ensure that he/she is certain that such expenditure is:

- Essential for the deliverance of services as per the Institution's mandate or contractually binding as per prior agreement and appropriate approval by the relevant authority.
- In accordance with the purpose of the vote (in the case of a department);
- Within the Institution's budget provision and will not result in unauthorized, irregular and fruitless and wasteful expenditure.
- Representing value for money and the services to be obtained are of the best quality, quantity, and price.

viii. All payments must follow the relevant and correct supply chain procedures.

2.9.3 Non-compliance

Departure from the provisions of these Instructions / Policies and SOPs, without prior written authorization by the AO/AA, will be treated as financial misconduct and will result in appropriate disciplinary or criminal procedures being considered and instituted against the relevant person where deemed necessary. Refer to the SOP on Financial Misconduct for additional information.

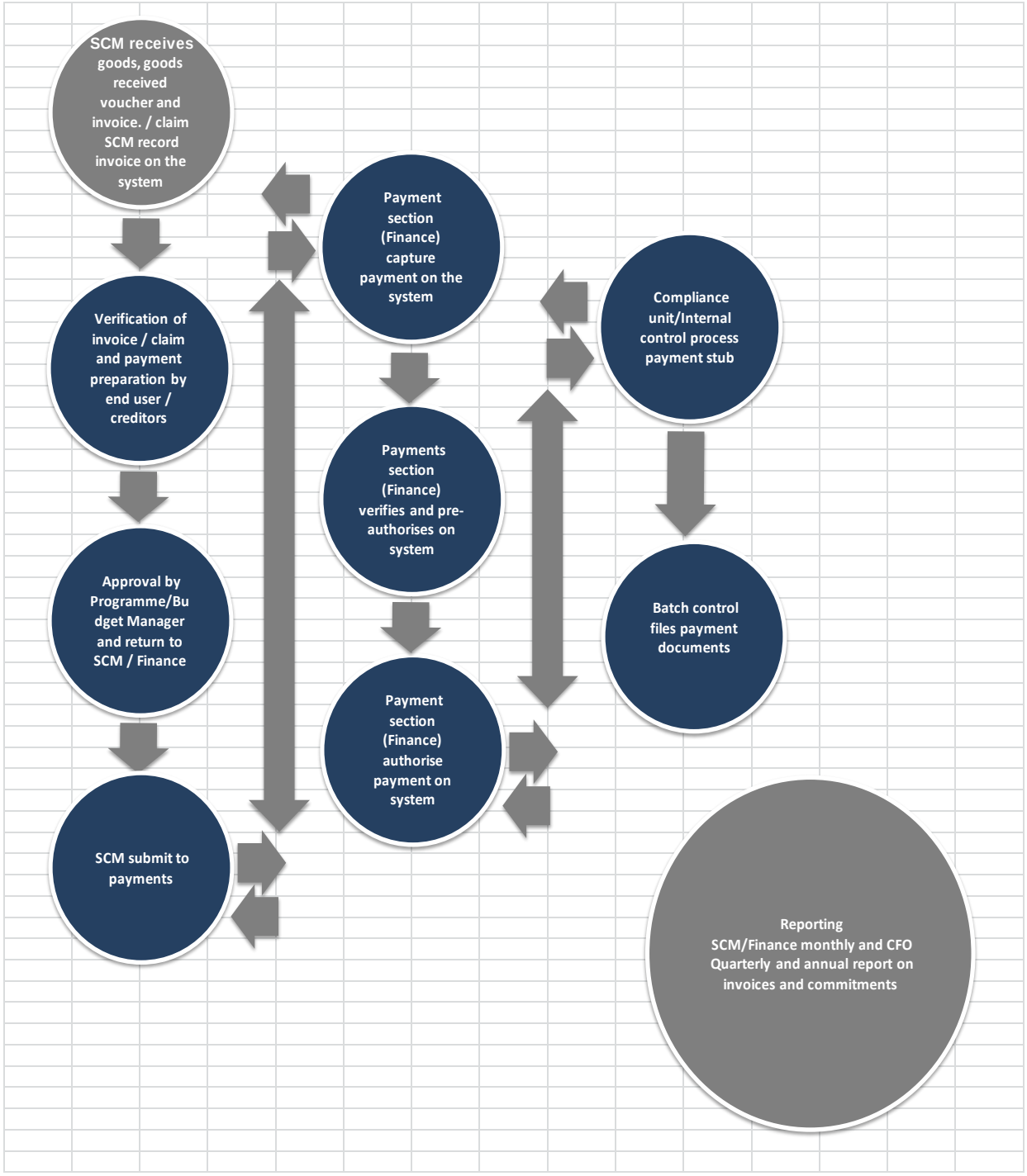
2.9.4 Monitoring, oversight and maintenance

To ensure these Instructions / Policies and SOPs operate efficiently, the responsible officers must report any required changes to their superiors. Whenever something changes in the payments processing areas and / or environment, it should be reviewed for appropriateness. These Instructions / Policies and SOPs must be reviewed periodically as set out in General Concepts, Definitions and Principles.

Source: (Gauteng Finance Department, Institutional Instructions / Policies and Standard Operating Procedures, Payments Processing, 2015)

2.10 GDF (TREASURY) RECOMMENDED PAYMENT PROCESSING FLOWCHART

Figure 1.2: GDF (Treasury) Recommended Payment Processing Flowchart-(high level).



(Source: PFMA and Treasury Regulations 2015).

2.10.1 Standard Operating Procedures as prescribed by the Department of Finance: Payments processing (high level)

Action		Template Ref/Input	Responsibility
Goods received / services rendered			
1.	This is the process of initiating a payment and subsequent commitments to occur. The acquisition part of goods and services is addressed in the *SCM SOP*.	Invoice	End user
	▪ When goods are delivered or service rendered an invoice and goods received voucher is submitted to the Institution for payment. ▪ Before acknowledging the goods received the receiving clerk must: a. Compare the goods delivered to the purchase order; b. Check the quantity and descriptions of goods delivered against purchase order and delivery note; c. Perform superficial test of condition of goods delivered e.g. broken or wet boxes etc.; d. Reject all incorrect goods and identify and mark rejections on both copies delivery note and purchase order; e. Make list of goods accepted and rejected; f. Ensure that suppliers personnel sign both copies of the delivery note including amendments; g. Sign delivery note.	Order Goods receive voucher Payment advice	SCM
Dealing with the invoice / claims and preparation for payment			
2.	▪ Proper control must be exercised over all invoices and claims to ensure payment complies with the 30 day period as prescribed in the Treasury Regulations. ▪ In the event of a delay in payment resulting in payment in excess of 30 days the Programme Manager must give the reasons for the delay in the form of a memorandum and attach such memorandum to the invoice / claim and supporting documents before the payment is captured. ▪ The invoice / claim must be date stamped on the date of received ▪ Invoice / claim received through email must be printed and date stamped. ▪ Invoice / claim must be recorded in the invoice / claim register (electronic/ manual register). ▪ The invoice / claim must be checked at each stage to ensure that: it is in the name of the institution: a. That it is a valid tax invoice / claim b. The date of the invoice / claim c. The bank details of the supplier appears on the invoice / claim	Invoice Order Goods receive voucher Payment advice	End user SCM Creditor Financial Management

d. The amounts on the invoice / claim are correct

- Invoice / claim must be given to the end user (accompanied by the invoice register).
- The end user must sign the register and date the register with the date the invoice / claim was given to them.
- The delegated SCM employee must make daily enquiries on invoices / claim that have not been returned by the end user.
- When the invoices / claim are returned to SCM, it must be checked against covering advice and register and be confirmed that all the invoices are received.
- If the invoice / claim is incorrect for any reason, the delegated SCM official may via email inform the supplier / Institution/ Department. The delegated SCM official must cancel the invoice / claim from the invoice register, state the reason on the register and keep the email to the supplier / Institution / Department as evidence.
- If all are in order and the invoices / claims signed by the end – user / budget manager, SCM / Creditor section must take it with the supporting documents to the Finance unit and the invoice / claim register must be updated accordingly.
- Care must be taken to keep all source documents (entire batch) together and to certify it at each stage of the process from acquisition to payment.
- This certification process is done in order to avoid duplication in:
  a. Ordering of the goods and services
  b. Capturing of the transaction on the system; and
  c. Payment of the supplier.
- The documents must be stamped as:
  a. Ordered after the order has been sent to the supplier;
  b. Delivered after goods and/or services has been received;
  c. Received on the date of receipt of the invoice / claim;
  d. Captured after it has been recorded in the system; and
  e. Paid after the payment has been processed.

- The following supporting documents must be part of the payment for goods and/or services indicated below:
  a. For catering expenses ensure that the request form/invite for catering is attached.
  b. Tax questionnaire and original timesheets are attached for consultants.

c. DG approval letter is attached for membership fees.
d. DG approval letter is attached Upgrade/new cellular phones.
e. Attendance registers of the meeting.

- Before any payment is captured on the system, the allocations must be checked.
- The capturer must ensure that the authorization is done correctly in terms of the delegations of authority including limitations set regarding approving amounts.
- If the SCoA allocations are incorrect, (Departments) the Finance unit may not change the allocations. Corrections must be done by means of a journal entry, after consultation with the relevant Programme/Budget Manager or the payment request must be returned to the Budget Manager for corrections before it is processed.
- Budget blocking should be a control measure in the accounting system to ensure that overspending does not take place.

Document/Batch control

1.	▪ After payments and recording has been completed, invoices (payment batches) must be sent to the internal control unit. ▪ The compliance unit must perform a pre-audit of the batches and resolve findings. ▪ The compliance unit will store all the batched in a storage/filing room for safekeeping. ▪ This Unit will also distribute the payment stubs to the creditors.	Invoice Order Goods receive voucher Payment advice Payment stub	Financial Management Internal Control

Reporting on invoices / claims and commitments

2.	The purpose of this process is to report on late payments as well as to provide for commitments in the budget process. ▪ The delegated employee conducts an age analysis of all invoices and commitments at month end. Such report must be submitted to the CFO for his/her review within 8 days after the end of the preceding month. The report must comply with the requirements in Treasury Regulation 81, and submitted in the format as prescribed. ▪ The report must contain inter alia: a. all invoices received for the month, b. all invoices given to finance for payment c. all invoices received but not given to finance and reasons therefor; d. The number and value of the invoices received for the month; e. The number of invoices that have been paid within 30 days or in terms of an agreed contract; f. The number and value of invoices not	Invoice and claims registers Commitment register	Financial Management Internal Control

paid within 30 days or the agreed period and the reason for not complying with the prescribed period;

g. The number and value of invoices on hand that were not paid within 30 or the agreed period and the reason for not complying with the prescribed period;

h. The values of commitments per commitments register.

2.10.2 Checklist for compliance, reporting, monitoring: Payment processing

	COMPLIANCE CHECKLIST	REF	REMARK/REMEDIAL ACTION
	Goods delivered		
1.	Was the invoice/statement signed in acceptance of goods and/or services?		
2.	Was the invoice/statement stamped with the date of receipt?		
3.	Does the invoice amount agree to the order amount? Where this is not the case, reasons provided?		
4.	Has the invoice been recorded in the electronic/manual register?		
5.	Has the end user signed the register to acknowledge receipt?		
6.	Has the goods been delivered and/or services rendered		
7.	Does the invoice agrees to the order or the signed contract agreement (where applicable), purchase order, and goods received voucher/note.		
8.	Is the order number included on the invoice and agrees to the original order number;		
9.	Is the invoice correct in term of amount, address, financial year and allocations?		
10.	Are the relevant supporting documents attached to the invoice/payment advice?		
11.	Is the payment stamped and signed after verification?		
12.	Is the payment authorized by the Programme/Budget manager?		
	Verification by end Programme/Budget Manager		
13.	Is budget available for the particular payment on the correct item?		
14.	Is the amount of the invoice within the amount delegated to approve as per the financial delegations?		
15.	Is the payment and supporting documents correct in terms of amount, order, goods/services delivered, dates and allocations?		
16.	Are all the relevant supporting documents attached to the payment?		
17.	Is the payment complying with the 30 day period? If not, is the relevant and authentic memo attached with good reasons of why the payment is not made within the 30 day period?		

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Capturing payments on system

18. Has the SCM batch covering advice and the register been signed and the invoice register be updated?
19. Is the invoice/payment recorded in Financial Management's invoice register?
20. Are all the relevant documents attached and correct?
21. Are the relevant signatories attached to the payment?
22. Is the payment complying with the 30 day period? If not, is the relevant and authentic memo attached and authorized by the delegated employee?
23. Are the allocations correct and budget available?
24. Are the supporting documents and invoice generally in order for payment?
25. Has the payment been stamped and signed by the capturer

Pre-authorization on the system

26. Is the payment complying with the 30 day period? If not, is the relevant and authentic memo attached and authorized by the delegated employee?
27. Are the allocations correct and budget available?
28. Are the supporting documents and invoice generally in order for payment?
29. Has the payment been stamped and signed by the pre-authoriser?

Authorization on the system

30. Is the payment complying with the 30 day period? If not, is the relevant and authentic memo attached and authorized by the delegated employee?
31. Are the allocations correct and budget available?
32. Are the supporting documents and invoice generally in order for payment?
33. Has the payment been stamped and signed by the authorize

Processing payment stub

34. Has a payment stub been generated?
35. Is the disbursement number attached to the payment?
36. Are all the supporting documents attached to the payment?
37. Is the Financial management invoice register updated?

Batch control

38. Are all relevant documents attached to the payment batch?
39. Has the batch been pre-audited by the compliance unit?

	Reporting on invoices and commitments
40.	Is SCM report on invoices, commitments and accruals submitted to the CFO?
41.	Is Financial management's report on invoices submitted to the CFO?
42.	Is the report on invoices, commitments and accruals attached to the AFS?

Source: (Gauteng Finance Department, Institutional Instructions / Policies and Standard Operating Procedures, Payments Processing, 2015)

2.11 RELEVANT LITERATURE WITH RESPECT TO THE SPECIFIC OBJECTIVES OF THE STUDY

2.11.1 Specific Objective 1: Stages involved in the payment process.

The 'Institutional Instructions / Policies and Standard Operating Procedures for Payment Processing' was drafted by the Gauteng Department of Finance and serves as a guide to effecting payments within thirty (30) days from receipt of an invoice as required in terms of Treasury regulation 8.2.3. This paper clearly sets out the processes necessary for the payment of invoices within the sphere of government. The document therefore serves as the backbone of payment processing across all Sector Departments.

2.11.2 Specific Objective 2: Extent of late payment.

Finance has been claimed as the most important resource in the construction process (Mawdesley *et al*., 1997). A lack of cash flow has been identified as one of the main causes of project failure. Conversely advance payments and deposits that are not governed by contract often result in a most uneconomic state of affairs and increase client risk exponentially.

Hughs , Hillebrant and Murdoch (1998) explain that there are two main reasons behind payment default, the 'cannot' and the 'will not'. The 'will not situation seems to lie with client attitude. Payment due to contractors is delayed by the client in order to manage their cash flow for other projects. Kenley (2002) notes the same. Kenley states that payment problems are deliberate and there are those contractors that delay payments in order to use this money for their own benefit or to pay other projects. Cotter (2005) however suggests that late payments can be unintentional.

2.11.3 Specific Objective 3: Causes of late payment.

Abdul Rahman et al. (2008) finds that there are two main perspectives with regard to consultants and contractors in the causes of late payments. According to contractors, delay in certification, clients poor financial management, local culture/attitude, clients failure to implement good governance in business and underpayment of certified amounts by the clients are the most frequent causes of payment delays. Consultants identified local culture/attitude, delays in the approval of claims by the client, and underpayment by the client as the top causes of payment delays. The same study also finds that other causes of late payment are use of pay-when-paid clauses, disagreements on the valuation of work done, deliberate withholding of payments by clients, budget deficits for the year, poor communication and conflict of interest between parties, delays in submitting contractors' payment claims, and general lack of understanding of contract provisions (Danuri, et al., 2006).

Ye and Rahman (2010) identified Cash flow problems due to clients poor financial management, ineffective utilization of funds, lack of capital to finance projects, failure to source money from banks in time of reduced sales, delay in releasing retention monies to contractors, and delay in the evaluation and certification of interim and final payments, were found to be the top five factors responsible for late payments.

2.12 SUMMARY

The literature review study suggests that amongst the most appropriate solutions to overcome the problem of late payment faced by local contractors include; a right to regular periodic payment, a right to a defined time frame for payment and a right to a speedy dispute resolution mechanism. Finally, the literature review also delved into Treasury Regulations, the PFMA and recommended structures and benchmarks that have been devised in order to assist Departments quality assure their payment processes.

3 RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

Le Roux (2011) cited Ackhoff 1984 "to understand a system is to be able to explain its properties and behavior, and to reveal why it behaves the way it does". Research methodology may be understood as the science of studying how research is done scientifically, Mahapa, (2013) cited 'Research methodology is a way to systematically solve a research problem'. Further, (Lingayas, 2012) states, 'In Research methodology we study the various steps that are generally adopted by the researcher in studying his research problem using the logic behind them'.

The research methodology adopted for the study is outlined in this chapter and describes the intended purpose of this study. The sample size and sampling procedures are also discussed. The study gives details of the data collection method that was utilized. This section also discusses the reliability and validity of the study. In order to protect participants from any unforeseen negative consequences of the study, ethical steps were taken to ensure that this does not occur in any way.

3.2 RESEARCH QUESTIONS

- What are the various stages involved in the certification and payment process of monthly valuations submitted by contractors contracted by the various Sector Departments to implement new build construction works in the Gauteng Province?
- What is the extent of late payment in new build Infrastructure projects across all Government Sector Departments in the Gauteng Province?
- What factors influence late payment in Government new build Infrastructure Projects in the Gauteng Province?

3.3 AREA OF STUDY

The main purpose of this study is to identify factors that influence late payments encountered by contractors commissioned by the provincial government of Gauteng to construct public infrastructure facilities. This, with an aim to provide useful recommendations and points of departure for further study in this field.

3.3.1 Pilot Study

A pilot study involving 20 participants was conducted early in the study to access the availability and dependability of information from the various Departments as well as to test the appetite and interest for this particular research. 14 participants responded satisfactorily to

the survey. This response from the various departments was positive and encouraged further development of the research proposal. The study also served to test the research instruments designed for the purposes of collecting and collating information in this research and also to survey the environment from which this information would be extracted. As a result of this study a revised template was developed. Purposeful Sampling was adopted in the selection of interviewees and is arguably one of most common of the interview sampling strategies. Unlike the highly structured survey interviews and questionnaires used in epidemiology and most health services research, it adopts a less structured approach in which the person interviewed is more a participant in meaning making than a conduit from which information is retrieved.

It was vital that the sample of interviewees were fairly homogenous and shared critical similarities related to their understanding about the research questions. The interviews were scheduled in advance for a designated time and location outside of the interviewees daily schedule. A few of the questions were organized around a set of predetermined likert scale questions whilst others were open-ended questions, with other questions emerging from the dialogue between interviewer and interviewee/s.

All interviews were conducted once on an individual basis and took between 30 minutes to an hour to complete.

3.4 SITE OR POPULATION SELECTION

It is impractical, in a survey, to interview all possible respondents. However, conclusions based on a subset of the whole collective may serve to be objectively accurate. In this type of research it is common practice to work with samples rather than populations, particularly when the population of the documentation is great. A selection of elements from a population (members or units) used to make statements about the whole population and is called a sample.

A Random selection of projects from the Estimate of Capital Expenditure database was undertaken across all sector Departments. Due to the sensitive nature of this report all participating Sector Departments, Officials and Contractors were referred to by acronyms/letters of the alphabet in order to conceal their identity. The attached table (ANNEXURE A) shows the number of new public infrastructure projects that were under

construction in the period under assessment (2013-2015). From these a random selection of projects were chosen across Sector Departments. The reason the period 2013 to 2015 was chosen, is that, this marked the beginning of a radical drive to replace aging infrastructure in the province.

Identifying participant suitability was a critical part of this research. To ensure credibility, key participants in the study were officials of the participating Departments. These are role players that are directly involved in the programme/project management of the various sector Department portfolios. Purposive sampling was used: Marshall (1996) declares that in purposive sampling the researcher is looking for a sample with a purpose in mind, for instance they are looking for a specific predefined group and they need to home in on the targeted sample quickly.

The type of purposive sampling used is expert sampling: The researcher needs to glean knowledge from these individuals that are involved in the payment of the selected projects. The targeted samples of the study were officials in the Capital Works Department of the various participating Sector Departments in the province of Gauteng. The desired sample is 6 participants per sector department which should comprise project/programme managers and administration staff from the sector Department.

The project population was made up of a total of 189 projects implemented in the 2013/14, 2014/15 and 2015/16 financial years. Approximately half of this population was sampled. Further, approximately half of the invoices submitted for payment per project from this sample population were studied. The total number of projects sampled was 88 and the total number of invoices was 704. All 704 invoices that were submitted were thoroughly gleaned for information.

The Department of Human Settlements offered the highest number of sampled projects at 30 projects sampled out of a total project population of 63. The Department of Infrastructure Development offered the lowest number of sampled projects at 3 sampled projects out of a total project population of 7.

3.5 SELECTION CRITERIA

All projects selected were implemented within the 2013/14, 2014/15 and 2015/16 financial years. Approximately fifty percent random selection of projects implemented in the above time frame and of these, approximately fifty percent random selection of invoices submitted for payment. The information so collected was dependent on the accuracy of quality of record keeping at the different departments. This has been cited as a limiting factor of the study.

3.6 TARGET RESPONDENTS

A target questionnaire was given to the key officials of the sector departments and their implementing agents. The criterion for the selection of respondents was established and all officials that had participated in the construction of the various facilities were invited to participate. Of the 20 questionnaires issued, 14 were returned completed which represented a response rate of 70%.

A low response rate would have been attributed to the limited response period given to respondents, or alternatively, merely because prospective respondents were just not interested in providing feedback. However, in this study this was not the case.

Payment information was sourced from implementing agents and the Gauteng Provincial Treasury. Information on contractually agreed payment times and actual payment times were tabulated and compared for variation. Pre-identified factors cited by respondents as responsible for payment delays were then studied in order to determine the prevalence of the particular factor and therefore its influence as a factor responsible for late the payment of contractors.

3.7 RESEARCH DESIGN AND MEASUREMENT OF VARIABLES

The research strategy is how the researcher intends to carry out the work (Saunders et al., 2007). The strategy can include a number of different approaches, such as experimental research, action research, case study research, interviews, surveys or a systematic literature review.

Qualitative and quantitative researches are the two main approaches to research. The table below explains salient characteristics of the two approaches;

QUALITATIVE VERSUS QUANTITATIVE RESEARCH

Table 2: Qualitative versus Quantitative Research

CRITERIA	QUALITATIVE RESEARCH	QUANTITATIVE RESEARCH
Purpose	To understand and interpret interactions	To test hypothesis , look at cause and effect and make predictions
Group studied	Smaller and not randomly selected	Larger and randomly selected
Variables	Study of the whole not variables	Specific variables studied
Types of Data collected	Word, images, or objects	Numbers and statistics
Form of Data collected	Open-ended responses, interview, participant observations, field notes and reflections	Precise measurements using structured and validated data collection instruments.
Type of Data Analysis	Identity patterns, features, themes	Identify statistical relationships
Objectivity and Subjectivity	Subjectivity is expected	Objectivity is critical
Role of Researcher	Researcher & their biases may be known to the researcher	Researcher and their biases are not known to participants in the study.
Results	Particular or specialized findings that is less generalizable	Generalizable findings that can be applied to other populations.
Scientific Method	Exploratory or bottom up; the researcher generates a new hypothesis and theory from data collected.	Confirmatory or top-down; the researcher tests the hypothesis and theory with data
View of Human Behaviour	Dynamic , Situational, Social and Personal	Regular and Predictable
Most Common Research Objectives	Explore, Discover and Construct	Describe, Explain and Predict
Focus	Wide angle lens, examines the breadth and depth of phenomena	Narrow-angle lens, tests a specific hypothesis

Nature of Observation	Study behaviour in a natural environment	Study behaviour under controlled conditions, isolate causal effects
Nature of Reality	Multiple realities , subjective	Single reality, objective
Final Report	Narrative report and contextual description and direct quotations from research participants	Statistical report with correlations, comparisons of means and statistical significance of findings

Source (Johnston et al, 2006)

Qualitative and quantitative methods of research represent different ends of a continuum and should not be viewed as rigid, distinct categories, polar opposites, or dichotomies states Creswell (2012). Both Quantitative and Qualitative methods were utilized in the research design of this work.

