

**PROBLEMS EXPERIENCED BY PROJECT
MANAGERS ON HOUSING PROJECTS**

N.O.MTSHEKEXE

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PROBLEMS EXPERIENCED BY PROJECT MANAGERS ON HOUSING PROJECTS

by

Ntombesibini Octavia Mtshekexxe

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Promoter/ Supervisor: Professor J.J. Van Wyk

Co-Promoter/ Co-Supervisor: Ms N. Wessels

DECLARATION

I hereby declare that **PROBLEMS EXPERIENCED BY PROJECT MANAGERS ON HOUSING PROJECTS** is my own work and that this research work has not been previously submitted for assessment at another University and /or for another qualification.

MRS NTOMBESIBINI OCTAVIA MTSHEKEXE (207007819)

DATE

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ABSTRACT

Housing projects are amongst the South African (SA) Government's major focus points with reference to budgeting for its financial years. The delivery of these housing projects is taking place at a slower rate than anticipated due to the problems experienced in the processes involved in their management.

The project management shortcomings are a major setback with reference to the delivery of houses to the communities. It is, however, stated by the Constitution of the Republic of South Africa (RSA) that every South African citizen has a right to housing and that the Local Government, as the closest entity to communities, must do whatever it possibly can to ensure timeous service delivery to its communities.

The objective of this research is to ascertain the nature and extent of project management problems experienced by municipal project managers, the impact thereof and potential solutions to the identified problems. The study is intended to advise on possible ways to address project management problems arising during the implementation of housing projects in the Nelson Mandela Bay Municipality (NMBM) through investigation and analysis of information gathered in both theory and practice.

Project management is a process of controlling the achievement of project objectives through the application of knowledge, skills, tools and techniques. For a housing project the main objective is to deliver safe, quality houses on time and within budget. Problems which hinder the delivery of housing projects relate to cost, time and the quality of housing projects delivered.

The fact that these key project objectives are not met needs to be addressed urgently in order to improve the housing delivery. The literature reviewed and the

feedback from the surveys; indicate that these problems have a vast impact on housing projects. The survey also reveals that it is not only housing Project Managers (PMs) that are unable to perform well, but also other parties involved in the project management of housing projects and which play a great role in project management failures of housing projects. Some of these parties are consultants and contractors.

The lack of performance by project managers affects the delivery of houses negatively in the NMBM.

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LIST OF ABBREVIATIONS AND ACRONYMS

BEPP	- Built Environment Performance Plan
CPM	- Critical Path Method
DHS	- Department of Human Settlements
ECSA	- Engineering Council of South Africa
HDA	- Housing Development Agency
HM	- Housing Management
HSS	- Housing Subsidy Scheme
HSQ	- Housing Subsidy Quantum
IDP	- Integrated Development Plan
IMESA	- The Institute of Municipal Engineering of Southern Africa
KPI	- Key Performance Indicators
MFMA	- Municipal Finance Management Act
MTEF	- Medium Term Expenditure Framework
NHBRC	- National Home Builders Registration Council
NMB	- Nelson Mandela Bay
NMBM	- Nelson Mandela Bay Municipality
NMMU	- Nelson Mandela Metropolitan University
PDHS	- Provincial Department of Human Settlements
PM	- Project Manager
PMG	- Parliamentary Monitoring Group
PMI	- Project Management Institute

RDP	- Reconstruction and Development Programme
RSA	- Republic of South Africa
SACPCMP	-The South African Council for the Project and Construction Management Professionals
SAICE	- The South African Institution of Civil Engineering
SCM	- Supply Chain Management
SMMEs	- Small Medium and Micro Enterprises.
Stats SA	- Statistics South Africa

DEFINITION OF TERMS

Housing is defined as a variety of processes through which habitable, stable and sustainable public and private residential environments are created for viable households and communities (Housing Policy and Strategy, 1994:21). Social-Housing Professionals (2001:v in Jimoh, 2012:2) emphasise that housing is a prerequisite for exercising other rights such as health, insurance, education, employment, citizenship, culture and leisure.

Van Wyk (2009:18) defines housing as:

“an instrument for political stability, economic prosperity, social welfare and household well-being and an economic, physical product- which requires various parallel and consecutive processes, services, suitable resources and relevant systems in order to create and maintain quality, sustainable living environments for human beings.”

These definitions are accepted for the purpose of this research project.

Housing delivery is defined as the single most important modality of the SA Government's anti-poverty delivery strategy and all the rest ultimately depends on housing alongside with the Government's commitment to equality and development, according to Cross (2010:8).

According to Mamba (2006:3) housing provision plays a vital role in meeting basic needs. Mamba (2006:13 citing the Department of Housing, 2004:7-8 and Tomlinson, 2006:6-13) state that the Housing Policy recognises the provision of housing provision as essential for human development and the SA Governance delegated greater authority to the local government in an attempt to realise this housing right.

From the foregoing, the researcher can, for the purpose of this research, infer that **housing delivery** is a collective term used for the provision of government

subsidized houses given a specific predetermined budget as indicated by the local government's IDP over a stipulated period in order to meet its community needs for housing.

