

A review of the performance of the public sector implementing department and a private implementing agent; is there a role for a private sector implementing agent in the public sector?

By

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DECLARATION

I declare that this research is entirely my own unaided work except where otherwise stated.

All sources referred to are adequately acknowledged in the text and listed. I accept the rules of assessment of the University of Pretoria and the consequences of transgressing them.

This treatise is being submitted in partial fulfilment of the requirements for the degree of MSc (Project Management) at the University of Pretoria. It has not been submitted before for any degree or examination at any other university.

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ABSTRACT

Title of Treatise : A review of the performance of the public sector implementing department and a private sector implementing agent ; is there a role for an implementing agent in the public sector?

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Client departments had entrusted delivery of construction of buildings to an infrastructure implementing department monopoly managed through a service delivery agreement within the inter-governmental framework. The performance of the public sector infrastructure implementing department had been plagued by inefficiency; and in most cases yielded poor results. Recently, a client department had through an open public tender sourced an infrastructure implementing agent to achieve project objectives and service delivery goals; managed through a legally binding contract. The quest is for projects to be delivered on time, within budget and to the required quality; and communities access the needed services. In both cases, the traditional design-bid-build approach is used, differing on management and supervision.

The focus of this study is to assess the performance of the implementing department and that of the implementing agent in respect of four elements of the infrastructure delivery process: penalties, variation orders, planned contract duration *versus* actual completion duration and actual duration / time lapse between practical completion and presentation of final account. Based on quantitative data analysis, the implementing agent performed better than the implementing department on all the four elements. The study concludes that an implementing agent has a role in the public sector; and qualitative data revealed preference for it to be placed with the implementing department and not with the client department. The study recognizes the need to create enabling conditions and sustainability measures to nurture such an intervention.

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A LIST OF ACRONYMS

IA	Implementing Agent
ID	Implementing Department
CD	Client Department
CIDB	Construction Industry Development Board Act of 2000
DORA	Division of Revenue Act
DWA	Department of Water Affairs
DoH	Department of Health
DPW	Department of Public Works
GIAMA	Government Immovable Asset Management Act of 2007
IDIP	Infrastructure Development Improvement Program
IDMT	Infrastructure Delivery Management Toolkit
IDP	Integrated Development Plan
IGR	Intergovernmental Relations Framework Act of 2005
IHPF	Integrated Health Planning Framework
IPMP	Infrastructure Program Management Plan
IPIP	Infrastructure Project Implementation Plan
ISDA	Inter Departmental Service Delivery Agreement
HIV and AIDS	Human <i>Immuno</i> -Deficiency Virus and Acquired <i>Immuno</i> Deficiency Syndrome
JBCC	Joint Building Contracts Committee
MoU	Memorandum of Understanding
MTEF	Medium Term Expenditure Framework
NGO	Non-Governmental Organization
PEP	Project Execution Plan
PFMA	Public Finance Management Act of 1999
PMBOK	Project Management Body of Knowledge
SACPMCP	South African Council for the Project and Construction Management Professions

SDA	Service Delivery Agreement
UAMP	User Asset Management Plan
VAT	Value Added Tax

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Appendix A : Qualitative Data Collection Structured Questions

CHAPTER 1

THE PROBLEM AND ITS SETTING

1.1 INTRODUCTION

Since 1994, the South African Government infrastructure development has been on the agenda for various critical socio-economic reasons. Whilst the focus is on acceleration and redress of past imbalances, the pace of delivery within the public sector has been hampered by a number of challenges. There is a need for change due to a number of reasons; including the apparent lack of collaboration, budget limitations, skills shortages and an increasing emphasis on customer or client focus.

In the public sector, in particular, the problem is not only about the shortage of accommodation or skills, but about the quality, finish, cost and time to complete projects. Currently the public sector infrastructure delivery mechanism seems not to command respect with Client Departments (CDs) to allow it to optimally drive the infrastructure agenda. There is a need to rebrand itself by responding to the growing demands of clients; and a shift from a producer convenience to client focus will bring about a much needed change.

The CD's infrastructure development program depends amongst others, on the performance of the Implementing Department (ID). If the CD is not effectively and efficiently supported in its project delivery objectives by the ID, it is likely to experience difficulty in achieving its service delivery objectives. The impact of failure to meet project objectives have far reaching consequence; delayed access to basic services, budgets under spent, increase in infrastructure backlogs, projects planned for the following years will be postponed into further years to come due to "delayed completion" commitments, the rising costs of construction will impact on what can be achieved in the outer years, and so forth.

One of the challenging targets is to improve client satisfaction ratings in this era whereby CDs have choices in terms of infrastructure implementing agents or departments. There is increased competition from all sectors to provide the needed infrastructure program management function to Government. This necessitates infrastructure delivery departments

to reinvent themselves and focus upon service quality improvement issues to provide CDs with satisfactory experiences.

1.2 THE PROBLEM

This study examines two identifiable infrastructure delivery modes employed by a CD; through an implementing department and an externally sourced implementing agent. In order to assess differences in the performance of these two alternatives, four elements of the infrastructure delivery process are compared: penalties, variation orders, planned contract duration *versus* actual completion duration and actual duration / time lapse between practical completion and presentation of final account.

The research seeks to determine the following:

Is an externally sourced implementing agent an alternative and / or a supplement to the public sector implementing department to improve the client's infrastructure delivery objectives?

1.3 THE SUB-PROBLEMS

1.3.1 Do externally sourced Implementing Agencies (IAs) have a role to play in public sector infrastructure delivery?

1.3.2 What is the performance of the public sector ID in comparison with an externally sourced IA in relation to the four key performance indicator variables listed below?

1.3.2.1 What is the contract duration versus actual completion time?

1.3.2.2 What is the nature and frequency of the use of variation orders within and above the 20% of the contract value set by Provincial Treasury limit?

1.3.2.3 What is the actual time taken between practical completion and presentation of final account?

1.3.2.4 Are penalties imposed during the contract period?

- 1.3.3 Will the use of IAs improve the attainment of CD's objectives on projects, and ultimately service delivery objectives?

These questions are being asked by looking at the legislative context, engagements between the CD and ID and the CD and IA, procurement and contracting arrangements in use and a brief critique thereof. The literature study will briefly appraise the status quo in the context of an enabling legislative environment, contracting options, alongside project management theory and principles.

1.4 THE HYPOTHESES

- 1.4.1 Implementing Agents (IAs) have a role to play in the public sector as alternatives and/or to supplement the ID's infrastructure delivery capacity. This would assist in ensuring that the project and service delivery objectives are attained. The ID and/or CD need to be organizationally prepared to adopt the approach.
- 1.4.2 The performance of the IA on the four variables is better than that of the ID. There is an increase in the number of projects completed in time. Projects with no variation orders are on the increase. Where variation orders have been approved, these are minimal and below the 20% of the contract value limit. Time lapse between practical completion and final account for almost all projects is as per contract stipulations and where penalties are due, these are imposed and claimed from the contractor.
- 1.4.3 The use of IAs can improve the achievement of both project objectives and CD's service delivery goals.

1.5 DELIMITATIONS

- 1.5.1 The study focuses on one Health Department, in one Province in South Africa, its interface with an IA and an ID.
- 1.5.2 A Department such as Health is referred to as a client or user department; whilst the Department of Public Works would in many cases have dual roles; that of an Implementing Department and also of a Custodian, also referred to as the Employer.

In this study, emphasis is on CD and ID; and the CD and IA in relation to building construction projects.

- 1.5.3 Uses data collected from the primary health care facilities – the clinic upgrade and new building program.
- 1.5.4 The period of study is confined to projects allocated to the ID for the 2005/06, 2006/07 and 2008/09 financial years. The contract period with the IA commenced in September 2008, and hence projects allocated for 2009/10, 2010/11 and 2011/12 financial years are included in the study. The progress status on these projects as at September 2011 is the cut off point.
- 1.5.6 Only projects concluded under the standard form of contract Joint Building Contracts Committee (JBCC) were included in the study.
- 1.5.5 Not much detail will be explored on the root causes of project successes or project failures; that is project performance, in between the ID and IA. A description of the procurement and contracting arrangements utilized by the ID and the IA will be done. Such will be briefly appraised in the context of legislation, policy and project management body of knowledge.
- 1.5.6 This study limits itself to the four variables that form part of the key performance indicators. It does not seek to compare contractors and consultants employed nor prevailing conditions and or circumstances. The quantitative sample is restricted to the projects and the overall performance of those projects under the IA and ID.

1.6 SIGNIFICANCE OF THE STUDY

There is increased pressure for an ID to perform in order to meet service delivery targets of the South African Government; infrastructure development and socio-economic targets. Implementing Departments are also demanding to be recognized as leaders in infrastructure delivery supported by an enabling environment facilitated through the Government Immovable Asset Management Act No. 17 of 2007 (GIAMA) and the one of Polokwane African National Congress' Conference December 2007 Resolutions.

On the other hand, the Public Finance Management Act No. 1 of 1999 (PFMA) and the Division of Revenue Act passed annually (DORA) place financial responsibility and accountability on the CD's accounting officer. There is increased pressure from all sectors for the public sector to improve on the needed infrastructure program management function.

The introduction of the infrastructure delivery improvement program (IDIP) is geared at capacity building on program management for IDs and CDs. IDIP provides an opportunity for infrastructure delivery departments to reinvent themselves and focus upon service quality improvement issues to provide CDs with satisfactory experiences.

In the context of agitation from communities on the pace of service delivery, administration burden on the few skilled built environment specialists in Government as well as budget constraints, this study seeks to establish awareness of the work undertaken by IAs and to reveal facts on their performance. Such data would be of importance to highlight:

- 1.6.1 The importance and effects of managing the construction contracts in a way that is consistent with the provisions of such contracts.
- 1.6.2 Any possible violations of the relevant legislation where there are excessive cost overruns, where non-enforcement of penalties is prevalent.
- 1.6.3 Whether there is any relationship between enforcement of the penalty clause and completion of projects within the allowed time.
- 1.6.4 The role played by the IA:
 - 1.6.4.1 In the attainment of project and CD's objectives
 - 1.6.4.2 In the use of procurement and contracting arrangements that are geared towards program and project management
 - 1.6.4.3 As an alternative and or supplement in infrastructure development; contributions to project objectives and service delivery goals.

1.7 RESEARCH METHODOLOGY

The use of different methods of data collection is likely to support the reliability of the data. White (2005:126) states that Maslow once remarked that “if the only tool you have is a hammer, you tend to see every problem as a nail”. Based on this, a combination of data collection techniques were used in this study.

Information will be gathered from project files, infrastructure reporting modules and the CD’s audited annual reports from 2006/07 to 2010/11 financial years. Semi structured interviews with professional service providers and contractors who have worked on the clinic program both under the ID and IA will be conducted. They include quantity surveyors, electrical engineers, mechanical engineers and civil engineers. The IDIP Technical Assistants working with CDs in the Province will also be interviewed.

Furthermore, an extensive literature review covering the study will be conducted through the use of books, journals, legislation, contract documentation, policies, professional magazines, similar documented studies and conference papers within and outside South Africa.

The study will use both qualitative and quantitative procedures that one would say are reliable; encompassing a mixture of both qualitative and quantitative data. This mixture or plural methodology complements one another and expands the depth and breadth of the knowledge of the field of study and to gain the most appropriate data to fulfil the aim of the research. Through using plural methodologies, researchers can improve the accuracy, confidence and reliability of findings by using different methods to investigate the same subject (Denscombe, 2007).

Semi structured interviews are designed based upon the information identified in an in-depth literature review and quantitative data from the projects. For the semi structured interviews a constant comparison grounded theory approach was selected. The term grounded theory means theory that was derived from data, systematically gathered.

The desirability and reliability approach gives out what is termed “triangulation” whereby the more similar the focus of any two measurements, the more highly correlated they will be regardless of whether they are qualitative or quantitative. Guba (1987: 12) says “quantitative researchers who value numerical precision over naval gazing and qualitative researchers,

who prefer rich detail to number crunching, betray not only a preference for one but also a distrust to one another”. One way methodologists have attempted to allay the distrust is to call for synthesis, collaboration, and co-operation between the two cultures.

The sampling frame for the quantitative data collection is convenient sampling; convenient sampling is a non-probability approach, through which a researcher selects a sample without using any statistical indices (Leedy & Ormrod, 2010). This sampling frame is commonly used where the target population is vast and is renowned for its relatively low costs.

The analysis of the results would be conducted two-fold; quantitative and qualitative data analysis and the results analysed. Quantitative data collection and analysis will be done first.

1.7.1 Process

A set of distinguishing characteristics or key performance indicators are identified at the start of the research that can objectively measure the ID or IA performance as per infrastructure service delivery agreements. The research is carried out to discover how the ID and IA match against these pre-determined key performance indicators ensuring findings are quantitative, as well gathering qualitative information by conducting semi structured interviews. Although the researcher has been part of the CD’s infrastructure team since 2004 which may affect her evaluation of the performance, the risk of bias is mitigated by the use of objective measures that reflect the relative performance of both parties.

1.8 DEFINITION OF TERMS

For the purpose of this research, the following terms have the meanings defined below.

1.8.1 Implementing Agent

The study recognizes that there is an implementing department which is sometimes also called an implementing agent; and for building works as such it would be the Department of Public Works. For the purposes of this study, an implementing agent is a private service provider that has been contracted to provide functions similar to that of an implementing department. It is a professional organization that provides

expert advice on a combination of built environment services like quantity surveying, project management, program management, architectural, engineering inclusive of health infrastructure planning. In this study the implementing agent was sourced by the client or end user department to provide infrastructure program and project management function as a direct contract with the client or end user.

1.8.2 Construction Period or Contract Duration

The Joint Building Contracts Committee (2000) defines the construction period as “the period commencing on the date on which possession of the site is given to the contractor as stated in the schedule; or for a government contract on the date of acceptance of the tender, and ending on the date of practical completion”. For the purposes of this study, the construction period was taken commencing on the date on which possession of the site was given to the contractor as stated in the schedule and ends on the date of practical completion. Furthermore, the terms construction period and contract duration are used interchangeably and carry the same meaning.

1.8.3 Practical Completion

Finsen (1999: 126) refers to practical completion as “... when the work reaches a stage of readiness for use or occupation by the owner, and free from any known omissions or defects that are not merely trivial”. On the day of practical completion, the works passes from the contractor to the owner and the contractor ceases to be liable for penalties. However, this does not relieve the contractor of obligations in respect of incomplete or defective work. A certificate of practical completion is issued to herald this mile stone.

1.8.4 Final Completion Date and Final Account

This is the amount that represents the contract value at the time that the contractor is said to have fully and finally completed his works and discharged of his obligation. It can also be said to be the contract value at the date of cancellation of the contract. It is the final value the employer will have to pay the contractor for the work that the contractor would have done (Finsen, 2005). For the purposes of this study, the terms final completion and final account are used interchangeably to depict the date that the final account is presented for payment by the employer.

This is significant to herald project completion of the “highest degree” in that the project file would be closed and there would not be any further payments made from the contract. Secondly, this matter has been a subject of audit qualification as when the Auditor General verifies capital works projects, the facilities are found to be in use whilst contractually such facilities’ project files have not been closed. Adherence to the time frames set by the Joint Building Contracts Committee (JBCC) in terms of practical and final completion periods is considered a critical key performance indicator as it brings closure, releases funds for other projects in the pipeline and also facilitates recording and or updating of data on the immovable asset into the immovable asset register.

1.8.5 Contract Sum or Original Contract Amount

The contract sum is defined as the “tendered or negotiated amount, inclusive of value added tax (VAT), as accepted by the employer and stated in the contract data” (JBCC, 2000: 2). This amount is not subject to any adjustment. Finsen (2005: 181) adds that “...is the initial reference point in establishing the employer’s obligation to the contractor”. The terms contract sum, original contract amount / value and initial contract amount / value are used interchangeably for the same meaning in this study.

1.8.6 Variation Orders

These are contract instructions to change certain portions of works as it progresses resulting from approved scope changes or later requirements needed to be incorporated into the scope or terms of reference. There are a variety of reasons advanced for variation orders. Such variation orders have financial implications.

Finsen (1999: 115) indicates “... that where the contractor is instructed to perform additional work, he is entitled to an upward adjustment of the contract value and where he is instructed to omit work, to a downward adjustment”. In the context of this study, almost 95% of the variation orders issued had an increase in the contract value.

1.8.7 Penalties

“The contractor’s first and foremost obligation is to carry out the agreed work, and to do so by the agreed date; failure to complete the works by the agreed date renders the contractor liable to penalties for non-completion” (Finsen, 1999: 81); penalties are sometimes called delay damages. Finsen (1999) further refers to non-completion as failure to reach practical completion on the intended date or revised date for practical completion but only some time later... because of failure to proceed with the works with due diligence, regularity and expedition.

The penalty clause requires the contractor to reimburse the employer a certain predetermined or agreed amount for the period the works remain uncompleted after the lapse of the scheduled, and sometimes extended, practical completion time (Tshikila, 2011). There remains a general perception that public sector is lenient to impose penalties even if the contractor has exceeded the agreed contract period. Such a situation seem to be in contrast with Section 38(1)(c)(i) of the PFMA (1999) in that it requires that the accounting officer “must take effective and appropriate steps to collect all monies due to the department...or institution” in the prevention of unauthorised, fruitless, wasteful expenditure and other losses.

1.9 ORGANIZATION OF THE TREATISE

The treatise is organized into six (6) chapters.

Chapter 1: The Problem and Its Setting

The first chapter introduces the topic of the study, problem statement, hypotheses, research methodology, limitations and significance of the study. Lastly, a definition of terms is provided.

Chapter 2: Literature Review, Service Delivery and Legislative Context

The literature review provides a legislative context and policy framework in terms of a client department, an implementing department and an externally sourced implementing agents *vis a viz* roles and responsibilities with regards to their core functions and that of infrastructure delivery.

Chapter 3: Literature Review-Procurement and Contracting Arrangements and Project Management

The chapter provides a descriptive appraisal of the procurement and contracting arrangements used by the ID and IA on the basis of literature and project management theory and practice.

Chapter 4: Research Methodology

Quantitative and qualitative research methodologies are applied to address the research problem. Objectivity needs to be displayed, whilst the qualitative data seeks to obtain recommendations on how best to improve project and service delivery objectives. The focus of the research is on a contemporary as opposed to a historical phenomenon within some real-life context.

Chapter 5: Data Reporting and Analysis - A Case Study

The study seeks to demonstrate the role played by the ID and IA in the CD's project and service delivery objectives. Out of the health infrastructure portfolio, the clinic building program is the unit of analysis; a case study. Performance between the ID and IA is measured against the four identified variables. A descriptive statistical approach was used in the analysis and interpretation of data. For the qualitative data, face to face interviews using semi-structured questions were conducted. The responses were analysed and interpreted according to the emerging trends obtained. Findings are presented in a mixture of a descriptive statistical format and descriptive narrative.

Chapter 6: Summary, Conclusions and Recommendations

Conclusions regarding performance of the ID and IA on project objectives and how performance can be improved through the use of an IA will be drawn and outlined in this chapter. Conclusions will be based on the literature review and case study in the clinic building program procurement and contracting arrangements; and programme and project management processes. Recommendations on how the role of the IA and ID may be enhanced to enhance project objectives and service delivery objectives will be outlined based on the views of the professional service providers, contractors and technical assistants interviewed.