3.7.1 THE RESEARCH ONION

Saunders et al, (2007) developed the research onion. When developing a research strategy, the onion helps to identify and illustrate the stages that must be covered. Each layer of the onion describes a more detailed stage of the research process when viewed from the outside Saunders et al., (2007). In the design of a research methodology, the research onion provides a systematic effective and progressive method of approach to an otherwise complex environment. Bryman, (2012) states that it can be used in a variety of contexts and is especially valuable in its adaptability for almost any type of research methodology. The research onion illustrates the steps by which a methodological study can be described and creates a series of stages under which different methods of data collection can be more clearly understood.

3.7.2 QUALITATIVE RESEARCH

The qualitative approach is drawn from the constructivist paradigm (Bryman and Allen, 2011). In this approach the researcher avoids imposing their own perception of the meaning of social phenomena upon the respondent (Banister et al., 2011). (Bryman and Allen, 2011) mention that the main thrust here is to investigate how the respondent interprets their own

reality. This presents the challenge of creating a methodology that is framed by the respondent rather than by the researcher. Through structured interviews or texts this can be effectively done by permitting the response to a question to be open (Feilzer, 2010).

In addition, and in order to ensure that the respondent further expands upon the information provided, the researcher can develop the questioning throughout the process. Rather than seeking a causative relationship between established variables. Qualitative research is usually used to investigate the meaning of social phenomena, (Felizer, 2010).

3.7.3 QUANTITATIVE RESEARCH

Quantitative research design can come in three different forms;

- Experimental Research
- Quasi-Experimental Research
- Non-Experimental Research

Experimental research differs from Quasi –Experimental research in that subjects cannot be arbitrarily assigned to different groups. In terms of nuisance variables as well as independent variables these groups may therefore be at variance with one another. True experimental research usually allows us to make conclusions about causal relationships with more conviction than Quasi- experimental research. Quasi- experimental research however does allow us to draw conclusions about such relationships with more sureness than in pre-experimental research. The **Non-experimental Research** form of quantitative research was further selected as the most appropriate method of research to satisfy the nature of the questions being asked and match the needs of the research question.

In non-experimental research neither random nor planned intervention occurs. In dependent variables only one or more variables apart from the independent variable in question can be the actual source of observed variation in this kind of research. It is therefore commonly acknowledged that conclusions about causal relationships may be made with greater sureness by means of true experimental research than non-experimental research. Subjects cannot be equated in terms of all other variables as random assignment of subjects does not occur. E.g. almost all our modern knowledge about astronomy has been obtained by non-experimental means because we cannot manipulate the stars.

Since there is a great degree of regularity and orderliness in the phenomenon being studied highly satisfactory results were obtained by means of non-experimental research. It was important to be familiar with the nature of the variables in the field research and available statistical methods in order to disentangle the relationships among them.

Two main types of quantitative research are **laboratory** and **field studies**. Experimental and non-experimental research can be conducted in either of these settings. As a result, there are 4(four) basic types of research design. Laboratory experiments, Field experiments, Laboratory surveys and Field studies (or Field surveys).

Although we may collect data for non-experimental research in laboratory surveys, it is typically done in natural environments or **Field surveys**. Because there is no planned intervention and the data is collected in a field situation, this design is supposed to show the greatest similarity to any given real life situation hence its suitability for this study.

Survey Design (relationship between variables)

It is unsatisfactory to describe one type of research as being opposite to another; however, there does not appear to be a satisfactory umbrella term for non- experimental hypothesis testing research. The most satisfactory method for this purpose appears to be survey research, although this term seems to be associated mainly with opinion surveys. However, non-experimental hypothesis testing research covers a wider spectrum than opinion polls and includes such surveys as ; recording the repair activities and interaction between computer service stations and computer users; counting and searching a library collection; counting traffic at a road intersection or crossing etc.

Survey research is for that reason also known as non-experimental hypothesis testing research. There is no planned intervention in this kind of research and no random assignment of research participants to groups consisting of different levels of independent variables. The relationships that occur between two or more variables without planned interference are carefully studied. This is the form of research that was most suited for the analysis of the subject matter of this research.

Other forms of non-experimental research are;

Non-Experimental research design which involve measurements at a single time

There are three non-experimental research designs which involve measurements at a single time, namely the correlational design, the criterion design, and the cross sectional design.

Longitudinal Design

A longitudinal design may be used instead of a cross sectional design. This design involves examining the same group at different time intervals. A longitudinal design is relevant when we want to investigate changes due to the passage of time.

Prediction Studies

In a prediction study we measure the units of analysis in respect of one or more variables at one point in time. These units are usually called predictor variables.

3.8 DATA COLLECTION METHODS

This research is conducted using part qualitative and part quantitative approach. The Qualitative approach is deployed because the study is partly descriptive in nature. The great contribution of qualitative research is the culturally specific and contextually rich data it produces (Mack et al, 2011). One advantage of qualitative methods in exploratory research is that the use of open ended questions and probing gives participants the opportunity to respond in their own words rather than forcing them to choose from fixed responses as quantitative methods do, the author further states. Another advantage of qualitative methods is that they allow the researcher the flexibility to examine initial participant responses (Mack et al, 2011).

In qualitative research only a sample of a population is selected for any given study. The study's research objectives and characteristics of the study population (such as size and diversity) determine which and how many projects to select (Mack et al, 2011) also, data is observed not measured. The sourcing of information will answer the research questions in order to achieve the research objectives. The study is intended to ascertain and create an understanding of the factors that influence the phenomenon of late payment for public infrastructure projects in the Gauteng Province, this with a view to providing recommendations as to how to alleviate the problem.

The principle method used for the survey was the use of a questionnaire survey. In addition, a literature survey was conducted and interview sessions were held for the purpose of data collection. The questionnaire was designed according to the objectives of the research by

reviewing literature dealing with late payments and other relevant topics. To encourage a high rate of response from potential respondents. The questionnaire survey was designed to be brief, concise and straight forward. Views and opinions were contributed by respondents selecting the appropriate response or giving short answers to the questions they were asked. The sources of literature review comprised seminar proceedings, dissertations, books, magazines, journals and relevant case law as well as materials published by the Gauteng Provincial Government, Construction Industry Development Board (CIDB) and the Gauteng Department of Infrastructure Development (GDID).

The review of literature provided useful information on the reasons, effects, responses and possible explanations to the issues of late payment in Gauteng Province Government Infrastructure Projects, Capital Works portfolio for the 2013/14 and 2014/15 financial years.

3.9 RESEARCH METHODS WITH RESPECT TO THE SPECIFIC OBJECTIVES OF THE STUDY

3.9.1 Specific Objective 1: Stages involved in the payment process

With regard to the consequences of late payments practices, contractors and subcontractors are continuously at the receiving end. In the UK construction industry for example, this group of project participants have continuously expressed their dissatisfaction towards the time lag between the receipt of their invoices to their final settlement (Odeyinka and Kaka, 2005). Cash flow problems due to delay in the evaluation and certification of interim and final payments, according to Ye and Rahman (2010), was found to be amongst the top five factors responsible for late payment.

The identification of the various stages involved in the mapping of the payment process was a qualitative process. Research instruments were developed that not only served to record and systemize collected data, but also as an interview response collection tool. The RI-Table–C was composed through an open ended interview process and careful compilation of the various steps required to complete a payment. These steps were carefully grouped in order of the uniqueness of their various activities compared and carefully checked to ensure accuracy and consistency. The researcher optimally wished to interview one Project/Programme manager and one Senior State Accountant per sector Department. This however, was not

always possible but information from Treasury to a great extent assisted as a valuable source of information.

3.9.2 Specific Objective 2: Extent of late payment

The process selected for this part of the research methods was quantitative**.** The research was conducted as a Nonscientific, Field survey. The duration of time required for each step recommended by the respondents was noted per invoice. The time actually expended per payment step and the total number of days was also noted per invoice. Finally, the total number of days under or over the PFMA 30 day recommended payment period was recorded. The resulting information was sorted in two groups of invoices, Late and Not late and assessed as per frequency per Factor and per Sector Department.

3.9.3 Specific Objective 3: Causes of late payment

The research method adopted here was again qualitative. Respondents were asked to select answers from a predefined list of factors responsible for late payment. This list was compiled through the systematic review of existing literature within the field of study. Respondents were encouraged to enter the factor/s they believed were responsible for the late payment of a particular invoice if they were unable find this factor on the list. This offer was never utilized by any of the respondents. The frequency per cited factor responsible for late payment was then determined.

3.10 QUESTIONNAIRE STRUCTURE

In order to gather related information to gain a full understanding and knowledge of the variables and related issues regarding payments and financial-related problems in government and the construction industry. The research adopted 4 principal sources, namely interviews, preliminary questionnaire survey, in-depth structured questionnaire survey and literature review. An exploratory pilot study was carried out with construction professionals and government professionals to obtain preliminary information regarding the causes of payment problems in the construction industry and to help identify the key underlying factors that generate these problems. The information gathered from the literature review and pilot study was then used to design the actual research instruments.

The study collected data by interviewing participants through the use of semi structured questionnaires. A questionnaire can be described as a method of collecting primary data where lists of restructured questions are given to a chosen sample to elicit reliable responses Collis and Hussey (2003).

Questionnaire Guide

The questionnaires in the pilot study comprised of 13 questions in which the participants are required to answer in an open minded manner. A limited number of open ended questions were used in order to yield as much information as possible. The total number of questionnaires distributed per participating sector Department was between 6 and 10.

Interview details

Interviews are the predominant mode of data collection in information in qualitative research. Luyenge (2011) quotes Siedman (1998) that one interviews because one is interested in other peoples stories. Semi –structured interviews were used as 'this method is effective for consulting and discussing with key informants, to reveal insights regarding the context, the policy and the impacts Pasteur (2001). Meetings are to be held with the senior staff responsible for the selected projects, followed by meetings with administrative staff. The interviewer documented observations about the interview content, the participants and context through the use of strategic notes.

The pilot study involved the distribution of questionnaires, follow up meetings and interviews. The objective was to glean information regarding the perceived causes of late payments across different selected projects in the various sector departments.

The questions in the pilot questionnaire were set to three types of answering methods; these were; rating based selective based and open-based formats.

For the rating-based format the statements were devised to measure the respondent's opinions by registering them on a five point scale ranging from "strongly agree to strongly disagree". The selective based questions only required respondents to tick the appropriate box or boxes in the questionnaire. The open ended questions allowed respondents to record down their answers to the questions.

3.11 RELIABILITY AND VALIDITY

The consistency and dependability of the information gathered in the context of this study is its reliability. Validity refers to whether the findings of the study are true and certain. If it is able to appreciate and comprehend all the functions being carried out a test may be deemed to

be valid. Key people who were closely involved with the individual projects provided the information for the greater part of this research. Project Data was gathered from the CIDB website as well as literature, journals, articles and case studies, hereby adding to the reliability of the study. The posed research questions were answered by comparing information from sources which enabled the researcher to harness the most useful information.

3.12 ASSUMPTIONS AND LIMITATIONS

Assumptions

- The study only focuses on government capital infrastructure projects within the province of Gauteng, South Africa. The findings may not be necessarily applicable in other areas since salient influencing factors may differ from one area to another;
- A fair amount of literature can be found on the factors that influence late payment and its effect on contractor cash flow; and
- The quality of data and record keeping of the participating public institutions is of good quality.

Limitations

- The success of the research is limited by the type and accessibility of relevant information from the study;
- The study is limited by time constraints and bureaucratic processes necessary to access the data and the respondents. To obtain information from the officials in a timely manner involved appointments. Given the busy schedules of many of these officials, meetings were dependent on availability. It was not always possible to reach key interview candidates and the information obtained was the perspective from officials of the Sector Departments; and
- Finally, the study is limited by the sensitivity of the information offered and the reluctance of some officials to expose flaws within the system. E.g. Corrupt practices.

3.13 ETHICAL CONSIDERATIONS

Participants were informed about their rights before engaging on the research. The following points were highlighted on the questionnaire:

3.13.1 Confidentiality

To make sure that confidentiality of participants surrounding their identity is maintained, their names were not be asked for. Demographics such as job title, age, gender, length of service, and qualifications were required. The questionnaire was clear about the level of confidentiality that it can and cannot guarantee.

3.13.2 Informed consent

Apart from obtaining informed consent, participants were allowed time for questions they might have. The answers should provide sufficient information without compromising the study. The following points will be highlighted on the questionnaire:

- The purpose of the study;
- Expected duration;
- Procedures of the study;
- Information on their right to decline or withdraw;
- Foreseeable consequences of withdrawing or declining;
- Potential risk, discomfort or adverse effects; and
- Prospective research benefits.

3.14 DATA ANALYSIS

Ader (2008) defines analysis of data as a process of inspecting, cleaning, transforming and modeling data with the goal of discovering useful information, suggesting conclusions and supporting decision making. Information gathered from questionnaires responses and interview notes were used to help identify the various stages involved in the certification and payment process and assist in effective evaluation of the extent of late payment, in order to obtain a clear understanding of the causes of late payment in government new build infrastructure projects in the province of Gauteng.

Qualitative (Pilot)

The questions in the questionnaire were set to three types of answering methods; these are; rating based, selective based and open-based formats. Findings of the survey were analyzed

to provide a better understanding of the factors that influence late payment in the various Sector Departments' Infrastructure project portfolios.

3.15 SUMMARY

Chapter 3 gives a detail of the research methodology. The chapter discusses the procedure used in the study. Sampling methods were selected in such a way that they enhanced the legitimacy of the study. The research data will be presented in and analyzed in Chapter 4.

4 DATA COLLECTION AND PRESENTATION/ ANALYSIS OF RESULTS

4.1 INTRODUCTION

Infrastructure delivery in Gauteng Provincial Government remains one of the key mechanisms to enhance socio-economic growth and development. The agreed upon outcomes of Government are dependent on an effective and efficient infrastructure delivery platform. The Gauteng Provincial government allocated a total of R 25 billion over the 2013 Medium Term Framework (MTEF) period to infrastructure projects across the key delivery departments. The focus on infrastructure delivery within this period included the construction of fixed assets such as hospitals, roads, intermodal facilities, new schools as well as maintenance projects, upgrading, refurbishments and additions. In addition, funds were allocated for movable assets as they are required for specific sectorial departments for buildings to be fully functional during and at the completion of the construction process.

Table 3: Summary of Gauteng Provincial Government Infrastructure Programme by Vote

Vote	Department	2013/14	2014/15	2015/16
R	**Thousands**	**Medium Term Estimates**		
4	Health	1 542 000	1 816 734	1 874 841
5	Education	1 261 194	1 708 996	2 022 034
6	Social Development	44 469	168 341	176 589
7	Human Settlements	4 120 399	2 153 233	2 140 474
8	Roads and Transport	1 425 339	1 933 094	2 072 261
11	Agriculture and Rural Development	7406	17000	16 776
15	Infrastructure Development	88 083	180 450	189 473
Total Infrastructure Budget		**8 488 890**	**7 977 838**	**8 492 448**

The Department of housing was allocated R8.4 billion over this period, closely followed by the department of Roads and Transport with R5.4 billion. Also of significance was the R5.2 billion allocation to the department of Health and R4.9 billion to the department of Education to expedite the rolling out of school infrastructure. An allocation of R458 million allocated to the department of Infrastructure Development was also instrumental in job creation through the Expanded Public Works Programme (EPWP).

Table 4: Summary of Gauteng Provincial Government Infrastructure by Category

R Thousand	2013/14	2014/15	2015/16
	Medium Term Estimates		
New Infrastructure	5 206 458	3 818 577	4 182 373
Existing Infrastructure	3 282 432	4 159 261	4 310 075
Upgrading and Additions	986 220	959 013	1 142 946
Rehabilitation and Refurbishment	929 555	1 502 748	1 212 663
Maintenance	1 325 849	1 397 927	1 834 889
Planning and Management Support	40 809	299 573	119 577
Total	**8 488 890**	**7 977 838**	**8 492 448**

Breaking down the infrastructure funding by category, a total of R13.2 billion of the envisaged infrastructure spending over the MTEF was earmarked for new projects whilst R3.1 billion went towards upgrading and additions. Rehabilitation and refurbishment of existing infrastructure was enhanced by a R3.6 billion allocation. The Gauteng Provincial Government also consciously prioritized the maintenance and repair of its ageing existing portfolio through the allocation of R4.6 billion of the budget over the MTEF period. A total of R 459.959 million was allocated for planning and management support.

4.1.1 Description / Characteristic of the Population for 2013/14, 2014/15 & 2015/2016 Financial Years. (RI-Table A). See Annexure A (RI-Table A)

This research instrument gives an overview over the total number of projects considered per sector department, distribution of funding over the MTEF period, cost volume, cost range, as well as the average cost of projects per sector department. This is designed to give the reader a sense of the size of the sample within the overall population.

4.2 BACKGROUND OF SOUTH AFRICAN NATIONAL INFRASTRUCTURE PLAN

In 2012, The South African Government adopted a National infrastructure plan**.** Over the next three years starting from 2013/14 financial year, the Government invested R 827 billion in building new and upgrading existing infrastructure. These investments were implemented to contribute to faster economic growth in addition to improving access by South Africans to health care services, schools, water, sanitation, housing and electricity. Investment in the construction of ports, roads, railway systems, electricity plants, hospitals, schools and dams was also very high on the government's developmental agenda, (Government of South Africa Treasury Publication, www.gov.za, 2015).

4.2.1 Challenges

There are still major challenges of poverty, unemployment and inequality 18 years into the countries democracy. A goal of five million new jobs has been set to be realized by 2020.The New Growth Path identifies organizational problems in the economy and points to prospects in specific sectors and markets or "jobs drivers". The first jobs driver is infrastructure: laying the basis for higher growth, inclusivity and job creation.

4.2.2 Response

The Cabinet established the Presidential Infrastructure Coordinating Committee (PICC) in order to address these challenges and goals. Among the many important tasks to be implemented are the coordination, integration and acceleration of implementation. Development of a single common National Infrastructure Plan that will be monitored and centrally driven and identification of accountable officials in addition to who is responsible to hold them to account. The development of a 20-year planning framework beyond the one administration to avoid a stop-start pattern to the infrastructure roll-out was critical to this undertaking. Under the direction of the PICC, 18 strategic integrated projects (SIPS) have been developed.

4.2.3 Achievements

More than R1 trillion has been invested by Government and public infrastructures agencies between 2009 and 2014. The investments are in energy, road, rail, ports, public transport, bulk water and sanitation, hospitals, basic and higher education infrastructure and ground-breaking projects such as the Square Kilometer Array and Meerkat telescopes. By January 2013, work had commenced on all 18 SIPs and by the end of March 2013, government had spent approximately R860 billion rand on infrastructure development since 2009.

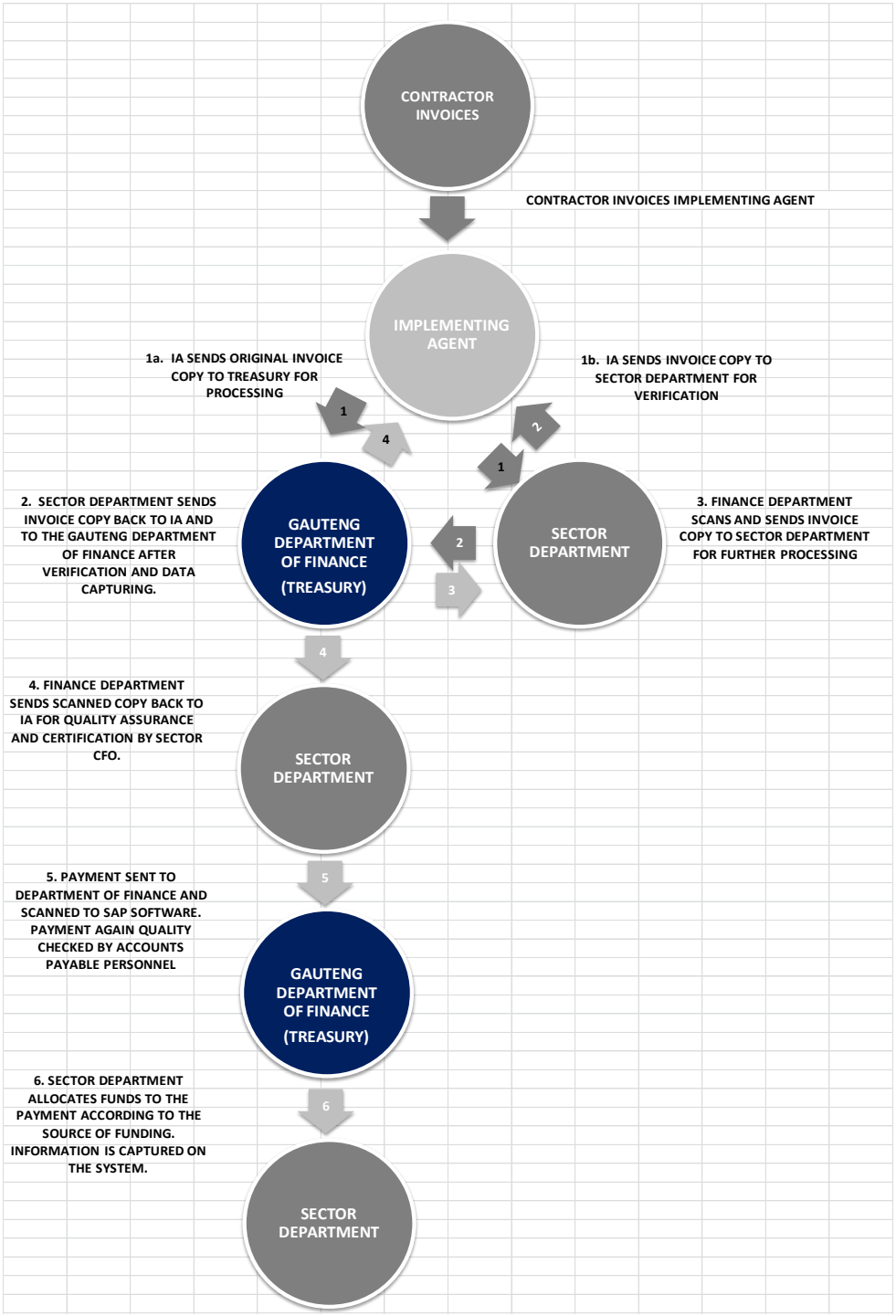
4.2.4 The 18 Strategic Integrated Projects (SIPs)

The SIPs include catalytic projects that can fast-track development and growth and cover social and economic infrastructure across all nine provinces with an emphasis on lagging regions. Crucial cross-cutting areas, namely human settlement planning and skills development have aligned their works with SIPs. The SIPs comprise: Five geographically-focused SIPs, three energy SIPs, three spatial SIPs, three social infrastructure SIPs, two knowledge SIPs, one regional integration SIP and one water and sanitation SIP.