1.10 SUMMARY

In terms of infrastructure delivery, the strength of the CD's role to fulfil its core functions lies in the extent to which the ID and or IA respond to the key performance indicators agreed upon. There is a strong advocacy towards having an ID as the infrastructure delivery manager of choice in the public sector with an assumption that they do have requisite expertise for such a task.

On the other hand, there has been some dissatisfaction with the service provided by the ID to the point where some CDs have opted to directly engage private sector IAs. Such a situation poses questions such as "given the core responsibilities of CDs, how would they ensure that the IA is properly program managed"?

Chapter 2 will look at the CD strategic goals, the interface between the CD and ID and the CD and IA, the key performance indicators as structured within service delivery agreement. The defaults or penalties to the agreement are simply stated to expose the subtle differences contained and such are left open for interpretation.

CHAPTER 2

2 LITERATURE REVIEW: SERVICE DELIVERY AND LEGISLATIVE CONTEXT

2.1 INTRODUCTION

Since 1994, the South African Government infrastructure development has been on the agenda for various socio-economic reasons. Whilst the focus is on acceleration and redress of past imbalances, the pace of delivery within the public sector has been hampered by a number of challenges necessitating change. The need for these changes has come about for a number of reasons; including the apparent lack of collaboration, budget limitations, skills shortages and an increasing emphasis on customer or client focus. In the public sector, in particular, the problem is not only about the shortage of accommodation or skills, but about the finish, cost and turnaround time to complete projects.

Currently the public sector infrastructure delivery mechanism seems not to command optimal customer or client respect. There is a need to restructure, rebrand and reinvent itself to improve performance in order to respond to the growing demands of clients; and a shift from a producer convenience to client focus will bring about a much needed change. One of the challenging targets is to improve client satisfaction ratings in this era whereby CDs have choices in terms of infrastructure implementing agents or departments. There is increased competition from all sectors to provide the needed infrastructure program management function to Government. The issue is on service quality improvement to meet the CDs' expectations and to provide satisfactory experiences.

2.2 CONTEXTUAL BACKGROUND

In South Africa, government departments are mandated by the Constitution and legislation to perform particular functions. Such functions may be directly to the public, or indirectly to the public with one department rendering a specialized service to another department in its endeavour to fulfil its mandate. A department would render a specialized service of clinic construction to assist another department in realizing its health service delivery mandate in the area of access to integrated primary health care.

The Department of Health (DoH) would then be regarded as a Client Department (CD) to the Department responsible for infrastructure delivery, and the relationship is managed through a service delivery agreement (SDA) within the spirit of inter-governmental co-operation and collaboration. DoH may sign SDAs with various infrastructure delivery departments depending on the need for such specialized services, for example, the Department of Roads and Transport for access roads to health facilities, the Department of Water Affairs (DWA), for the provision of water to health facilities, the Department of Public Works (DPW), for the acquisition of land and buildings and property management, the Department of Human Settlements for sanitation services.

A CD may also employ the services of an external infrastructure implementing agent. According to the CIDB Toolkit, (2006: 31), an "... agent is a natural or juristic person who is not an employee of the department". "An employer who acts on the department's behalf"; an employer as per Construction Industry Regulations, (2004, as amended 18 August 2006) "... means a person, body of persons or organ of state who enters into a prime contract with a contractor for the provision of construction works"

Prior and up to the year 2000, CDs have defined infrastructure needs and briefs whilst the budget and implementation of such resided with the Implementing Department, mainly the Department of Public Works (DPW). With effect from the 2001/2002 financial year, allocations for capital works and acquisition of land have been provided for on CD's budgets. Whilst this notion may be seen narrowly as if CDs are responsible for funding the infrastructure programme, they remain accountable for the funds as per PFMA (1999). The CIDB Toolkit (2006) provides guidelines for those portions of the infrastructure delivery management functions that must be performed by the CD which cannot be outsourced, and those functions that can be outsourced to an infrastructure delivery department or agent.

Non-transferable functions in the context of the Department of Health include amongst others health services delivery plan, norms and standards for various levels health services, burden of disease, population, what is available, gaps, what is needed, human and physical resources, operational requirements and affordability. Furthermore, the CD is responsible for;

- site identification and 1st level availability (approvals to utilize the site for construction of a health facility)
- stakeholder management and community participation in the decisions for the establishment of the health facility inclusive of the integrated development planning (IDP) processes
- ensure that planning does not become an end in itself, prioritization of the projects within the medium term expenditure framework (MTEF) and over a horizon of 5-10 years
- communicate such plans and priorities to the communities; should there be any deviations to the plan, such should be communicated in advance
- analyze needs appropriately or estimate resources accurately
- involve both the health-care providers, end-users and ultimate beneficiaries in decisions, planning, design and make them aware of maintenance responsibilities throughout the life cycle of the project for preservation of the facility at post occupancy period
- the infrastructure planning process need to be entrenched in other decision-making processes such as budgeting, human resource planning, availability of infrastructure services (water, electricity, sanitation, access roads, municipal waste removal and so forth)
- to acknowledge the socio-economic and the inherent political nature of the infrastructure planning process

2.3 LEGISLATIVE FRAMEWORK

The interface between a CD and an IA or ID is facilitated amongst other pieces of legislation by the following key legislation applicable to infrastructure management [Infrastructure Delivery Management Toolkit (IDMT), 2011: 17]:

- the Constitution of the Republic of South Africa, 1996 (Act No 108 of 1996)
- the Public Finance Management Act (PFMA), 1999

- Government Immovable Asset Management Act (GIAMA), 2007
- Intergovernmental Relations Framework Act, 2005
- Construction Industry Development Board Act, 2000
- Division of Revenue Act, published annually, and
- State Land Disposal Act (Act No 48 of 1961)

The concept of managing immovable asset delivery as a joint programme is founded in the Constitution. It is to be implemented, amongst others, via the Intergovernmental Relations Framework Act of 2005 (IGR) and GIAMA Clause 14 (1) (b) which prescribes that: “The accounting officer of a user or custodian in its capacity as a user must, for all the immovable assets that it uses or intends to use - jointly conduct the immovable asset strategic planning process with the relevant custodian”.

The IGR further extends the principles of participation and co-ordination between organs of state in the different spheres of government, to also include integration, participation and co-ordination of joint programmes within a particular sphere of government.

A Department such as Health is referred to as a client or user department; whilst the Department of Public Works has in many cases dual roles, that of an Implementing Department and also of a Custodian. The notion of a client department is used in the traditional context of the relationship between Department of Public Works and Departments of Health and Education. For the purposes of this study, the CD is retained despite the Department of Health’s entering into a direct relationship with the IA.

The infrastructure delivery relationship between CDs and an ID is managed through a jointly signed interdepartmental service delivery agreement, (ISDA) referred to as template 2T10 in the CIDB Toolkit (2006). Roles, responsibilities, institutional arrangements, financial matters, key performance indicators, defaults, commencement and duration of the ISDA are outlined. Both accounting officers of the ID and CD are in terms of the PFMA, held responsible and accountable for the payments made to service providers. Therefore, the ID remains accountable and responsible for the management of projects on behalf of CDs regardless of the budget residing in the CD.

Guides on terms of reference for infrastructure program management and a service delivery agreement with a program implementing agent are contained in templates 2T08 and 2T09 of the CIDB Toolkit (2006). These form the basis for contract management of the infrastructure delivery relationship between CDs or IDs with private sector IAs; other than an implementing department. This would be a direct relationship between the CD or ID and the IA established with an understanding that "...the agent has the expertise and experience to plan and implement the programme of projects within the client's infrastructure plan" (CIDB Toolkit, 2006: 3).

For the purposes of this study, the direct relationship between the CD and IA is explored. There have been attempts to move towards entering into tripartite relationships between the ID, CD and IA as demonstrated in the memorandum of understanding (MoU) between one parastatal and the ID. The ID in a tripartite context would retain its infrastructure custodial and implementing roles and oversee the work undertaken by the IA on behalf of the CD.

The CIDB Toolkit (2006) also provides an opportunity for the establishment of an infrastructure program management unit within a department; whether a CD or ID. Proforma terms of reference are available and would form part of the performance agreement between the official/s mandated with this function and the supervisor and ultimately the head of department or accounting officer.

The ultimate outcome of infrastructure planning and delivery is conditioned by and dependent on the behaviour of individuals, groups, organizations, systems, procedures and resources at all levels in the process. In the context of infrastructure delivery management, the interface between the CD and ID or IA which brings into play its own dynamics which impact positively or negatively on the key performance indicators; and ultimately CDs' service delivery objectives.

Basically health infrastructure should be planned, designed and constructed to meet and support the core health service delivery needs, to reshape the health service delivery system in order to provide accessible, quality health care services to all, and ultimately to facilitate longer term planning and a progressive realisation of improved access to basic health services within available resources. This should form the basis for a shared common vision and primary objective for health infrastructure delivery of the CD and ID or IA.

2.4 HEALTH SERVICE DELIVERY CONTEXT

All involved in health infrastructure delivery realise that the goal and objectives for health infrastructure and the extent of facilities required are informed by amongst others the Millennium Development Goals, the National Health System Priorities referred to as the Health's Ten Point Plan, the Service Transformation Plan and the Health Sector Negotiated Service Delivery Agreement.

Health infrastructure has to support the outputs of increasing life expectancy, decreasing maternal and child mortality, combating HIV and AIDS and decreasing the burden of disease from tuberculosis; and strengthening the health system effectiveness – revitalization of primary health care, health care financing and management, human resources for health, quality of health and accreditation of health establishments, health infrastructure and information, communication, technology and health information systems.

The CD is ultimately accountable for the delivery of services in accordance with the National Health Priorities, Provincial Economic Growth and Development Plan, its own departmental strategy, service delivery plans, and annual performance plans. The budget is allocated to the CD for management and accountability. Funds cover all aspects of health service delivery including responsibility for infrastructure planning, including project identification, prioritisation and budgeting, and funding of the infrastructure capital and maintenance programmes.

From the National Department's point of view as entrenched within Programme 8 Health Facilities Management of the Strategic Plan for Health encompasses minor and major capital projects and maintenance and is driven through a range of key performance indicators that are in sync with project objectives and service delivery goals as depicted in **Table 1**. This table depicts performance indicators for health facilities management as summarised from National Integrated Health Planning Framework (IHPF) model. It should be noted that from a national health system's policy and strategy point of view, facility management is about buildings, equipment and technical maintenance thereof as they interface with access of such to the citizens of South Africa in order to measure health services' coverage.

Table 1: Performance Indicators for Health Facilities Management

Indicator
Input
1. Equitable share capital program as % of total health expenditure
2. Hospitals funded on revitalization program
3. Expenditure on facility maintenance as % of total health expenditure
4. Expenditure on equipment maintenance as % of total health expenditure
Process
5. Hospitals with up to date asset register
6. Health districts with up to date PHC asset register (excl hospitals)
Quality
7. Fixed PHC facilities with access to piped water
8. Fixed PHC facilities with access to mains electricity
9. Fixed PHC facilities with access to fixed line telephone
Indicator
10. Average backlog of service platform in fixed PHC facilities
11. Average backlog of service platform in district hospitals
12. Average backlog of service platform in regional hospitals
13. Average backlog of service platform in specialized hospitals
14. Average backlog of service platform in tertiary and central hospitals
15. Average backlog of service platform in provincially aided hospitals
Efficiency
16. Projects completed on time
17. Project budget over run

Outcome
18. Level 1 beds per 1000 uninsured population
19. Level 2 beds per 1000 uninsured population
20. Population within 5km of fixed PHC facility

Summarised from National Integrated Health Planning Framework (IHPF) model Source: 2011/12 Guide to Annual Performance Plan

Furthermore, the CD is also responsible for client programme management which entails programme design and management, stakeholder interfacing with respect to service delivery, the formulation of norms and standards, and ongoing monitoring of the activities of the ID or IA for infrastructure delivery.

As end users of the assets, CDs are responsible for operating the facilities – which includes preparing a new facility for occupation (including staffing and resource provisioning), and thereafter effectively managing the facility.

2.5 THE IMPLEMENTING DEPARTMENT (ID)

Described broadly, the functions of an ID include the determination of accommodation requirements, rendering expert built environment services to client departments, the acquisition of immovable assets and the regulator of the industries and associated professions falling under its jurisdiction. This is a mandated function within Government with its basis on the history and guided by legislative and policy imperatives.

In terms of GIAMA, the National Department of Public Works has the custodial responsibilities for other National Departments. Within the Provinces, a Premier has to delegate such custodial functions to a department. GIAMA does not in the Provincial situation mention which department should be the custodian. It further gives an opportunity for a user or client department to apply to the Premier for part or full custodial functions.

Currently no fees are charged by the ID for program and project management on behalf of CDs. CDs set aside budgets to pay for professional service provider fees directly to the consultants engaged by the ID to assist in planning, design, technical documentation and supervision. Contractors receive payments for construction works and materials' supply. Professional liability lies with the various professional service providers; the ID is indemnified of such.

Holtzhausen (1998: 28) points out some of government's overall objectives in the social and economic arena related to the ID include "...ensuring the implementation of best practice in engagements with client departments and rapid and dependable delivery of services...". This demands that the ID will co-operate with the CD by providing expert advice and support to ensure delivery of construction projects in an optimal manner, including the selection of appropriate procurement and contracting arrangements for each project.

2.6 PROCESS OF ENGAGEMENT

2.6.1 Process, Between the CD and ID

Section 38 (1) (iv) of the Public Finance Management Act (PFMA, 1999) requires Accounting Officers to have and maintain "... a system for properly evaluating all major capital projects prior to a final decision on the project". Evaluation of major capital projects to be undertaken is entrenched in the service planning whose basis is the service transformation plan, further elaborated during the CD's strategic and annual performance planning sessions.

Details are discussed with the ID during the capital works planning and program management meetings. Once priorities have been approved by the CD, they are captured in the Infrastructure Program Management Plan (IPMP), the User Asset Management Plan (UAMP) and submitted to National Department of Health, Provincial Treasury and the ID. The timing of the submission is end of June of the preceding year of implementation in line with the budget cycle.

It is expected that the ID would interact with the UAMP and IPMP in relation to the project scope, project complexity, geographical spread, budget, procurement approach,

organisational capacity, time and risks; and respond to the CD in the form of an Infrastructure Program Implementation Plan (IPIP) prior to end of September of the preceding year. Once the IPIP has been negotiated and finalized between the ID and CD, the ID would then prepare project execution plans (PEP) which would also be subjected to a process of engagement with the CD prior to approval.

Whilst budgets would have been informed by Medium Term Expenditure Framework (MTEF) figures, between November and February of the preceding year of implementation they are confirmed. Allocation would be made taking into consideration multi-year commitments and new work. The final IPMP and IPIP are signed off in February, prior to the end of the current financial year. Concurrently, It is required that ISDA should be reviewed from June of the preceding year and eventually signed off in February-March prior to the new financial year starting in April.

DORA which is reviewed and passed annually may set other conditions for infrastructure program and project management and submission dates. National and Provincial Treasury regularly issue practice notes and directives aimed at enhancing infrastructure planning, supply chain management, program and project management, project delivery, progress payments, immovable asset management, financial accountability and all other relevant matters associated with infrastructure.

The ID would, depending on its capacity and capability, involve internal experts or external built environment professionals in the planning, design, technical documentation, construction process and project supervision. IDs in construction increasingly involve the private sector in the provision of various public goods and services.

With the extension of private sector involvement, IDs are confronted with the need to acquire new capabilities to address the program and project management functions to be undertaken. This is needed to successfully employ (a) contractual and (b) relational capabilities in their exchange relationships with external private built environment professionals and contractors.

It is assumed that all role players in a program and project inclusive of the private sector are in pursuance of both the project objectives, strategic goals and service delivery targets of the CD as shown in **Figure 1** (Watermeyer, 2011) below. The primary objective of a clinic building program is to enhance access to quality health services especially integrated primary health care.

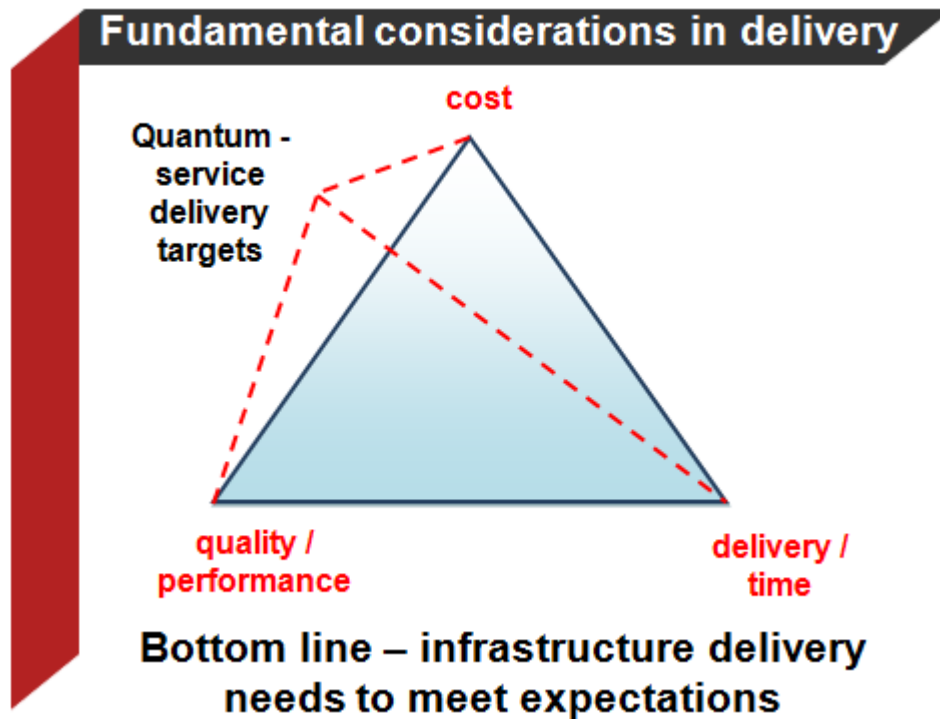


Figure 1: Infrastructure Delivery Expectations

Source (Watermeyer, 2011)

2.6.2 Process, Between the CD and IA

Upon approval by the CD for an alternative implementing agent, terms of reference were compiled and a request for proposals went through an open public bid advertisement. **Table 2** shows the “The evaluation of the technical proposal” as extracted from the Terms of Reference (2007) for the engagement of the program management unit or IA. The Technical Threshold Score was weighted on 45 points (100 %) and only those bids that achieve a threshold of 33.75 points (75%) or more had the Financial and BEE Proposals considered.