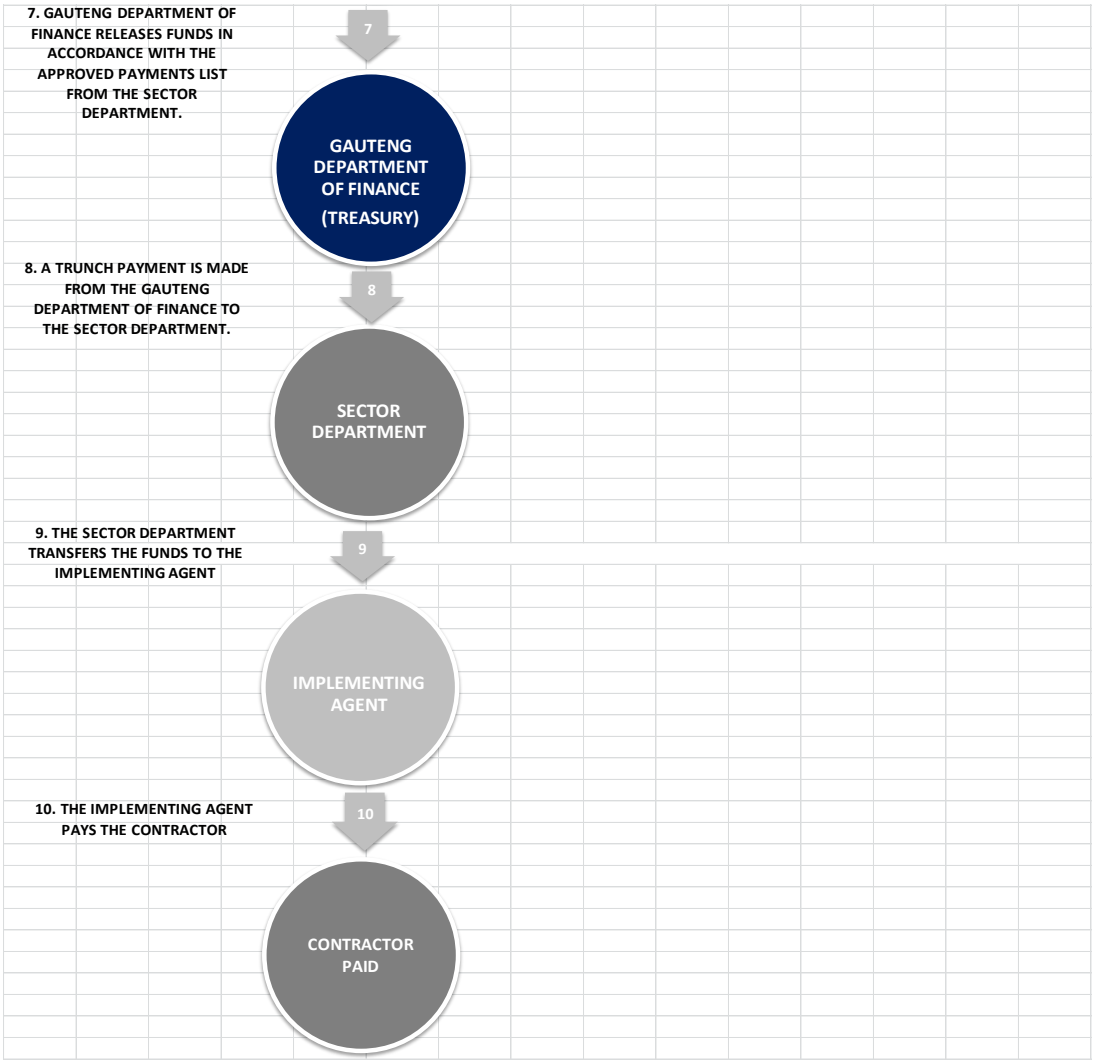
Geographic SIPs - SIP 1: Unlocking the northern mineral belt with Waterberg as the catalyst, SIP 2: Durban-Free State-Gauteng logistics and industrial corridor, SIP 3: South-Eastern node & corridor development, SIP 4: Unlocking the economic opportunities in North West, SIP 5: Saldanha-Northern Cape development corridor, **Energy SIPS** - SIP 8: Green energy in support of the South African economy, SIP 9: Electricity generation to support socio-economic development, SIP 10: Electricity transmission and distribution for all, **Spatial SIPS** - SIP 6: Integrated municipal infrastructure project, SIP 7: Integrated urban space and public transport programme, SIP 11: Agri-logistics and rural infrastructure, **Social infrastructure SIPS**- SIP 12: Revitalization of public hospitals and other health facilities, SIP 13: National school build programme, SIP 14: Higher education infrastructure, **Knowledge SIPs** - SIP 15: Expanding access to communication technology, SIP 16: SKA & Meerkat *(SKA is a global mega-science project, building an advanced radio-telescope facility linked to research infrastructure and high-speed ICT capacity and provides an opportunity for Africa and South Africa to contribute towards global advanced science projects)*, **Regional SIPs** - SIP 17: Regional integration for African cooperation and development, **Water and sanitation SIPs** -SIP 18: Water and sanitation infrastructure.

4.3 DESCRIPTION OF FIELDWORK SETTING (THE DEPARTMENTAL PAYMENT REGIME)

Figure 1.3: Finance/IA/Sector Department- Payment Cycle



October 20, 2017



- Invoice is received by the IA Head Office Finance team. Invoice is date stamped recorded and dispatched to IA Project Management Office;
- Invoice is sent to the IA Project Management team. Invoice is date stamped and recorded;
- Invoice is checked and certified by the responsible IA Project Manager;
- Payment Advice is prepared by IA Project Management office Finance team. This consists of 2 components. 1- Actual Invoice 2- Payment Certificate;
- IA- PM/D/CD/DDG (as per assigned mandate per individual project) signs payment advice and submits to Finance team at Head Office;
- Payment Advice is scanned/ recorded and sent back to Sector Department, Head Office Finance Team;

- A compiled payment is the composed. A Compiled Payment consists of 4 documents 1- Invoice, 2- Payment Certificate, 3-Payment book (Cheque book) and 4- Allocation Attachment. Payment is recorded in a payments ledger;
- Payment is forwarded to Sector Department Finance Team for Quality Assurance;
- The Payment sent to CFO. He/She checks accuracy of payment and certifies;
- The Payment is thereafter sent to Gauteng Department of Finance and scanned to SAP (System, Applications and Products) software. Payment is again quallity checked by accounts payable officials. The payment is then routed back to the Sector Department officials;
- Payment is allocated funds and routed back to Sector Department Finance Team;
- The Sector Department Finance Team allocates the Payment according to source of funding. Information is captured on the system;
- Payment is then taken back to treasury in the form of a list showing the assignment of payments to the various funding sources;
- Gauteng Department of Finance releases funds in accordance with the approved payment list from the Sector Department. The list stipulates the name of the project/ source of funding/amount, amongst others of each Payment;
- A trunch payment is made from the Gauteng Department of Finance to the Sector Department;
- The Sector Department transfers the required amount to the Implementing Agent (IA) supported by a payment claim; and
- The Implementing Agent (IA) pays the Contractor.

Departmental payment policy with regard to infrastructure projects falls within the domain of Sector Department Finance and differs somewhat from that of GDID Finance. To this end, all payments to contractors appointed by GDID are dealt with as prescribed in the relevant clauses contained in the applicable conditions of contract (NEC, JBCC as the case may be). Payment clauses typically address the contractors right to periodic payment, the bases of payment e.g. a payment certificate issued by an agent/representative, timeframes for payment etc. which cannot be overruled by internal or external Departmental policy without formal amendment of the conditions of contract. Obligations of contractors and project managers as well as procedures to be followed with regard to practical completion/works completion/first

delivery/ retention /defects liability period and final completion are likewise a contractual matter and prescribed in the conditions of contract.

4.4 PROFILE OF PARTICIPANTS

In the pilot survey participants were required to indicate their gender, age, role and the number of years they had been working for their respective Departments. Table 2 provides a summary of the demographic profile of the participants. It shows that nearly equal percentages (25%) of the participants are project managers and programme managers while 11% and 10% are quantity surveyor and supply chain management officials respectively. Senior management constitute 14% while 8% are categorized as state accountants and another 10 % as 'others' which include project coordinators, finance managers, engineers technicians as specified.

Table 5: Demographic profile of participants

Demographic profile of participants	Number	Percentage (%)
Demographic Information		
Types of profession		
Chief Director	1	7.25
Director	1	7.25
Deputy Director	1	7.25
Project Manager	1	7.25
Programme Manager	7	50
Supply chain Management Official	0	0
Quantity Surveyor	0	0
State Accountant	3	21
Contractor	0	0
Other (Specify……)	0	0
Total	14	100
No of projects undertaken as per 15 November 2016		
0 - 10	0	0
21 - 30	1	7
31 – 40	3	22
41 - 50	2	14
Over 50	8	57
Total	14	100

Number of years of experience		
0 – 5	1	7
5 – 10	6	43
10+	7	50
Total	14	100

As per number of projects undertaken, 50% of the participants have undertaken more than 50 projects since they took up office. The majority (50%) of the participants have practice experience of more than 10+ years in the industry. This profile gives an indication of the reliability of the study findings.

4.5 PROFILE OF PROJECTS

Please see Annexure B- RI-Table B

4.6 METHODOLOGY

Both the pilot and actual study adopted a causal-comparative design approach, which also permitted the application of a quantitative approach in data collection, processing, and analysis. Causal-comparative designs employ natural selection principle, rather than manipulation of dependent variables to reveal relationships with independent variables (Oso & Onen, 2005).

Self-administered questionnaires were issued to the management staff of the sector Departments to source information on causes of contractual delays and the effects of delayed payment on contractors commissioned by the various Departments to implement various infrastructure works. Primary data was supplemented with secondary data sourced from project archives.

The study targeted senior Department infrastructure portfolio management staff, implementing agents, the different appointed contractors and Gauteng Provincial Treasury staff. Because contractual issues form part of their responsibility, senior management staff members were also targeted. A sampling frame of all senior management staff was prepared using a process that identified eligible participants. These were all included in the sample to avoid the risk of sampling error (Table 6).

4.6.1 Sampling Frame

Table 6: Sampling Frame

Contracting partner type	Frequency	Per cent
Sector Department	14	70
Implementing agent	2	10
Finance Department	4	20
Total	**20**	**100.0**

Considering their busy itineraries, self-administered questionnaires were used to source information .This was because it provided the flexibility that the approached participants would require in order for them to provide the requisite data at their convenience. One module of the instrument was applied across the board in both the pilot and main study to permit comparison of perspectives from different contracting parties. The pilot instrument, had both closed- and open-ended questions, captured information on payment delay sources and perceived causes and effects. The main study questionnaire was administered in the form of a matrix which was completed by the participant with a limited measure of assistance from the researcher.

The Questionnaires were delivered to targeted participants and follow-ups were made through e-mails and telephone calls. Of the 20 targeted participants, 14 (70%) successfully completed and returned the questionnaires. Table 8 shows the questionnaire return rate for each category of participants.

Primary data were listed, coded, digitalized, and cleaned for logical inconsistencies and misplaced codes. Thereafter, a random selection of projects were chosen across Sector Departments.

4.6.2 Questionnaire Return Rate

Table 7: Questionnaire Return Rate

Contracting partner type	**No. Targeted**	**No. of Participants**	**Per cent**
Sector Department	14	9	64
Implementing Agent	2	2	100
Finance Department	4	3	75
Overall return rate			**70**

4.7 PARTICIPANTS' PROFESSIONAL AND WORK EXPERIENCE

The study covered 14 senior management staff of the contractual parties, including 9 (65.0%) from Sector Departments, 2 (14%) from Implementing agents, 3 (21 %) from the Finance Department.

In successful management and administration of construction projects, the duration of professional and work experience is an important factor. Participants, in view of this, were requested to indicate the duration of experience in managing construction projects and more specifically, the duration of experience in managing the current portfolio of the sector Department under examination. The results are summarized in Table 8;

Table 8: Professional and work experience

Contracting partner type	Frequency	Average experience (years)		Average Experience
		Construction projects	Sector Department projects	
Sector Department	9	5.0	4.9	4.9
Implementing agent	2	4.6	4.8	4.7
Finance Department	3	5.1	5.5	5.3
Total	**14**			

The results show that the Sector Department staff reported an average professional experience of 5.0 years in the management of construction projects and 4.9 years in the management of sector Department projects. Implementing agent staff reported an average experience of 4.6 and 4.8 years respectively; while Financing Department staff indicated the least, experience of 5.1 years in the management of construction projects and an average of 5.5 years in the management of sector Departments projects. The average experience was 4.9 years in the management of construction projects and 5.1 years in management of Sector Department projects. The Financing Departments staff were the most experienced with an average of 5.3 years compared to the implementing agents 4.7 and the sector Departments 4.9. The least management experience was noted among the Implementing agent's staff, which was noted at 4.7.

Projects managed by highly experienced personnel have a relatively lower risk of experiencing contractual delays due to late payment, due to the management's ability to proactively assess and mitigate potential risk factors that can cause these problems. In view

of this, the staff of most contractual parties reported a professional experience, which is lower than the threshold expectation on these kinds of project, which might have contributed to the payment delays issues on the portfolio.

4.8 RESULTS

The results of this study were organized, interpreted, and discussed under thematic headings including, factors that influence late payment in government new build infrastructure projects in order of importance, frequency of late payment in government new build infrastructure projects per sector department and frequency of most important factors responsible for late payment in government infrastructure projects per sector department. Details are presented and discussed in the following sub-sections.

4.9 CERTIFICATION OF PAYMENT SUMMARY (REASONS FOR DELAY IN PAYMENT)

See Table 10, Annexure D (RI-Table D)

In the pilot study, respondents were encouraged to add any factors they could not find listed on the questionnaire. This contributed in no small measure to the development of a comprehensive list of factors that influence late payment in government new build projects in the Gauteng province.

In the main survey, participants were requested to provide information on each submitted invoice for sampled projects in their Departments and to further indicate their perspectives on reasons as to whether late payments in government infrastructure projects were largely caused by any one or more of the listed pre-identified factors. The information was entered on the questionnaire provided, Annexure C (RI-Table C).

The following list of factors that influence late payment in government new build infrastructure projects was then compiled;

- Delayed payment in government infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously;
- Disputes over payment claims and responses;

- Delayed payment in government infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor;
- The Sector Department wrongfully withholding payment is an influencing factor in the late payment of contractors;
- Payment Culture: Chain payment & work first get paid later;
- Sector Departments poor financial management is an influencing factor in the late payment of contractors;
- The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors;
- Delay in Certification by IA is an influencing factor in the late payment of contractors;
- Cost overruns and contract failure;
- Short of current year project /programme budget is a influencing factor in the late payment of contractors;
- Delay in submitting contractors payment claim is an influencing factor in the late payment of contractors;
- Time overrun of Projects;
- Poor communication among parties involved is an influencing factor in the late payment of contractors;
- Conflict among parties involved is an influencing factor in the late payment of contractors;
- Disputes over quality of work;
- Administrative Bureaucracy;
- Poor understanding of the contract is an influencing factor in the late payment of contractors;
- Complications from contractual conditions;
- Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors;
- Procurement methods used;
- Contract types used;

- Standard forms of contracts used (right to payment and non-payment provisions);
- Legislative procedures (Construction Contracts Act);
- Attitude of Payer;
- Structure of the industry: Involvement of many commercial parties;
- Duration of projects (long-run or short-run);
- Disagreement on the valuation of work done is an influencing factor in the late payment of contractors; and
- Political/policy changes.

In the main study, out of the 189 identified new build projects that were constructed in the period under examination, 88 were sampled for scrutiny. Of these 88 projects 8 invoices were selected for scrutiny per sampled project. The results are presented in Annexure D (RI-Table D). Table 4.10 is designed to provide an overview across all Sector Departments over responses from the 14 respondents regarding the 28 identified causal factors in order of frequency, from most to least frequent. Table 4.10 shows that the following factors were cited most frequently as factors that influence late payments in government new build infrastructure projects:

- Disputes over payment claims and responses;
- Disputes over quality of work;
- Administrative Bureaucracy;
- Complications from contractual conditions;
- Poor understanding of the contract; and
- Underpayment of certified amounts by the Department.

4.10 FACTORS THAT INFLUENCE LATE PAYMENT IN GOVERNMENT NEW BUILD INFRASTRUCTURE PROJECTS IN ORDER OF IMPORTANCE.

Table 9: Factors that influence late payment in Government New Build Infrastructure Projects in order of Importance

No.	REASONS FOR DELAY IN PAYMENT	Total number of responses across all Sector Departments	
		Frequency	Percentage (%)
2	Disputes over payment claims and responses	25	9.6
15	Disputes over quality of work.	23	8.9
16	Administrative Bureaucracy	23	8.9
18	Complications from contractual conditions	21	8.0
17	Poor understanding of the contract	18	6.9
19	Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors.	18	6.9
1	Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously.	15	5.8
3	Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor.	13	5.0
9	Cost overruns and contract failure	13	5.0
12	Time overrun of Projects	9	3.5
5	Payment Culture: Chain payment & work first get paid later.	8	3.1
11	Delay in submitting contractors payment claim is an influencing factor in the late payment of contractor	8	3.1
10	Short of current year project / programme budget is an influencing factor in the late payment of contractors.	7	2.7
25	Structure of the industry: Involvement of many commercial parties	7	2.7
7	The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors.	6	2.3
26	Duration of projects (long-run or short-run)	6	2.3
28	Political/policy changes	6	2.3
6	Sector Departments poor financial management is an influencing factor in the late payment of contractors	5	1.9
20	Procurement methods used	5	1.9
21	Contract types used	5	1.9
4	The Sector Department wrongfully withholding payment is an influencing factor in the late payment of contractors.	4	1.5
23	Legislative procedures (Construction Contracts Act)	4	1.5
27	Disagreement on the valuation of work done is an influencing factor in the late payment of contractors.	4	1.5
8	Delay in Certification by IA is a an influencing factor in the late payment of contractors	2	0.8
14	Conflict among parties involved is an influencing factor in the late payment of contractors.	2	0.8
13	Poor communication among parties involved is an influencing factor in the late payment of contractors.	1	0.4
22	Standard forms of contracts used (right to payment and non-payment provisions)	1	0.4
24	Attitude of payers	1	0.4
	TOTAL	**260**	**100**

4.11 FREQUENCY OF LATE PAYMENT IN GOVERNMENT NEW BUILD INFRASTRUCTURE PROJECTS PER SECTOR DEPARTMENT.

Participants were requested to provide detailed information on the time frames required to perform the various activities required for the processing of an invoice from submission through to payment. Research instrument RI- Table C was utilized to collect the data. See annexure C for details. The results are presented in Tables 10 and 11.

Table 10: Frequency of late payment in Government New Build Infrastructure Projects per Sector Department.

No.	SECTOR DEPARTMENT	**Project Sample population**	**Invoice sample population**	***n* > 30 days**	***n* ≤ 30 days**
1	**Education**	10	80	26 (33)	54(67)
2	**Health**	12	96	41(43)	55(57)
3	**Social Development**	13	104	29(28)	75(72)
4	**Human Settlements**	30	240	105(44)	135(56)
5	**Roads and Transport**	15	120	68(57)	52(43)
6	**Agric. and Rural Dev.**	5	40	21(53)	19(47)
7	**Infrastructure Development**	3	24	13(54)	11(46)
	TOTAL	88	**704**	**303 (43)**	**401(57)**

4.12 FREQUENCY OF LATE PAYMENT IN GOVERNMENT INFRASTRUCTURE PROJECTS IN RELATION TO NEW BUILD BUDGET VOLUME PER SECTOR DEPARTMENT.

Table 11: Frequency of late payment in Government Infrastructure Projects in relation to New Build Budget Volume per Sector Department**.**

No.	**SECTOR DEPARTMENT**	**Volume R'000**	**Invoice sample population**	***n* > 30 days**	**% of Total sampled Invoices where *n* > 30 days**
1	**Education**	2 217 588	80	26 (33)	3
2	**Health**	2 180 246	96	41(43)	6
3	**Social Development**	204 639	104	29(28)	4
4	**Human Settlements**	8 180 686	240	105(44)	15
5	**Roads and Transport**	439 056	120	68(57)	10
6	**Agric. and Rural Dev.**	21 161	40	21(53)	3
7	**Infrastructure Development**	26 083	24	13(54)	2
	TOTAL	**13 269 459**	**704**	**303 (43)**	**43**

4.13 FREQUENCY OF MOST IMPORTANT FACTORS RESPONSIBLE FOR LATE PAYMENT IN GOVERNMENT INFRASTRUCTURE PROJECTS PER SECTOR DEPARTMENT.

Table 12: Frequency of most Important Factors responsible for Late Payment in Government Infrastructure Projects per Sector Department

No.	SECTOR DEPARTMENT	Frequency of total no. of factors cited for late payment per Sector Dept. (f)	Frequency of most cited factor (s) per Sector Dept. (x)	Frequency of 2nd most cited factor (s) per Sector Dept. (y)	Frequency of 3rd most cited factor (s) per Sector Dept. (z)	(%) total of 3 most important factors responsible for late payment [(x + y + z)/f].100
1	**Education**	66	6	16	10	48
2	**Health**	48	18	5	8	65
3	**Social Development**	25	9	10	6	100
4	**Human Settlements**	67	24	14	6	66
5	**Roads and Transport**	25	4	9	8	84
6	**Agric. and Rural Dev.**	13	4	4	5	100
7	**Infrastructure Development**	16	6	10	0	100
	TOTAL	**260**				

The results presented in Table 12 show that out of the total of 260 responses that were received for late payment of invoices in the province with cited reasons dealt between 28 pre-identified factors, across all Sector Departments , the highest frequency 25 (9.6%) were due ' Disputes over payment claims and responses' followed closely by 23 (8.9%) 'Disputes over quality of work 'and 'Administrative Bureaucracy'. The third most frequently cited reason was 'Complications from contractual conditions' at 21 (8.0%).

To this end , a look was also taken at the 3 most important factors per Sector Department, responsible for payment delays in Government Infrastructure Projects in Gauteng province and the results summarized as presented below;

4.13.1 Education

In the determination of the most important factors that influence late payment in the Department of Education, the most cited factor was 'Duration of projects (long-run or short-run)' at 6(9%). Second highest 'Poor understanding of the contract', 'Payment Culture: Chain payment & work first get paid later' and 'Disputes over payment claims and responses', and thirdly, 'Underpayment of certified amounts by the Department', 'Administrative

Bureaucracy', and 'Delayed payment in government Infrastructure projects being linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor'. These reasons with the three highest frequencies constitute a total of 32 (48%) of the total number of cited reasons for this Department.

In the matter of underpayment of invoices, across all sector Departments, the statistics support the notion that underpayment of certified amounts by the Department is not the dominant influencing factor in the late payment of contractors. These results may be because sector Department participants form the majority participants and are eager to absolve themselves of any wrong doing. It however must be noted that underpayment of an invoice from a technical perspective would mean that that invoice has not been paid.

4.13.2 Health

In the matter of the Department of Health the most cited factors for the causes of late payment of contract on government new build infrastructure projects were 'Complications from contractual conditions' and 'Administrative Bureaucracy' at 18(38%) second were 'Cost overruns and contract failure' and thirdly 'Poor understanding of the contract' and 'Disputes over quality of work'. The combined total frequency constitute a total of 31 (65%) of the total number of cited reasons for late the payment of contractors providing services for the Department of Health.

4.13.3 Social Development

When asked to cite reasons for late payment of invoices, officials of the Department of Social services stated as primary 'Disputes over quality of work', 'Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor' and 'Disputes over payment claims and responses' which constituted 9 (36%) of the total responses. The reasons with the second highest frequency were

'Disagreement on the valuation of work done', 'Poor communication among parties involved', 'Cost overruns and contract failure', 'The Sector Departments failure to implement good governance in business' and 'Payment Culture: Chain payment & work first get paid later'.

Finally, reasons with the third highest citation were 'The Department wrongfully withholding payment', 'Legislative procedures (Construction Contracts Act)', 'Delay in submitting contractors payment claim', Sector Departments poor financial management is an influencing factor in the late payment of contractors' and 'Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously'. The combined total frequency here constitutes a total of 25 (100%) of the total number of cited reasons for late payment of contractors owed monies by the Department of Social Services.

4.13.4 Human Settlements

Reasons most frequently cited for late payment of contractors providing construction services for new build projects on behalf of this Sector Department are 'Complications from contractual conditions', 'Poor understanding of the contract' and 'Administrative Bureaucracy'. These together constituted 24(36%).

The second most cited reasons are, 'Disputes over quality of work' and 'Disputes over payment claims and responses'.

Thirdly, 'Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously'. Is cited as the final reason for late payment of contractors. The combined total frequency for the first , second and third most important factors that influence late payment of contractors here constitutes a total of 44 (66%) of the total number of cited reasons for late payment of contractors owed by the Department of Human Settlements.

4.13.5 Roads and Transport

In the determination of the most important factors that influence late payment in the Department of Roads and Transport 'Administrative Bureaucracy' and 'Complications from contractual conditions' were the two most influential factors at 4(16%) followed by 'The Sector Department wrongfully withholding payment' and Disputes over payment claims and responses' in second place. The third most influential factors responsible for late payment of new build infrastructure projects at this Department are 'Underpayment of certified amounts by the Department', 'Disputes over quality of work', 'Poor communication among parties involved' and 'Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output

timeously'. The combined total frequency for the most important factors that influence late payment in new build infrastructure projects at this Department is 21 (84%).

4.13.6 Agricultural and Rural Development

'Underpayment of certified amounts by the Department' at 4(31%) was cited as the most prevalent cause of late payment of contractors at this Department. This was followed by 'Disputes over quality of work' and 'Sector Departments poor financial management'. In third place a volley of factors such as 'Political/policy changes', 'Delay in submitting contractors payment claim', 'Short of current year project /programme budget', 'Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously' and 'Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor'. The combined total frequency here for the most important factors that influence late payment in new build infrastructure projects at this Department is 13 (100%).

4.13.7 Infrastructure Development

Finally , 'Underpayment of certified amounts by the Department', 'Poor communication among parties involved' and 'Cost overruns and contract failure' are cited as the most prevalent causes of late payment in new build infrastructure projects in this Department. These factors constitute 6(38%). It must however be noted that due to the number of projects and volume of value of works in this Department, the number of instances are small as compared to the larger Departments in Gauteng. The second most cited reasons for late payment are 'Procurement methods used', 'Contract types used', 'Disputes over quality of work', 'Administrative Bureaucracy', 'Poor understanding of the contract', 'Complications from contractual conditions', 'Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously', 'Disputes over payment claims and responses', 'Delayed payment in government Infrastructure projects being linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor', 'The Sector Department wrongfully withholding payment', 'Payment Culture: Chain payment & work first get paid later', 'Sector Departments poor financial management' and lastly 'The Sector Departments failure to implement good governance in

business'. All the above with very low frequency but cited as relevant reasons for the late payment of contractors.

4.14 DATA COLLECTION AND ANALYSIS WITH RESPECT TO THE SPECIFIC OBJECTIVES OF THE STUDY

4.14.1 Specific Objective 1: Stages involved in the payment process

The information required to formulate Research Instrument RI-Table C (Annexure C) was collected through an open ended interview process of Sector Department personnel. , this enabled the researcher to extract relevant and necessary material dependent on the direction the conversation took. Information on the various stages was carefully gleaned from Senior State Accountants at the various Sector Departments and reviewed for sequence, accuracy and consistency. Senior officials of the Department of Finance were approached and questioned on the information provided in order to determine its accuracy and the extent to which it adhered to PFMA and other regulatory frameworks. The following stages of the payment process were consequently identified;

Following the study the following eighteen stages of the payment process were identified;

1. Invoice is received by the IA Head Office Finance team. Invoice is date stamped recorded and dispatched to IA Project Management Office.
   Responsible entity: IA- Head Office Finance Team
2. Invoice is sent to the IA Project Management team. Invoice is date stamped and recorded.
   Responsible entity: Project Management Office Finance Team
3. Invoice is checked and certified by the responsible IA Project Manager.
   Responsible entity: Project Manager.
4. Payment Advice is prepared by IA Project Management office Finance team. This consists of two components. 1- Actual Invoice 2- Payment Certificate
   Responsible entity: Project Management Office Finance Team.
5. The Implementing Agents- Project Manager /Director /Chief Director/Deputy Director General (as per assigned mandate per individual project) signs payment advice and submits to Finance team at Head Office.

Responsible entity: Project Manager/Director/Chief Director/Deputy Director General

6. Payment Advice is scanned/ recorded and sent back to Sector Department, Head Office Finance Team.

   Responsible entity: Project Management Office Finance Team.

7. A compiled payment is then composed. A Compiled Payment consists of 4 documents 1-Invoice 2- Payment Certificate 3-Payment book (Cheque book) and 4- Allocation Attachment. Payment is recorded in a payments ledger.

   Responsible entity: Assistant Director- Sector Dept. Finance Team.

8. Payment is forwarded to Sector Department Finance Team for Quality Assurance.

   Responsible entity: Deputy Director -Sector Dept. Finance Team

9. Payment sent to CFO. He/She checks accuracy of payment and certifies.

   Responsible entity: Chief Financial Officer -Sector Department

10. Payment is thereafter sent to Gauteng Department of Finance and scanned to SAP (System, Applications and Products) software. Payment is again quality checked by accounts payable officials. The payment is then routed back to the Sector Department officials.

    Responsible entity: Assistant Director, Accounts Payable- Gauteng Dept. of Finance.

11. Payment is allocated funds and routed back to Sector Department Finance Team.

    Responsible entity: Assistant Director, Accounts Payable- Gauteng Dept. of Finance.

12. The Sector Department Finance Team allocates the Payment according to source of funding. Information is captured on the system.

    Responsible entity: Deputy Director -Sector Dept. Finance Team

13. Payment is then taken back to treasury in the form of a list showing the assignment of payments to the various funding sources.

    Responsible entity: Deputy Director -Dept. of Finance.

14. Gauteng Department of Finance releases funds in accordance with the approved payment list from the Sector Department. The list stipulates the name of the project/ source of funding/amount, amongst others of each Payment.

    Responsible entity: Chief Financial Officer (CFO) Dept. of Finance.

15. A trunch payment is made from the Gauteng Department of Finance to the Sector Department.
    Responsible entity: Chief Financial Officer (CFO) Dept. of Finance.
16. The Sector Department transfers the required amount to the Implementing Agent (IA).
    Responsible entity : Chief Financial Officer (CFO) Sector Department.
17. The Implementing Agent (IA) pays the Contractor
18. Payment tracking concluded (Payment received by the Contractor.

4.14.2 Specific Objective 2: Extent of late payment

Seven hundred and four invoices from a total of 88 randomly sampled projects were collected. This constituted approximately 50% of the total number of invoices generated from these projects. The projects were first sorted into two groups, timeous payments that met the 30 day PFMA payment requirement and late payment which constituted those that were paid later than this period. The project name, project unique number, vendor number and Invoice number were carefully recorded on a data collection form for each invoice. The invoice date, the date the invoice was received and the payment date were carefully recorded. In a few instances this information was submitted prerecorded in structured spreadsheets and assisted the process of data collection tremendously. In the case of Sector Departments that chose to provide information in the form of spreadsheets, a column for factors that the respondents believed influenced late payment was provided to capture this information. Finally he respondents name, designation and contact details were provided, all of this in addition to the necessary project name, project number, vendor number and invoice number.

The number of days between the invoice received date and the invoice paid date was calculated per invoice. An invoice was deemed late if the days between these two variables exceeded the 30 day payment limit. These were recorded and summed per project and then per sampled projects per sector Department. The frequency of late payment per Department and per late payment influencing factor were thus determined. The results are tabulated in RI-Table D.

4.14.3 Specific Objective 3: Causes of late payment

Similarly, the factor(s) cited as responsible for late payment per invoice were also recorded and tabulated. These were summed as per project, Department and factor to determine frequency.

Factors most frequently cited as influencing late payment of contractors across all sector Departments were 1- Disputes over payment claims and responses. 2- Disputes over quality of work and Administrative bureaucracy and 3-Complications from contractual conditions. See **Table 10** for the full list of factors ranked in order of their agreed occurrence.

4.15 SUMMARY

This Chapter has outlined the process of collection and presentation of the results of the survey. Feedback from the participants was important as the information in this particular Chapter was dependent on it. This information is critically analyzed in Chapter 5 and factors that influence the late payment of contractors discussed.

Initial reading from the data presented seem to point to the following main reasons that influence the late payment of contractors in government funded infrastructure projects, These are in order of prevalence 1. Disputes over payment claims and responses 2. Disputes over quality of work and Administrative Bureaucracy 3. Complications from contractual conditions 4. Poor understanding of the contract and Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors, and finally , 5. Delayed payment in government infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously.

5 DISCUSSION OF RESULTS

INTRODUCTION

5.1 Late payment problems are prevalent in the construction industry and need to be explicitly recognized as this is a recurring problem. Payments are needed to supply cash flow needed to pay for materials, labour, plant, subcontractors' accounts rendered, preliminaries

and general overheads expended during the progress of the work. The net cash flow quickly becomes negative when the flow of money into a business is delayed. When this happens, the contractor may require immediate funding to overcome the cash deficit. Good quality construction requires prompt payment. Late payment adversely affects the time, cost and quality parameters of a construction project.

Some practitioners may think that delays in payment are common place in the South African construction industry. It can be argued that there is a train of thought that believes that late payment is acceptable. These kinds of perception have aggravated the problems of late payment and make it more difficult to overcome. The risk of late payment in the Construction industry will therefore continue to exist. Late payment can affect cash flow of a company and may eventually lead to company's insolvency. Timeliness of payment is therefore important to circumvent the risk of the late payment problem.

Why is payment late when the economy is bad and still late even when the economy is good? Once a payment problem starts to expand, it typically gets worse over time and will shift the financial burden from the one participant to the other, creating a cash flow problem.
Clients have become more demanding, more discerning, and are less willing to accept risk (Flanagan, 2002). Through the delay of payments it has become normal practice for some clients to shift some risks to other parties further down the chain by reducing their financing costs. This will shift the financial burden to the contractors who may not have large capital assets and large amounts of credit available to cover payment delays.
Hendrickson's (2003) postulates in his research which is similar with that of Davis' (1999) who claimed that the adage of strategic cash flow is to "collect early and pay late". This has created a dilemma in which delay of payment is a two-edged sword. This creates a serious problem while contributing to the large number of insolvencies in the construction industry. A common scenario is for clients to hold back money as long as possible whereas contractors wish to obtain their money as soon as possible. Hence, late payment is a predicament which is difficult to deal with due to the different interests of the parties involved. The identification of the underlying causes of late payment and the recommendations of effective solutions is essential to mitigate the problem.

5.2 DISCUSSION

The aim of this study is to determine the factors that influence late payment of contractors in government infrastructure projects. The study relies on the perspectives of senior managerial staff of the contractual parties, including the sector Departments, the implementing agents, and the programme Financiers. The purpose was to sensitize stakeholders about the extent of late payment and the causes of late payment in government new build infrastructure projects in Gauteng province**,** as well as to contribute to existing literature on infrastructure project delays, particularly in South Africa. This, with a view to sensitizing sector Department employees to the effect payment delay has on the construction industry and the broader economy as a whole.

The results of this study showed that from the perspective of the participants of this research, late payment in Government infrastructure new build projects in Gauteng are largely caused by external Departmental factors. Across all Sector Departments participants were predominantly of the view that there is no clear link suggesting that 'delay in certification by the IA' or 'Conflict amongst parties involved' are factors that contribute substantially to delay in payment. Further, participants across all sectors were of the view that 'Disagreement in the valuation of work done and the 'Sector Department wrongfully withholding payment' were not factors that had any substantial effect in the late payment of contractors. The majority of participants did not agree that 'Poor financial management' was an influencing factor for the late payment of contractors but were of the view that rather 'Delay in submitting contractors' payment claim' and 'Short of current year project / programme budget' was more often at least partially responsible for late payments. Participants however also emphasized the heavy budgetary implications of the processes and the need for adequate planning to ensure all projects remain adequately funded at all times.

Poor understanding of the contract was sighted as a major problem area which in turn ignited conflict amongst parties involved which delayed the payment process. This can be seen in its prevalence across all sector Departments at 18 (6.9%).

Disputes on payment claims and responses were flagged as an overwhelming influencing factor in the delay of payments to contractors. Closely followed by 'Disputes over quality of work' and 'Administrative Bureaucracy.

There is very little to support the idea that 'The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors' and 'Short of current year project / programme budget' is an influencing factor in the late payment of contractors or that of the department willfully, wrongfully withholding payment. However, 'disagreement in the valuation of work done' is a prevalent occurrence across all Sector Departments and has been signaled as a dominant underlying influencing factor in the delay of payment to contractors.

'Short of current year project / programme budget' and 'Structure of the industry: Involvement of many commercial parties' were influencing factors cited as having little to no influence on the late payment of invoices. The reason for this is that many Sector Departments struggle to expend their budgets before the end of the financial year. In the case where a particular budget is expended but additional funds needed, virements (moving of funds from one budget post to another) are sometimes permitted where necessary to enable the honoring of invoices.

5.3 IMPORTANCE OF CAUSES OF PAYMENT PROBLEMS

Table 10 in Chapter 4, presents the causes of payment problems arranged in descending order of frequency based on the responses of Sector Department officials. From Table 10, 10 causes with an average frequency of 17.8 each are considered the most important causes of payment problems in Government Infrastructure new build projects in the Gauteng province, South Africa. The top 10 important causes are Disputes over payment claims and responses (frequency = 25), Disputes over quality of work (frequency = 23), Administrative Bureaucracy (frequency= 23), Complications from contractual conditions (frequency= 21), Poor understanding of the contract is an influencing factor in the late payment of contractors (frequency = 18), Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor (frequency = 18),Cost overruns and contract failure (frequency = 15), Contract types used (frequency = 13), Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors (frequency = 13), Poor communication among parties involved (frequency = 9). Therefore, it would seem that disputes over payment claims and responses, disputes over quality of work, administrative bureaucracy and complications from contractual

conditions are the most frequently agreed factors causing payment delays and losses in Government Infrastructure new build projects in the Gauteng province, South Africa.

As a consequence contractors generally suffer from cash flow difficulties due to failure to source adequate funding, insufficient cash flow, and improper planning and financial management. Touran, Atgun and Bhurisith, (2004) also confirmed that cash flow problems affect industry survival and are one of the leading causes of contractors' failure. At the lower end of the supply chain, there is a cascade effect on subcontractors' payments. Furthermore, it is not uncommon for main contractors to delay payments to improve their own cash flow during the progression of works (Motawa and Kaka, 2009;Ye and Rahman, 2010).

Disputes over payment claims and late/no response to claims occur due to both the default of the payers and payees. Clients and consultants are often criticised for making arbitrary deductions from contractors' payment claims, unreasonably withholding payments and delaying the issuance of responses to their payment claims in a bid to buy time. Conversely contractors are blamed for claiming for uncompleted site works, over-claims, and delay in the submission of their claims. These generally create conflicts between parties and results in payments being withheld until disputes are properly resolved.

It would seem that the inherent characteristics of the construction industry encourage payment problems in the industry. The industry has relatively few barriers to entry and exit. This allows individuals and companies with little or no capital to start off businesses and as a consequence suffer from financial difficulties when the settlement of their payment claims becomes irregular. In reality subcontractors are paid upon contractors being paid by the client and payment follows that chain order: the owner pays the main contractor, who in turn pays subcontractors and so on down the supply chain in the industry. This is confirmed by Latham (1994), Pettigrew (2005), and Wu, Kumaraswamy And Soo (2008) who suggest that payment default results from the unique characteristics of the industry as mentioned earlier in this study it is not surprising that the construction industry has the highest business failure rates compared to other industries (Davies, 2009; Ashworth and Hogg, 2007).

5.4 DISCUSSION WITH RESPECT TO THE SPECIFIC OBJECTIVES OF THE STUDY

5.4.1 Specific Objective 1: Stages involved in the payment process

Guidelines as to the proper execution of the payment process have been issued by the Department of Finance. This has been broken into a schematic framework and assessed in terms of funds flow between the Client Department and the Implementing Agent. See table RI-Table C for a detailed breakdown.

The most effective and efficient flow of funds between the Client Department and the Implementing Agent (IA) is for the Client Department to transfer funds in tranches to the IA who then pays the contractor directly. In such an arrangement:

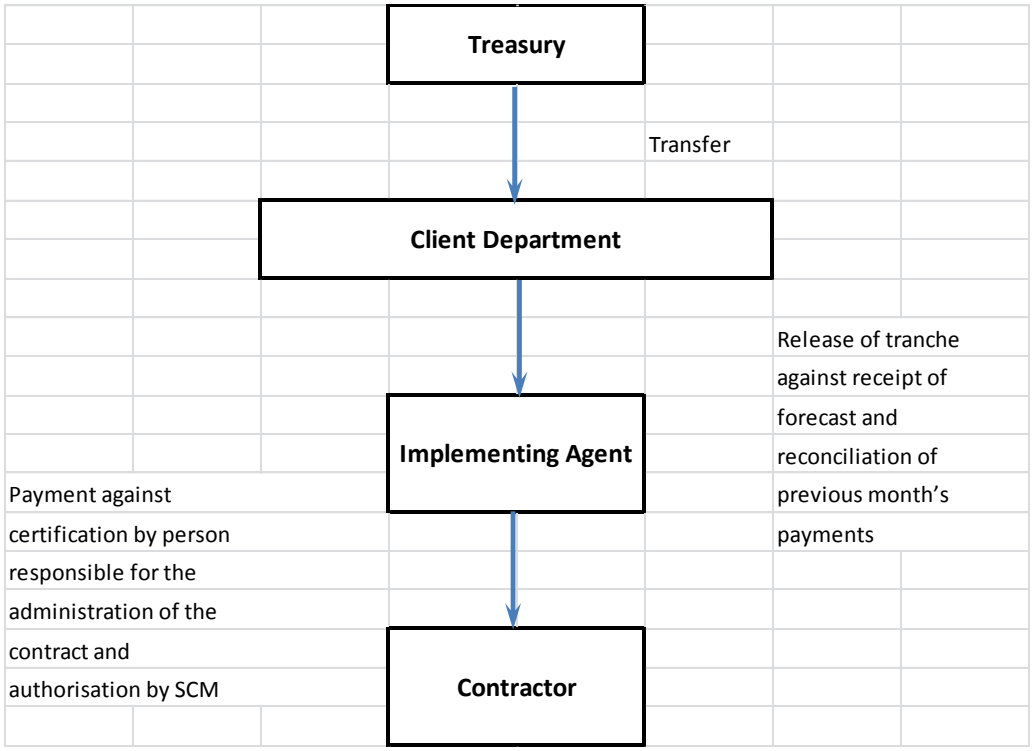
1. The Client Department transfers the requested funds to the account of the IA after satisfying himself or herself with the payments made during the previous month.
2. The process is repeated until the last month when the projects are completed and the two parties can reconcile all payments made and outstanding payments to be made. For this arrangement to be effected, the transferred funds will need to be incorporated in the budgeting process of both the client and the implementing agent.

The activities coupled with this flow of funds, where payment is made before a month end, were found to be as follows:

1. The IA submits to the Client Department monthly forecasts of payment for the expected expenditure for that month including any retention and VAT.
2. The Client Department transfers the forecasted amounts to the account of the IA before the 21st of the month.
3. The IA pays the contractors after checking and authorization of claims by the programme or project manager.
4. The IA provides the Client Department with a detailed report on payments made during the previous month, attaching copies of the relevant claims as proof of payments made, as well as the forecast for the next month's payment.
5. The IA retains the retention monies, if any, and releases them to the contractor when required to do so in terms of the contract.

The IA is responsible for the auditing of the certificates and the reconciliation of all contractual amounts.

Figure 1.4: Funds flow between the Client Department and the Implementing Agent



5.4.2 Specific Objective 2: Extent of late payment

Please see Annexure D RI-Table D for details;

Table 10 and 11 help illustrate the extent of late payment across sector departments in the province of Gauteng.

Table 10: Number of invoices paid late per Sector Department (Programme Volume) in Government infrastructure projects

SECTOR DEPARTMENT	Programme Volume	Total no. of Invoices sampled per Sector Department	Number of invoices paid late No. (%) n>30 days
Education	2 217 588	80	26 (33)
Health	2 180 246	96	41 (43)
Social Development	204 639	104	29 (28)
Human Settlements	8 180 686	240	105 (44)
Roads And Transport	439 056	120	68 (57)
Agric. And Rural Dev.	21 161	40	21 (53)
Infrastructure Development	26 083	24	13 (54)
TOTAL		**704**	**303(43)**

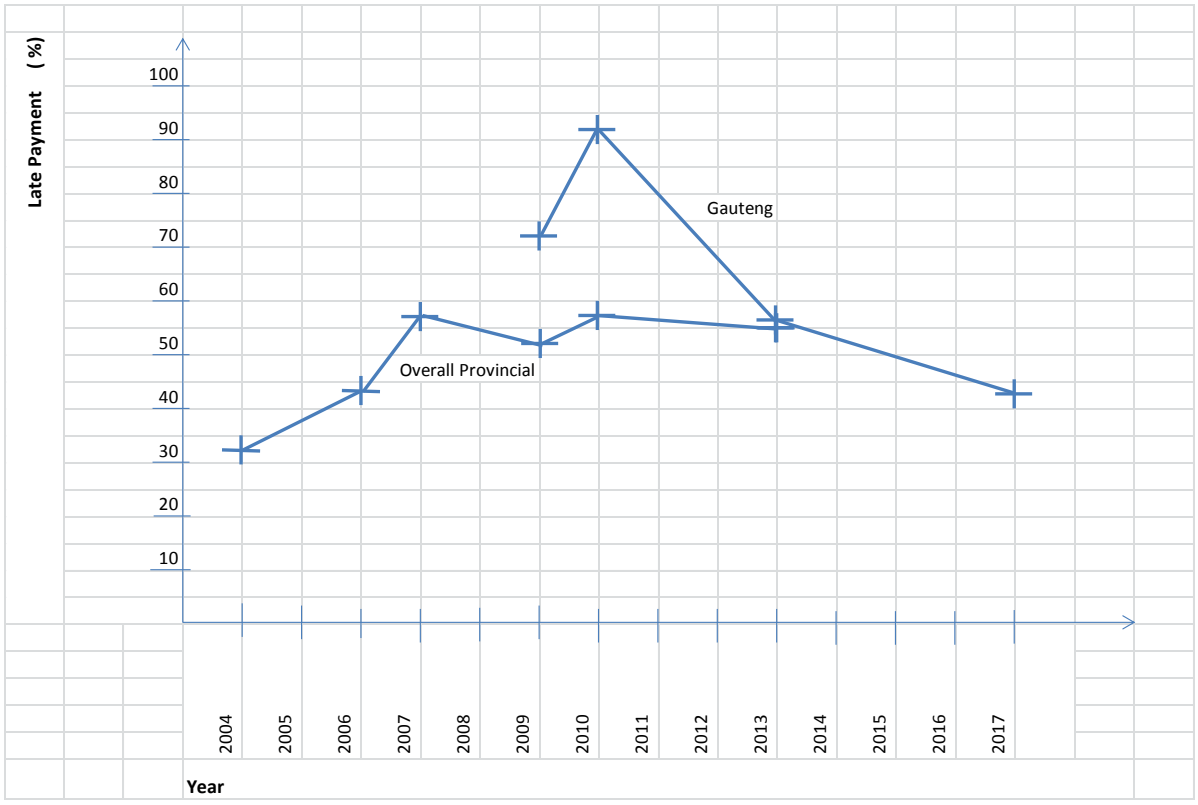
Table 11: Number of invoices paid late as a percentage (%) of total sampled invoices per Sector Department

No.	SECTOR DEPARTMENT	Volume R'000	Invoice sample population	*n* > 30 days	% of Total sampled Invoices where *n* > 30 days
1	**Education**	2 217 588	80	26 (33)	3
2	**Health**	2 180 246	96	41(43)	6
3	**Social Development**	204 639	104	29(28)	4
4	**Human Settlements**	8 180 686	240	105(44)	15
5	**Roads and Transport**	439 056	120	68(57)	10
6	**Agric. and Rural Dev.**	21 161	40	21(53)	3
7	**Infrastructure Development**	26 083	24	13(54)	2
	TOTAL	**13 269 459**	**704**	**303 (43)**	**43**

The Department of Roads and Transport with a MTEF programme volume of R 439 056 000 was found to be the Department with the highest number of late paid invoices at 57%. Out of 120 sampled invoices, 68 were paid late.

Of 240 evaluated invoices from the department of Human Settlements, 105 (44%) were paid late. This is not as high as the department of Roads and Transport but considering the number of invoices evaluated and the overall MTEF programme volume of R 8 180 686 000 these were drawn from, this was of considerable note. The overall number of invoices paid late was 303 (43%) out 704 sampled invoices. This represented an overall decline of the number of late paid invoices pointing to a modestly improved tendency of timely payment from 57% in 2013/14 to 43% in the 2016/17 financial year.

Fig. 1.5: Graph illustrating late payment trends for Gauteng/ Overall provincial scale



5.4.3 Specific Objective 3: Causes of late payment

The survey found that the highest cited factors that influence payment in government infrastructure projects in Gauteng province South Africa are;

i. **Disputes over payment claims and responses *(f=25, 9.6%)***

This is a sensitive area but however was cited as the most prevalent cause of payment delay, since it often may require mediation which in itself is a time consuming affair. It is reported that in many cases however the cases are reviewed by the Sector Departments own Quantity surveyor in conjunction with the Professional service providers and consensus reached on the matter. To this end the majority of cases do not go as far mediation or even adjudication but are settled relatively quickly but with a consequence of time delay which inevitably leads to payment delay.

ii. **Disputes over quality of work *(f=23, 8.9%)***

It is a well-known fact that the labor market currently suffers from a scarcity of skills. Disputes over the quality of work are increasing in prevalence due to the scarcity of

competent tradesmen. The responsible inspector in some cases is unable to sign off completed works due to incomplete or shoddy workmanship and this affects payment.