Table 2: Technical Proposal, Quality and Functionality

	Criteria (Percentage)	Scoring (for whole or each sub-element where applicable)	Maximum Points	
Technical Proposal			Sub-Total	Total
1	Team Compilation	<i>Excellent = 5</i>		
1.1	Architect, Quantity Surveyor, Civil, Structural, Electrical, Mechanical Engineers, Project Manager, Health & Social Development Planner.	<i>Acceptable = 2.5</i> <i>Poor =0</i> <i>Excellent = 5</i> <i>Acceptable = 2.5</i>	5	5
1.2	- Relevant experience	<i>Poor =0</i>	5	5
2	Development of concept designs	<i>Excellent = 3</i>		
2.1	- Skills	<i>Acceptable = 1.5</i>	3	3
2.2	- Relevant experience	<i>Poor =0</i>	3	3
3	Health & Social Development infrastructure planning	<i>Excellent =3</i> <i>Acceptable =1.5</i> <i>Poor =0</i>		
3.1	Brief, accommodation schedule, Master plan and Project management.		3	3
3.2	Project management (Health& Social Development Experience)		3	3
4	Environmental Management Plan (Health& Social Development Experience)	<i>Excellent =4</i> <i>Acceptable =2</i> <i>Poor =0</i>	4	4
5	Site Supervision during construction. Relevant experience	<i>Excellent =5</i> <i>Acceptable =2.5</i> <i>Poor =0</i>	5	5
6	Overall Co-ordination and Project Management Health& Social Development Relevant Experience	<i>Excellent =5</i> <i>Acceptable =2.5</i> <i>Poor =0</i>	5	5

7	Commissioning and De- Commissioning of Health & Social Development Facilities.	<i>Excellent =4</i> <i>Acceptable =2</i> <i>Poor =0</i>	4	4
8	Facility Management for maintenance of facilities after commissioning. Relevant experience.	<i>Excellent =5</i> <i>Acceptable =2.5</i> <i>Poor =0</i>	5	5
	Total Points			45
	TOTAL Technical Percentage			100 %
	Technical Threshold Score			75 %

Source (CD's Bid Advertisement Document, 2008)

2.6.3 Basis of Engagement of an IA by the CD

Part 3 of the Division of Revenue Acts (DORA) of 2006/07 to 2010/11 stipulates that:

“(3) (a) A province, in allocating the Infrastructure Grant to Provinces must take into account

- i. the capacity of the receiving provincial department to spend and manage infrastructure based on the extent of any approved roll-overs in the 2006/07 financial year and any projected roll-overs in the 2007/08 financial year and
- ii. may where a provincial department lacks capacity designate an amount not exceeding four (4) percent of the allocation for acquiring such capacity, to facilitate delivery.

The percentage referred to in subsection (3)(a)(ii) must be informed by a capacity plan prepared by the receiving provincial department and approved by the provincial treasury”.

The Supply Chain Management Practice Note (2004: 24) on the Appointment of Consultants uses the term “consultant” to include among others,

“consulting firms, engineering firms, construction managers, management firms, procurement agents, inspection agents, auditors, other multinational organizations, investment and merchant banks, universities, research organizations, government

agencies, non-governmental organizations (NGOs) and individuals. Accounting officers / authorities may use these organizations as consultants to assist in a wide range of activities such as policy advice, reform management, engineering services, construction supervision, financial services, procurement services, social and environmental studies and identification, preparation and implementation of projects to complement accounting officers'/authorities' capabilities in these areas”

The services of consultants are regulated by a contract. The accounting officer is responsible for monitoring and evaluating performance and outputs against targets inclusive of remedial action if performance is below standard. The basis for appointment of consultants hinges on four major considerations: the need for high-quality services, the need for economy and efficiency, the need to give qualified consultants an opportunity to compete in providing the services; and the importance of transparency in the selection process (Supply Chain Management Practice Note, 2004).

The 2006/07-2010/11 DORA stipulations coupled with the Supply Chain Management Practice Note on the “Appointment of Consultants” provide an opportunity to pursue use of “consultants” or the implementing agents’ approach for infrastructure delivery. Both documents are silent as to the optimal location of consultants geared at capacitating the entire value chain of infrastructure delivery in relation to the context of the CD and ID’s “mandates”.

It is however important to point out that DORA 2006/07-2010/11 puts / locates the responsibility to enhance capacity for infrastructure delivery, and therefore infrastructure spending resides with the accounting officer of the department receiving infrastructure budgets allocations. It is important to note that the capacity of the budget’s or conditional grant’s receiving department (that is the CD) to spend and manage infrastructure is the one targeted and not that of the implementing department.

This matter has been and is still a subject of debate amongst infrastructure managers and Treasury to the point where some were arguing that the DORA stipulations should have been as follows:

- a portion, say 1.5% out of the 4% capacity allocation be set aside for planning and program management function's capacity enhancement that are the core responsibilities of the CD
- the remainder, for example 2.5%; a positive bias of a greater allocation should be directed at enhancing the capacity of the ID in terms of their assigned program and project delivery roles

PFMA Section 38 (1) places accountability on the CD's head of department or accounting officer as follows:

- "...evaluating all major capital projects ..."
- "...effective, efficient, economical and transparent use of resources..."
- "... safeguarding and maintenance ..."

The CD's accounting officer is required to prepare and submit a strategic plan and an annual performance plan for Medium Term Expenditure Framework (MTEF) period annually. Pressure is on the CD to deliver according to plans communicated to the citizens and project objectives are met in terms of time, cost and quality.

The recently released Auditor General's report (2010) on infrastructure performance in health and education focuses accountability on accounting officers in the CD. Parliament's Standing Committee on Public Accounts on following up on the report seeks responses from the CDs' accounting officers; where the infrastructure budgets reside. Despite reliance on the ID's technical recommendations during the life cycle of a project, the implications of decisions made remain the responsibility of the CDs' accounting officers.

CDs' accounting officers have to account for delays in project completion, others have budgets escalating by 300%, poor interpretation of specified quality requirements, contractors abandoning sites due to a variety of factors ranging from under quoting / pricing to payment disputes rooted in conflicts within the project team, shoddy unacceptable work, under expenditure on infrastructure budgets and many more issues. Most of these issues are project management related which reside within the ID.

With an enabling legislative environment in the use of consultants for the budget receiving accounting officer, the CD needed to diversify the infrastructure delivery machinery. This

opened a situation where the ID's sole monopoly on infrastructure delivery was minimised; a move that was supported by the Provincial Executive Council. The approach was seen as an interim measure whilst focus on restructuring and capacitation of the ID would be undertaken and completed within a maximum period of 3 years. Special funds were allocated to the ID by the Provincial Treasury for capacity building.

The Provincial IDIP Technical Assistants team was also tasked with the responsibility of compiling an Infrastructure Co-Location with the aim of pulling all the infrastructure human resources skills and capabilities to work together. Such a move was entrenched in the IGR spirit of co-operation and collaboration in the joint delivery of projects. Furthermore, it was also geared at removing the 'us' and 'them' nature of finger pointing and passing the buck, improve efficiencies, harness the skills, knowledge and competencies of the dwindling numbers of infrastructure managers in the public sector.

It needs to be emphasized that the IA approach was adopted with the understanding that 2.5% program management fees would be paid over and above all other professional service provider fees. Guidance on the fees was sought from the professional consultants' gazetted schedule of fees. Professional liability lies with the IA who will further claim from any of the professional service providers that they have engaged.

2.7 THE SERVICE DELIVERY AGREEMENTS

Included in the SDA is a preamble, roles and responsibilities of the CD, roles and responsibilities of the ID or IA, institutional arrangements, financial matters, general, key performance indicators, penalties, commencement and duration and a space is provided for signatures of the two accounting officers. For the purpose of this study, the unit of analysis within the SDA is the section on key performance indicators (KPIs). It is agreed in the SDA that the ID or IA's performance will be measured in terms of amongst other KPIs that

“Projects to be delivered according to agreed time, within approved budget and to the required specification and quality”.

Serious breach of the agreement may include, amongst others:

- a. Failure to deliver a service in terms of this agreement.
- b. Contravening any legislation.

- c. Not meeting agreed standards and specifications.
- d. Failure by the CD to submit a Business Plan in time.

The Inter-Departmental SDA between the CD and ID states that should either party be in default of the agreement, the Premier's Office may be requested to intervene and to decide on an appropriate corrective action.

The SDA between the CD and IA constitutes a contract creating rights and obligations which are recognized by law through civil obligations, these rights and obligations are legally enforceable (Nagel, 2006). It contains steps to be taken and time frames to be adhered to in the event of any breach by either Party of the terms and conditions of the agreement. In cases where the IA remains in breach the CD may as per CIDB Toolkit (2006):

- a. Suspend further payments to the IA until the breach has been rectified;
- b. Require the IA to make immediate repayment of the full balance of monies remaining in the IA's bank account.
- c. Itself, or through a third party of its choice, take direct control of the completion of any particular uncompleted project, in which event the IA agrees, if requested, to permit the CD or its nominee to assume responsibility for, and benefit of, all agreements in place for the project in question.
- d. Should the IA dispute the existence of a breach entitling the CD to the above mentioned rights and remedies, the matter/s in issue may be referred, at the request of either party, for determination by an arbitrator to be appointed in terms of this Agreement. Notwithstanding anything to the contrary contained in this Agreement, and by reason of the financial and social imperative underlying this Agreement, the arbitrator shall be entitled to make interim orders to ensure that work proceeds and that no material delays occur to the detriment of a community or to the CD.
- e. In the event of any breach by the CD of the terms and conditions of this Agreement, and in the event of the CD remaining in default after 21 (twenty one) days written notice, calling for rectification of the relevant matter, the IA shall be entitled to:
 - a. suspend all work in respect of any project affected by such breach; and/or
 - b. enforce strict compliance with the terms and conditions of this Agreement; or
 - c. cancel this Agreement

2.8 PRIVATE SECTOR PARTICIPATION IN INFRASTRUCTURE DELIVERY

Due to the fact that private implementing agents' direct involvement with CDs is new in the South African government context, or rather that they are still taking their roots, not much has been documented on this subject matter. Not so much has been written on practical experiences in terms of their role, impact, advantages and disadvantages within the public sector as a whole.

Literature that one could make reference to was on the broader theme of private sector participation in the areas of electricity, gas, water, telecommunications, roads and air services. In South Africa, the general trend was for governments to entrust the delivery of these services to government departments and or state-owned monopolies. But in some instances, public sector monopolies were plagued by inefficiency. Many were strapped for resources both financial and human, by and large publicly owned utilities failed to expand services to meet rapidly growing demand, delayed service provision and sometimes provision of sub standard services to the communities.

Attempts to improve the performance of public sector monopolies, saw the introduction of formal arrangements such as performance contracts; however governments were not able to credibly enforce punishments for bad performance; targets set were frequently readjusted and financial targets set were rarely met or enforced (Harris, 2003). A study by the World Bank (1995) revealed that of 12 public enterprises from 6 countries subjected to performance contracts, only 3 saw improved performance; 3 enterprises actually performed worse than before the contract was introduced, and 6 saw performance unchanged.

Over the years, fiscal pressures amongst others brought in a move to pursue policies to involve the private sector in the delivery and financing of infrastructure services; a slight shift away from the dominant public sector model. Kessides (2008) writes that breaking traditional practices of public sector monopoly demanded a combination of institutional reforms; competitive restructuring, establishment of regulatory agencies and private sector participation.

Governments adopted a variety of models; private control and private management; including a range of types like full and partial divestitures, concessions, lease and management contracts (Kessides, 2008). The nature and scope of private involvement varied, from simple management contracts through to the outright sale of existing assets; the

extent of benefits was similarly expected to vary with the extent of risks and obligations taken by the private sector (Harris, 2003: 5); as shown in **Table 3**.

Table 3: Models / Approaches Adopted by Governments

Approach	Immovable Asset Ownership	Operation & Maintenance	Capital Investment	Commercial Risk	Potential Benefits
Service Contract	Public	Public/private	Public	Public	Management Expertise
Management Contract	Public	Private	Public	Public	Management Expertise
Lease	Public	Private	Public	Shared	Management Expertise
Concession	Public	Private	Private	Private	Management Expertise
Build-Operate-Transfer	Public and Private	Private	Private	Private	Management Expertise
Divestiture	Private or Public and private	Private	Private	Private	Management Expertise

Source (Kessides, 2008)

South Africa also experienced a permutation of varied private sector participation models ranging from outright sale of assets to the private sector, public private partnerships (PPP) and a variety of procurement and contracting arrangements in infrastructure. Like the rest of the world, private sector investment plays a substantial role in sectors like access to telecommunications services, airlines industry, independent power producers and through construction and operating concessions, for example in toll roads. Such are more linked to amongst others payment of tariffs by the end-users, the general public; sustainability of cost-recovering tariffs. Similarly, PPPs have been introduced in the correctional services and the health sector whose costs are largely dependent on the government funding allocations.

Whilst there is a general consensus that positive gains have been recorded, the issue of affordability is at stake. The Gauteng e-Tolling system is an example of a private sector participation model that members of the public and organized labour are opposed to the

prices that consumers are expected to pay. Other matters that seem to work negatively against such models are contract negotiations and renegotiations which are apparently open to abuse (Kessides, 2008).

Public sector infrastructure provision is similarly having its own share of challenges. The South African Minister of Finance in his address to parliament summed it up as follows “In addition to long delays, we have often experienced significant cost over-runs in infrastructure projects. So we shall step up the quality of planning, costing and project management, so that infrastructure is delivered on time and on budget” (Finance Budget Speech, 2012).

It should be emphasized that whatever model, private participation in infrastructure is not a panacea, but it has also demonstrated that it is not the root cause of many of the problems encountered. Legally binding contracts and hard budget constraints replaced the lack of accountability and financial discipline of public sector provision.

Studies in water, sanitation, power, telecoms and ports had a positive impact on infrastructure service delivery. Benefits brought in by the private sector in general were increased investment to bring service to new consumers, lower prices, and improved productivity and efficiency, technical and operational efficiency (Harris, 2003). In summary, the impacts are as follows:

- In service expansion
- On efficiency
- On the quality of service
- Fiscal
- On prices

Those that tend to discourage private sector, are more critical and concerned that price increases will make services unaffordable.

2.9 CONCLUSION

In this chapter, it has been highlighted that CD's expectations and KPIs can be reduced to time, cost, quality and elimination of risks associated with attaining the service delivery targets. Meeting or exceeding project expectations as determined by the client or customer within the KPIs indicates project success and *vice versa*. The role of the ID or IA is proving to be difficult as the experienced CDs play more of an active role than in earlier times. They challenge both the ID or IA and building industry's performance in search for better value, faster construction and quality.

For the CD, time is of essence, within minimum cost, price certainty needs to be established very early in the project and a facility for variation control by the client and not the ID or IA. Such performance metrics also assume that the project would still be of high aesthetic requirements, demonstrate technical complexity and be fit for purpose amongst other equally important criteria. The selection or choice of an ID or IA should contribute to the attainment of client's objectives with respect to time, cost, quality and core service delivery needs.

Furthermore, the ID-IA debate finds its roots in the global context of public or private sector participation in infrastructure encompassing different arrangements including full and partial divestitures, concessions, lease and management contracts. Whilst there are significant risks associated if not accompanied by appropriate structural and regulatory safety measures, if implemented correctly, private sector participation in general including implementing agents "offers benefits too big to ignore - for governments, operators, and consumers" (Kessides, 2008).

Chapter 3 will look briefly into the procurement and contracting arrangements used by the ID and IA. An appraisal thereof embedded in the literature based on project management and JBCC.

CHAPTER 3

3 LITERATURE REVIEW: A DESCRIPTIVE ACCOUNT OF THE PROCUREMENT AND PROJECT DELIVERY ARRANGEMENTS USED BY THE ID AND IA; WITHIN THE PROJECT MANAGEMENT CONTEXT

3.1 INTRODUCTION

In Chapter 2 the literature review provided a legislative context and policy framework in terms of a client department, an implementing department and an externally sourced implementing agents *vis a viz* roles and responsibilities with regards to their core functions and that of infrastructure delivery. In this chapter, the process of engagement of professional consultants and contractors is described as a comparison of how the ID and IA work; and furthermore, points of interface with the CD. The chapter provides a descriptive appraisal of the procurement and contracting arrangements used by the ID and IA on the basis of literature and project management theory and practice.

The study is limited to the Clinic Building Program. An up to date clinic standard plan is available; as designed by the employer; whether the ID or IA. Infrastructure services required have been defined and standardized for water, sanitation and electricity.

For both the ID and IA the Clinic Building Program as at September 2011 included a list of active current projects, approved projects for the MTEF and a list of proposed future projects. As mentioned earlier in Chapter One, the time delimitations for the study are the financial years 2005/06 up to September 2011. In this grouping only projects that should have been completed any time prior to September 2011 will be looked at. These may be projects whose files have been closed; or active projects at various construction phases. Project classification as per DORA, active projects are those approved and gazetted in the current financial year or in previous financial years, and still contractually committed to one or more service providers.

There are two categories of active projects; active design projects and active construction projects. The unit of analysis in this study is active construction projects; those that are

contractually committed to a contractor for the construction works and still committed to professional service providers for construction monitoring and inspection of the works. Included are those that were contractually committed during the financial years specified in the study but has since been completed and project files are closed.

Procurement and contracting arrangements used by both the ID and IA are generally the traditional “design, bid, build”. The IA has however added amongst other variants a management component to the arrangements.

3.2 THE ID’s PROCUREMENT AND CONTRACTING ARRANGEMENTS

Upon receiving a scope definition from the CD, the ID appoints independent consultants on a fee basis. The project is designed by the consultants, the design is measured and all costs inclusive of the site layout implications shown in bills of quantities, bid documents are prepared upon which competitive bids, often on a lump sum basis are obtained from contractors. Holtzhausen (1998) cautions that it is imperative that the design is fully developed before the bills of quantities are prepared and bids invited to avoid variation orders related to scope.

The successful bidder would also offer a lump sum price for the production of the project; and enters into a direct contract with the ID; carries out the work under the supervision of the design consultants. For the ID, the supervisor of professional and construction works is in most building projects, the designer or the architect. The common trait in the working process is to work separately, sequentially and hand off from party to party.

The evolution from the basis of one group designing and costing the project, submitting it to those who have to undertake the procurement of the contractor, and eventually to the contractor who builds has been driven by several desires. Desire to control or reduce costs, deliver the project more quickly and most importantly to control and reduce risk of cost, scope change and schedule variance.

The onus is on the principal agent or architect as the ‘ID’s representative on all project matters’ to manage all activities covering a wide range of practical and professional skills, that of design and production (Cusack:1991); requiring additional functions such as planning,

estimating and a wide range of management skills. The situation is complicated by the fact that a construction project involves independent professionals and contractors that are expected to work together despite the fragmented context they each find themselves in.

It is important to emphasize that each professional service provider and the contractor enters into separate agreements and contract with the ID respectively. The principal agent has no agreement with the team he has to lead. Neither do the professional service providers including the principal agent have any agreement with the contractor. Department of Public Works' Offer of Appointment (2008: 7) states categorically that

“... Construction monitoring creates no contractual relationship between the professional and the contractor”.

The principal agent's or architect's skills are oriented towards practising professional disciplines and not project management which is what they are demanded to do (Himayumbula, 2009). Principal agents have to harness a team to work with them in order to achieve the project objectives whilst managing the constraints of time, scope and cost.

Internally, the ID assigns a project manager for the project. The line function accountability and reporting are to the health portfolio senior project manager, senior and general managers responsible for construction management and ultimately to the departmental accounting officer. The ID's project manager is usually assigned more than one project at a time, from various government departments and not necessarily health only. The interface between the principal agent and the ID's project manager is not spelt out in the specific conditions of contract for the professional services document.

The ID has a roster of professional service providers updated annually from which a team under the leadership and management of the principal agent, mostly the architect, is recommended to the ID's Bid Adjudication Committee (BAC) for appointment. Criteria for selection are based on qualifications and experience in similar type of projects. The principal agent has to design, pass such work to other specialists and engineers to complete their part of design; the quantity surveyor for costing and bills of quantities and ensure that all work is performed as per time lines.

Procurement processes are all handled solely by the ID as per CIDB and Treasury prescripts. Technical quality evaluation is normally conducted by project managers and recommendations to the ID's BAC. Although the quality factor plays a critical role, price determines who ultimately is awarded the contract. The pre-tender estimates used to play a major influence in terms of contractors' pricing trends. At some stage, a predetermined value range of percentage (say 15%) above and below the pre-tender estimate was used as a threshold whereby price offers could be allowed or disallowed for consideration. Contractors enter into a contractual agreement with the ID. A project manager, an employee of the ID is assigned to the project as part of monitoring and evaluation to keep the Senior Project Manager and the ID informed about project progress.

Critical issues like the ID's project managers' skills and competency levels, delegations, authority over the project, at what stage they enter the project, minimum-maximum number of projects that a project manager can optimally handle at a time, project complexity, criteria for assignment of project managers to projects, organisational readiness to embrace project management, organisational bureaucratic impediments or enablers and so forth are not dwelt into in this study.

3.3 THE IA's PROCUREMENT AND CONTRACTING ARRANGEMENTS

In the case of the IA, the project manager (PM) is given the responsibility to provide leadership, coordination of all professional service providers and supervision and technical support during construction to the contractor. The PM is the IA's principal agent, the employer's professional representative and is the link between the IA and the CD; and the IA and the project team. The professional service providers' service level agreements and the contractors' contracts for a particular project specify the IA's representative as in the PM by name and spells out roles, responsibilities and delegations of authority.

The contractual arrangements are in such a manner that project responsibility and authority pivots around the PM as the employer's representative to drive the attainment of project objectives. Mbanjwa (2002: 31) rightly describes the PM is one who "bonds the project". He/she needs to keep a balanced mix of managerial attention to technical tasks, stakeholder management, project documentation and ensure that approvals and decisions are taken timeously.

Project management is applied in the traditional procurement system of design, bid and build. At project planning, the IA's approach is to "ring up a PM" and not a "ring up an architect" as is the case within the ID (Mbanjwa, 2002). The PM will have to evaluate the project, its complexity, technicalities associated with infrastructure services, site, risks associated and the mixture and depth of professional service providers needed to devise a project strategy.

Architects, engineers, and all other specialist consultants are given space to devote optimal time and resources on their respective professional expertise. During planning and design, the PM would be offering input and expert advice on buildability, cost, labour and materials availability, market conditions, schedules, programme, value engineering, eradicate or reduce inefficiencies, and as a team, work out ways to achieve the project objectives within the constraints of time, cost and quality against the prevailing conditions. Basically, the PM assumes responsibility of principal agent, being responsible also for the performance of the design team. During construction, the contractor is also taken on board in terms of the project objectives, supervised, supported and assisted to attain the CD's expectations.

Procurement arrangements are such that the IA is responsible for appointment of professional service providers and professional liability lies solely with the IA. Bid advertisement for contractors is done through the CD's processes in line with CIDB and Treasury prescripts. Technical quality evaluation is a joint process with the CD's technical built environment officials and the IA's team of professionals.

The CD's Bid Adjudication Committee (BAC) assesses price and other specific goals aspects and tentatively recommends for award. This means that the IA is requested to conduct a due diligence with the contractor and assess the probability of the contractor attaining the project objectives based on the lump sum price he / she has offered in the bid. The contractor would then, based on discussions and reflection of the price to the extent of bringing on board his/her own cost engineer or quantity surveyor to confirm participation in the project or withdraw. Based on the contractor's response, the BAC will recommend for award by the head of department, resolve that due diligence be conducted with the second contractor or bid re-advertisement. The contractor is notified about the award and the letter stipulates that he/she will have to enter into a contract with the IA.

Project managers are recruited and appointed based on amongst others, qualifications, competencies, capabilities, past experience and performance thereof, professional registration with the South African Council for the Project and Construction Management Professions (SACPCMP), experience in health construction projects, reputation and level of professional liability insurance. Construction project management as defined by the SACPCMP (2011: 3) is “the management of projects within the built environment from conception to completion, including the management of related professional services. The Construction Project Manager is the one point of responsibility in this regard”. As mentioned earlier, further research is needed on the entry point criteria of the PM within the ID and IA respectively; currently not the subject of this treatise.

3.4 PROJECT OBJECTIVES

The procurement and contract arrangements within the ID and IA are selected and utilized in pursuance of the attainment of project and client objectives. The essence of this study is to compare the working processes of the ID and IA impact on the project and client objectives. Looking at the definition of a project as standardised by the Project Management Body of Knowledge (PMBOK) Guide (2000) one understands a project as a complex process made up of interrelated tasks with the purpose of achieving a pre-determined set of objectives and to be completed within a limited and pre-determined time frame and budget. Kerzner (2001) refers to project constraints as time, cost and quality or performance.

3.5 PROJECT SUCCESS CRITERIA

These are the set of principles, standards and KPIs which can be used by various stakeholders to evaluate and assess the success of a project. Project success criteria are intertwined with project success factors which Cooke-Davies (2002) refers to as the circumstances, facts or influences that are inputs into management systems. Such factors can directly or indirectly affect the outcomes of a project.

Pinto and Mantel (1990) attempted to unpack project success in three dimensions:

- The efficiency of the implementation process. An internally oriented measure of the performance of the project team, inclusive of such criteria as remaining on schedule,

on budget, meeting the technical goals of the project and maintaining smooth working relationship within the team and the client organization.

- The perceived quality of the project and includes the project team's perception of the value and usefulness of the project deliverables.
- The client's satisfaction; or an external performance measure of the project performance and its team conducted by the client.

Within the public sector, social infrastructure projects are basically development projects. Development projects are characterized by intangible social and development objectives, complex relationships amongst stakeholders, geographical distances and difficult working conditions, and gaps in culture, knowledge and living conditions. In such a context, financial accountability is a crucial requirement that should be met. Also, the black economic empowerment factor within the construction industry inclusive of overall capacity building of the partners involved in the projects is seen as an additional success factor.

Figure 2: Success Criteria for Development Projects



Source: (Khang, 2011: 7)

3.6 PROJECT MANAGEMENT

Project management is defined as

“The application of knowledge, skills, tools and techniques to project activities in order to meet or exceed stakeholder needs or expectations...” (PMBOK) Guide 2000

“... The planning, organizing, monitoring and controlling of all aspects of the project is a continuous process to achieve its project activities, both internal and external...” (ISO 10 006)

There is a need to emphasize that project management success is concerned with the traditional time, cost and quality aspects at the completion of the project. The concept is process oriented and involves the satisfaction of the clients, end-users and key stakeholders at project completion.

Project success or product success is measured against the achievement of the project owner’s strategic organizational goals and objectives, as well as the satisfaction of the end-users and key stakeholders’ needs where they relate to the final product. In the framework of the CD as the project owner having to interface with an ID and IA for project delivery, it is important to ensure that organizational objectives of the ID or IA do not supersede and undermine those of the project owners.

The concept of project management can be simply referred to as all the managerial efforts that make a project to succeed. The CD expects both the ID and IA as project management experts in construction to manage and direct efforts and resources to complete projects in an orderly and economic manner and to achieve the project objectives to the satisfaction of the projects’ major stakeholders.

Accordingly, the CD sees the ID and IA as better positioned in terms of capacity to manage both the more traditional technical track of project management; time, cost and technical resources and the people – oriented track of project management which deals with soft skills like problem solving, conflict resolution, project organization, leadership and management of team dynamics. The CD’s satisfaction is derived from both the ID and IA meeting the success criteria of projects in a most satisfactory manner within the given project constraints.

3.7 PROJECT SCOPE

Once the project goals and objectives are identified and agreed upon, the most important task for the project manager is to define clearly the scope of the project. Kerzner (2006: 406) defines project scope as “the work that must be completed to achieve the final scope of the project, namely the product, services and end results”.

The CD provides a project scope definition as part of the ‘instruction’ or IPMP to the ID or IA. Such may include standard drawings, materials to be utilized, norms and standards for health facilities, norms and standards for specified rooms and so forth. This provides the basis for making future decisions such as scope changes and ensures that all stakeholders have common knowledge of the project scope (Himayumbula, 2009). The project scope definition should be explicitly documented, with the consultation and participation of all critical stakeholders, agreed to and formally approved. As such, problems emanating from projects committed without a clear understanding of what works is to be implemented would be minimized or eradicated.

3.8 RESOURCES

Infrastructure budgets make provision for payments for the professional service providers (professional fees) and those of the contractors. Regular and timeous payment of contractors is critical as pointed out by Finsen (2005) as he considers this as the most important of the employer’s obligations; ‘to pay the agreed price for the work performed by the contractor’.

Provided that the design has been fully developed, accurately billed and all uncertainties eliminated before bid advertisement, the financial commitment (“price certainty”) will be known by the CD prior to construction start so that post contract changes can be implemented at a fair and reasonable cost. The existence of priced bills of quantities enables interim valuations to be assessed easily and variations to be quickly and accurately valued by means of pre-agreed rates. If these criteria have not been met, it may result in excessive variations, disruption of the works and a consequent increase in the contract value.

3.9 TIME

Time is of essence and is one of the project constraints. In a design, bid and build situation the sequential, fragmented and confrontational nature of the set up result in lengthy design and construction periods, poor communication between the ID or IA and the project team and challenges of “buildability”. The schedule is used to set the maximum time for the project.

3.10 CONCLUSION

Resources available to a project will have an influence on the scope, budget/cost and time /schedule. Procurement and contracting arrangements used by an ID or IA may positively or negatively affect the attainment of project objectives. Project management capacity in terms of people, systems, processes and authority holds the balancing power in project delivery.

The situation is compounded by the fact that the three project constraints are interdependent. As the length of the project increases so does the project cost because of escalation and general adjustments. The longer a project takes (more than the contract duration) the more it costs, the more a project costs the longer it takes to complete. The longer a project takes the more opportunities exist to change the scope. The more the scope changes, the more cost and schedule increase. It is very common that projects have difficulty finishing on time, within budget, within the scope or specifications (Goldratt, 1997: 24).

CHAPTER 4

4 RESEARCH METHODOLOGY

4.1 INTRODUCTION

The literature review in Chapters 2 and 3 focused into the contextual and legislative framework of service delivery between the ID and CD and the procurement and contracting arrangements used by the ID and IA to attain project objectives and the CD's strategic service delivery needs. The purpose of the study is to compare the performance of the externally sourced implementing agent (IA) and that of the public sector implementing department (ID) based on four key performance indicator variables:

- Contract duration versus actual completion time
- The use of variation orders within and above the 20% of the contract value Provincial Treasury limit
- Actual time taken between practical completion and presentation of final account
- Penalties imposed during the contract period.

The overall aim of the study is to determine whether the use of IAs improve the attainment of CD's objectives on projects, and ultimately the service delivery objectives. The underlying question is "has the use of an ID or an IA benefited / not benefited the CD in relation to the four key performance indicator variables"?

4.2 RESEARCH DESIGN

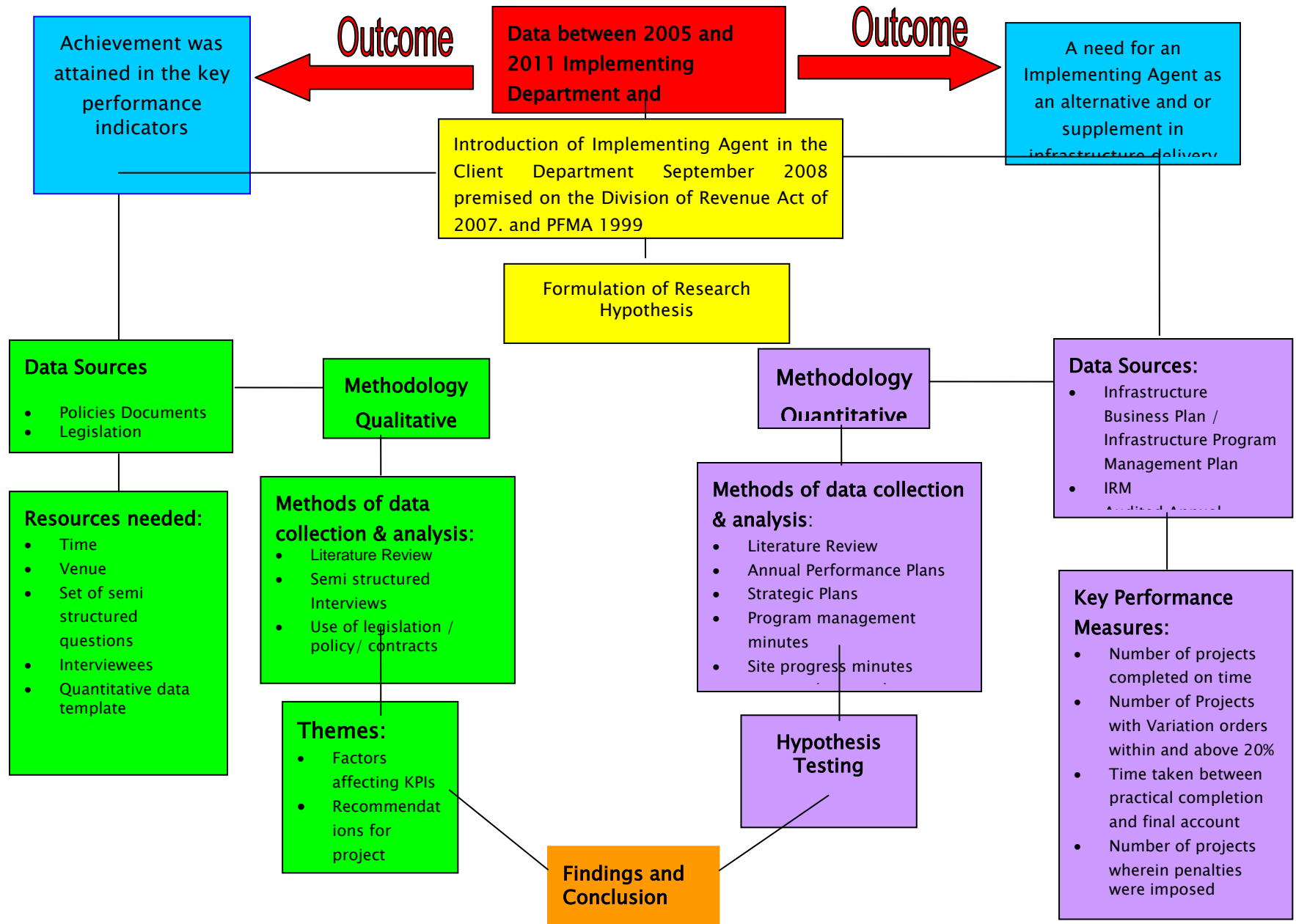
The study adopted both quantitative and qualitative procedures that one would say were reliable; encompassing a mixture of both qualitative and quantitative data. This mixture or plural methodology complemented one another, expanded the depth and breadth of the knowledge of the field of study and was used to gain the most appropriate data to fulfil the aim of the research. Through using plural methodologies, researchers can improve the accuracy, confidence and reliability of findings by using different methods to investigate the same subject (Denscombe, 2007).

The study firstly relied on the quantitative approach. However, for further insight into the trends exposed by the quantitative data and obtain recommendations on program improvement the qualitative approach was used to support the research endeavour.

Creswell (2003: 21 – 22) states that collecting diverse types of data best provides an understanding of a research problem. This study employed the triangulation method combining qualitative and quantitative research approaches in order to gather the necessary information, obtain detailed views and specific thoughts about the topic from participants.

The research methodology is summarized in a flow chart as presented in **Figure 3**.

Figure 3: Research Methodology Summary



4.2.1 The Quantitative Approach

White (2005) refers to the quantitative research approach as that form of study that maximises objectivity by using numbers, statistics, and structure and experimenter control. Bless and Higson-Smith (1995:100) define the quantitative approach as measurements that process the determining value or level and is concerned with numerical specifications.

Quantitative research approach was used to ensure that the findings would stand against criticism and ensure some measure of reliability and validity (Terreblanche & Durrheim, 1999: 31). Descriptive research technique was the quantitative method used in the collection of data. The purpose of descriptive research is to describe that which exists as accurately and as clearly as possible.

4.2.2 The Qualitative Approach

White (2005:81) defines qualitative research as an approach more concerned with understanding social phenomena from the perspective of the participants. Qualitative research uses an inductive form of reasoning, thus insights and understanding from patterns in the data, therefore determining meaning from the participant's perspective.

The rationale behind the choice of this approach was to gain perspective of the quantitative data from the professional service providers who have been part of the ID and IA's project teams. The respondents will reflect upon their experiences on the projects relating it to the four variables identified, reflect on the procurement and contracting approaches and offer recommendations for program improvement.

This involved direct data collection using semi-structured interview questions. The researcher depended entirely on information provided by participants. Rich narrative descriptions are expressed in words rather than numbers.

4.2.3 Validity of the Study

An attempt was made to address issues of internal validity of the study by not disclosing research hypotheses to the interviewees. This method is recommended by Leedy & Ormrod

(2010) to prevent the influence of the interviewees as to the “expected” or “preferred” outcomes of the study.

Furthermore, the use of different methods of data collection was likely to increase the validity and the reliability of the data.

4.2.4 Treatment of Bias

The traditional method of design bid and build has somehow given architects a general bias of being the best team leaders. Similarly, project managers on the other hand also insist that they are the best team leaders. Both architects and project managers were not included in the interviews. By targeting other professional team members, the bias is offset.

The ID and CD infrastructure program and project managers were not targeted purposely eliminating the “expected” or “preferred” outcomes bias.

Use of the triangulation method also revealed more and above that which could not be obtained from the quantitative data sources; collecting closed-ended data as well as open-ended data proved advantageous to best understand a research problem (Kyereh, 2008). The use of different methods of data collection is likely to increase the validity and the reliability of the data.

Although the researcher has been part of the CD’s infrastructure team since 2004 which may affect her evaluation of the performance, the risk of bias is mitigated by the use of objective measures that reflect the relative performance of both parties.

4.3 SAMPLING

A sample is a group of subjects or situations selected from a larger population. According to White (2005:114), sampling means to make a selection from the sampling frame (a concrete listing of the elements in the population) in order to identify the people or issues to be included in the research.

4.3.1 Sampling Technique

The sampling frame for the quantitative and qualitative data collection was convenient sampling based on the purpose of the study. Convenient sampling is a non-probability approach, through which a researcher selects a sample without using any statistical indices (Leedy & Ormrod, 2010). It is renowned for its relatively low costs of the study thus making it appropriate for studies of this nature.

Despite its limitations in that it makes no pretence of identifying a representative sample of the population; convenience sampling was used. It was used with the firm believe that data obtained in this study would provide an indication of the situation in order to contribute to future more intense research which would employ more structured samples.

4.3.2 Sample Size

4.3.2.1 Quantitative sample size

From the Health Capital Works Portfolio covering clinics, hospitals revitalization, forensic pathology laboratories, staff accommodation, emergency medical services stations, water, sanitation and electrification programs; only the clinic building program was selected. The target was all clinic projects undertaken between 2005/06 and 2011/12 financial years with a cut off date of progress status of September 2011. This is a representation of the total population of all clinic projects undertaken during the period under study; the ID was responsible for a total of sixty seven (67) clinics whilst the IA had a total of thirty four (34) clinic projects. Of the 67 ID projects, only 26 were further sampled; whilst out of the 34 IA projects, 12 were sampled. Such a situation was necessitated by the project status and full project data or information available at the time of the study. The projects include active in construction and those whose files have been closed. Therefore the sample size provided a good representation of ID and IA performance for in the selected four variables.

4.3.2.2 Qualitative sample size

To further understand and clarify the quantitative information collected, the researcher also conducted semi-structured interviews which provided the study with a personal insight and analysis of the problem and sub-problem.