One of the main interests that Government pursues in the execution of its projects is job creation. However, the quality of tradesmanship is often sacrificed for the quantity of individuals assigned to the job.

iii. **Administrative Bureaucracy *(f=23, 8.9%)***

On mapping the invoice payment process and associated time periods in both the Treasury recommended and Sector Department operational models, it is evident that in both models there are too many intermediate stages and checks in the process. There is a lack of coordinated and aligned structure in both models where activities within the process are often duplicated. **Complications from contractual Conditions *(f=21, 8.0%)***

The IDMS needs to be revisited to look at processes deployed for the adoption of a particular contract type per project. The blanket approach currently in use at Procurement Strategy level with regard to the choice of contract type does not take cognizance of project intricacies and uniqueness and leads to problems further down the supply chain.

iv. **Poor understanding of the contract *(f=18, 6.9%)***

This study has found a prevalence of late payment cases where contract terms and conditions have been misinterpreted and /or clearly misunderstood leading to a culture of erroneous implementation of payment. Irrespective of contract type, the research finds that the 30 day payment rule as per PFMA overrides all other terms and conditions as specified in individual contracts unless explicitly specified. This measured from the date of receipt of the invoice.

v. **Underpayment of certified amounts by the Department *(f=18, 6.9%)***

Underpayment has been cited as a prevalent cause of late payment. As invoices are checked against remaining budget balance early in the invoice payment process, underpayment may is a consequence of direct error in the processing of the invoice.

vi. **Inability of the Implementing agent to access, measure and quantify contractor output timeously *(f=15, 5.8%)***

This seems to be a direct consequence of a lack of effective communication and coordination between the Contractor, Professional Service Provider, Implementing Agent's Quantity Surveyor and Project Manager. There is a need for proper processes and information to be communicated to all relevant parties that define the parameters of exactly how and when measurements will be undertaken in order to allow progression of the process to payment.
Checking and authorization of claims by the programme or project manager was the process where the highest risk for delay was identified.This area is problematic in that it is prone to subjectivity in terms of acceptable quality and requires clear guidelines as to what standards and/or requirements are necessary in order that authorization be granted. Expediency in the processing of the necessary documentation is also an issue as bureaucracy within government often causes unnecessary delay. (Danuri, et al., 2006) cites delays in submitting contractors' payment claims, disagreements on the valuation of work done, general lack of understanding of contract provisions, poor communication and conflict of interest between parties as some of the factors that delay progression of the payment process. Ye and Rahman (2010) cites delays in the evaluation and certification of interim and final payments as some of the main factors responsible for late payments.

Findings from this study across all sector Departments are consistent with the studied literature review. The main causes of late payment in government new build infrastructure projects in Gauteng are 1- Disputes over payment claims and responses. 2- Disputes over quality of work and Administrative bureaucracy and 3-Complications from contractual conditions.

5.5 SUMMARY

The main factors for late and nonpayment in the construction industry that have been identified in this study include; Disputes over payment claims and responses, Disputes over quality of work, Administrative Bureaucracy, Complications from contractual Conditions, Poor understanding of the contract, Underpayment of certified amounts by the Department, and Inability of the Implementing agent to access, measure and quantify contractor output timeously. From the results of this study, Factors that can potentially influence late payment of contractors in government infrastructure projects are many varied and complex. It is apparent that the Sector Departments supported by the Finance Department need to develop and

implement sound and secure systems to ensure the smooth flow of money in order to meet governments financial commitments to creditors.

6 CONCLUSION AND RECOMMENDATIONS

6.1 INTRODUCTION

This chapter discusses information from the literature review and the findings from the data analysis and in addition makes recommendations starting with the background, the gaps identified within the sector department payment processes and recommended tools to improve the current process. This was done by analyzing the findings in Chapter four, with reference to factors that influence late payment in government infrastructure projects, examining challenges associated inefficiencies in the and Sector Departments, Implementing agent's and Finance Departments combined ability to process invoices timeously that causes delayed payment and allegations of poor financial management. This was done in so far as to draw attention to the factors and processes involved and the need for improvement.

The synthesis of the research questions and objectives at the beginning of the study were;

- To identify the various stages involved in the certification and payment process of monthly valuations submitted by contractors contracted by the various Sector Departments to implement New Build construction works.
- To evaluate the extent of late payments in New build Infrastructure projects across all Government Sector Departments in the Province of Gauteng.
- To determine factors responsible for late payment in Government New Build Infrastructure Projects in Gauteng Province, South Africa.

6.2 OVERVIEW OF FINDINGS

Unlike previous studies that focused on the generic factors causing payment delays on construction projects, this study focused on the underlying factors causing payment problems, with the aim of devising ways of mitigating payment problems. The different study participants Department Chiefs and Management, Implementing Agents and Finance Department staff, active within the industry held unanimous views regarding the underlying factors that influence late payment.

6.3 CONCLUSION WITH RESPECT TO THE SPECIFIC OBJECTIVES OF THE STUDY

6.3.1 Specific Objective 1: Stages involved in the payment process.

Following the study the following stages of the payment process were identified;

1. Invoice is received by the IA Head Office Finance team. Invoice is date stamped recorded and dispatched to IA Project Management Office.
   Responsible entity: IA- Head Office Finance Team
2. Invoice is sent to the IA Project Management team. Invoice is date stamped and recorded.
   Responsible entity: Project Management Office Finance Team
3. Invoice is checked and certified by the responsible IA Project Manager.
   Responsible entity: Project Manager.
4. Payment Advice is prepared by IA Project Management office Finance team. This consists of two components. 1- Actual Invoice 2- Payment Certificate
   Responsible entity: Project Management Office Finance Team.
5. The Implementing Agents- Project Manager /Director /Chief Director/Deputy Director General (as per assigned mandate per individual project) signs payment advice and submits to Finance team at Head Office.
   Responsible entity: Project Manager/Director/Chief Director/Deputy Director General
6. Payment Advice is scanned/ recorded and sent back to Sector Department, Head Office Finance Team.
   Responsible entity: Project Management Office Finance Team.
7. A compiled payment is then composed. A Compiled Payment consists of 4 documents 1-Invoice 2- Payment Certificate 3-Payment book (Cheque book) and 4- Allocation Attachment. Payment is recorded in a payments ledger.
   Responsible entity: Assistant Director- Sector Dept. Finance Team.
8. Payment is forwarded to Sector Department Finance Team for Quality Assurance.
   Responsible entity: Deputy Director -Sector Dept. Finance Team
9. Payment sent to CFO. He/She checks accuracy of payment and certifies.
   Responsible entity: Chief Financial Officer -Sector Department
10. Payment is thereafter sent to Gauteng Department of Finance and scanned to SAP (System, Applications and Products) software. Payment is again quality checked by

accounts payable officials. The payment is then routed back to the Sector Department officials.

Responsible entity: Assistant Director, Accounts Payable- Gauteng Dept. of Finance.

11. Payment is allocated funds and routed back to Sector Department Finance Team.
Responsible entity: Assistant Director, Accounts Payable- Gauteng Dept. of Finance.
12. The Sector Department Finance Team allocates the Payment according to source of funding. Information is captured on the system.
Responsible entity: Deputy Director -Sector Dept. Finance Team
13. Payment is then taken back to treasury in the form of a list showing the assignment of payments to the various funding sources.
Responsible entity: Deputy Director -Dept. of Finance.
14. Gauteng Department of Finance releases funds in accordance with the approved payment list from the Sector Department. The list stipulates the name of the project/ source of funding/amount, amongst others of each Payment.
Responsible entity: Chief Financial Officer (CFO) Dept. of Finance.
15. A trunch payment is made from the Gauteng Department of Finance to the Sector Department.
Responsible entity: Chief Financial Officer (CFO) Dept. of Finance.
16. The Sector Department transfers the required amount to the Implementing Agent (IA).
Responsible entity : Chief Financial Officer (CFO) Sector Department.
17. The Implementing Agent (IA) pays the Contractor
18. Payment tracking concluded (Payment received by the Contractor.

From the findings of this research, the following main issues were identified within the currently deployed process regime.

Separate systems used to capture data

Different parties are involved in the payment regime. Sector department, IA and Finance department. All three parties are involved in the data capturing, quality control, verification and processing of invoices for payments. Currently all three parties operate on separate systems.

Lack of information sharing (Common Data base)

Observations from the findings highlighted that sector Departments were sometimes left in the dark during processing. There is also poor communication between Implementing agents and the Finance Department. This is necessary as an added control.

Lack of monitoring of Invoice from certification through to payment

Sector Department officials mentioned that they sometimes have to for longer periods only to find out that a particular invoice has been rejected at some point in the system.

Time delay for certification of work done on site

Certification and verification process of completed works takes too long.

Complex payment regime between sector Department, IA and Finance Department (Administrative Bureaucracy)

The IA captures the invoice information through a system of scanning and manual entry of data. After certification this information is then sent to the sector Department where it is checked scanned and forwarded to the financing department. The financing department captures the invoice information and returns it to both the IA and sector Department for final verification before payment. This is clearly an overly complex and time consuming verification process.

6.3.2 Specific Objective 2: Extent of late payment.

The data collection and analysis revealed that out a population 189 projects, 88 sampled projects and 704 invoices analyzed the overall number of invoices paid late was 303 (43% of the sampled invoices). When compared with available historical data this represented an overall decline of the number of late paid invoices pointing to a modestly improved tendency of timely payment from 57% in the 2013/14 to 43% in the 2016/17 financial year.

The late payment problem is interrelated with the problem of project cash flow. Cash flow in the construction industry is critical because of the relatively long duration of projects. As mentioned earlier in this text 'Finance has been claimed as the most important resource in the construction process' (Mawdesley *et al*., 1997). As such adequate financial planning and robust cash flow is central to the survival of any project. The problem of late payment is therefore closely tied to project cash flow which in turn is closely tied to project finance. Due to the central role of project finance in many projects the adverse effect of late payment on the project finance cycle cannot be ignored. A lack of cash flow has also been identified as one of the most common causes of project failure.

According to Kennedy (2005)'payment 'has always been the main subject of disputes'. It has to be noted that late/non-payment in the construction industry has a domino effect on the payment chain of a construction project (Davis Langdon & Seah Consultancy, 2003). The adverse effects of late payment therefore reverberate strongly throughout the finance regime of any project.

6.3.3 Specific Objective 3: Causes of late payment

Disputes over payment claims and responses

Promptness of submitting, processing, issuing interim payment certificates and honouring these are extremely important issues in relation to progression of payment claim processes. Often times the regulations that guide these processes are ambiguous and unclear and open to a variety of interpretation.

Also, contractors may not be able to justify their claims if they purposely "Slow down

works" due to late payment as the contractors could be treated as repudiating the contract in the event, if there is no such right available in the contract.

Disputes over quality of work

The client departments in many instances refuse to release funds due to claims of inferior quality workmanship. This is an area that requires special attention since quality if not properly defined is open to variable interpretation.

Poor understanding of the contract

There exists a gap in the manner Professional bodies and government agencies understand and apply the existing standard forms of contract in order to provide protection and promote balanced allocation of risk and fair contract to all related parties as originally intended.

Underpayment of certified amounts by the Department

Underpayment of the contractor is as problematic as late payment of the contractor by the employer and can also potentially delay the payment due to the sub-contractor or suppliers who are bound in contract to him. Due to this set of circumstances, late payment can possibly lead to formal dispute resolution, often a time consuming and costly state of affairs.

6.4 RECOMMENDATIONS

The sector Departments and their implementing agents need to deploy the following initiatives in order to initiate a process of improvement.

Map the process

A task team needs to be formed with representatives from all contractual parties to undertake a comprehensive review taking into account the issues raised in the study around the payment process. This is to ensure that all tasks, operations and systems associated with the process are adequately designed to accommodate all aspects of the payment regime and the environment in which it is to be implemented.

Analyze the process

Sector Departments have to establish their target as regards desired levels of efficiency and turnaround times times. Information technology specialist need to be deployed to help eliminate manual capturing of information with the use of information technology. A system that can be used and make the process simple and quicker to process from IA certification on site to payment to the contactor can be developed.

Redesign the payment process

In order to successfully process payments, an integrated consultative process is necessary with all the stake holders. The goal of re-designing is to rationalise activities and information requirements so that they can function together properly. A detailed review of the existing process, incorporating systems to address the problems is necessary. A need to address communication is an important factor. The sector Departments have to fully understand their own payment process and procedure in order to fully understand what will be required in the redesigning of the process.

Implement

The sector departments must report on steps to be taken and implement them. A guideline for this implementation must be formulated and adopted.

Review the process

It is recommended that sector Departments implement an integrated monitoring and evaluation system that will improve the turnaround time for payment processes and general

related administrative processes through circumventing lengthy duplicated verification processes, timeous information sharing and systematic controls.

In addition to the above the above the following points are identified as effective remedies to payment delay;

- Contractor to t negotiate healthy payment terms with the IA to facilitate a healthy Cash flow. IA in turn to communicate this to sector Department to ensure funds are readily available.
- There must be a defined time frame for payment.
- Contractors should submit timely accurate invoices with complete documents.
- Contractors should chase payment due relentlessly.
- Sector Departments work within stipulated budget
- Contractor to charge interest on late payment amount
- Understand and study the payment requirement of each individual Project.
- Allow the contractor within the terms of contract for to slow down the work until payment is received.
- Allow the contractor within the terms of contract to suspend the work until payment is received.
- Sending notice letter trough contractor's lawyer
- Minimize/remove bureaucracy within the system

In resource stretched environments the efficient management of infrastructure projects are particularly important. A high level of efficiency is preferable and likely to save resources that can be invested in the construction of more infrastructural facilities. One way the region can ensure efficiency in the management of infrastructural projects is by the timely payment of contractors for completed works. The reduction of productivity, slowing of the progression of works, instigation of labour unrest and project participant anxiety are all caused by delay in payment and there is little doubt that such circumstances may affect the environment required for timely completion of infrastructural projects. Project delays and subsequent wastage of resources may well be considered bad for the Economy.

The timeous payment of contractors for completed works is critical for ensuring the continuity of works and completion of infrastructural projects within planned parameters of quality specification, time and budget. Payment of contractors is likely to prevent cost and time overruns, which may have a significant ripple effect, particularly in low-income economies, such as SSA countries. To this end, adequate protection should be introduced by initiating mitigative measures against potential risks, such as delayed disbursement of funds by external financiers, delayed approval of contractors' payment requests, political interference, as well as financial misappropriation by employers among others. The mitigation of such adverse activity, however, requires the participation of stakeholders at national, project, and community level. Community participation and involvement of civil society are particularly crucial for influencing leaders to expedite budget approval and fund disbursement processes. At the project level, community participation should be encouraged to enhance accountability in handling and managing project funds by accounting officers. Prompt filing of returns to relevant authorities to facilitate timely release of funds for subsequent project phases ensures efficient financial management and uninterrupted cash flow also at the project level. Delay, abandonment, and subsequent wastage of resources become unavoidable if project managers do not grasp the concept that cash flow is the lifeblood of infrastructural projects.

One of the salient conclusions of this study is therefore that the financial stability of project participants is crucial to payment problems in the construction industry. Stability of payment is ensured through the consistent flow of cash during work progress and guarantees that all parties' financial claims are able to be settled as and when they are due. Steady and regular payment seems to be the main mitigating solution to payment problems in the construction industry.

Procurement of financial security at the outset of a project may be included in future adjustments to contractual provisions that could guarantee financial stability. Thus any payment default is subsequently indemnified by the security provider. Another necessary initiative may be the incorporation of compulsory requirements for prequalification of the financial status of critical funding parties to the contract. Exposed parties can in this way be guaranteed of the financial status of critical funding parties.

These suggestions are recommended for further investigation as the current study is limited to identifying the key causes of factors that influence late payment in government infrastructure projects in the province of Gauteng, South Africa.

Vincent Djokoto Johannesburg 2017

FULL LIST OF REFERENCES

	Author	Year	Title of the Paper	Journal/Book	Vol.	Issue	Pages	Aspect(s) of Payment	Research Method	Country
1	B Younes/ A Bouferguene	2015	Overdue Invoice Management: Markov Chain Approach	Journal of Construction Engineering and Management	141	1		Challenges-invoice processing	Documents	United States
2	Gauteng Provincial Government	2015	Estimates of Capital Expenditure	Book				Project Budget		South Africa
3	T Ramachandra/J Olabode/B Rotimi	2015	Causes of payment problems in the New Zealand construction Industry							New Zealand
5	Pablo Gonzalez/ Vicente Gonzalez/ Kieth Molenaar/ Franscisco Orozco	2014	Analysis of Causes of Delay and Time Performance in Construction Projects	Journal of Construction Engineering and Management	140	1		Qualitative (delay causes) and quantitative (time performance) dimensions of the delay issue.	Documents	United States
6	TC Becker/ EJ Jaselskis/ Mohamed El Gafy	2014	Improving Predictability of Construction Project Outcomes Through Intentional Management of Indirect Construction Costs	Journal of Construction Engineering and Management	140	6		Empirical recommendations.	Documents	United States
7	T Zayed/ Y Liu	2014	Cashflow Modelling for Construction Projects	Engineering, Construction and Architectural Management	21	2	170-189	Project cash flow	Q. Survey	United States/ China
8	Gauteng Provincial Government	2014	Estimates of Capital Expenditure	Book				Project Budget		South Africa
9	Owolabi J. D., Amusan L. M., Oloke C.O.,	2014	Causes and effect of delay on Project Construction delivery time	International Journal of Education and Research	2	4	197-208	Effects of Construction delay	Q. Survey	Nigeria

	Olusanya O., Tunji-Olayeni P., Owolabi D., Omuh I.									
10	*Mulenga M /Aigbavboa Clinton/ Thwala Wellington*	*2013*	*A Theoretical Assessment of the Causes and Effects of Construction Project Delay*	*International Conference on Civil and Environmental Engineering*			*27-28*	*Effects of Construction project delay-payments*	*Documents*	
11	*Gauteng Provincial Government*	*2013*	*Estimates of Capital Expenditure*	*Book*				*Project Budget*		*South Africa*
12	*Hanh Tran/ David G. Carmichael*	*2012*	*The Likelihood of subcontractor Payment : Down stream progression via the Owner and Contractor*	*Journal of Financial Management of Property and Construction*	*17*	*2*	*135-152*	*Late and incomplete payments of both the owner and contractor on what the subcontractor receives*	*Documents*	*Australia*
13	*CIBD*	*2012*	*Infrastructure Delivery Toolkit, Management Companion*	*Construction Industry Development Board, CIDB*				*Government Infrastructure Procurement Systems*		*South Africa*
14	*Cresswell J.W.*	*2012*	*Research Design, as Independent of Methods*	*Research Design.London: Sage Publications*				*Research design*		*United Kingdom*
15	*Dr. Willie Tan*	*2011*	*Project Finance and Construction: A Structured Guide to Assessment*	*Journal of Construction Management and Economics*	*29*	*10*				*United Kingdom*
16	*Mack N, Woodsong C., MacQueen K.M., Guest G. and Namey E.*	*2011*	*Qualitative Research Methods*	*USAID*						*United States*

17	*Fugar/Frank DK/Adjakwah-Baah, Adwoa B*	*2010*	*Delays in Construction Projects in Ghana*	*The Australasian Journal of Construction Economics and Building*	*10*	*1/2*		*Delay in honouring payment certificates/Financial Aspects*	*Q. Survey*	*Ghana*
18	*Nicholas J/Holl GD/Mihsein M*	*2010*	*System Analysis of Project Cash Flow Management Strategies*	*Journal of Construction Management and Economics*	*28*	*4*		*Project cash flow*	*Documents*	
19	*Maurice Paul Okeyo, Charles Mallans Rambo, Paul Amollo Odundo*	*2015*	*Effects of Delayed Payment of Contractors on the Completion of Infrastructural Projects: A Case of Sondu-Miriu Hydropower Project, Kisumu County, Kenya*	*The Chinese Business Review*	*14*	*7*	*Serial #: 145*	*Effects of Delayed Payment: Case study*	*Q. Survey/Documents*	*Kenya*
20	*Ibrahim Motawa/ Ammar Kaka*	*2009*	*Modelling Payment Mechanisms for Supply Chain in Construction Engineering*	*Engineering, Construction and Architectural Management*	*16*	*4*	*325-336*	*Uneven sensitivity to cash flow factors in payment mechanisms- link to value and utility.*	*Mathematical Model*	*United Kingdom*
21	*Hamzah Abdul-Rahman, Roshana Takim, Wong Sze Min*	*2009*	*Financial-related causes contributing to project delays*	*Journal of Retail and Leisure Property*	*8*	*3*	*225-238*	*Factors causig payment delays*	*Interview/Q. Survey/Documents*	*Malaysia*
22	*Government of Qatar*	*2009*	*Major project and infrastructure in Qatar. Doha: Ministry of Public Works.*					*Case Study*		*Qatar*
23	*Henry A Odeyinka/ John Lowe/ Ammar Kaka*	*2008*	*An Evaluation of Risk Factors Impacting Construction Cashflow Forecast*	*Journal of Financial Management of Property and Construction*	*13*	*1*	*5-17*		*Interviews/ Q. Survey*	
24	*S H Han /S H Park /D Kim /H Kim Y Kang*	*2007*	*Causes of Bad Profit in Overseas Construction Projects*	*Journal of Construction Engineering and Management*	*133*	*12*	*932-943*	*Cause and effect relationships for various profit-*	*Comparative case study.*	*United States*

								influencing factors for international construction projects		
25	Sambasivan, M., & Soon, Y.	2007	Causes and effects of delays in Malaysian construction Industry	International Journal of Project Management	25	5	517-526	Project delay-impact of late payment	Q. Survey	Malaysia
26	Alaghbari, W. E., Kadir, M. R. A., Salim, A. & Ernawati, K.	2007	The significant factors causing delay of building construction projects in Malaysia	Engineering, Construction and Architectural Management	14	2	192-206	Project delay-impact of late payment	Q. Survey	Malaysia
27	Majid, I.	2006	Causes and effect of delays in Aceh construction industry	Master's Thesis, University of Technology				Project delay-impact of late payment	Q. Survey	Malaysia
28	Government of India: Ministry of Statistics.	2006	Infrastructure delay report. New Delhi					Project delay-impact of late payment		India
29	Henry A Odeyinka/Ammar Kaka	2005	An Evaluation of Contractors Satisfaction with Payment terms influencing Construction Cashflow	Journal of Financial Management of Property and Construction	10	3	171-180	Contractors' satisfaction with payment terms influencing construction cash flow	Q. Survey	United Kingdom
30	Steven J. Peterson	2010	Construction Accounting and Financial Management	Upper Saddle River, N.J. : Pearson Education	2nd ed.			Financial management		
31	NR Mansfield/ OO Ugwu/ T Doran	2003	Causes of delay and Cost Overuns in Nigerian Construction Projcects	International Journal of Project Management	21		321–326	Delay and cost Overruns-payments		Nigeria
32	Collins J and Hussy R	2003	Business Research, A Practical Guide for Undergraduate and Graduate Students	Book, Palgrave: Macmillan						
33	Frimpong, Y., Olowoye, J., & Crawford, L.	2003	Causes of delay and cost overruns in construction of ground water projects in developing countries:	International Journal of Management	21	1	321-326	Delay and cost Overruns-payments	Case Study	Ghana