Only professional service providers and contractors who have worked on the clinic building program both under the ID and IA were targeted. Architects and project managers were excluded. The researcher selected eight (8) professional service providers who were members of the project team and who had on average the highest number of clinic projects they were involved in. Two (2) professional service providers were selected per discipline as follows: civil engineer, electrical engineer, mechanical engineer and quantity surveyor. Similarly, four (4) contractors were selected. In addition, two (2) IDIP Technical Assistants were interviewed with a purpose of addressing sub-problem 1.3.2 which points out to the infrastructure delivery management strategy (IDMS). The qualitative sample size targeted a total sample of fourteen (14) interviewees out of which only 8 responded.

4.4 DATA COLLECTION METHOD

The use of different methods of data collection is likely to support the reliability of the data. White (2005:126) states that Maslow once remarked that “if the only tool you have is a hammer, you tend to see every problem as a nail”. Based on this, a combination of data collection techniques were used in this study.

The information was gathered from project files, infrastructure reporting modules and the CD’s audited annual reports from 2006/07 to 2010/11 financial years.

Furthermore, an extensive literature review covering the study was conducted through the use of books, journals, legislation, contract documentation, policies, professional magazines, similar documented studies and conference papers within and outside South Africa.

In an attempt to ensure reliability of the data, the quantitative and qualitative data collection were each limited to a period of two (2) weeks.

4.4.1 Quantitative Data Collection

The information needed was located in the CD’s infrastructure progress report files, summarized in the infrastructure reporting module data bases. The data was obtained by drawing up an Excel Spreadsheet template in terms of the information needed per project for both the ID and IA. The template was discussed with the CD’s infrastructure data specialist

who was the one to retrieve the required data from the office historical records and current files.

For each project, the following information was needed

- Data showing how much time was saved / lost during project execution
- Data showing how much money was used in projects with variations of below and above 20%
- Data showing how much time was saved / lost between practical completion and final closure of the project
- Data showing the number of penalties imposed

4.4.1.1 The Quantitative Data Collection Template

For purposes of this study, the names of the clinics' actual names were not used. The data base's chronological order was not changed and pseudo names were assigned according to the list from the infrastructure reporting module starting with Clinic A alphabetically. Where clinics were more than the alphabet; double alphabets were used as names for the next clinics after Clinic Z; for an example Clinic AA. The data collected was categorized into that sourced from ID or IA projects separately. It was then packaged in various templates according to the key performance indicator / variable under study and covered the following project information:

- Infrastructure Project Pseudo Name
- Nature of Investment
- Construction Contract Amount
- Contract Period
- Actual Construction Start
- Actual Construction Finish
- Delay / Early Finish
- Variation Orders / No Variation Orders
- Penalties
- Practical Completion Date
- Final Account Date
- Principal Agent: Architect
- Principal Agent: Project Manager

4.4.2 Qualitative Data Collection

A list of ten questions generally linked to one or more sub-problems to be posed during the face to face interviews is herein attached as **Appendix A**. The questions were tested for ambiguity and other possible challenges prior to actual interviews with the targeted interviewees. Four pilot respondents from the list of professional service providers and contractors which worked with both the ID and IA were randomly identified and trial run interviews were conducted. Comments received were the following:

- General presentation
- Long winding questions
- The order of sequence of the questions
- Some questions need a bit of probing
- The time taken to complete the interviews

The above-mentioned concerns were re-worked and finalized with the four pilot phase interviewees. A mixture of open-ended and closed questions with a five point rating scale was provided. The data was then interpreted looking at the commonality of responses given; building up a trend; and where they were answers that substantially differed with the rest of the targeted population, this were recorded as they were.

Whilst there is a general acknowledgement of the challenges in infrastructure delivery, the introduction of the IAs in CDs ushered in some dissatisfaction amongst stakeholders in the Province. The study took this factor into consideration. Since the issues may be viewed as sensitive, targeted interviewees were constantly assured of confidentiality and anonymity.

4.4.2.1 The Qualitative Data Collection Questions - Interviews

The questions were organized as follows:

a) Questions 1-4

The questions sought to obtain professional background; qualifications, registration and whether they owned businesses or worked for a firm. The responses also provided the interviewer with an insight as to whether the interviewees were principal agents or part of the professional service providers' under an architect or project manager. The secondary objective of the question was for the interviewee to relax, settle and '*spog of prys sy/haar ster*' (Afrikaans) a bit prior to the more thought

provoking questions. The information would also contribute towards the resolution of sub-problem 1.3.2 of the study.

b) Question 5

The questions are comparing performance on the four variables between the ID and IA's projects. The procurement and contracting arrangements are under question with regards to the project constraints of time, cost and quality. Factors that led to the state of affairs as presented in the presentation of results captures in templates / tables and further depicted in figures, needed to be brought forward. The information laid the basis for the questions 6-10; which would essentially contribute towards the resolution of sub-problem 1.3.2 of the study.

c) Question 6

This question sought to assess the project leadership between the ID and IA. These helped to deduce areas for improvement and solutions thereof. This was also a subtle way to obtain attitudes towards IAs in general. The prevailing opinions and attitudes if not considered might mislead the conclusions. The information would contribute to the resolution of sub-problem 1.3.2 and was used as a counter check for questions 7-10.

d) Question 7

The questions sought to get the interviewees opinion on the current roles and should be roles of the project managers in the ID and IA. Their knowledge and understanding of project management body of knowledge and various procurement and contracting arrangements were briefly investigated. The information formed the basis for the questions 9 and 10; which would essentially contribute towards the resolution of sub-problem 1.3.2 of the study.

e) Question 8

The questions sought to put the professional service providers in the accounting officer's role in matters of responsibility and accountability on the infrastructure budget and the ultimate goal of access to primary health services. This was supposed to draw attention to the goal of establishment of a fixed clinic; that to both the ID and IA it might be a clinic construction project, to Health it is about the

Constitutional right of access to basic health care services. It is about ordinary South Africans who die daily due to lack of access to health services. The information provided the basis for the questions 9 and 10; which would essentially contribute towards the resolution of sub-problem 1.3.2 of the study.

f) Question 9

This question sought to solicit responses as to the factors that contributed to the varied contractor performance whilst working with an ID and IA. Information gathered was compared with responses to Questions 5 and 6; and enabled the resolution of sub-problem 1.3.2.

g) Question 10

This question sought to obtain 'objective' recommendations on program and projects improvement. It was meant to gather where the CD, ID and IA were seen to be lacking and obtain inputs on how to restructure the procurement and contracting arrangements. This enabled contributions to sub-problem 1.3.2. Furthermore, a probing question was asked with regards to the optimal location of an IA; with the CD or with the ID; and motivating reasons for that.

4.5 SUMMARY

To achieve objectivity on the four (4) variables that the ID and IA's performance are measured against, the quantitative method is appropriate. Rich descriptive narratives, personal meaning, emerging trends, and so forth would be achieved through a qualitative method. The use of both quantitative and qualitative methods in this study satisfies the object of triangulation; reliability and validity.

Where there is time and cost constraints, despite its weaknesses, convenience sampling is an appropriate non-probability technique. Similarly, the results of this study should be treated with the expected caution; thus should be treated as a basis for detailed future research that would employ the structured sampling techniques.

The samples used are appropriate for the study covering the required mixture and number of the key infrastructure stakeholders and taking into consideration the project status and data / information at the time of the study.

CHAPTER 5

5 DATA PRESENTATION AND ANALYSIS

5.1 INTRODUCTION

The literature overview has stressed the importance of putting the CD's project and service delivery needs; that projects should be delivered on time, within budget, within the specified quality in order to address the health service delivery targets. Performing to and beyond the CD's expectations is core; whether it is the ID or IA which delivers the service. The procurement and contracting arrangements coupled with project management practices used by the ID and IA would assist in realising the CD's targets.

This chapter seeks to present the performance of the ID and IA in terms of the four (4) key performance indicators selected for the study; the need for an IA will be depicted. Responses obtained from the interviews present factors behind the performance, confirms the role of an IA within public sector infrastructure delivery and makes recommendations for program improvement.

5.2 QUANTITATIVE DATA

A summary of general observations made during the data analysis is as follows:

Factors that led to the determination of contract duration for the targeted population is an area that needs further research. The varied contract duration depicted in the data for the ID projects moved from 5, 6, 8, 9, 10 and 12 months for the construction of a whole clinic package using a large standard clinic plan. Such differences occurred within a group of projects targeted within a financial year and across the period under study. With regards to the IA projects, the contract duration oscillated from 8, 9, 10 and 12 months for a variety of whole clinic packages depending on whether it was a small, medium or standard clinic plan under construction.

5.2.1 Performance of the ID and IA in relation to the contract duration *versus* actual completion time; and penalties imposed

a) ID's Performance

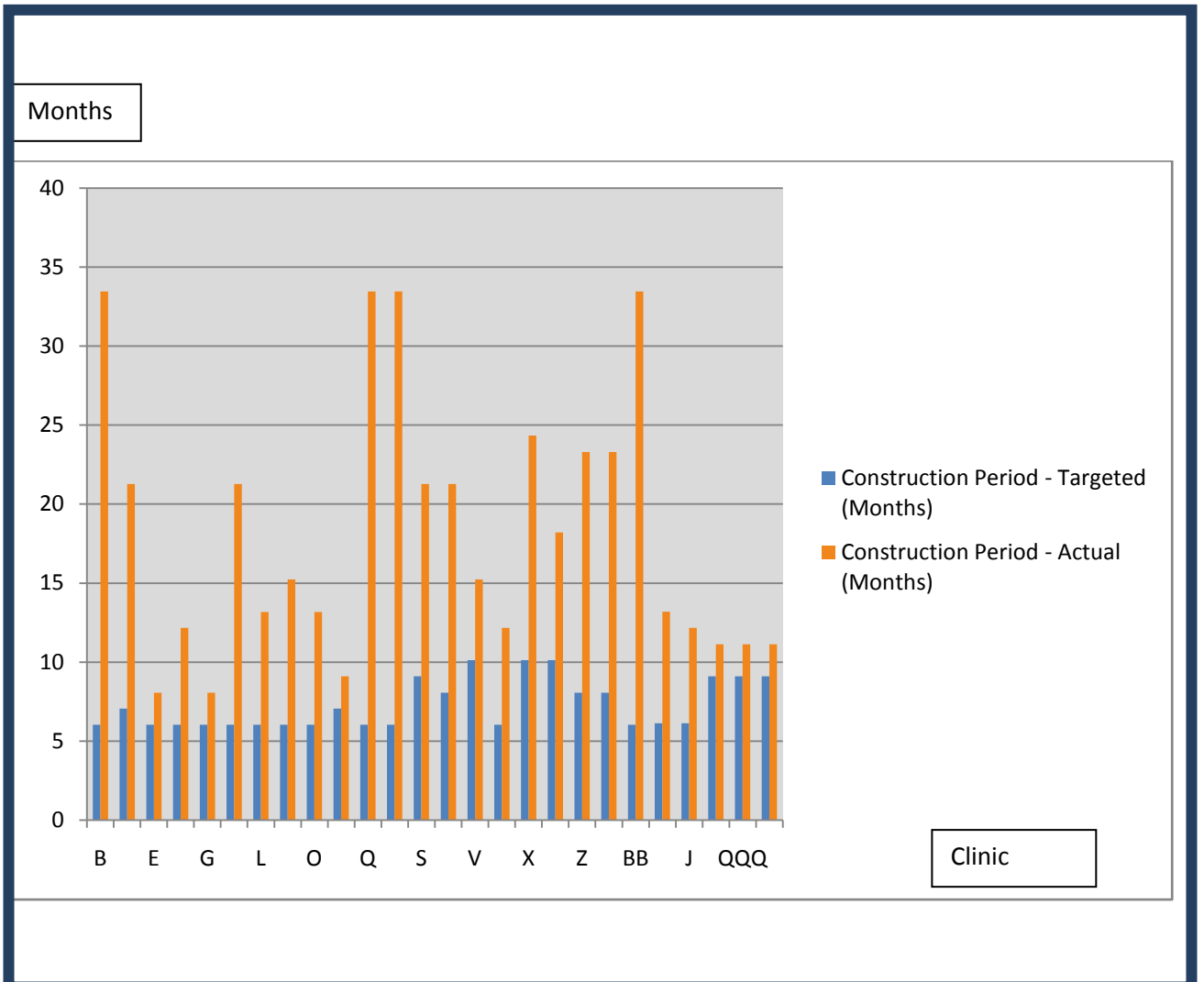
Sixty seven (67) ID projects were targeted; out of which one project was left out as it recorded the 'cancelled' the project status leaving a total target of 66. Out of the 66 ID projects, the 26 projects presented for analysis in this study had full data entries, whilst the remaining 40 had incomplete data hence were conveniently left out of the sample.

Of the 26 ID projects sampled, no project was completed on time as depicted in **Table 4** and **Figure 4** below.

Table 4: Contract Duration *versus* Actual Completion; Delays and Early Finish - Implementing Department

Clinic Name	Actual Start Date	Target Completion Date	Actual Completion Date	Construction Period - Targeted (Months)	Construction Period - Actual (Months)	Delay (Months)
B	Nov-05	May-06	Aug-08	6	33	27
D	Nov-05	Jun-06	Aug-07	7	21	14
E	Nov-05	May-06	Jul-06	6	8	2
F	Nov-05	May-06	Nov-06	6	12	6
G	Nov-05	May-06	Jul-06	6	8	2
K	Nov-05	May-06	Aug-07	6	21	15
L	Nov-05	May-06	Dec-06	6	13	7
M	Nov-05	May-06	Feb-07	6	15	9
O	Nov-05	May-06	Dec-06	6	13	7
P	Nov-05	Jun-06	Aug-06	7	9	2
Q	Nov-05	May-06	Aug-08	6	33	27
R	Nov-05	May-06	Aug-08	6	33	27
S	Nov-05	Aug-06	Aug-07	9	21	12
U	Nov-05	Jul-06	Aug-07	8	21	13
V	Nov-05	Sep-06	Feb-07	10	15	5
W	Nov-05	May-06	Nov-06	6	12	6
X	Nov-05	Sep-06	Nov-07	10	24	14
Y	Nov-05	Sep-06	May-07	10	18	8
Z	Nov-05	Jul-06	Oct-07	8	23	15
AA	Nov-05	Jul-06	Oct-07	8	23	15
BB	Nov-05	May-06	Aug-08	6	33	27
I	Jul-06	Jan-07	Aug-07	6	13	7
J	Jul-06	Jan-07	Jul-07	6	12	6
PPP	Sep-08	Jun-09	Aug-09	9	11	2
QQQ	Sep-08	Jun-09	Aug-09	9	11	2
JJJ	Sep-08	Jun-09	Aug-09	9	11	2

Figure 4: Contract Duration versus Actual Completion; Delays and Early Finish - Implementing Department



A summary of various contract durations in relation to actual construction period is represented in **Table 5** below.

Table 5: A Summary of Various Contract Durations In Relation to Actual Construction Period - ID's Projects

Total Number of Projects	Contract Duration in Months	Actual Construction Period in Months	Delays in Months
20	6	<ul style="list-style-type: none"> • Two (2) completed in 8 months • One (1) completed in 9 months • Three (3) completed in 12 months • Three (3) completed in 13 months • One (1) completed in 15 months • Four (4) completed in 21 months • Two (2) completed in 23 months • Four (4) completed in 33 months 	<ul style="list-style-type: none"> • 2 months • 3 months • 6 months • 7 months • 9 months • 15 months • 17 months • 27 months
2	8	<ul style="list-style-type: none"> • All 2 projects completed in 11 months 	<ul style="list-style-type: none"> • 3months
4	9	<ul style="list-style-type: none"> • One (1) completed in 11 months • One (1) completed in 15 months • One (1) completed in 18 months • One (1) completed in 24 months 	<ul style="list-style-type: none"> • 2 months • 6 months • 9 months • 16 months.

On a 6 months' contract duration actual construction period was stretched between 8 to 33 months. On an 8 months' contract duration, actual construction period was 11 months. Projects with contract duration of 9 months, recorded an actual construction period of between 11 and 24 months.

Overall delays ranged from 2 to 27 months. Three (3) projects recorded the lowest delays of 2 months. Three (3) projects were delayed for 3 months. The rest of the remaining 20 projects were delayed for a period ranging from 6 to 27 months.

The **penalty** clause can only be enforced if there were inexcusable late completion of the works by the contractor and general non performance. Information on where penalties were enforced on the ID projects could not be found despite the majority of projects having been completed way beyond contract duration.

b) IA's Performance

Thirty four (34) IA's projects were targeted. During the data collection period the IA's projects status was as follows; of the 34 projects, 12 were completed and 22 were in construction phase. The contract duration of the 12 completed projects was as follows; 12 months for 11 projects and 10 months for one project. **Table 6** and **Figure 5** represent the contract duration versus actual completion inclusive of delays, early finish and penalties imposed.

Table 6: Contract Duration versus Actual Completion; Delays, Early Finish and Penalties Imposed - Implementing Agent

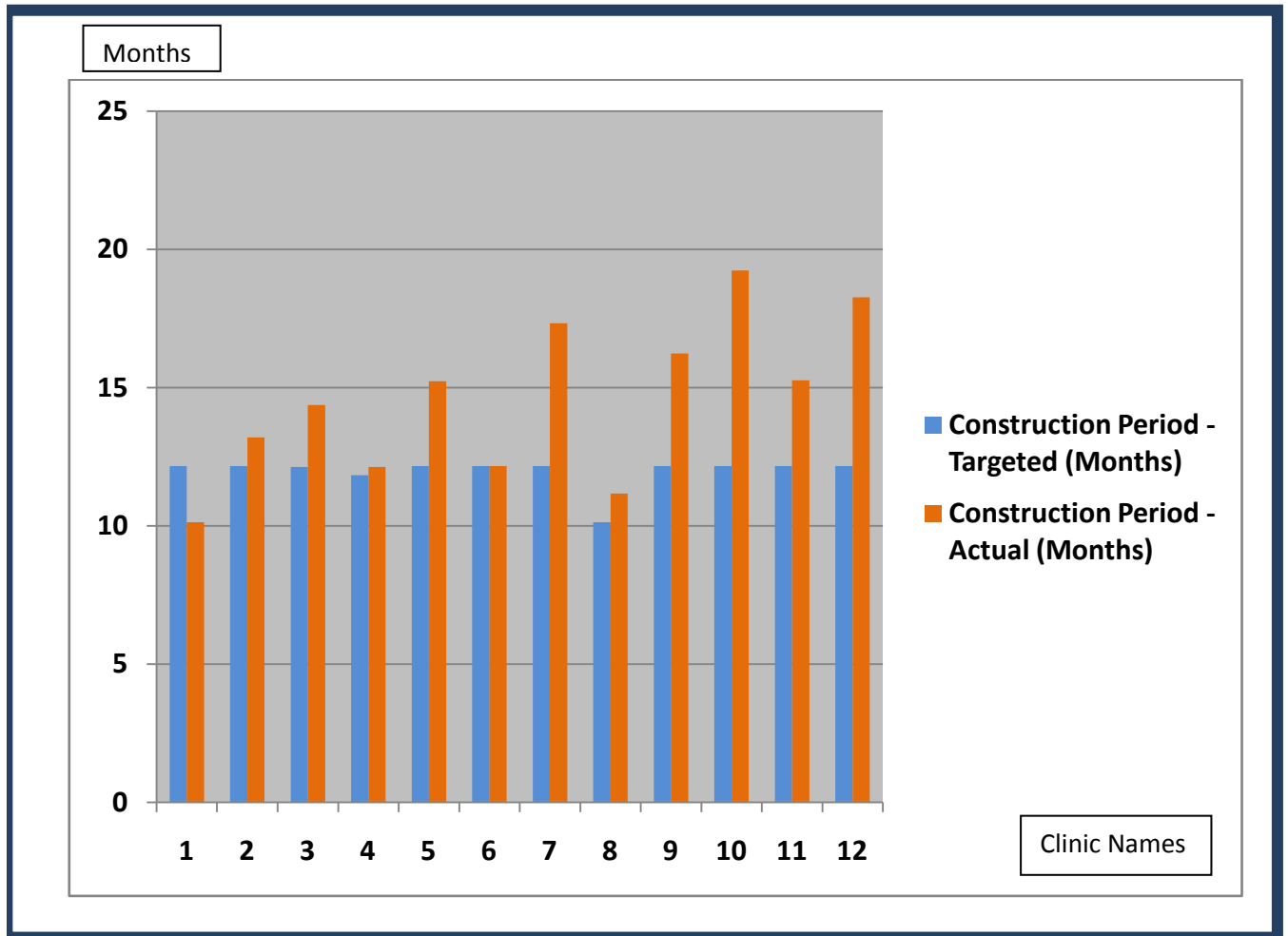
Clinic Name	Actual Start Date	Target Completion Date	Actual Completion Date	Construction Period - Targeted (Months)	Construction Period - Actual (Months)	Delay or Early Finish (Months)	Penalties Imposed
1	Jul-10	Jul-11	May-11	12	10	-2	0
2	Jul-10	Jul-11	Aug-11	12	13	1	0
3	Jul-10	Jul-11	Sep-11	12	14	2	0
4	May-10	May-11	May-11	12	12	0	0
5	Jul-10	Jul-11	Oct-11	12	15	3	0
6	Mar-10	Mar-11	Mar-11	12	12	0	R 297,605.00
7	Jun-10	Jun-11	Nov-11	12	17	5	0
8	May-10	Mar-11	Apr-11	10	11	1	0
9	Sep-09	Sep-10	Jan-11	12	16	4	R 212,880.00
10	Jan-10	Jan-11	Aug-11	12	19	7	0
11	Jan-10	Jan-11	May-11	12	15	3	0
12	Jun-10	Jun-11	Dec-11	12	18	6	0

Summarized, the data depicts that

- one (1) project was completed in 10 months; 2 months' earlier than the construction contract period;
- two (2) projects were completed on time
- two (2) projects were completed one month later than the contract duration
- one (1) project was completed 2 months' later
- two (2) projects were completed 3 months' later
- the four (4) remaining projects were completed 4, 5, 6 and 7 months' later

For the IA projects **penalties** were enforced in 2 out of the 12 projects.