			Ghana as a case study							
34	*T Muna/C Njiru*	*2002*	*Financing Infrastructure Projects*	*Book*				*Implementation of Finance for Projects*		
35	*AA Aibinu/GO Jagboro*	*2002*	*The Effects of Construction Delays on Project Delivery in the Nigerian Construction Industry*	*International Journal of Project Management*	*20*	*8*	*593–599*	*Delays - adverse effect on project delivery*	*Q. Survey*	*Nigeria*
36	*N Dayanand/ R Padman*	*2001*	*Project Contracts and Payment Schedules.The Client Problem.*	*Management Science*	*Published Online*		*1654 - 1667*	*Characteristics of optimal payment schedules*		*United States*
37	*National Treasury*	*1999*	*Public Finance Management Amendment Act (No. 29 of 1999)*	*Department: National Treasury, Republic of South Africa*				*Legislation governing payment*		*South Africa*
38	*Cape Town: Department of Public Works.*	*1999*	*Design and construction of infrastructure projects*	*Government of South Africa*						*South Africa*
39	*Talukhaba, A. A*	*1999*	*An investigation into factors causing construction project delays in Kenya (A Ph.D. thesis)*	*Department of Building Economics and Management, University of Nairobi*				*Late Payment*		*Kenya*
40	*M Dailami/D Leipziger*	*1998*	*Infrastructure Project Finance and Capital flows: A new Perspective.*	*World Development*	*26*	*7*	*1283-1298*			
41	*Henry A. Davis*	*1996*	*Cashflow and Performance Measurement: Managing for Value*	*Book*		*(November 1, 1996)*		*General*	*Comparative case study.*	*United States*
42	*R Navon*	*1996*	*Company Level Cash flow Management*	*Journal of Construction Engineering and Management*	*122*	*1*		*Development of a cash-flow management model*	*Documents*	*United States*
43	*McKenzie*	*1994*	*The Law of Building and Engineering Contracts and Arbitration 5th ed*				*152*	*Certification of works*		

44	*JG Perry/ RW Hayes*	*1985*	*Risk and its Management in Construction Projects*	*Proceedings of the Institution of Civil Engineers*	*78*	*1*	*499-521*	*Cost and time Overruns*		*Australia*
45	*M S Mohd Danuri / M E Che Munaaim / H Abdul Rahman / M Hanid*		*Late and Non-Payment Issues in the Malaysian Construction Industry- Contractors Perspective*	*Center for Project and Facilities Management, Faculty of the Built Environment, University of Malaya, 50603 Kuala Lumpur, Malaysia.*				*Late and non-payment issues*	*Q. Survey*	*Malaysia*
46	*Donald Towey*		*Cost Management of Construction Projects*	*Book*				*Cost Management*		
47	*Harold A. Kerzner*		*Project Management: A Systematic Approach to Planning, Scheduling and Controlling*	*Book*		*11th Editio n*		*Project Management*		
48	*Chan A. /Scott D.*	*2004*	*Factors Affecting the Success of A Construction Project*	*Journal of Construction Engineering and Management*	*130*	*1*		*Payments(CFFs& KPIs)*	*Documents*	*United States*
49	*SA Assaf/Al Hejji*	*2006*	*Causes of Delay in Large construction Projects*	*International Journal of Project Management*	*24*	*4*	*349–357*	*Effect of late payment*	*Q. Survey*	*Saudi Arabia*
50	*Kishore Raga/John Derek Taylor*		*Legislative and Administrative Directives Governing Procurement Procedures: A Case Study for South Africa*							*South Africa*
51			*New Engineering Contract (3rd Edition)*					*Payment Certificates, Payments*		*United Kingdom*
52			*Joint Builders Construction Contract*					*Payment Certificates, Payments*		*South Africa*
53	*Soetanto R and Proverbs D.G.*	*2002*	*Modelling Client Satisfaction Levels: The Impact of Contractor Performance*	*Construction Economics and Building*	*2*	*1*		*Client Satisfaction*	*Documents*	*Australia*
54	*Ang, S. S.*	*2006*	*Payment issues - The present dilemmas of Malaysian construction industry*	*Malaysia Australasian Journal of Construction Economics and Building*						*Malaysia*

55	*Ramachandra,T and Rotimi, J O*	*2011*	*The nature of payment problems in the New Zealand construction industry*	*Australasian Journal of Construction Economics and Building*	*11*	*2*	*22-33, 32*	*New Zealand*
56	*Banwell, H. and Ministry of Public Building and Works*	*1964*	*The placing and management of contracts for building and civil engineering work*	*Report of the committee: HMSO, London*				*United Kingdom*
57	*Cheng, T., Soo, G., Kumaraswamy, M., and Jin, W.*	*2009*	*Security of Payment for Hong Kong Construction Industry – Workable alternatives and suggestions*	*Building Journal Hong Kong China*			*60-77*	*China*
58	*Davenport, P.*	*2005*	*Security of payment - the pendulum has swung too far*	*Australian Construction Law*	*101*		*36-40*	*Australia*
59	*Egan, J.*	*1998*	*Rethinking Construction: The Report of the Construction Task Force*	*DETR, London*				*United Kingdom*
60	*Euginie, L.*	*2006*	*Curing the Ills of Non-Payment in the Construction Industry – the Singapore Experience*	*8th Surveyors' Congress, Kuala Lumpur: ISM*				*Singapore*
61	*Johnston S*	*1999*	*Debts and Interest in the Construction Industry: A guide to the late payment of commercial debts (interest) Act 1998*	*Thomas Telford Limited, London*				*United Kingdom*
62	*Kennedy, P.*	*2005*	*Statistics and trends in statutory adjudication in the UK since 1998*	*Paper presented at the meeting of the International forum on construction industry payment Act and Adjudication, Kuala Lumpur, Malaysia, 13-14 September2005*				*Malaysia*

63	*Khosrowshahi, R.*	*2000*	*A radical approach to risk in project financial management'*	*Proceedings of the 16th Annual ARCOM conference, Glasgow Caledonian University, September 6-8*			*547-556*	*Scotland*
64	*Latham, M.*	*1994*	*Constructing the team: final report of the government/industry review of procurement and contractual arrangements in the UK construction industry*	*HMSO: London*				*United Kingdom*
65	*Hughes, W., Hillebrant, P. and Murdoch, J.*	*1998*	*Financial protection in the UK building Industry. London*					*United Kingdom*
66	*Pettigrew, R*	*2005*	*The legal and contractual background. In: Payment under construction contracts legislation*	*Heron Quay Thomas Telford*				*United Kingdom*
67	*Wong, J.T.Y. and Hui, M.C.E.*	*2006*	*Construction project risks: further considerations for constructors' pricing in Hong Kong*	*Construction Management and Economics*	*24*	*(4)*	*425-438*	*China*
68	*Ye, K.M. and Rahman, A.H.*	*2010*	*Risk of late payment*					
69	*Mawdesley, M., Askew, W. and O'Reilly, M.*	*1997*	*Planning and Controlling Construction Projects: The Best Laid Plans*	*Addison Wesley Longman and The Chartered Institute of Building, Essex*			*42-67*	*United Kingdom*
70	*Ameer Ali,*	*2005*	*Payment in The Construction industry – towards Zero-Default*	*QS National Convention 2005, 10 – 11 August 2005, Hilton Kuala Lumpur*				*Malaysia*
71	*Bob, G.*	*2005*	*Construction Industry Payments and Adjudication an Australian Perspective- International Forum*	*Act and Adjudication Centre, Kuala Lumpur, Malaysia*				*Malaysia*

			On Construction Industry Payment					
72	*Davis Langdon & Seah Consultancy*	*2003*	*Construction Payment Blues-Why That Domino Effect. Executive Summaries for the Practitioner.*		*3*			
73	*Kennedy, P.*	*2005*	*Statistics and trends in statutory adjudication in the UK since 1998*	*International Forum on Construction Industry Payment Act and Adjudication*				*United Kingdom*
74	*Lip, E.*	*(2005)*	*The Changing Role of the Quantity Surveyor under the Security of Payment Legislation in Singapore.*	*QS National Convention 2005: Sustaining the Profession-towards Diversification, 10-11 August 2005, Kuala Lumpur*				*Singapore*
75	*Murdoch, J. and Hughes, W.*	*1996*	*Construction Contracts Law and Management,*	*E & FN Spon, London.*	*2nd Ed*			*United Kingdom*
76	*Ameer Ali, N.A*	*2006*	*A Construction Industry Payment and Adjudication Act: Reducing Payment Default and Increasing Dispute Resolution Efficiency in Construction*	*Master Builders*	*3rd Quart.*	*1*		
77	*Wong, J.T.Y., and Hui, E.C.M,*	*2006*	*Construction project risks: further considerations for constructor's pricing in Hong Kong*	*Construction Management and Economics*	*24*		*425-438*	*China*
78	*Zou, P.X.W., Zhang, G., and Wang, J*	*2007*	*Understanding the key risk in construction projects in China*	*International Journal of Project Management,*	*Article in Press*		*1-14*	*China*
79	*Abdul-Rahman, A., Munaaim, M.E.C., Danuri, M.S.M. and Berawi, M.A.*	*2008*	*Issues affecting payments in the building and construction industry of a rapidly developing economy*	*Building Engineer*	*Nov.*		*4-10.*	

80	*Banwell, H.*	*1964*	*The placing and management of contracts for building and civil engineering work*	*London: HMSO*				*United Kingdom*
81	*Hughes, W., Hillebrant, P. and Murdoch, J.*	*1998*	*Financial protection in the UK building Industry. London*	*E & FN Spo*				*United Kingdom*
82	*Kadir, M.R.A., Lee, W.P., Jaafar, M.S., Sapuan, S.M. and Ali, A.A.A*	*2005*	*Factors affecting construction labour productivity for Malaysian residential projects*	*Structural Survey*	*23*	*(1)*	*42-54*	*Malaysia*
83	*Latham, M.*	*1994*	*Constructing the team: Final report of the government industry review of procurement and contractual arrangements in the UK construction industry*	*London: HMSO*				*United Kingdom*
84	*Odeh, A.M. and Battaineh, H.T.*	*2002*	*Causes of construction delay: Traditional contracts. International Journal of Project Management*		*20(1)*		*67-73*	
85	*Pettigrew, R.*	*2005*	*The legal and contractual background. In: Payment under construction contracts legislation*	*Heron Quay Thomas Telford*				*United Kingdom*
86	*Sheridan, P.*	*2003*	*Claims and disputes in construction.*	*Construction Law Journal*	*12*	*(1)*	*3-13*	
87	*Wong, J.T.Y. and Hui, M.C.E.*	*2006*	*Construction project risks: further considerations for constructors' pricing in Hong Kong*	*Construction Management and Economics*	*24*	*(4)*	*425-38*	*China*
88	*Wu, J.,*	*2008*	*Payment Problems and*	*Journal of Professional Issues in*	*134*	*(4)*	*399-*	

	Kumaraswamy, M.M. and Soo, G.		*Regulatory Responses in the Construction Industry: Mainland China Perspective*	*Engineering Education and Practice*			*407*	
89	*Wu, J., Kumaraswamy, M.M. and Soo, G.*	*2011*	*Regulative Measures Addressing Payment Problems in the Construction Industry: A calculative understanding of their potential outcomes based on geometric models*	*Journal of Construction Engineering and Management*	*137*	*(8)*	*566-573*	
90	*Yates, D.*	*2003*	*Can claims and disputes (in construction contracts) be prevented or reduced?*	*Building Journal, Hong Kong, China*	*June*			*China*
91	*Abiero, A.*	*(2010).*	*Challenges of stakeholder management in implementation of Sondu Miriu hydropower project in Kenya*	*(Master's thesis in business administration, University of Nairobi).*				*Kenya*
92	*Alaghbari, W. E., Kadir, M. R. A., Salim, A., & Ernawati, K.*	*2007*	*The significant factors causing delay of building construction projects in Malaysia*	*Engineering, Construction and Architectural Management*	*14*	*(2)*	*192-206*	*Malaysia*
93	*Aziz, R. F.*	*2013*	*Factors causing cost variation for constructing wastewater projects in Egypt*	*Alexandria Engineering Journal*	*52*		*51-66*	*Egypt*
94	*Baldwin, J., & Manthei, J.*	*1971*	*Delay causes in the construction industry*	*Journal of the Construction Division*	*97*	*(2)*	*177-187*	
95	*De Souza, M.*	*2009*	*Project delays*	*Post Medium News*			*43*	

96	Frimpong, Y., Olowoye, J., & Crawford, L.	2003	Causes of delay and cost overruns in construction of ground water projects in developing countries: Ghana as a case study.	International Journal of Management	21	(1)	321-326	Ghana
97	Government of India	2006	Infrastructure delay report	New Delhi: Ministry of Statistics				India
98	Government of Qatar	2009	Major project and infrastructure in Qatar	Doha: Ministry of Public Works				Qatar
99	Government of South Africa.	1999	Design and construction of infrastructure projects	Cape Town: Department of Public Works.				South Africa
100	Gutman, J., Sy, A., & Chattopadhyay, S.	2015	Financing African infrastructure: Can the world deliver?	Washington, DC: Global Economy and Development at Brookings				USA
101	Majid, I.	2006	Causes and effect of delays in Aceh construction industry	(Master's thesis, University Technology, Malaysia)				Malaysia
102	Owolabi, J. D., Amusan, L. M., Oloke, C. O., Olusanya, O., Tunji-Olayeni, P., Owolabi, D.,Omuh, I.	2014	Causes and effect of delay on project construction delivery time	International Journal of Education and Research	2	(4)	197-208	
103	Sambasivan, M., & Soon, Y.	2007	Causes and effects of delays in Malaysian construction industry	International Journal of Project Management	25		517-526	Malaysia
104	Talukhaba, A. A.	1999	An investigation into factors causing construction project delays in Kenya	(A Ph.D. thesis, Department of Building Economics and Management, University of Nairobi).				Kenya

Internet Sources

1	*Megan van Wyngaardt*	*2017*	*Junk status to increase non-payment in construction industry*	*Creamer Media's Engineering News*	*On-line*	*South Africa*
2	*Lingayas University*	*2012*	*Research methodology; an Introduction*	*(Online) Available at http:www./mat.org/data/research. Research%20Methodolgy.pdf*	*Research Methodology (Accessed 15 July 2016)*	
3	*Barry, S.*	*2010*	*25 firms follow builder into liquidation*	*Retrieved 17 Feb 2016 from http://www.abc.net.au/news/stories/*		
4	*Gibson, A.*	*2009*	*Fletcher wins judgement in Melview case, New Zealand Herald*	*Retrieved 22 April 2016 from http://www.nzherald.co.nz/business/news/*		*New Zealand*
5	*Kenley, R.,*	*2002*	*Milking the cash cow. The New Zealand Herald*	*Retrieved [online] 17 August 2016. Available at: http://www.nzherald.co.nz/business/news/article.*		*New Zealand*
6	*Davies, J*	*2009*	*Protect yourself from insolvency in the construction industry*	*Available at:http://www.bsdlive.co.uk/ [Accessed 24 January 2016]*		*United Kingdom*
7	*Price water house Coopers*	*2014*	*Receivers' second six monthly report on the state of affairs.*	*Available at: http://www.pwc.co.nz/PWC.NZ. [Accessed 6 April 2016*		*New Zealand*
8	*CIDB*		*Certificates and invoicing, www.cidb.org.za*			*South Africa*

ANNEXURE A

RI-TABLE A

DESCRIPTION / CHARACTERISTIC OF THE POPULATION FOR 2013/14 2014/15 & 2015/2016 FINANCIAL YEARS

No.	SECTOR DEPARTMENT	No. of Projects	Typical type of Project	MTEF (New Infrastructure) R'000			Total Volume	Range R'000	Average R'000
1	**EDUCATION**	23	New Infrastructure	379 588	843 000	995 000	2 217 588	5 497-130 000	93 929
2	**HEALTH**	29	New Infrastructure	625 057	574 251	980 938	2 180 246	3 851-293 010	90 843
3	**SOCIAL DEVELOPMENT**	27	New Infrastructure	22 139	81 500	101 000	204 639	1 500-30 500	7 579
4	**HUMAN SETTLEMENTS**	63	New Infrastructure	4 046 448	2 077 204	2 057 034	8 180 686	1 215-99 119	49 579
5	**ROADS AND TRANSPORT**	29	New Infrastructure	94 448	206 608	138 000	439 056	15 500-162 256	15 139
6	**AGRIC. AND RURAL DEV.**	11	New Infrastructure	4 046	6 715	10 400	21 161	185-3 950	1 924
7	**INFRASTRUCTURE DEV.**	7	New Infrastructure	15 083	11 000		26 083	2615-12 569	3 726

ANNEXURE B

RI-TABLE B1

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT : EDUCATION

SUB PROGRAMME: NEW OR REPLACEMENT INFRASTRUCTURE ASSET

No.	Sector Department	Project Classification	Project Name	Municipality	Project Description/Type of Structure	Implementing Agent	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Education	New Construction	Edu-1	Ekurhuleni	School-Primary	Dept. of Infrastructure Development	15 000		
2	Education	New Construction	Edu-2	City of Johannesburg	School- Secondary	Dept. of Infrastructure Development	38 000		
3	Education	New Construction	Edu-3	City of Johannesburg	School- Secondary	Dept. of Infrastructure Development	38 000		
4	Education	New Construction	Edu-4	Ekurhuleni	School- Secondary	Dept. of Infrastructure Development	38 000		
5	Education	New Construction	Edu-5	City of Tshwane	School- Secondary	Independent Development Trust	5 497		
6	Education	New Construction	Edu-6	City of Johannesburg	School- Primary	Independent Development Trust	38 000		
7	Education	New Construction	Edu-7	City of Tshwane	School- Primary	Independent Development Trust	5 497		
8	Education	New Construction	Edu-8	West Rand District Municipality	School- Secondary/ Boarding	Infrastructure Development	20 000	70 000	40 000

9	Education	New Construction	Edu-9	City of Tshwane	School -Primary	Dept. of Education	6 300		
10	Education	New Construction	Edu-10	City of Tshwane	School-Primary	Dept. of Infrastructure Development	7 300		
11	Education	New Construction	Edu-11	City of Tshwane	School- Primary	Dept. of Infrastructure Development	17 000		40 000
12	Education	New Construction	Edu-12	Ekurhuleni	Special School	Dept. of Infrastructure Development	2 000	20 000	20 000
13	Education	New Construction	Edu-13	City of Johannesburg	School-Primary	Dept. of Infrastructure Development	5 497		
14	Education	New Construction	Edu-14	Ekurhuleni	School- Secondary	Dept. of Infrastructure Development	17 000	25 000	20 000
15	Education	New Construction	Edu-15	West Rand District Municipality	School- Secondary	Dept. of Infrastructure Development			
16	Education	New Construction	Edu-16	Ekurhuleni	School-Primary	Dept. of Infrastructure Development	17 000	20 000	20 000
17	Education	New Construction	Edu-17	City of Johannesburg	School-Primary	Dept. of Infrastructure Development	17 000	20 000	10 000
18	Education	New Construction	Edu-18	City of Johannesburg	School- Secondary	Dept. of Infrastructure Development	5 497		
19	Education	New Construction	Edu-19	Ekurhuleni	School-Primary	Independent Development Trust	40 000		
20	Education	New Construction	Edu-20	City of Johannesburg	Special School	Dept. of Infrastructure Development	17 000	40 000	36 000
21	Education	New Construction	Edu-21	West Rand District Municipality	Residential Facility	Dept. of Infrastructure Development	30 000	38 000	

22	Education	New Construction	Edu-22	Various	Schools-Prim/Sec	Dept. of Education	600 000	600 000
23	Education	New Construction	Edu-23	Various	Schools-Prim/Sec	Dept. of Education	10 000	209 000

RI-TABLE B2

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT : HEALTH

SUB PROGRAMME: HEALTH FACILITIES MANAGEMENT/ NEW OR REPLACEMENT INFRASTRUCTURE

No.	Sector Department	Project Classification	Project Name	Municipality	Project Description/Type of Structure	Implementing Agent	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Health	New Construction	H-1	City of Johannesburg	New AE&T,OPD, Rad, Pharmacy & Relocation	Dept. of Infrastructure Development	12 295		
2	Health	New Construction	H-2	Ekurhuleni	New 300 bed District Hospital	Dept. of Infrastructure Development	33 600		
3	Health	New Construction	H-3	Ekurhuleni	New 760 bed Regional Hospital	Dept. of Infrastructure Development	83 725		
4	Health	New Construction	H-4	City of Johannesburg	New 300 bed District Hospital and gateway Clinic	Dept. of Infrastructure Development	42 053		
5	Health	New Construction	H-5	Tshwane	Construction of new clinic	Dept. of Infrastructure Development	133		
6	Health	New Construction	H-6	Tshwane	Construction of new clinic	Dept. of Infrastructure Development		29 935	29 794
7	Health	New Construction	H-7	West Rand	Construction of new clinic	Dept. of Infrastructure Development	9 137	1 457	
8	Health	New Construction	H-8	Tshwane	Construction of Revitalization initiatives of the Regional Hospital	Dev. Bank of Southern Africa		45 200	125 280

9	Health	New Construction	H-9	West Rand	Construction of Revitalization initiatives of the Regional Hospital	Dev. Bank of Southern Africa		45 200	41 760
10	Health	New Construction	H-10	Ekurhuleni	Revitalization of District Hospital	Dev. Bank of Southern Africa		45 200	41 760
11	Health	New Construction	H-11	Tshwane	Construction of Revitilization initiatives of the Regional Hospital	Dev. Bank of Southern Africa		45 200	41 760
12	Health	New Construction	H-12	Sedibeng	Construction of Revitilization initiatives of the Regional Hospital	Dev. Bank of Southern Africa		45 200	125 280
13	Health	New Construction	H-13	Ekurhuleni	New staff residences to serve new hospital	Dept. of Infrastructure Development	11 000	56 640	43 649
14	Health	New Construction	H-14	Ekurhuleni	Widening of access road to new hospital	Dept. of Infrastructure Development	3 851		
15	Health	New Construction	H-15	Ekurhuleni	New mortuary-Daveyton	Dept. of Infrastructure Development		50 763	3 792
16	Health	New Construction	H-16	City of Johannesburg	New Mortuary	Dev. Bank of Southern Africa	1 000	11 815	67 680
17	Health	New Construction	H-17	Tshwane	New Mortuary	Dev. Bank of Southern Africa	3 800	26 615	1 607
18	Health	New Construction	H-18	West Rand	Conversion of existing meat factory into mortuary	Dept. of Infrastructure Development	2 000		
19	Health	New Construction	H-19	Tshwane	Construction of 250 bed District Hospital	Dept. of Infrastructure Development	4 139		
20	Health	New Construction	H-20	City of Johannesburg	Construction of new clinic	Dept. of Health		5 100	18 274

21	Health	New Construction	H-21	Tshwane	Construction of new clinic	Dept. of Health	1 400	20 230	1 185
22	Health	New Construction	H-22	City of Johannesburg	New 35000m2 medical Supply depot in Johannesburg to replace existing facility	Dept. of Health	1 000	29 750	262 260
23	Health	New Construction	H-23	Tshwane	New clinic on fenced site	Dept. of Health	1 400	20 230	1 184
24	Health	New Construction	H-24	Tshwane	New Inner city CHC	Dept. of Health	500	6 375	27 072
25	Health	New Construction	H-25	Tshwane	Construction of new clinic	Dept. of Health	500	2 380	19 712
26	Health	New Construction	H-26	Tshwane	Construction of new clinic	Dept. of Health	500	2 380	19 712
27	Health	New Construction	H-27	Tshwane	Construction of new clinic	Dept. of Health	500	1 955	21 319
28	Health	New Construction	H-28	City of Johannesburg	Construction of new perimeter fence around undeveloped property. Phase 1-1.6km, Phase 2-5.6km	Dept. of Health	1 280	3 808	
29	Health	New Construction	H-29	City of Johannesburg	Construction of new provincial Laundry	Dept. of Infrastructure Development	2 400	10 170	73 440

RI-TABLE B3

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT : SOCIAL DEVELOPMENT

SUB PROGRAMME: NEW OR REPLACEMENT INFRASTRUCTURE

No.	Sector Department	Project Classification	Project Name	Municipality	Project Description/Type of Structure	Implementing Agent	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Social Development	New Construction	SD-1	City of Tshwane	New Secure Care Centre at Soshanguve		4 000		
2	Social Development	New Construction	SD-2	City of Tshwane	New Secure Care Centre Equipment and Landscaping				
3	Social Development	New Construction	SD-3	City of Tshwane	Early Childhood Development Centre		250	7 500	
4	Social Development	New Construction	SD-4	City of Tshwane	Early Childhood Development Centre			250	7 500
5	Social Development	New Construction	SD-5	City of Tshwane	Early Childhood Development Centre				7 500
6	Social Development	New Construction	SD-6	Sedibeng	Early Childhood Development Centre			7 500	
7	Social Development	New Construction	SD-7	City of Johannesburg	Early Childhood Development Centre		250	7 500	
8	Social Development	New Construction	SD-8	Randfontein Local Municipality	Early Childhood Development Centre		250		
9	Social Development	New Construction	SD-9	Emfuleni Local Municipality	Early Childhood Development Centre		250	7 500	