Figure 5: Contract Duration *versus* Actual Completion; Delays and Early Finish - Implementing Agent



Of the 22 projects at various construction phases, only 2 are delayed whilst the remainder are either on time or ahead of construction schedule. Given the pace of construction as at September 2011, it is the belief of the researcher that the projects would be completed within time.

5.2.2 Performance of the ID and IA in relation to the Nature and Frequency of the Use of Variation Orders

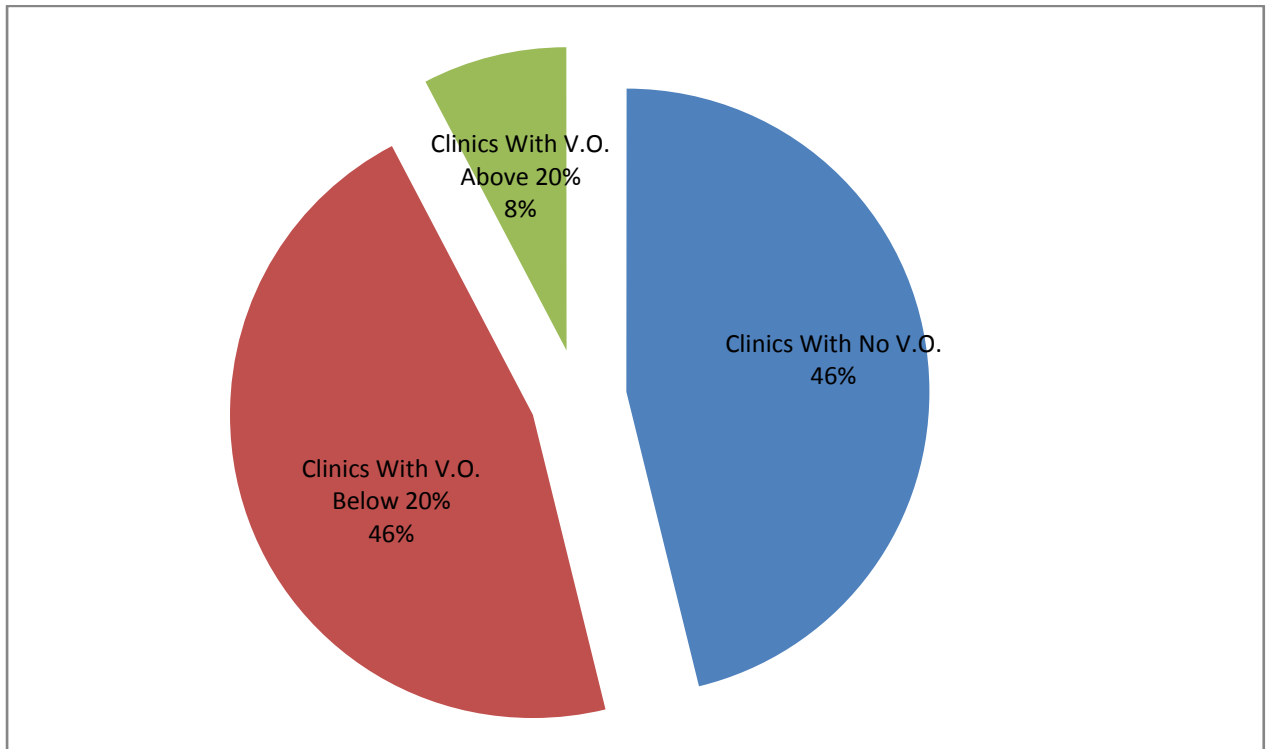
a) ID's Performance

As depicted in **Table 7 and Figure 6** herein, of the 26 ID's projects, 12 projects, representing 46% of the total, had no variation orders. Twelve (12) projects that is, 46% had variation orders of below 20% and 2 projects, representing 8% of the total projects had variation orders of above 20%. The total sum of the contract amounts of all the 26 projects is approximately R 99,871 million. The total value of the variation orders is approximately R 6,363 million; representing an amount 6.37% above the sum of contract amounts.

Table 7: Value and Percentage of Variation Orders against Original Contract Amount – Implementing Department

Clinic Name	Original Construction Contract Amount (R'000)	Total Amount of Variation Orders (R'000)	Final Construction Contract Amount / Total Construction Cost to Date (R'000)	% of VO to Original Construction Contract Value
B	3 400	0	3 400	0%
D	3 100	0	3 100	0%
E	3 500	0	3 500	0%
F	3 900	0	3 900	0%
G	3 000	0	3 000	0%
K	3 600	0	3 600	0%
L	4 400	0	4 400	0%
M	3 800	0	3 800	0%
O	3 400	0	3 400	0%
P	3 100	0	3 100	0%
Q	3 191	419	3 610	13%
R	3 228	247	3 475	8%
S	3 441	196	3 637	6%
U	3 507	398	3 905	11%
V	3 200	0	3 200	0%
W	3 166	437	3 604	14%
X	3 398	898	4 296	26%
Y	3 276	134	3 410	4%
Z	3 371	344	3 715	10%
AA	3 386	107	3 493	3%
BB	3 172	547	3 720	17%
I	3 300	0	3 300	0%
J	3 627	725	4 352	20%
PPP	7 200	1 074	8 274	15%
QQQ	7 750	598	8 348	8%
JJJ	6 458	239	6 697	4%

Figure 6: Percentage of Variation Orders against Original Contract Amount – Implementing Department



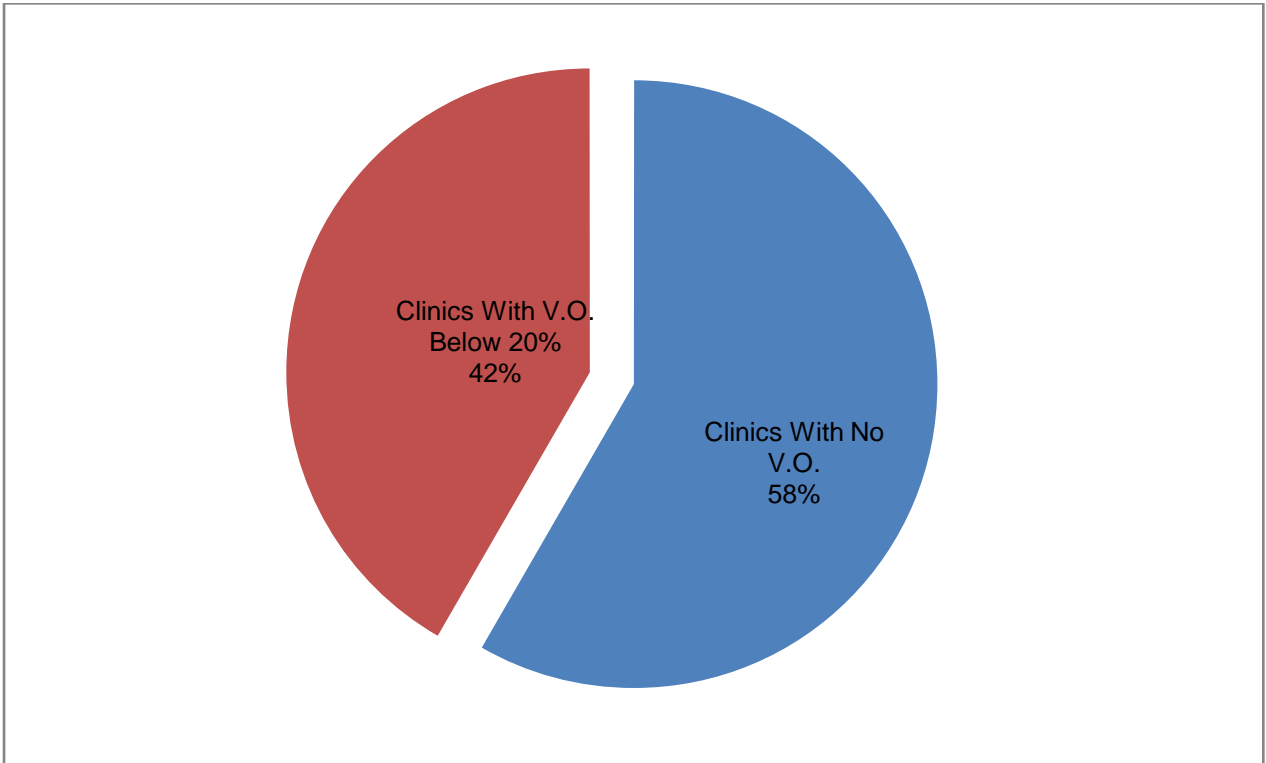
b) IA's Performance

On the IA's projects, of the 12 completed projects, 7 projects were completed without variation orders as shown in **Table 8** and **Figure 7**. The remaining 5 projects showed variation orders on various percentages of 1, 4, 6, 7 and 14. No variation orders of above 20% were recorded. The sum of the contract amounts of all the 12 completed projects is approximately R 111,719 million. The total value of the variation orders is approximately R 2,825 million; representing an amount of 2.52% above the sum of contract amounts.

Table 8: Value and Percentage of Variation Orders against Original Contract Amount Implementing Agent

Clinic Name	Original Construction Contract Amount (R'000)	Total Amount of Variation Orders (R'000)	Final Construction Contract Amount / Total Construction Cost to Date (R'000)	% of VO to Original Construction Contract Value
1	8 926	78	9 004	1%
2	10 033	0	10 033	0%
3	10 085	679	10 764	7%
4	10 133	0	10 133	0%
5	10 694	621	11 315	6%
6	7 889	1 093	8 982	14%
7	10 045	0	10 045	0%
8	6 608	0	6 608	0%
9	9 673	0	9 673	0%
10	8 897	354	9 251	4%
11	9 426	0	9 426	0%
12	9 310	0	9 310	0%

Figure 7: Percentage of Variation Orders against Original Contract Amount - Implementing Agent



5.2.3 Performance of the ID and IA in relation to Actual Time Taken between Practical Completion and Presentation of Final Account

Management of the period between practical completion and final account is summarized in the **Table 9** below. Performance of the ID and IA would be bench marked against the period stipulated.

Table 9: Streamlining Payment Processes

Form of contract (Who initiates a final payment)	Claim	Processing of final claim Period (calendar days)	Within which Employer pays
JBCC Minor Works (Edition 4.0 of August 2007)	Principal Agent submits the final account to the contractor within 45 days of practical completion	Contractor accepts or objects to the final account within 10 days. Thereafter Principal Agent issues final payment certificate to Contractor and Employer.	7 days after the date of the final payment certificate issued by the Principal Agent to the Contractor and Employer
JBCC Principal Agreement (Edition 5.0 of July 2007)	Principal Agent issues the final account to the contractor within 90 days of practical completion	Contractor accepts or objects to the final account within 45 days of receipt. Thereafter the Principal Agent issues final payment certificate within 7 days to Contractor and Employer.	7 days after Principal Agent issues final payment certificate to Contractor and Employer

Source: CIDB Practice Note Number 19 (2009: 5)

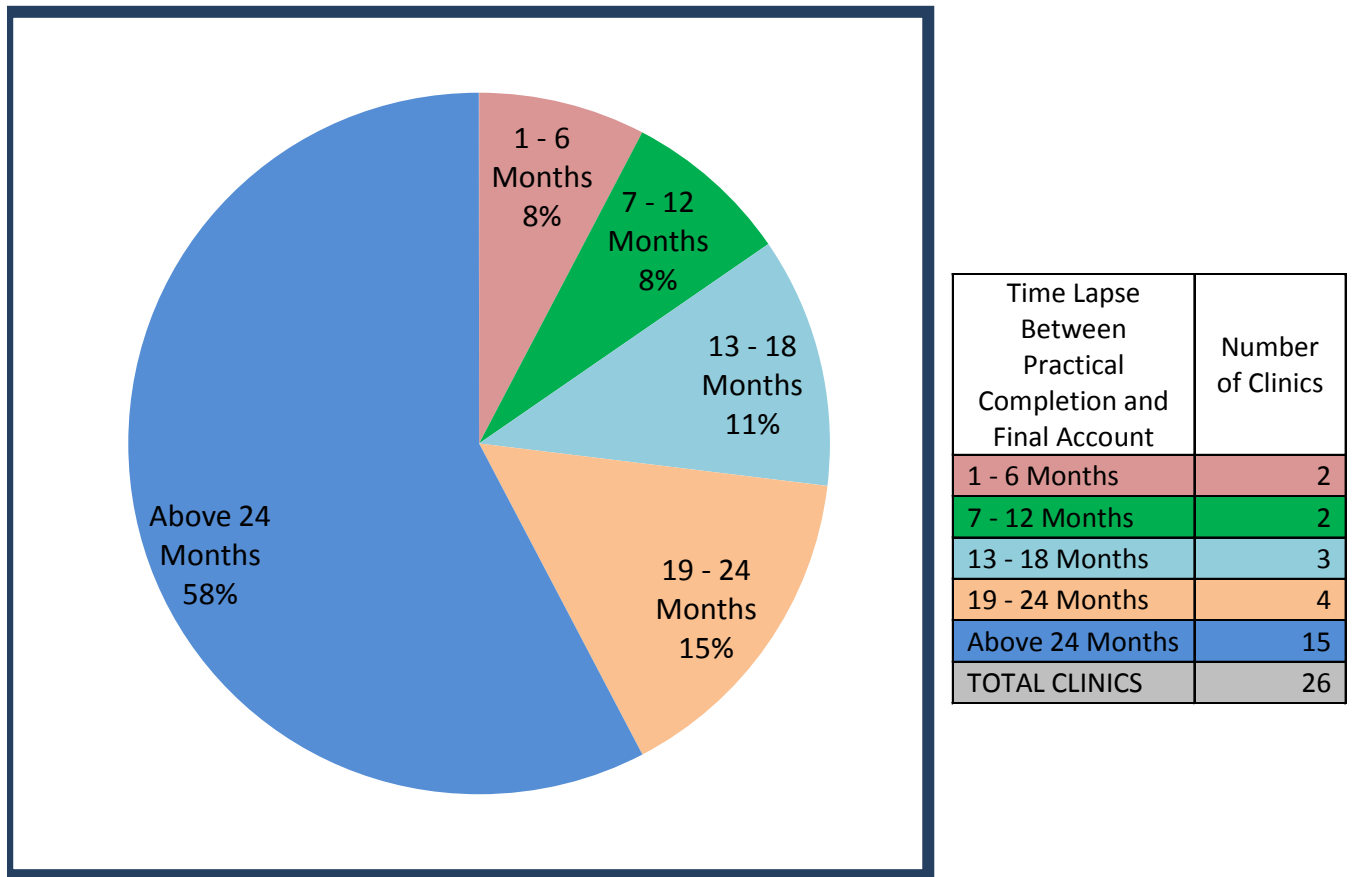
a) ID's Performance

Out of a total of 26 projects; only one project took one (1) month after practical completion period to submit the final account; final accounts for one other project were submitted within a period of 6 months; final accounts for 3 projects were submitted between a period of 13-18 months; 4 projects took 19-24 months to submit final accounts and 15 projects took a period of 24-52 months to submit final accounts as depicted in **Table 10** and **Figure 8**.

Table 10: Practical Completion versus Final Account; Time Lapse – Implementing Department

Clinic Name	Practical Completion Date	Date of Final Account	Time Lapse Between Practical Completion and Final Account	Time Taken to Finalize Final Account (Months)
B	Aug-08	Sep-08	1 - 6 Months	1
Q	Aug-08	Feb-09	1 - 6 Months	6
QQQ	Aug-09	Jul-10	7 - 12 Months	11
PPP	Aug-09	Aug-10	7 - 12 Months	12
D	Aug-07	Sep-08	13 - 18 Months	13
O	Dec-06	Apr-08	13 - 18 Months	16
P	Aug-06	Jan-08	13 - 18 Months	17
V	Feb-07	Nov-08	19 - 24 Months	21
J	Jul-07	Apr-09	19 - 24 Months	21
BB	Aug-08	Jun-10	19 - 24 Months	22
JJJ	Aug-09	Jul-11	19 - 24 Months	23
X	Nov-07	Dec-09	Above 24 Months	25
U	Aug-07	Oct-09	Above 24 Months	26
L	Dec-06	Apr-09	Above 24 Months	28
I	Aug-07	Dec-09	Above 24 Months	28
Z	Oct-07	Feb-10	Above 24 Months	28
R	Aug-08	Feb-11	Above 24 Months	30
G	Jul-06	Mar-09	Above 24 Months	32
S	Aug-07	May-10	Above 24 Months	33
K	Aug-07	Jul-10	Above 24 Months	36
AA	Oct-07	Oct-10	Above 24 Months	37
M	Feb-07	Jul-10	Above 24 Months	42
E	Jul-06	Mar-10	Above 24 Months	45
F	Nov-06	Sep-10	Above 24 Months	47
Y	May-07	Mar-11	Above 24 Months	47
W	Nov-06	Feb-11	Above 24 Months	52

Figure 8: Practical Completion versus Final Account; Time Lapse - Implementing Department



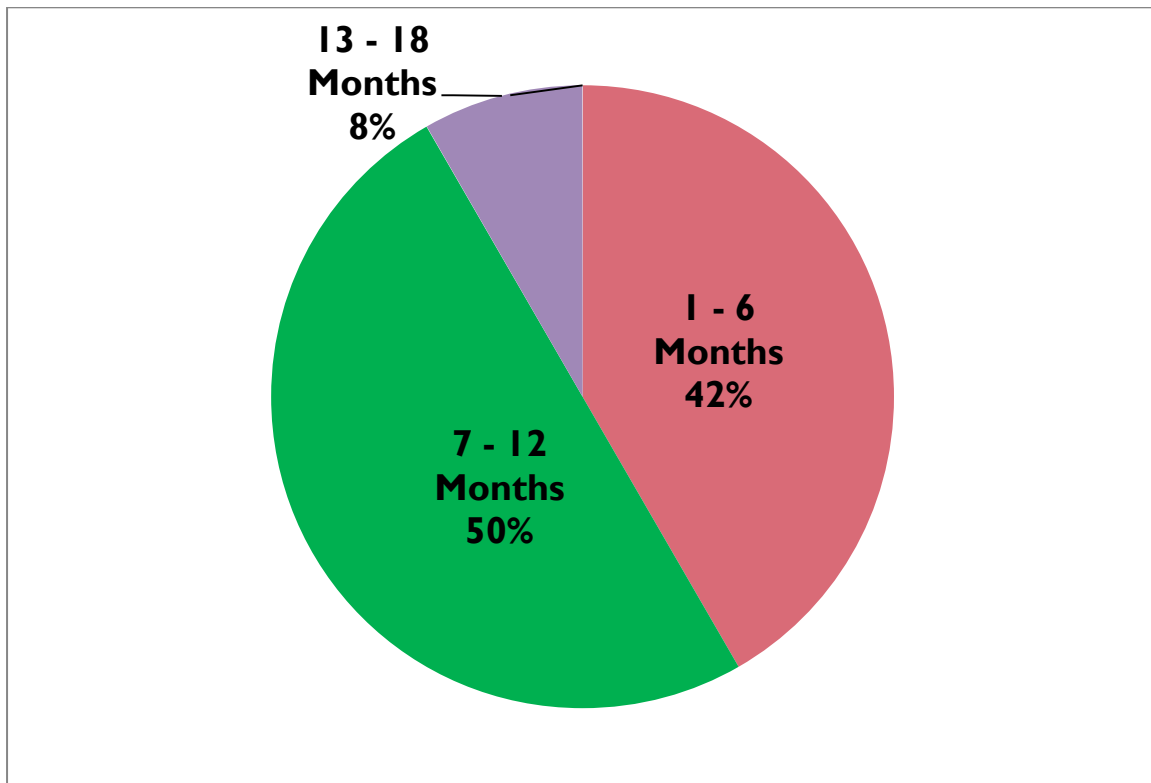
b) IA's Performance

Out of a total of 12 projects; only one project took one (1) month after practical completion period to submit the final account; final accounts for 4 projects were submitted within a period of 6 months; final accounts for 6 projects were submitted between a period of 7-12 months; and one project it took 13-18 months to submit final accounts as depicted in **Table 11** and **Figure 9**.

Table 11: Practical Completion versus Final Account; Time Lapse - Implementing Agent

Clinic Name	Practical Completion Date	Date of Final Account	Time Lapse Between Practical Completion and Final Account	Time Taken to Finalize Final Account (Months)
1	May-11	Pending	7 - 12 Months	9
2	Aug-11	Pending	7 - 12 Months	6
3	Sep-11	Pending	1 - 6 Months	5
4	May-11	Pending	7 - 12 Months	9
5	Oct-11	Pending	1 - 6 Months	4
6	Mar-11	Pending	7 - 12 Months	11
7	Nov-11	Pending	1 - 6 Months	2
8	Apr-11	Pending	7 - 12 Months	10
9	Jan-11	Pending	13 - 18 Months	13
10	Aug-11	Aug-11	1 - 6 Months	1
11	May-11	Aug-11	1 - 6 Months	3
12	Dec-11	Aug-11	7 - 12 Months	8

Figure 9: Practical Completion versus Final Account; Time Lapse - Implementing Agent



Time Lapse Between Practical Completion and Final Account Submitted or Pending	Number of Clinics
1 - 6 Months	5
7 - 12 Months	6
13 - 18 Months	1
TOTAL CLINICS	12

5.2.3 Performance of the ID and IA in relation to Penalties Imposed during the Contract Period

This is linked to the contract duration versus actual completion time. Performance of the ID and IA were measured against the use of the delay claim or penalty clause in projects that have been completed beyond the contract period or agreed upon practical completion time. Information on whether penalties were enforced on the ID projects could not be found despite the majority of projects having been completed way beyond contract duration. For the IA projects **penalties** were enforced in 2 out of the 12 projects.

5.3 QUALITATIVE DATA

5.3.1 General Profile of the Interviewees or Respondents

The targeted number of respondents was 14, of which 12 had experience in the clinic construction projects having worked on projects managed by the ID and IA within the period under study. It was believed that more experienced professionals and contractors were more likely to provide more reliable and practical solutions to research studies of this nature. The two Technical Assistants were more experienced having worked within the IDIP programme on the CDs' side for more than 5 years. Both Technical Assistants are and have been exposed to interfaces between their own respective CD with the ID and IA.

In total, 8 respondents were available for the interviews, representing a 57.14% response rate. Despite the sample size not being as large as hoped, it was considered fairly enough to provide meaningful data to be analyzed, and would provide a sufficient platform on which further research can be conducted in this field. **Table 12** shows a breakdown of the respondents and their general profile in relation to questions 1 to 4.

Table 12: Breakdown of Respondents and General Profile

Professional Service Providers				Contractors	
Profession	Academic Qualifications	Professional Registration and Year of Registration	Employed or Managing Own Business	Occupation	CIDB Registration
1. Quantity Surveyor	BSc Quantity Surveying	2006	Managing Own Business	Contractor	CIDB GB 7
2. Quantity Surveyor	BSc Quantity Surveying	2008	Managing Own Business	Contractor	CIDB GB 7
3. Civil Engineer	BTech Civil Engineering	In the process	Managing Own Business		
4. Electrical Engineer	BSc Electrical Engineering	2005	Managing Own Business		
5. Mechanical Engineer	BSc Mechanical Engineering	In the process	Managing own Business		
6. IDIP Technical Assistants	Masters Degree in the built environment	Not asked	Employed		

5.3.2 Responses to Question 5;

The following opinions on the factors that contributed to the quantitative data results on the four variables, in summary were given:

a) Schedule overrun/on target?

- Drawings not clear
- Sites confirmed after contract award
- Communities demanding change of site
- Unrealistic contract durations
- Communities demanding jobs
- Materials supply
- Electrical connections
- Disagreements amongst the project team
- Late processing of payments
- Consultants' diligence or non diligence
- Long and time consuming decision making processes
- Financial and technical capacity of contractors

For the projects that were on target or slightly delayed, these were attributed to good project management by the principal agent and project manager for the ID and IA respectively – a high level of involvement in the project; proper / appropriate contract management; cooperation amongst the project team and risks managed well. In terms of the IA projects, the project manager was also able to provide management expertise for contractors that were lacking in this aspect and those whose projects were being delayed and had better control over most processes.

b) Variations / No Variations

A wide array of factors contributing to variations was provided:

- Client demands; client as in CD's end-user and not necessarily the ID or IA
- Provincial CD's health planners do not involve end-users in planning (differences between what the Province and the District Office assume to be needed, in relation to what the people who work in the facility sees as ideal
- Matters that should have been negotiated in planning; but were overlooked
- Omissions in the bills of quantities

- Drawings not clear
- Sites confirmed after contract award
- Communities demanding change of site
- Unforeseen extreme circumstances that have not been adequately covered in the contingency amount
- Use of provisional sums which mostly end up being having been under estimated

For the projects that had no variations this was attributed to proper initial planning, appropriate costing, contract management, project supervision and overall good project management.

c) Penalties / No Penalties

In most of the cases, both from the ID and IA where penalties were not enforced the reasons provided were the following:

- Late hand over of site to contractor
- Contractors were paid late
- Extension of time granted
- In the case of the ID, the consultants recommend penalties and the ID has to approve / enforce them. Generally, it was said that there was laxity in the enforcement of penalties; being sympathetic to the contractors, some fear having to defend such in court should contractors legally challenge the decisions, through arbitration or mediation.
- Consultants' reluctance to recommend penalties
- A general fear of retribution
- Insufficient / sufficient contract management
- In the case of the IA, the Project Manager approves / enforces penalties recommended by various consultants.

d) Turn -around time between practical completion and final account?

- Lack of proper documentation control and storage
- Poor / good Project management
- It was mentioned that generally once the project has reached practical completion, the entire project team no longer focuses and shows interest in the project; having usually moved on to other projects

- No penalties are imposed for late project closure or submission of final account

5.3.3 Responses to Question 6

There was a difference in response between contractors and consultants in terms of where there was better project co-ordination, management and organization. The contractors interviewed said that they derived better project co-ordination, management and organization from the IA; whilst with the consultants one said both, 2 said from the IA and the other 2 said from the ID. Interestingly, the two that got better project co-ordination, management and organization from the ID were Quantity Surveyors.

5.3.4 Responses to Question 7

- a) On the role of the project manager in the ID projects; all the interviewees were not sure of the role or “job description” as they put it. However, the role that they have gotten used to was that of participation in site meetings although such involvement was not consistent.
- b) On what the role of the project manager should be in the ID projects, the general feeling was that the role should be elevated to that of project leader with the architect as the principal agent reporting to him/her. They further said such a role should be accompanied by more responsibilities and accountabilities. Without raising the issue of qualifications and experience, they referred to the role as more senior to the principal agent within the current procurement and contracting arrangements.
- c) The role of the project manager in the IA projects was seen as a combination of a principal agent and a construction project manager. In their view, the project managers in the IA projects have more authority and decision making power hence making over the whole project; oversee and manage the project team. Such a role makes the consultants team’s playing field level; there is no room for example, the architect as a principal agent blaming everybody else for project delay even if it is him/her that has caused the delay. Project managers foresee challenges and help avoid or solve them before they become a crisis, whilst providing an independent checking mechanism for all; any underperforming part of the project team is reprimanded reasonably fairly and in time.

- d) On what the role of the project manager should be in the IA projects, the general feeling was that the role is reasonably appropriate; although it slightly erodes the traditional role of the architect as principal agent. Whilst there is a role for them in terms of project leadership, a clear role clarification and communication document is needed per project. There was also some that said the project management function should not be taken away from the architect; rather architects should be trained in project management so that they perform that role. This view was presented in relation to the extra professional fees paid to project managers over and above to what architects are paid for design and supervision.

5.3.5 Responses to Question 8

Interviewees had to take on the role of the Client Department (End-User) in relation to the clinic project performance data in the context of the Public Finance Management Act and Health Outcomes and provided their views. Both contractors and consultants provided their responses looking at the individual ID and IA performances.

- a) Satisfaction with overall project delivery;
For the ID projects, 60% provided a “Definitely No” response; 30% said “No”, and 10% a “Somewhere in Between” response. For the IA projects, 80% gave a “Definitely Yes” answer; and 20% said “Yes”.
- b) Was it best service that could be obtained from the money/funds invested; For the ID projects, 15% of the projects were rated as “Yes”; and 85% of the projects, a “Definitely No”. For the IA projects, 90% of the projects were rated as a “Definitely Yes” answer; and 10% of the projects as a “Yes”.
- c) Were the project objectives and health service delivery goals attained in time, within scope, within the budget and to the quality required? On this question, the average score that was calculated for the ID projects was 54% whilst the average score for the IA projects was 93%

5.3.6 Responses to Question 9

Over 50% of the contractors that worked in the sampled projects have worked with both the ID and IA; but performance on the four variables was different. This question sought to solicit

opinions as to the factors that contributed to the varied contractor performance whilst working with an ID and IA.

a) Opinions given on the ID

- Not enough project supervision
- Unrealistic contract durations
- Poor / insufficient contract management
- Poor project management
- Project managers resigning from their jobs or assigned to other projects; necessitated introduction of new project managers with little or no proper debriefing on the project
- Mostly contractors are blamed for poor performance
- Omissions in the Bills of Quantities
- A general fear of retribution
- Insufficient contract management
- Not so strict on consultants and contractors
- Sites confirmed after contracts have been awarded
- Change of sites
- Communities demanding jobs
 - Contractors' lack of technical and financial capacity
 - Documentation not kept properly

b) Opinions given on IA

- Project management emphasized
- Constant project supervision
- Documentation kept properly
- Appropriate debriefing sessions should a project manager resign or assigned to another project
- Increased contract management
- Introduction of due diligence process prior to contract award eliminates some of the risks inherent in decisions based on lowest price
- As a private sector organisation, need to uphold a high performance reputation
- Project manager is in charge of the project; holding each of the project team members responsible and accountable;

- Risks are anticipated and either eliminated or impact reduced

c) Comparison of the opinions provided with responses gathered in Questions 5 and 6;

For the ID, the following responses were repeated: unrealistic contract durations, communities demanding jobs, consultants' diligence or non diligence, financial and technical capacity of contractors, lack of proper documentation control and storage, poor project management, omissions in the bills of quantities, a general fear of retribution and insufficient contract management. Two respondents said they got better project co-ordination, management and organization from the ID

For the IA, the following responses were repeated: Project manager is in charge of the project; holding each of the project team members responsible and accountable; contract management, overall project management, change of sites after contract award.

5.3.7 Responses to Question 10

The question sought to obtain 'objective' recommendations on program and projects' improvement. It was meant to gather where the CD, ID and IA were seen to be lacking and obtain inputs on how to restructure the procurement and contracting arrangements. This enabled contributions to sub-problem 1.3.2. Furthermore, a probing question was asked with regards to the optimal location of an IA; with the CD or with the ID; and motivating reasons for that.

The interviewees concurred that there was a need for an IA and were unapologetic in saying that the location of an IA should be with the ID and not the CD. Furthermore, it was said that for the ID to be able to perform its core function and over and above that manage the IA, the ID needed to recruit skilled and qualified project managers and professionals with appropriately delegated authority and accountability. This was said because in their opinion that the ID had lost a significant number of skilled professionals who have not been fully replaced. Most of the professionals lost by the public sector were now professional service providers.

The responses granted seemed to oscillate between capacitating ID and in the same manner the interviewees bemoaned the remuneration packages offered by the public sector despite the introduction of the occupational salary dispensation for artisans and engineers. It was further argued that the ID would forever attract newly qualified professionals and project managers and would not be able to retain them; unless the holistic conditions of employment are reviewed. The public sector would end up being a place where newly qualified professionals are incubated for 3-5 years and later leave for greener pastures; a revolving door situation.

During the discussions, the responses gravitated towards a consideration of a hybrid model wherein the ID would need a private sector implementing agent; to enhance capacity to deliver on the CD's project and service delivery objectives whilst offering an opportunity for capacity building for the entire professionals within the ID regardless of whether they would remain in the public sector or not. They emphasized that those that choose to leave would not necessarily have been lost in the built environment as they would return as professional service providers.

On the procurement and contracting approaches, varying views were advanced categorised into those from contractors and those from professional service providers.

The traditional design bid and build was generally preferred across both contractors and consultants mainly on the basis of the access it seemingly offers in "guaranteeing" work opportunities. It would seem that the roster system apparently guaranteed and or assured professional service providers a higher probability of involvement in a project regardless of whether the value of the work is low or high. For the contractors interviewed, by virtue of their experience and CIDB grading, they somehow saw themselves as front runners for any public sector construction projects advertised on public tenders. However, both contractors and consultants were quick to point out that current system of project management within the ID needs to be revisited, improved and infused into the design, bid and build approach.

The design and build approach was seen as an option but generally not preferred on the basis of the price not confirmed at the beginning of construction works; a risk that they have not been exposed to in the tried and tested design, bid and build.

Overall, both contractors and consultants were of the opinion that project management was paramount and critical in any procurement and contracting approach utilized and the reason the IA seemed to be doing well on all the 4 variables pivots on management. Whether it was called planning, management, project administration, contract management, communication management, documentation management, document control, team management, and so forth, any procurement and contracting approach should be rooted in good project management.

Furthermore, the respondents argued that technically, practically and assuming all things were in place, the ID seemed to be better placed to deliver on infrastructure. During the interviews, it was gathered that IDIP Unit at National Treasury was facilitating a series of workshops to assist in the finalization of a provincial infrastructure delivery management system (IDMS) which from the discussions located all infrastructure delivery within the ID. Regardless of the IDMS initiatives, respondents were of the view that there was a need for an IA the location of which should be with the ID.

Their reasons for the need for an IA went beyond the expected. Some of the respondents cited the major challenge faced by the ID professionals as being that of non-availability for their core program and project management functions. They unpacked the various responsibilities, commitments and impromptu requests that were piled onto the program and project managers many of which were more government administrative functions which took approximately up to 55-60% of their time. They argued that a contracted private sector IA would be free from such bureaucratic entanglements and hence would be better placed to attain project and service delivery objectives of both the ID and CD.

It was their belief that whilst the program and project management skills coupled with various professional disciplines' expertise were needed within the ID, extra skills on how to manage and hold accountable IAs were critically needed. Similarly, they pointed out that within the CD, program management skills were needed in order to optimally carry out the roles and functions assigned to the CD; and over and above that special skills and competencies to manage and hold accountable the ID.

They were of the opinion that project success did not start within the ID; but was a continuum from the CD. This included project prioritization and feasibility studies, appropriate budget allocation, proper documented briefing by the client, realistic project

objectives, choice of appropriate procurement and contracting strategies, skills, competencies and experience of the project team, enabling systems and processes, shortened chain of decision making operating within a mature program and project management environment both within the ID and CD. They pointed out that based on the PFMA and DORA, the CD was the most vulnerable in the context as accountability of funds and physical progress rested with the Client Department's Accounting Officer.

During the interviews, some of the respondents retraced their earlier assertion that the IA should be placed with the ID by pointing out that organisational readiness was key in terms of where the IA was placed. And such shortcomings could be best resolved through tripartite agreements spelling out roles, responsibilities and accountabilities between the ID, IA and CD. This issue was extended to the introduction of an appropriate performance management system for consultants which would be linked to the various statutory professional bodies. Contractors interviewed also emphasized this matter as the current approach was to blame the contractor for non-performance without analysis of the contributory role of the project team.

They further advocated a move from the current CIDB SDA's towards the joint implementation plan type of agreements that form part of the implementation of the IGR. In their opinion, the IGR's joint implementation plan and agreement provided structure and purpose which was holistic, and was pitched at the highest political and administrative levels. In their words, it shifts the project and service delivery objectives of the CD from a mere bilateral agreement between the CD and ID to a documented-province wide agreement between the Accounting Officers and of the CD, ID, Treasury and the Premier's Office counter signed by the respective Members of the Executive Council and the Premier. In this way the vulnerability of the CD against the ID would be reduced as recourses to under performance would be resolved on a provincial level by all the signatories to the IGR joint implementation plan.