10	Social Development	New Construction	SD-10	Merafong City	Early Childhood Development Centre			7 500
11	Social Development	New Construction	SD-11	City of Johannesburg	Aged Day Care Centre	250	7 500	
12	Social Development	New Construction	SD-12	Merafong City	Aged Day Care Centre			7 500
13	Social Development	New Construction	SD-13	Emfuleni Local Municipality	Aged Day Care Centre	250	7 500	
14	Social Development	New Construction	SD-14	Emfuleni Local Municipality	Aged Day Care Centre	7 500		
15	Social Development	New Construction	SD-15	City of Tshwane	Office Accomodation			4 000
16	Social Development	New Construction	SD-16	Merafong City	Office Accomodation			4 000
17	Social Development	New Construction	SD-17	Emfuleni Local Municipality	Office Accomodation		4 000	
18	Social Development	New Construction	SD-18	Emfuleni Local Municipality	Office Accomodation	4 000		
19	Social Development	New Construction	SD-19	City of Johannesburg	Mini Substation, Guardhouse, Wall/Fencing and Landscaping		1 500	
20	Social Development	New Construction	SD-20	Emfuleni Local Municipality	Mini Substation, Guardhouse, Wall/Fencing and Landscaping		2 000	
21	Social Development	New Construction	SD-21	Merafong City	Mini Substation, Industrial Kitchen, Guardhouse, Wall/Fencing and Landscaping			2 000
22	Social Development	New Construction	SD-22	Emfuleni Local Municipality	Mini Substation, Guardhouse, Wall/Fencing and		1 500	

					Landscaping			
23	Social Development	New Construction	SD-23	Lesedi Local Municipality	Shelter for Vunerable Women and Children	250	6 000	7 500
24	Social Development	New Construction	SD-24	Merafong City	Outpatient substance abuse Rehabilitation Centre		250	7 000
25	Social Development	New Construction	SD-25	Mogale City	Retaining Wall	2 639		
26	Social Development	New Construction	SD-26	Sedibeng	Inpatient Rehab Facility	500	9 000	21 000
27	Social Development	New Construction	SD-27	Merafong City	Youth Drop In Centre	250	250	7 000

RI-TABLE B4

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT : HUMAN SETTLEMENTS

SUB PROGRAMME: NEW OR REPLACEMENT INFRASTRUCTURE ASSET

No.	Sector Department	Project Classification	Project Name	Region	Project Description/Type of Structure	Housing Programme	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Human Settlements	New Construction	HS-1	Johannesburg	Construction of Houses	Financial Intervention	385	405	425
2	Human Settlements	New Construction	HS-2	Johannesburg	Construction of Houses	Financial Intervention	915	961	1 009
3	Human Settlements	New Construction	HS-3	Johannesburg	Construction of Houses	Financial Intervention	385	405	425
4	Human Settlements	New Construction	HS-4	Johannesburg	Construction of Houses	Financial Intervention	1 927	2 024	2 024
5	Human Settlements	New Construction	HS-5	Johannesburg	Construction of Houses	Financial Intervention	1 927	2 024	2 024
6	Human Settlements	New Construction	HS-6	Johannesburg	Construction of Houses	Financial Intervention	1 927	2 024	2 024
7	Human Settlements	New Construction	HS-7	Johannesburg	Construction of Houses	Financial Intervention		8 295	
8	Human Settlements	New Construction	HS-8	Johannesburg	Construction of Houses	Financial Intervention		26 100	26 100
9	Human Settlements	New Construction	HS-9	Johannesburg	Construction of Houses	Financial Intervention	8 700	13 050	13 050
10	Human Settlements	New Construction	HS-10	Tshwane	Mixed Housing Development	Financial Intervention	6 200	6 200	6 200

11	Human Settlements	New Construction	HS-11	Johannesburg	Construction of Houses	Incremental Housing Programmes	14 574		
12	Human Settlements	New Construction	HS-12	Johannesburg	Construction of Houses	Incremental Housing Programmes	21 861	7 287	
13	Human Settlements	New Construction	HS-13	Johannesburg	Construction of Houses	Incremental Housing Programmes	12 933	19 010	25 346
14	Human Settlements	New Construction	HS-14	Johannesburg	Construction of Units	Incremental Housing Programmes	11 522	12 098	12 703
15	Human Settlements	New Construction	HS-15	Johannesburg	Construction of Units	Incremental Housing Programmes	20 000		
16	Human Settlements	New Construction	HS-16	Johannesburg	Construction of Services, Houses & Units	Incremental Housing Programmes	60 688	69 984	73 483
17	Human Settlements	New Construction	HS-17	Johannesburg	Construction of Houses by Contractor	Incremental Housing Programmes	29 148	30 606	32 136
18	Human Settlements	New Construction	HS-18	Johannesburg	Construction of Houses	Incremental Housing Programmes			12 600
19	Human Settlements	New Construction	HS-19	Johannesburg	Construction of Houses	Incremental Housing Programmes	7 287	7 651	8 034
20	Human Settlements	New Construction	HS-20	Johannesburg	Construction of Houses	Incremental Housing Programmes	14 574	15 303	16 068
21	Human Settlements	New Construction	HS-21	Johannesburg	Construction of Units	Incremental Housing Programmes	29 148	30 606	32 136
22	Human Settlements	New Construction	HS-22	Johannesburg	Planning	Incremental Housing Programmes	10 000	10 500	11 025
23	Human Settlements	New Construction	HS-23	Johannesburg	Construction of Houses	Incremental Housing Programmes	20 000	21 000	22 050

24	Human Settlements	New Construction	HS-24	Johannesburg	Planning & Construction of Houses	Incremental Housing Programmes	70 048	14 175	14 884
25	Human Settlements	New Construction	HS-25	Johannesburg	Construction of Houses	Incremental Housing Programmes	56 085	6 300	6 615
26	Human Settlements	New Construction	HS-26	Johannesburg	Planning, Construction of Houses, Provision of Services	Incremental Housing Programmes	1 385		
27	Human Settlements	New Construction	HS-27	Johannesburg	Planning & Construction of Houses	Incremental Housing Programmes	32 146	33 753	35 441
28	Human Settlements	New Construction	HS-28	Johannesburg	Planning & Construction of Houses	Incremental Housing Programmes	25 000	26 250	27 563
29	Human Settlements	New Construction	HS-29	Johannesburg	Planning, Construction of Houses, Construction of Units, Provision of Services	Incremental Housing Programmes	15 000	84 200	37 700
30	Human Settlements	New Construction	HS-30	Johannesburg	Construction of Houses	Incremental Housing Programmes	10 931	11 477	12 050
31	Human Settlements	New Construction	HS-31	Johannesburg	Construction of Houses	Incremental Housing Programmes	7 488	4 036	4 238
32	Human Settlements	New Construction	HS-32	Johannesburg	Construction of Houses	Incremental Housing Programmes	10 931		
33	Human Settlements	New Construction	HS-33	Johannesburg	Construction of Houses	Incremental Housing Programmes	3 644		
34	Human Settlements	New Construction	HS-34	Johannesburg	Construction of Houses	Incremental Housing Programmes	6 337		
35	Human Settlements	New Construction	HS-35	Johannesburg	Construction of Houses	Incremental Housing Programmes	12 673		

36	Human Settlements	New Construction	HS-36	Johannesburg	Construction of Houses	Incremental Housing Programmes	6 337		
37	Human Settlements	New Construction	HS-37	Johannesburg	Construction of Houses	Incremental Housing Programmes	7 287	7 651	8 034
38	Human Settlements	New Construction	HS-38	Johannesburg	Construction of Houses	Incremental Housing Programmes	12 680	13 314	13 979
39	Human Settlements	New Construction	HS-39	Johannesburg	Planning & Construction of Houses	Incremental Housing Programmes	12 576	13 204	13 866
40	Human Settlements	New Construction	HS-40	Johannesburg	Construction of Houses	Incremental Housing Programmes	14 574		
41	Human Settlements	New Construction	HS-41	Johannesburg	Construction of Houses	Incremental Housing Programmes	2 300		
42	Human Settlements	New Construction	HS-42	Johannesburg	Planning & Construction of Houses	Incremental Housing Programmes	6 382		
43	Human Settlements	New Construction	HS-43	Johannesburg	Planning & Construction of Houses	Incremental Housing Programmes	15 348		
44	Human Settlements	New Construction	HS-44	Johannesburg	Construction of Houses	Incremental Housing Programmes	2 875		
45	Human Settlements	New Construction	HS-45	Johannesburg	Construction of Houses	Incremental Housing Programmes	2 875		
46	Human Settlements	New Construction	HS-46	Johannesburg	Construction of Houses	Incremental Housing Programmes	2 500		
47	Human Settlements	New Construction	HS-47	Johannesburg	Construction of Houses	Incremental Housing Programmes	5 000		
48	Human Settlements	New Construction	HS-48	Johannesburg	Construction of Houses	Incremental Housing Programmes	11 004		

49	Human Settlements	New Construction	HS-49	Johannesburg	Mixed Housing Development	Incremental Housing Programmes	25 696	52 941	40 093
50	Human Settlements	New Construction	HS-50	Johannesburg	Mixed Housing Development	Incremental Housing Programmes	12 848	16 037	44 922
51	Human Settlements	New Construction	HS-51	Johannesburg	Mixed Housing Development	Incremental Housing Programmes		10 588	21 176
52	Human Settlements	New Construction	HS-52	Johannesburg	Mixed Housing Development	Incremental Housing Programmes	55 096	6 424	31 765
53	Human Settlements	New Construction	HS-53	Johannesburg	Mixed Housing Development	Incremental Housing Programmes	15 291	23 910	26 316
54	Human Settlements	New Construction	HS-54	Johannesburg	Mixed Housing Development	Incremental Housing Programmes	26 102	11 223	27 216
55	Human Settlements	New Construction	HS-55	Johannesburg	Mixed Housing Development	Incremental Housing Programmes	40 093	32 074	24 056
56	Human Settlements	New Construction	HS-56	Johannesburg	Mixed Housing Development	Incremental Housing Programmes		40 093	32 555
57	Human Settlements	New Construction	HS-57	Johannesburg	Mixed Housing Development	Incremental Housing Programmes		23 746	23 746
58	Human Settlements	New Construction	HS-58	Johannesburg	Mixed Housing Development	Incremental Housing Programmes		15 727	32 074
59	Human Settlements	New Construction	HS-59	Johannesburg	Mixed Housing Development	Incremental Housing Programmes		15 727	24 056
60	Human Settlements	New Construction	HS-60	Johannesburg	Construction of Houses	Incremental Housing Programmes	385	405	425
61	Human Settlements	New Construction	HS-61	Johannesburg	Construction of Houses	Incremental Housing Programmes	915	961	1 009

62	Human Settlements	New Construction	HS-62	Johannesburg	Construction of Houses	Incremental Housing Programmes	385	405	425
63	Human Settlements	New Construction	HS-63	Johannesburg	Construction of Houses	Incremental Housing Programmes	1 927	2 024	2 024

RI-TABLE B5

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT : ROADS AND TRANSPORT

SUB PROGRAMME: NEW INFRASTRUCTURE ASSET

No.	Sector Department	Project Classification	Project Name	Municipality	Project Description/Type of Structure	Implementing Agent	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Roads and Transport	New Construction	RT-1	Ekurhuleni	Tembisa Urban Renewal	Dept. Roads and Transport	1500	3000	3000
2	Roads and Transport	New Construction	RT-2	Johannesburg	New Construction of a dual carriageway including bridge construction	Dept. Roads and Transport	37745	114511	10000
3	Roads and Transport	New Construction	RT-3	Johannesburg	Upgrading of a single carriageway	Dept. Roads and Transport			1000
4	Roads and Transport	New Construction	RT-4	Johannesburg	Capacity and access improvements for City Deep Freight Hubs	Dept. Roads and Transport		11000	
5	Roads and Transport	New Construction	RT-5	City of Johannesburg	IPTN Public Transport Nodal/Transfer Facility	Dept. Roads and Transport	10413	7737	
6	Roads and Transport	New Construction	RT-6	Mogale City	IPTN Public Transport Nodal/Transfer Facility	Dept. Roads and Transport	15000	30000	4500
7	Roads and Transport	New Construction	RT-7	Sedibeng	IPTN Public Transport Nodal/Transfer Facility	Dept. Roads and Transport	12000	11800	6050

8	Roads and Transport	New Construction	RT-8	Ekurhuleni	Public Transport Nodal Transfer Facility	Dept. Roads and Transport		12060	14450
9	Roads and Transport	New Construction	RT-9	City of Tshwane	Public Transport Nodal Transfer Facility	Dept. Roads and Transport	2000	8000	5500
10	Roads and Transport	New Construction	RT-10	West Rand	Public Transport Nodal Transfer Facility	Dept. Roads and Transport	2500		11000
11	Roads and Transport	New Construction	RT-11	City of Johannesburg	Public Transport Nodal Transfer Facility	Dept. Roads and Transport	2500		14000
12	Roads and Transport	New Construction	RT-12	Ekurhuleni	Public Transport Nodal Transfer Facility	Dept. Roads and Transport	2580		32000
13	Roads and Transport	New Construction	RT-13	Ekurhuleni	Public Transport Nodal Transfer Facility	Dept. Roads and Transport		2500	125000
14	Roads and Transport	New Construction	RT-14	City of Johannesburg	Public Transport Nodal Transfer Facility	Dept. Roads and Transport		2500	13000
15	Roads and Transport	New Construction	RT-15	City of Tshwane	Public Transport Nodal Transfer Facility	Dept. Roads and Transport			2000
16	Roads and Transport	New Construction	RT-16	Ekurhuleni	Public Transport Nodal Transfer Facility	Dept. Roads and Transport			2000
17	Roads and Transport	New Construction	RT-17	West Rand	Public Transport Nodal Transfer Facility	Dept. Roads and Transport			2000
18	Roads and Transport	New Construction	RT-18	Johannesburg	Construction of a new DLTC	Dept. Roads and Transport			
19	Roads and Transport	New Construction	RT-19	West Rand		Dept. Roads and Transport	1417		
20	Roads and Transport	New Construction	RT-20	Ekurhuleni	Construction of a new DLTC	Dept. Roads and Transport	1417		

21	Roads and Transport	New Construction	RT-21	City of Tshwane	Construction of a new DLTC	Dept. Roads and Transport	1416		
22	Roads and Transport	New Construction	RT-22	Johannesburg/ Ekurhuleni	Planning and design of new DLTCs	Dept. Roads and Transport		5000	20000
23	Roads and Transport	New Construction	RT-23	Ekurhuleni	Construction of new DLTCs	Dept. Roads and Transport			
24	Roads and Transport	New Construction	RT-24	Sedibeng	Feasibility Study	Dept. Roads and Transport	500	1500	
25	Roads and Transport	New Construction	RT-25	Tshwane	Feasibility Study	Dept. Roads and Transport		500	1500
26	Roads and Transport	New Construction	RT-26	Ekurhuleni	Feasibility Study	Dept. Roads and Transport		500	1500
27	Roads and Transport	New Construction	RT-27	Tshwane	Feasibility Study	Dept. Roads and Transport		1000	3000
28	Roads and Transport	New Construction	RT-28	West Rand/Mogale City	Feasibility Study	Dept. Roads and Transport	1000		
29	Roads and Transport	New Construction	RT-29	Ekurhuleni	Feasibility Study	Dept. Roads and Transport	2500	1500	

RI-TABLE B6

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT: AGRIC. AND RURAL DEV.

SUB PROGRAMME: NEW INFRASTRUCTURE ASSET

No.	Sector Department	Project Classification	Project Name	Municipality	Project Description/Type of Structure	Implementing Agent	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Agriculture and Rural Development	New Construction	ARD-1	Ekurhuleni	Booster Pump for Northern water line	Infrastructure Development	641		
2	Agriculture and Rural Development	New Construction	ARD-2	Ekurhuleni	New Adventure Centre	Independent Development Trust	750	3000	200
3	Agriculture and Rural Development	New Construction	ARD-3	Ekurhuleni	Southern water line	Infrastructure Development	740	1500	200
4	Agriculture and Rural Development	New Construction	ARD-4	Ekurhuleni	New Adventure Centre	Independent Development Trust			2500
5	Agriculture and Rural Development	New Construction	ARD-5	City of Tshwane	New swimming pool for small children	Independent Development Trust	185		
6	Agriculture and Rural Development	New Construction	ARD-6	City of Tshwane	Creation of Interpretive trail	Independent Development Trust	200		
7	Agriculture and Rural Development	New Construction	ARD-7	City of Tshwane	New pipe network for the whole reserve from the municipal line	Independent Development Trust	400		
8	Agriculture and Rural Development	New Construction	ARD-8	City of Tshwane	New Road between reserve and mine	Independent Development Trust	1140	215	
9	Agriculture and Rural Development	New Construction	ARD-9	City of Tshwane	New carports, paving and road to	Independent Development		2000	2500

					parking area	Trust	
10	Agriculture and Rural Development	New Construction	ARD-10	City of Tshwane	Paving at the Warehouse	Independent Development Trust	2500
11	Agriculture and Rural Development	New Construction	ARD-11	Merafong	Construction of concrete palisade fence	Independent Development Trust	2500

RI-TABLE B7

INVESTIGATION INTO EXTENT OF LATE PAYMENT

DEPARTMENT: INFRASTRUCTURE DEV.

SUB PROGRAMME: NEW INFRASTRUCTURE ASSET

No.	Sector Department	Project Classification	Project Name	Municipality	Project Description/Type of Structure	Implementing Agent	2013 Medium Term Estimates R'000		
							2013/14 Financial Year	2014/15 Financial Year	2015/16 Financial Year
1	Infrastructure Development	New Construction	IND-1	City of Johannesburg	Construction of a Heritage Centre	Infrastructure Development	7 600		
2	Infrastructure Development	New Construction	IND-2	Sedibeng	Construction of a Heritage Centre	Infrastructure Development	1 950		
3	Infrastructure Development	New Construction	IND-3	Mogale	Construction of a Heritage Centre	Infrastructure Development	1 615	1 000	
4	Infrastructure Development	New Construction	IND-4	City of Johannesburg	VIP Toilets &Communal Water Supply	Infrastructure Development	600		
5	Infrastructure Development	New Construction	IND-5	Tshwane	Construction of a New Facility	Infrastructure Development	250		
6	Infrastructure Development	New Construction	IND-6	Tshwane	Construction of a New Facility	Infrastructure Development	2 569	10 000	
7	Infrastructure Development	New Construction	IND-7	Ekurhuleni	Construction of a New Facility- Repairs to vandalism	Infrastructure Development	500		

ANNEXURE C

RI-TABLE C

MODEL OF CERTFICATION OF PAYMENT PROCESS (Questionnaire)

DEPARTMENT :

PROJECT NAME: **PROJECT NUMBER:**

VENDOR NUMBER :

Invoice Number:

Invoice Date:

Invoice Expected Payment Date

Invoice Actual Payment Date

Contractual Payment time: 30 days (PFMA)

Actual Payment time :

Steps	Activity	Responsible Person (or Entity) For Action	Normal Time frame (days)	Actual Time Expended (days)	Reasons for delay (Please indicate numbers on list provided)	Respondent		
						Name	Designation	Contact Details
Start								
1	**Invoice** is received by the IA Head Office Finance team. Invoice is date stamped recorded and despatched to IA Project Management Office.	IA- Head Office Finance Team	1					
2	**Invoice** is sent to the IA Project Management team. Invoice is date stamped and recorded.	Project Management Office Finance Team	1					

3	**Invoice** is checked and certified by the responsible IA Project Manager.	Project Manager	-					
4	**Payment Advice** is prepared by IA Project Management office Finance team. This consists of 2 components. 1- Actual Invoice 2- Payment Certificate	Project Management Office Finance Team	1					
5	IA- PM/D/CD/DDG (as per assigned mandate per individual project) signs payment advice and submits to Finance team at Head Office.	Project Manager Director Chief Director Deputy Director General	1					
6	**Payment Advice** is scanned/ recorded and sent back to Sector Department, Head Office Finance Team .	Project Management Office Finance Team	-					
7	A compiled payment is the composed. A Compiled Payment consists of 4 documents 1-Invoice 2- Payment Certificate 3-Payment book (Cheque book) and 4- Allocation Attachment. Payment is recorded in a payments ledger.	Assistant Director- Sector Dept. Finance Team	1					
8	Payment is forwarded to Sector Department Finance Team for Quality Assurance.	Deputy Director - Sector Dept. Finance Team	1					
9	Payment sent to CFO. He/She checks accuracy of payment and certifies.	Chief Financial Officer -Sector Department	1					
10	Payment is thereafter sent to Gauteng Department of	Assistant Director,	1					

	Finance and scanned to SAP (System, Applications and Products) software. Payment is again quality checked by accounts payable officials. The payment is then routed back to the Sector Department officials.	Accounts Payable- Gauteng Dept. of Finance.						
11	**Payment** is allocated funds and routed back to Sector Department Finance Team.	Assistant Director, Accounts Payable- Gauteng Dept. of Finance.	-					
12	The Sector Department Finance Team allocates the **Payment** according to source of funding. Information is captured on the system.	Deputy Director - Sector Dept. Finance Team	1		Ceiling for funds payable from the particular fund source already reached. Y/N?			
13	**Payment** is then taken back to treasury in the form of a list showing the assignment of payments to the various funding sources.	Deputy Director - Dept. of Finance.	2					
14	Gauteng Department of Finance releases funds in accordance with the approved payment list from the Sector Department. The list stipulates the name of the project/ source of funding/amount, amongst others of each Payment.	Chief Financial Officer (CFO) Dept. of Finance.	1					
15	A trunch payment is made from the Gauteng Department of Finance to	Chief Financial Officer (CFO) Dept. of Finance.	2					

	the Sector Department.							
16	The Sector Department transfers the required amount to the Implementing Agent (IA).	Chief Financial Officer (CFO) Sector Department.	2					
17	The Implementing Agent (IA) pays the Contractor		-					
18	**Payment** tracking concluded (Payment received by the Contractor		-					
Finish/ TOTAL			**16**					

ANNEXURE D

RI-TABLE D			SUMMARY MATRIX - CERTFICATION OF PAYMENT									
	SECTOR DEPARTMENT (SD)	Project Population	Project Sample population	No. of Invoices Sampled	Total no. of Invoices sampled per SD	Volume R' 000	REASONS FOR DELAY IN PAYMENT					
							Delayed payment in government Infrastructure projects is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously.	Disputes over payment claims and responses	Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor.	The Sector Department wrongfully withholding payment is an influencing factor in the late payment of contractors.	Payment Culture: Chain payment & work first get paid later.	Sector Departments poor financial management is an influencing factor in the late payment of contractors
No.							**1**	**2**	**3**	**4**	**5**	**6**
1	**EDUCATION**	**23**	**10**	8	80	2 217 588	1	5	4		5	1
2	**HEALTH**	**29**	**12**	8	96	2 180 246	3	6	3	1		1
3	**SOCIAL DEVELOPMENT**	**27**	**13**	8	104	204 639	1	3	3		2	1
4	**HUMAN SETTLEMENTS**	**63**	**30**	8	240	8 180 686	6	7	2			
5	**ROADS AND TRANSPORT**	**29**	**15**	8	120	439 056	2	3		3		
6	**AGRIC. AND RURAL DEV.**	**11**	**5**	8	40	21 161	1		1			2
7	**INFRASTRUCTURE DEVELOPMENT**	**7**	**3**	8	24	26 083	1	1			1	
TOTAL		**172**	**88**		**704**		**15**	**25**	**13**	**4**	**8**	**5**

RI-TABLE D

SUMMARY MATRIX - CERTFICATION OF PAYMENT (cont'd)