CHAPTER 6

6 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY AND FINDINGS

Literature review has shown that the CD's infrastructure development has its place in the strategy formulation to ensure the success and fulfilment of its mission which is captured in the service delivery objectives. Literature has shown the importance of infrastructure development, for example, the clinic construction programme in promoting the mission and supporting the CD's objectives. That for the CD to be able to render its core services properly and provide access to needed health care services, the clinic projects should be delivered on time, within budget and to the best quality. Within the various government departments' mandates, policy and legislative context, the study has shown that the CD was solely dependent on another department to implement construction projects.

The study has in the literature reviewed further shown the enabling legislative frameworks that offer an opportunity for the CD to explore other implementing agencies over and above the implementing department. Guidelines as to how relationships between the CD and ID or IA may be regulated were revealed in the form of service delivery agreements. Procurement and contracting approaches used in the relationships were expounded; revealing shortcomings and recipes for success. The critique of the procurement and contracting approaches were embedded in the general building procurement systems, contracts and agreements used and prevailing standardised prescripts as they related to the attainment of project and service delivery objectives.

A brief literature review of what a project is, project management and project success was conducted. This discussion was juxtaposed to the debate that a selection of an appropriate procurement and contracting approach contributes to the attainment of project and service delivery objectives with respect to time, cost, quality, client expectations and therefore project success. Procurement and contracting approaches that fall under the management category, such as project management, construction management and management contracting were found to perform better in terms of time (reducing time overruns), scope (reducing scope creeps), project closure (final account) and where there is under

performance, penalties are imposed. Based on this, it was concluded that such procurement and contracting approaches can improve project delivery objectives and client satisfaction levels on construction projects.

The performance of the ID and IA on the clinic construction program was comparatively reviewed based on the data gathered from project files with regards to the four key performance indicator variables tested in this study. Based on the analysis of quantitative data, the comparative performance of the ID and IA can be summarised as follows:

- 6.1.1 On contract duration versus actual completion period, the IA performed well and enforced penalties in two projects compared to the ID.
- 6.1.2 On variation / no variations, the IA performed well, with no variations above 20%, and keeping the total value of variations very low compared to the ID.
- 6.1.3 On actual time taken between practical completion and presentation of final account, the IA performed well compared to the ID. This is however an area within which both the IA and ID need improvement; with most work needed within the ID.

The qualitative research responses were able to reveal some of the contributory factors attributed to the quantitative data results. On the whole, unrealistic contract durations, consultant's performance, financial and technical capacity of contractors, lack of proper documentation control and storage, poor project management, omissions in the bills of quantities, a general fear of retribution and insufficient contract management were cited as the elements leading to project failure. Project success had the following elements; a good project manager; able to hold each of the project team members responsible and accountable; good contract management and good project management.

Furthermore, all interviewed concurred that there was a role for an IA; and that the IA should be located within the ID. Issues of organisational readiness need to be investigated to facilitate an enabling environment for the IA to perform beyond expectations.

6.2 CONCLUSIONS

6.2.1 Hypothesis 1:

Implementing Agents (IAs) have a role to play in the public sector as alternatives and or to supplement the ID's infrastructure delivery capacity. This would assist in ensuring that the project and service delivery objectives are attained. The ID and or CD need to be organizationally prepared to adopt the approach. Organizational readiness needs to be on a sustained effort to ensure that IA's do not fail due to organizational cultures.

Conclusion

The study has revealed that IAs have a role to play in the public sector as alternatives and/or to supplement the ID's infrastructure delivery capacity. The study further revealed that preference is that IA's should be located within the ID given the technical and practical capabilities that reside in ID's. That IAs would assist in enhancing the program and project management capacities of the ID; and that it is important to ensure that the ID is organizationally ready to receive and work with an IA. Therefore, the findings support the hypothesis.

6.2.2 Hypothesis 2:

The performance of the IA on the four variables is better than that of the ID. There is an increase in the number of projects completed in time. Projects with no variation orders are on the increase. Where variation orders have been approved, these are minimal and below the 20% of the contract value. Time lapse between practical completion and final account for almost all projects is as per contract stipulations and where penalties are due, this are imposed and claimed from the contractor.

Conclusion

- a) On contract duration versus actual completion period, the IA performed well with projects that have been completed earlier than the contract duration, on time and those projects that had time overruns, the delay did not exceed 7 months. Penalties were enforced in two projects.

The ID had no projects that were completed earlier than the contract durations and projects with time overruns had delays of up to 27 months. Records of penalties imposed could not be found in the files.

The findings support the hypothesis.

- b) On variation / no variations, the IA performed well, with no variations that exceeded the 20% limit. The total value of the variations was 2.52% above the sum of the contract amounts; keeping the total value of variations very low.

The ID's total value of variations was 6.37% above the sum of contract amounts.

The findings support the hypothesis.

- c) On actual time taken between practical completion and presentation of final account, the IA performed well. Final accounts for 4 projects were submitted within a period of 6 months; final accounts for 6 projects were submitted between a period of 7-12 months; and one project took 13-18 months to submit final accounts. The longest period taken to present the final account was 13 months.

The ID: the final accounts for 3 projects were submitted between a period of 13-18 months; 4 projects took 19-24 months to submit final accounts and 15 projects took a period of 24-52 months. The ID's longest period taken to present a final account was 52 months.

The findings support the hypothesis.

6.2.3 Hypothesis 3:

The use of IAs can improve the achievement of both project objectives and CD's service delivery goals.

Conclusion

Based on the performance on the 4 key performance indicator variables, the use of IAs has shown that it has improved the project objectives and CD' service delivery goals.

Procurement and contracting arrangements used by the IA had a positive effect on the attainment of project objectives and the CD's service delivery goals. Project management capacity in terms of people, systems, processes, management and supervision, contract management, accountability and authority held the balancing power in project delivery and this were well managed in order to attain project success.

The findings support the hypothesis.

6.3 RECOMMENDATIONS

- A repeat of the same study in 12 months to show the performance of the IA's projects that were still in various construction phases during the period of this research;
- More work need to be done on the actual time taken between practical completion and presentation of final account; both the IA and ID need improvement on this aspect.
- The procurement and contracting arrangements to be employed should be in a manner that project management is the core of project delivery. It would be beneficial that the procurement and contracting strategies need to be part of project feasibility prior to final project approval.
- Roles and responsibilities of all role players within a project need to be clearly defined, documented and communicated.
- At the beginning of each project, it might be beneficial for a joint team building session with the ID, IA, the CD and the project team. The CD would spell out the project objectives and service delivery goals and the whole team would engage on articulating a plan to attain and or exceed the CD's expectations. Such could also be repeated at critical intervals to inculcate the common goal approach and taking collective ownership to ensure that such is attained.
- Currently there is a tendency in the public sector to assume that a person with any qualification in the built environment is a project manager. This notion may be true to a limited extent, however advancing the skills and competencies of such people in

formal project management qualifications is needed. Solid degrees and diplomas with a support program to ensure that registration with SACPMCP is facilitated and achieved. An enabling environment has also been created by the SACPMCP for registration based on recognition of prior learning. Government should aggressively invest in its current human capital whilst creating opportunities for new recruits.

- Years, type of experience and complexity of the tasks at hand should be considered in project allocation in relation to project managers and professional service providers.
- Project performance should not only be biased towards the contractor; professional service providers, the project team and the dependencies within the line functions should all be subjected to a performance management system.
- There needs to be a considered move from the bilateral SDAs between the ID and CD towards the IGR's joint implementation plan and agreement so that the attainment of project and service delivery objectives is elevated to a high level provincial critical stakeholder team that would be signatories. Roles, responsibilities and accountabilities to be spelt out incorporating some of the content in the CIDB SDAs.

6.4 FURTHER RESEARCH

A need for further research was identified as follows:

- Skills and competencies needed to manage an IA
- Skills and competencies needed to manage the ID
- The role of the project manager and construction project manager in public sector projects
- Currently, one project manager is responsible for about four to eight projects at a time geographically spread over the Province. A study on the optimum number of projects a project manager should handle at a time factoring project complexity and geographical spread

- A more intensive provincial wide study on the assessment of the enforcement / non-enforcement of the penalty clause in the public sector inclusive of the time and budget implications;
- Physical co-location, joint planning and joint implementation with regards to the ID, IA and CD's infrastructure team to develop, nurture and sustain trust and learning amongst team members

REFERENCES

Basson, G., 2005. *Project Management (PJB 801) Lecture Notes*. Department of Economics, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria.

Bless, C. & Higson-Smith, C., 1995. *Fundamentals of Social Research Methods: An African Perspective*. Kenwyn: Juta.

Briscoe, G., Dainty, A., Millett, S. and Neale, R., 2004. "Client-led strategies for construction supply chain improvement", *Construction Management and Economics*, Vol. 22 No. 2, pp. 193-201.

CIDB Toolkit, 2006, March. Version 4.0.

CIDB Practice Note Number 19, 2009.

Construction Industry Regulations, 2004. Amended in 2006.

Cooke-Davies, T.J., 2002. *Establishing the Link between Project Management Practices and Project Success*. Proceedings, PMI 2002 Research Conference, Seattle.

Cooke-Davies, T. J., 2002. *The "Real" Success Factors in Projects*. *International Journal of Project Management*, Vol. 20, No. 3, pp 185-190.

Creswell, J.W., 2003. *Research design, qualitative, quantitative, and mixed methods approaches*. 2nd ed. California: Sage Publications, Inc.

Cussack, M.M., 1991. Construction Management-the way forward. In Venmore-Rowland, P., Brandon, P. & Mole, T., (editors). *Investment, Procurement and Performance in Construction*. London: E & FN SPON, pp 242-255.

Denscombe, M., 2007. *The good research guide for small-scale social research projects*. Open University Press.

De Vos, A.S. 2000. *Research at grass roots: A primer for the caring professions*. Pretoria: Van Schaik Publishers.

Department of Public Works, 1996. *Unpublished Policy Discussion Paper. Creating an Enabling Environment for Reconstruction, Growth and Development in Construction Industry.*

Department of Public Works, 2008. *Offer of Appointment/ Specific Conditions of Contract to Perform Professional Services.*

Finsen, E., 2005. *The Building Contract: A Commentary on the JBCC Agreements, Second Ed.* South Africa: Juta & Co Ltd.

Finsen, E., 1999. *The Building Contract: A Commentary on the JBCC Agreements, First Ed.* South Africa: Juta & Co Ltd.

Goldratt, E., 1997. *Critical Chain*, Cape Town; Creda Press.

Goldratt, E.M., 1990. *Theory of Constraints*. New York: North River Press.

Guba, E., 1987. *Naturalistic Evaluation. New Direction for Program Evaluation*. Vol. 34 No. Summer, pp 23-43.

2011/12 Guide to Annual Performance Plan. Department of Health, South Africa

Harris, C., 2003. *Private Participation in Infrastructure in Developing Countries: Trends, Impacts, and Policy Lessons*; World Bank Working Paper 5, Washington, D.C.

Himayumbula, T.K., 2009. *Analysing Benefits Resulting from Project Managers as Opposed to Architects being Project Managers in Botswana. Unpublished MSc Project Management Treatise*, Department of Economics, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria.

Holtzhausen L.J., 1998. Selection of a Procurement Model for Construction Projects Delivered by the Department of Public Works. *Unpublished MSc Project Management Treatise*, Department of Economics, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria.

Infrastructure Delivery Management Toolkit (IDMT)-Management Companion, 2011, August. Version 10.

Joint Building Contracts Committee (JBCC) Inc. 2008. *Principal Building Agreement, 5th Ed*: South Africa: JBCC.

Joint Building Contracts Committee (JBCC) Inc. 2007. *Principal Building Agreement, 4th Ed*: South Africa: JBCC.

Joint Building Contracts Committee (JBCC) Inc. 2006. *Principal Building Agreement, 3rd Ed*: South Africa: JBCC.

Kerzner, H., 2001. *Project Management: A Systems Approach to Planning, Scheduling and Controlling, 7th Ed*. United States of America: John Wiley & Sons.

Kerzner, H., 2006. *Project Management: A Systems Approach to Planning, Scheduling and Controlling, 9th Ed*. United States of America: John Wiley & Sons.

Kessides, I.N, 2008. *Reforming Infrastructure Promises, Outcomes, and Future Challenges*. Proceedings, Annual SPAID Infrastructure Conference, Midrand.

Kessides, I.N, 2004. *Reforming infrastructure – privatization, regulation, and competition*. The World Bank.

Khang, D.B., 2011. *Project Management*. Proceedings, International Capacity Building Workshop Thailand & Malaysia, Bangkok.

Klopper, C.H. & Cloete, C.E., 2006. *General Guidelines for the Preparation of MSc. Treatise, 3rd Ed*. University of Pretoria: Department of Quantity Surveying and Construction Management.

Kyereh, K.T., 2008. An investigation into the Impact of HIV and AIDS on the Availability of Labour Skills in South African Coal Mines. *Unpublished MSc Project Management Treatise*, Department of Economics, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria.

Leedy, P.D. & Ormrod, J.E., 2010. *Practical Research: Planning and Design, Ninth Ed*. United States of America: Pearson Education International.

Leedy, P.D. & Ormrod, J.E., 2006. *Practical Research: Planning and Design, Eighth Ed*. United States of America: Pearson Education International.

Limpopo Provincial Treasury, 2004. Instruction on Supply Chain Management.

Loots, P.C., 1995. *Construction Law and Related Issues*. South Africa: Juta & Co.

Mbanjwa, S., 2002. The use and Effectiveness of Construction Management as a Building Procurement System in the South African Construction Industry. *Unpublished MSc Project Management Treatise*, Department of Economics, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria.

Moody, C., Riley, M. & Hawkins, N., 2008. Differentiation of sub-contract organisations and principal contract organisations through attribute analysis. Proceedings, COBRA 2008, the RICS construction and building research conference, Dublin.

Murdoch, J. & Hughes, W., 1996. *Construction Contracts: Law and Management*, 2nd Ed. London: E & FN SPON.

Nagel, C.J., 2006. *Commercial Law*, 3rd Ed. South Africa: LexisNexis Butterworths.

South Africa. *Public Finance Management Act No 1 of 1999*. Pretoria: Government Printers.

South Africa. *Division of Revenue Acts 2006/07; 2007/08; 2008/09; 2009/2010; 2010/2011*, Pretoria: Government Printers.

South Africa. National Treasury. *Supply Chain Management Practice Note*, 2004.

South African Council for the Project and Construction Management Professions, 2011.

South Africa. National Budget Speech by Finance Minister Pravin Gordhan, 2012

Terreblanche, M. & Durrheim, K., 1999. *Research in practice: Applied methods for the social sciences*. Cape Town: University of Cape Town Press.

Tshikila, S., 2011. The Extent of Enforcement of the Penalty Clause in Public Sector Construction Contracts in South Africa. *Unpublished MSc Project Management Treatise*, Department of Economics, Faculty of Engineering, Built Environment and Information Technology, University of Pretoria.

Project Management Institute. *A Guide to the Project Management Body of Knowledge (PMBOK) 2000 Edition*. Four Campus Boulevard, Newtown Square, PA 19073-3299 USA.

Pinto, J.K. and Mantel, S.J. Jr., 1990. *The Causes of Project Failure. IEEE Transactions on Engineering Management*, Vol. 37 No. 4, pp 269-276.

Rwelamila, P.M.D., 2007. *Project Management Competence in Public Sector Infrastructure Organisations, Construction Management and Economics*, Vol. 25 No. 1, pp 55-66.

Shehul, Z. & Akintoye, A., 2008. Major Challenges to the Successful Implementation and Practice of Programme Management in the Construction Industry. Proceedings, COBRA 2008, the RICS construction and building research conference, Dublin.

Vives, A., Benavides, J. and Paris, A. M., 2010. Selecting Infrastructure Delivery Modalities: No Time for Ideology or Semantics. *Journal of Construction Engineering Management*, Vol. 1 No. 4, pp 412-418.

Watermeyer, R., 2011. Unpublished Training Notes. Presented at the Infrastructure Procurement Workshop, Polokwane.

Welman, J.C., Kruger, S.J. & Mitchell, B.C., 2005. *Research Methodology, 3rd Ed.* South Africa: Oxford University Press.

White C.J., 2005. *Research: A practical guide.* Tswane University of Technology. Pretoria.

World Bank, 1994. *World Development Report 1994: Infrastructure for Development.* Oxford University Press, New York.

Zairi, M., 1996. *Benchmarking for Best Practice – continuous learning through sustainable innovation.* Butterworth-Heinemann.

Internet Sites:

ISO 10006:2003, *Quality management systems - Guidelines for quality management in projects*, is an [international standard](#) developed by the [International Organization for Standardization](#) (accessed on 15 February 2011)

http:// www.publicworks.gov.za (accessed on the 26 January 2011)

http:// www.cidb.ac.za (accessed on the 26 January 2011)

Appendix A: Face to Face Semi Structure Interview Questions

A COMPARATIVE ANALYSIS OF THE ID AND IA'S PERFORMANCE ON THE FOUR VARIABLES

- **Contract duration versus actual completion time**
- **The use of variation orders within and above the 20% of the contract value Provincial Treasury limit**
- **Actual time taken between practical completion and presentation of final account**
- **Penalties imposed during the contract period.**

Questions are strictly meant to derive the benefits of the procurement and contracting arrangements of the ID and IA for a partial fulfilment of the requirements for a Master of Science degree in Project Management at the University of Pretoria by M.R. Mogadime.

All information shall be treated strictly as confidential.

Thank you very much for making time for this interview; which should last approximately 30 minutes. To confirm that the information will be strictly used for study purposes and will remain strictly confidential, I present to you proof of 2012 academic registration in the form of a student card. My contact details are 083 443 5591.

Interview Date _____ **Time** _____ **Location** _____

- d) What is your profession / Occupation? For an example, Mechanical Engineer, Quantity Surveyor, Technical Assistant, Contractor, etc.

- e) Academic Qualifications? / CIDB Grading?

- f) Professional Registration and Year of Registration / Not applicable for the C & TA

g) Are you employed or managing your own business? / Not applicable for the C & TA

h) You have worked with both the ID and IA on the clinic construction projects. From the spreadsheets presented, kindly confirm the specific clinic projects you worked on.

The interviewee will identify the clinic projects and questions will be asked on the four variables under study as follows: What in your opinion are the factors that contributed to the

a) Schedule overrun/on target?

b) Variations/no variations?

c) Penalties/no penalties?

d) Turn -around time between practical completion and final account?

- i) Where did you get better project co-ordination, management and organization?
 - a) ID
 - b) IA
 - c) Both
 - d) None

j) The role of the project manager

a) What is the role of the project manager in the ID projects?

b) What should be the role of the project manager in the ID projects?

c) What is the role of the project manager in the IA projects

d) What should the role of the project manager in the IA projects

k) If you were the Client Department (End-User), looking at the clinic project performance data in the context of the Public Finance Management Act and Health Outcomes,

8.1 Would you be satisfied with the overall project delivery?

- a) Definitely Yes
- b) Yes
- c) No
- d) Definitely No

e) Somewhere in Between

8.2 Would you say it was the best service you could get from the money/funds invested?

- a) Definitely Yes
- b) Yes
- c) No
- d) Definitely No
- e) Not Sure

8.3 Would you say the project objectives and health service delivery goals were attained in time, within scope, within the budget and to the quality required?

- a) Definitely Yes
- b) Yes
- c) No
- d) Definitely No
- e) Not Sure

l) Almost more that 50% of the contractors have worked with both the ID and IA; but performance on the four variables is different; what in your opinion might be the reasons?

m) Based on the clinic project data, what recommendations would you offer for enhancement of project objectives to the ID, IA, and CD-End User?

Thank you once again for your time.