	SECTOR DEPARTMENT	REASONS FOR DELAY IN PAYMENT											
		The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors.	Delay in Certification by IA is an influencing factor in the late payment of contractors.	Cost overruns and contract failure.	Short of current year project /programme budget is a influencing factor in the late payment of contractors.	Delay in submitting contractors payment claim is an influencing factor in the late payment of contractors.	Time overruns of Projects.	Poor communication among parties involved is an influencing factor in the late payment of contractors.	Conflict among parties involved is an influencing factor in the late payment of contractors.	Disputes over quality of work.	Administrative Bureaucracy	Poor understanding of the contract is an influencing factor in the late payment of contractors.	Complications from contractual conditions
No.		**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
1	**EDUCATION**	3		3	3	1		3	1	4	4	5	3
2	**HEALTH**			5	2					4	6	4	6
3	**SOCIAL DEVELOPMENT**	2		2		1		2		3			
4	**HUMAN SETTLEMENTS**		2		1	5	1			7	8	8	8
5	**ROADS AND TRANSPORT**			1				2	1	2	4		3
6	**AGRIC. AND RURAL DEV.**				1	1				2			
7	**INFRASTRUCTURE DEVELOPMENT**	1		2				2		1	1	1	1
TOTAL		**6**	**2**	**13**	**7**	**8**	**1**	**9**	**2**	**23**	**23**	**18**	**21**

RI-TABLE D

SUMMARY MATRIX - CERTFICATION OF PAYMENT (cont'd)

	SECTOR DEPARTMENT	REASONS FOR DELAY IN PAYMENT												
		Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors.	Procurement methods used	Contract types used	Standard forms of contracts used (right to payment and non-payment provisions)	Legislative procedures (Construction Contracts Act)	Attitude of payer	Structure of the industry: Involvement of many commercial parties	Duration of projects (long-run or short-run)	Disagreement on the valuation of work done is an influencing factor in the late payment of contractors.	Political/policy changes	**Total number of cited factors**	No. of Invoices **PAID LATE** No.(%)	No. of Invoices **NOT PAID LATE** No. (%)
No.		**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**			
1	**EDUCATION**	4	1	2		1		2	6	1	3	66	26 (33)	54(67)
2	**HEALTH**	3			1			3				48	41(43)	55(57)
3	**SOCIAL DEVELOPMENT**		1			1	1			2		25	29(28)	75(72)
4	**HUMAN SETTLEMENTS**	3	1	2		2		2			2	67	105(44)	135(56)
5	**ROADS AND TRANSPORT**	2	1							1		25	68(57)	52(43)
6	**AGRIC. AND RURAL DEV.**	4									1	13	21(53)	19(47)
7	**INFRASTRUCTURE DEVELOPMENT**	2	1	1								16	13(54)	11(46)
TOTAL		**18**	**5**	**5**	**1**	**4**	**1**	**7**	**6**	**4**	**6**		**303 (43)**	**401(57)**

ANNEXURE E

KEY

Highest Count per Sector Department

2nd highest count per Sector Department

3rd highest count per Sector Department

Highest count per specific Reason/Factor Department

RI-TABLE D

MOST IMPORTANT FACTORS RESPONSIBLE FOR LATE PAYMENT IN GOVERNMENT INFRASTRUCTURE NEW BUILD PROJECTS PER SECTOR DEPARTMENT

SECTOR DEPARTMENT	Project Population	Project Sample population	No. of Invoices Sampled per sampled project	Volume R' 000	REASONS FOR DELAY IN PAYMENT																														
					Delayed payment in government Infrastructure projects is linked to the inability of the implementing agent to access sufficient quantity contractor output timeously.	Disputes over payment claims and responses	Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor.	The Sector Department wrongfully withholding payment is an influencing factor in the late payment of contractors.	Payment Culture: Chain payment & work first get paid later.	Sector Departments poor financial management is an influencing factor in the late payment of contractors	The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors.	Delay in Certification by IA is a an influencing factor in the late payment of contractors.	Cost overuns and contract failure	Short of current year project /programme budget is a influencing factor in the late payment of contractors.	Delay in submitting contractors payment claim is an influencing factor in the late payment of contractors	Time overun of Projects	Poor communication among parties involved is an influencing factor in the late payment of contractors.	Conflict among parties involved is an influencing factor in the late payment of contractors.	Disputes over quality of work	Administrative Bureaucracy	Poor understanding of the contract is an influencing factor in the late payment of contractors.	Complications from contractual conditions	Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors.	Procurement methods used	Contract types used	Standard forms of contracts used (right to payment and non-payment provisions)	Legislative procedures (Construction Contracts Act)	Attitude of payer	Structure of the industry: Involvement of many commercial parties	Duration of projects (long-run or short run)	Disagreement on the valuation of work done is an influencing factor in the late payment of contractors.	Political/policy changes	Total number of cited factors per Sector Department	No. of Invoices PAID LATE No.(%)	No. of Invoices NOT PAID LATE No. (%)
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Education	23	10	8	2 217 588	1	5	4		5	1	3		3	3	1		3	1	4	4	5	3	4	1	2		1		2	6	1	3	66	**26(33)**	**54(67)**
Health	29	12	8	2 180 246	3	6	3	1		1			5	2					4	6	4	6	3			1			3				48	**41(43)**	**55(57)**
Social Development	17	13	8	204 639	1	3	3		2	1	2		2		1		2		3					1			1	1			2		25	**29(28)**	**75(72)**
Human Settlements	63	30	8	8 180 686	6	7	2					2		1	5	1			7	8	8	8	3	1	2		2		2			2	67	**105(44)**	**135(56)**
Roads and Transport	29	15	8	439 056	2	3		3					1				2	1	2	4		3	2	1							1		25	**68(57)**	**52(43)**
Agric. and Rural Dev.	11	5	8	21 161	1		1			2				1	1				2				4									1	13	**21(53)**	**19(47)**
Infrastructure Development	7	3	8	26 083	1	1			1		1		2				2		1	1	1	1	2	1	1								16	**13(54)**	**11(46)**
TOTAL	**179**	**88**		**13 269 459**	**15**	**25**	**13**	**4**	**8**	**5**	**6**	**2**	**13**	**7**	**8**	**1**	**9**	**2**	**23**	**23**	**18**	**21**	**18**	**5**	**5**	**1**	**4**	**1**	**7**	**6**	**4**	**6**	**260**	**303(43)**	**401(57)**

RI-TABLE E

MOST PREVALENT FACTOR(S) PER SECTOR DEPARTMENT

PERIOD: 2013-2016

SECTOR DEPARTMENT	Project Population	Project Sample population	No. of Invoices Sampled per sampled project	Volume R' 000	REASONS FOR DELAY IN PAYMENT																														
					Delayed payment in government Infrastructure projects is linked to the inability of the implementing agent to access sufficient quantity contractor output timeously.	Disputes over payment claims and responses	Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor.	The Sector Department wrongfully withholding payment is an influencing factor in the late payment of contractors.	Payment Culture: Chain payment & work first get paid later.	Sector Departments poor financial management is an influencing factor in the late payment of contractors	The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors.	Delay in Certification by IA is a an influencing factor in the late payment of contractors.	Cost overuns and contract failure	Short of current year project /programme budget is a influencing factor in the late payment of contractors.	Delay in submitting contractors payment claim is an influencing factor in the late payment of contractors	Time overun of Projects	Poor communication among parties involved is an influencing factor in the late payment of contractors.	Conflict among parties involved is an influencing factor in the late payment of contractors.	Disputes over quality of work	Administrative Bureaucracy	Poor understanding of the contract is an influencing factor in the late payment of contractors.	Complications from contractual conditions	Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors.	Procurement methods used	Contract types used	Standard forms of contracts used (right to payment and non-payment provisions)	Legislative procedures (Construction Contracts Act)	Attitude of payer	Structure of the industry: Involvement of many commercial parties	Duration of projects (long-run or short run)	Disagreement on the valuation of work done is an influencing factor in the late payment of contractors.	Political/policy changes	Total number of cited factors per Sector Department	No. of Invoices PAID LATE No.(%)	No. of Invoices NOT PAID LATE No. (%)
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			
Education	23	10	8	2 217 588	1	5	4		5	1	3		3	3	1		3	1	4	4	5	3	4	1	2		1		2	6	1	3	66	**26(33)**	**54(67)**
Health	29	12	8	2 180 246	3	6	3	1		1			5	2					4	6	4	6	3			1			3				48	**41(43)**	**55(57)**
Social Development	17	13	8	204 639	1	3	3		2	1	2		2		1		2		3					1			1	1			2		25	**29(28)**	**75(72)**
Human Settlements	63	30	8	8 180 686	6	7	2					2		1	5	1			7	8	8	8	3	1	2		2		2			2	67	**105(44)**	**135(56)**
Roads and Transport	29	15	8	439 056	2	3		3					1				2	1	2	4		3	2	1							1		25	**68(57)**	**52(43)**
Agric. and Rural Dev.	11	5	8	21 161	1		1			2				1	1				2				4									1	13	**21(53)**	**19(47)**
Infrastructure Development	7	3	8	26 083	1	1			1		1		2				2		1	1	1	1	2	1	1								16	**13(54)**	**11(46)**
TOTAL	**179**	**88**		**13 269 459**	**15**	**25**	**13**	**4**	**8**	**5**	**6**	**2**	**13**	**7**	**8**	**1**	**9**	**2**	**23**	**23**	**18**	**21**	**18**	**5**	**5**	**1**	**4**	**1**	**7**	**6**	**4**	**6**	**260**	**303(43)**	**401(57)**

ANNEXURE F

School of Construction Economics and Management
Faculty of Engineering and the Built Environment
University of the Witwatersrand, Johannesburg
Private Bag 3, WITS, 2050

30 November 2016

Participation Consent Form:

FACTORS THAT INFLUENCE LATE PAYMENTS IN GOVERNMENT CAPITAL INFRASTRUCTURE PROJECTS IN GAUTENG PROVINCE, SOUTH AFRICA

CONSENT:

I hereby agree to participate in a research on **'Factors that influence late payments in Government Capital Infrastructure projects in Gauteng Province, South Africa'.** I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop participating at any point should I not want to continue and that this decision will not in any way affect me negatively. I understand that this is a research project and the purpose is not necessarily to benefit me personally in the immediate or short term. I understand that my participation will remain confidential.

_____

Signature of participant
Date:

I understand that the information that I provide will be stored electronically and will be used for research purposes only at this present time.

_____

Signature of participant

Date:

Participant Information Sheet

School of Construction Economics and Management
Faculty of Engineering and the Built Environment
University of the Witwatersrand, Johannesburg
Private Bag 3, WITS, 2050

09 September 2016

Dear Sir / Madam

Request for survey participation on the following research topic:

FACTORS THAT INFLUENCE LATE PAYMENTS IN GOVERNMENT CAPITAL INFRASTRUCTURE PROJECTS IN GAUTENG PROVINCE, SOUTH AFRICA

TO WHOM IT MAY CONCERN

This letter serves to introduce myself and the research that I am undertaking in fulfilment of the requirements of the Masters in Building (Project Management) in the Faculty of Engineering and Built Environment at the University of Witwatersrand.

My name is Vincent Djokoto and I am a postgraduate student in the Faculty of Engineering and Built Environment at Witwatersrand. The purpose of this questionnaire is to fulfil the requirements of the Masters degree in Building (Project Management) studies through Witwatersrand University. The research is being done under the supervision of Professor Samuel Laryea and focuses on **'Factors that influence late payments in Government Capital Infrastructure projects in Gauteng Province, South Africa'.** This is important to the South African Construction Industry and the economy as a whole.

Should you wish to know the findings of the research, the information will gladly be sent to you in a summary of the results.

The main purpose of this study is to identify current problems in relation to late payment issues encountered by contractors that have been commissioned to construct public infrastructure for the government of South Africa.

The paper seeks to identify the extent of occurrence, to measure, and to assess the extent of late payment, in public infrastructure projects in the Gauteng Province. This study is done with a view to study the correlative relationship between the deviance in contractually scheduled payment times and times of actual payment and to identify factors that influence these with a view to finding a solution to an ever growing phenomenon.

It would be highly appreciated if you can oblige and assist in any way possible. By doing so, you will be making a valuable contribution towards the expansion of knowledge in an important area.

Confidentiality

All identifying information will be kept in a locked cabinet or a hard drive that will require a password to unlock, and will not be available to others other than myself. It will be kept confidential to the extent possible by law. The records from your participation may be reviewed by people responsible for making sure that research is done properly, including members of the ethics committee at the University of the Witwatersrand, Johannesburg. All these people abide by the wits confidentiality structures. You are not required to affix your identity records to the documents that you are to complete but if it happens that you did so, records of your identity will only be available to people working on the study.

Your answers or responses will be stored electronically; documents scanned and hard copy's filed in a secure environment and used for research purposes only. If it happens that the stored data is used in the future it will be subjected to further Wits ethics committee review and approval and your name will not be recorded in any way.

Benefits

There are no immediate benefits to you from participating in this study; however this study will be extremely helpful to us in that we hope to promote understanding of this topic.

If you would like to receive feedback on our study, we will record your contact details on a separate sheet of paper and the results can be sent to you when the study is completed in February 2017.

Who to contact if you have been harmed or have concerns.

This research has been approved by the Witwatersrand Research Ethics Committee and if you have any complaints about ethical aspects of the research or feel that you have been harmed in any way by participating in this study, please call Dr. Kola Ijasan, Chair of the School Ethics Committee on **01117177681 or email: Kola.Ijasan@wits.ac.za**

If you have concerns or questions about the research you may call me on 071 474 6212 or email me at **428864@students.wits.ac.za or Vincent. Djokoto@gauteng.gov.za**

ANNEXURE G

Pilot Questionnaire

QUESTIONNAIRE

TOPIC: FACTORS THAT INFLUENCE LATE PAYMENTS IN GOVERNMENT CAPITAL INFRASTRUCTURE PROJECTS IN GAUTENG PROVINCE, SOUTH AFRICA

Questionnaire to identify and examine factors that influence late payments in Government Capital Infrastructure projects in Gauteng Province, South Africa

Please answer questions by putting a tick [√] in the appropriate box or by writing in the space provided.

Section 1: General Information

1. Gender

[ ] Male

[ ] Female

2. Age in years

[ ] 18-29

[ ] 30- 49

[ ] 50 and above

3. What is your highest Level of education?

[ ] Secondary

[ ] College

[ ] University

[ ] Others

4. Indicate whether you are currently involved with the procurement and implementation of infrastructure projects implemented by GDID?

[ ] Yes

[ ] No

5. Please indicate your role on those projects?

[ ] Chief Director

[ ] Director

[ ] Project Manager

[ ] Programme Manager

[ ] Supply Chain Management Official

[ ] Quantity Surveyor

[ ] State Accountant

[ ] Other (Specify**…….)**

6. Indicate the number of years you have been working for the Sector Department.

[ ] 0-5

[ ] 5-10

[ ] 10+

Section 2: Determination of Departmental general practice and attitude that influence late payments in government Capital Infrastructure projects in Gauteng Province, South Africa

Please tick (√) the appropriate scale with 1 strongly disagrees, 2 disagree, 3 neutral, 4 agree and 5 strongly agree.

Statement of Facts	**Strongly agree [5]**	**Agree [4]**	**Neutral [3]**	**Disagree [2]**	**Strongly disagree[1]**
Factor 1 Late payment in Government infrastructure projects are largely caused by internal Departmental factors.					

Factor 2 Late payment in Government infrastructure projects are largely caused by external Departmental factors.					
Factor 3 Delayed payment in government Infrastructure projects in Gauteng-SA is linked to the inability of the Implementing agent to access, measure and quantify contractor output timeously.					
Factor 4 Delayed payment in government Infrastructure projects is linked to the Sector Department not being able to manage project cash flow efficiently from its source at Treasury through to the end point, the Contractor.					

Section 3: Determination of **INTERNAL** Departmental factors that influence late payments in government Capital Infrastructure projects in Gauteng Province, South Africa

Please tick (√) the appropriate scale with 1 strongly disagrees, 2 disagree, 3 neutral, 4 agree and 5 strongly agree.

Factor 1 Sector Departments poor financial management is an influencing factor in the late payment of contractors(in infrastructure projects in Gauteng-SA)					
Factor 2 The Sector Departments failure to implement good governance in business is an influencing factor in the late payment of contractors.					

Factor 3 Short of current year project /programme budget is a influencing factor in the late payment of contractors.					
Factor 4 Delay in submitting contractors payment claim budget is an influencing factor in the late payment of contractors.					
Factor 5 Conflict among parties involved is an influencing factor in the late payment of contractors.					
Factor 6 Poor understanding of the contract is an influencing factor in the late payment of contractors.					
Factor 7 The use of "pay when paid" clauses in the contracts an influencing factor in the late payment of contractors.					

Section 4: Determination of **EXTERNAL** Departmental factors that influence late payments in government Capital Infrastructure projects in Gauteng Province, South Africa

Statement of Facts	**Strongly agree[5]**	**Agree [4]**	**Neutral [3]**	**Disagree [2]**	**Strongly disagree[1]**
Factor 1 Delay in Certification by IA is a an influencing factor in the late payment of contractors.					
Factor 2 Local culture/attitude is an influencing factor in the late payment of contractors.					
Factor 3 Underpayment of certified amounts by the Department is an influencing factor in the late payment of contractors.					

Factor 4 The Department wrongfully withholding payment is an influencing factor in the late payment of contractors.					
Factor 5 Disagreement on the valuation of work done is an influencing factor in the late payment of contractors.					
Factor 6 Poor communication among parties involved is an influencing factor in the late payment of contractors.					

How would you rate the Sector Departments payment performance ?

a) Excellent
b) Good
c) Fair
d) Poor

Generally, how would you describe the performance of the payment regime utilized in government infrastructure projects today?

What ways would you suggest would help improve the late payment phenomenon in government infrastructure projects?

Office use:

Sector Department:

Project name:

Name of Official (optional):

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2004

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Department	Regional/ District /Council	Public Private Partnership	
≤14	5	15	5	18	54	0	-	24
14 to 30	45	31	28	50	21	46	-	33
30+ to 60	19	31	41	32	25	54	-	28
60+ to 90	0	15	0	0	0	0	-	1
90+ to 120	0	0	5	0	0	0	-	1
120+	31	8	21	0	0	0	-	13

Table 2004: Days Delay between Certification and Contractor Payment per employer category 2004

2006

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Department	Regional/ District /Council	Public Private Partnership	
≤14	16	0	19	15	25	30	0	24
14 to 30	36	57	37	42	42	33	0	40
30+ to 60	31	29	25	22	33	31	100	28
60+ to 90	15	9	13	10	0	3	0	9
90+ to 120	0	0	6	4	0	0	0	2
120+	2	5	6	7	0	3	0	4

Table 2006: Days Delay between Certification and Contractor Payment per employer category 2006

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2007

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Department	Regional/ District /Council	Public Private Partnership	
≤14	7	10	9	13	3	7	42	9
14 to 30	28	32	40	43	40	47	17	35
30+ to 60	44	38	38	23	44	36	33	38
60+ to 90	16	12	7	13	12	5	0	13
90+ to 120	2	3	3	3	0	3	0	2
120+	3	5	3	5	1	2	8	3

Employer Category

Table 2007: Days Delay between Certification and Contractor Payment per employer category 2007

2009

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Department	Regional/ District /Council	Public Private Partnership	
≤14	10	15	9	8	6	1	3	9
14 to 30	44	49	51	40	38	36	43	43
30+ to 60	34	27	28	32	41	43	37	34
60+ to 90	6	5	9	14	12	12	3	8
90+ to 120	4	1	1	3	1	1	14	3
120+	2	3	2	3	2	7	-	3

Employer Category

Table 2009: Days Delay between Certification and Contractor Payment per employer category 2009

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2009A

Province	Eastern Cape	Free State	Gauteng	KwaZulu Natal	Limpopo	Mpumalanga	North West	Northern Cape
Private Sector	61(28)	60(5)	42(81)	46(78)	72(36)	66(29)	37(19)	0(5)
Public Corporation	56(16)	50(4)	64(28)	57(28)	92(38)	56(16)	79(14)	11(9)
National Department	64(11)	50(2)	33(9)	73(11)	57(7)	50(2)	75(4)	100(3)
Provincial Department	38(32)	60(5)	28(18)	69(29)	50(18)	45(20)	43(7)	0(2)
Metropolitan Council	34(24)	40(10)	38(34)	52(25)	80(5)	63(8)	67(6)	0(5)
Regional/ District Council	77(13)	33(9)	-	26(19)	71(7)	0(2)	13(8)	0(9)
Public Private Partnership	80(5)	0(6)	83(6)	61(33)	0(4)	0(9)	-	-

Table 2009A: Timeous payment(≤30 days)of contractors per province and employer category 2009

2010

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Department	Regional/ District /Council	Public Private Partnership	
≤14	10	11	8	7	6	13	4	9
14 to 30	34	38	44	36	35	31	60	37
30+ to 60	41	41	31	29	45	43	29	39
60+ to 90	9	3	11	13	9	8	5	8
90+ to 120	3	5	3	2	2	5	-	3
120+	3	2	3	13	3	-	2	4

Table 2010: Days Delay between Certification and Contractor Payment per employer category 2010

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2010A

Province	Eastern Cape	Free State	Gauteng	KwaZulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Private Sector	44(57)	33(27)	40(98)	56(115)	37(30)	36(42)	32(22)	50(10)	47(58)
Public Corporation	56(25)	33(6)	39(46)	21(33)	71(21)	68(59)	20(5)	33(3)	41(22)
National Department	55(22)	75(4)	50(14)	25(12)	50(4)	60(5)	33(3)	50(2)	100(5)
Provincial Department	36(28)	42(12)	8(24)	51(37)	48(29)	35(17)	40(10)	75(4)	61(38)
Metropolitan Council	50(34)	57(7)	42(43)	27(55)	31(13)	25(16)	13(8)	0(6)	65(49)
Regional/ District Council	0(4)	50(6)	50(4)	17(18)	75(12)	60(10)	0(2)	0(2)	78(9)
Public Private Partnership	50(4)	50(2)	100(2)	88(25)	-	-	100(1)	-	9(11)

Table 2010A: Timeous payment(≤30 days)of contractors per province and employer category 2010

2013

Avg. Days Delay	% of Projects per Employer Category							% of all Projects
	Private Sector	Public Corporation	National Department	Provincial Department	Metropolitan Department	Regional/ District /Council	Public Private Partnership	
≤14	11	5	9	10	7	11	14	9
14 to 30	30	30	30	35	47	41	18	33
30+ to 60	46	42	37	27	34	33	68	40
60+ to 90	7	11	13	12	8	6	-	9
90+ to 120	1	8	-	7	2	3	-	4
120+	3	4	11	9	2	6	-	5

Table 2013: Days Delay between Certification and Contractor Payment per employer category 2013

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2013A

Province	Eastern Cape	Free State	Gauteng	KwaZulu Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape
Private Sector	35(54)	43(28)	41(113)	57(139)	44(32)	11(76)	37(27)	41(29)	47(70)
Public Corporation	15(27)	22(18)	30(60)	29(63)	43(80)	53(40)	67(12)	23(22)	62(13)
National Department	33(15)	0(1)	27(11)	42(12)	75(8)	50(4)	25(8)	30(10)	57(7)
Provincial Department	26(27)	72(18)	44(45)	44(59)	50(32)	39(31)	53(19)	50(10)	39(28)
Metropolitan Council	59(22)	30(10)	61(41)	58(33)	57(21)	38(8)	0(4)	20(5)	63(32)
Regional/ District Council	89(9)	50(2)	-(-)	41(27)	50(6)	25(4)	67(6)	17(6)	100(4)
Public Private Partnership	0(2)	25(8)	75(4)	0(6)	100(1)	0(3)	100(1)	-(-)	67(3)

Table 2013A: Timeous payment(≤30 days)of contractors per province and employer category 2013

ANNEXURE H

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SCHOOL OF CONSTRUCTION ECONOMICS AND MANAGEMENT RESEARCH ETHICS COMMITTEE

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER** CEM/16/08/VKD/MSC
PROJECT TITLE	Factors that influence late payments in Government Capital Infrastructure Projects in Gauteng Province, South Africa
INVESTIGATOR	**Vincent Kojovi Djokoto 428864**
SCHOOL/DEPARTMENT	**SCHOOL OF CONSTRUCTION ECONOMICS AND MANAGEMENT**
DATE CONSIDERED	11/10/2016
DECISION OF THE COMMITTEE	Approved conditionally with respect to the declaration and forwarded minor corrections
EXPIRY DATE	28th October 2017
DATE	12 October 2016

CHAIRPERSON _____

Dr. Kola Ijasan

cc: Supervisor: Prof S Laryea

DECLARATION OF INVESTIGATOR (S)

To be completed in duplicate and **ONE COPY** returned to the Secretary Mrs. M. Sithole at the CEM reception desk.

I fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

_____ 13/04/2017.

Signature **Date**