Housing management (HM) is defined as

“....the art, science and profession of co-ordinating role players, protecting the interests of households and communities and managing housing processes; using appropriate policies, strategies, systems and resources; with due cognisance of all the contextual circumstances (natural, social, cultural, economic, political and technological); to contribute to household and community development and to optimum housing sector performance; towards new and improved sustainable human living environments...” (Van Wyk, 2005:382)

Housing Subsidy Scheme (HSS) is defined as:

“... a model of housing delivery for the disadvantaged and poor persons, which was adopted in 1994 by the Department of Human Settlement. HSS is given to first-time home-owners, who must then obtain homes through the programmes set by the department. The HSS programmes are only meant for subsidizing housing for poor people who earn between R 0 and R3 500.00, as a total family income per month...” (Aigbavboa and Thwala, 2011:2, citing the Department of Housing, 2000).

Low-income houses: Aigbavboa and Thwala (2011:2) state that the government adopted a strategy to provide assistance to households (earning a monthly income of less than R3, 500) who are unable to satisfy their housing need independently. One of the housing strategies as contained in the National Housing Policy Framework is to provide subsidy assistance to the low-income groups, thus enabling them to become home owners and to improve their quality of life. Government-subsidized houses for low-income households are mainly targeting the low income group in order to improve their quality of life.

A project is a unique endeavour to produce a set of deliverables within clearly specified time, cost and quality constraints (Method123, 2003; Burke, 2003:2)

Project management is the application of knowledge, skills, tools and techniques to project activities in order to meet stakeholders' needs and expectations from a project (Burke, 2003:3). According to Munns & Bjeirmi (1996:81) project management is a process of controlling the achievement of project objectives.

From the definition above, it can be deduced that **stakeholders** refer to, or includes project beneficiaries (or community). For the purpose of this study **a project stakeholder** is a person (in addition to the client and beneficiaries) who has interest or control over a project, including project team.

A project manager is a person with a single point of responsibility to manage, control, plan, organize and integrate project resources and tasks to achieve the project goals (Dabup, 2008:23; Nicholas & Steyn, 2008: xxxii).

CHAPTER 1

THE PROBLEM AND ITS SETTINGS

1.1. INTRODUCTION

This treatise reports on a study of project management problems experienced by project managers (PMs) on housing projects, with specific reference to Nelson Mandela Bay (NMB) in the Eastern Cape Province of the Republic of South Africa (RSA).

This chapter introduces the research problem including the main problem, sub-problems, hypotheses, the delimitations as well as the importance of this study. The objective is to investigate whether problems actually exist and how best they can be dealt with. All assumptions made are also presented for the purpose of this research.

1.2. BACKGROUND TO THE RESEARCH PROBLEM

The Bill of Rights contained in the Constitution of RSA, entrenches certain basic rights for the citizens of South Africa including 'The right to have access to adequate housing' (South Africa, 1996:7). In accordance with the Reconstruction and Development Programme (RDP) (South Africa, 1994), adequate housing must provide protection from weather, be a durable structure, and a reasonable living space and privacy. A house must include sanitary facilities, storm water drainage, a household energy supply, and convenient access to clean water. Moreover it must provide for secure tenure in a variety of forms. (Ndida, Uzodukile & Winaar,

2011:765-769). This places an obligation on the Government to provide adequate housing to everyone in South Africa on a progressive basis within the limits of available resources as per the court judgment in the RSA versus Grootboom and Others (RSA Constitutional Court:2000), cited by Scheepers (2011:2 and Tissington 2011:15-28).

Mamba (2009:12, citing Pottie 2004:5-6) states that the municipalities are to establish goals, designate land for housing development in accordance with the national housing programme and take all reasonable steps to ensure access to adequate housing and services for its residents. Despite the constitutional right to housing for all, as outlined in Section 26 of the Bill of Rights, South Africa still has a housing crisis even after so many years of its 1994 democracy. The continued lack of adequate housing and basic services, growing unemployment and a largely unresponsive state, particularly at local level, have led to an increasing number of service delivery protests in townships and informal settlements across South Africa (Tissington, 2010:11).

According to van Wyk (2011:3) human settlement development and management poses the greatest service delivery challenge, and is the Government's major shortfall. Urban Land Mark and Social Housing Foundation (SHF) (2010:12 in Tissington 2010:11) emphasize that it is generally recognized that the state cannot deliver housing on the scale required in South Africa at a sustainable rate, or within the financial means of lower income households. From the aforesaid, the observable fact is the Government is struggling to deliver the vastly needed houses as planned.

The responsibility to deliver houses by the Government is further accentuated by the mission statement of the Department of Human Settlements, to facilitate the creation of sustainable human settlements and improved quality of household life, (South Africa, 2012/2013:9). The delivery of houses to communities remains the municipality's core function and its performance is rated according to the number

and quality of houses delivered per financial year, including all other services relating to sustainable development.

According to Bekker (2011, as cited by Vosloo 2012:3) managing housing projects is different from managing other construction projects as there are a variety of social and technical aspects to take into consideration. Housing project managers need to take extra precaution when dealing with housing projects to ensure timeous delivery of projects to the communities being served.

Project Managers (PMs) are usually employed in one of the departments of a Housing Directorate in Local Government (Figure 1, Page 4). Figure 1 illustrates the specific position of the project managers within the Housing Sector of Government. The position of PMs in the organisational structure implies that PMs have a definite position in the provision of government subsidised housing.

The foregoing also highlights that a municipal project manager, being central to housing delivery, is the prominent driver of implementation with regard to service delivery on behalf of the Government.

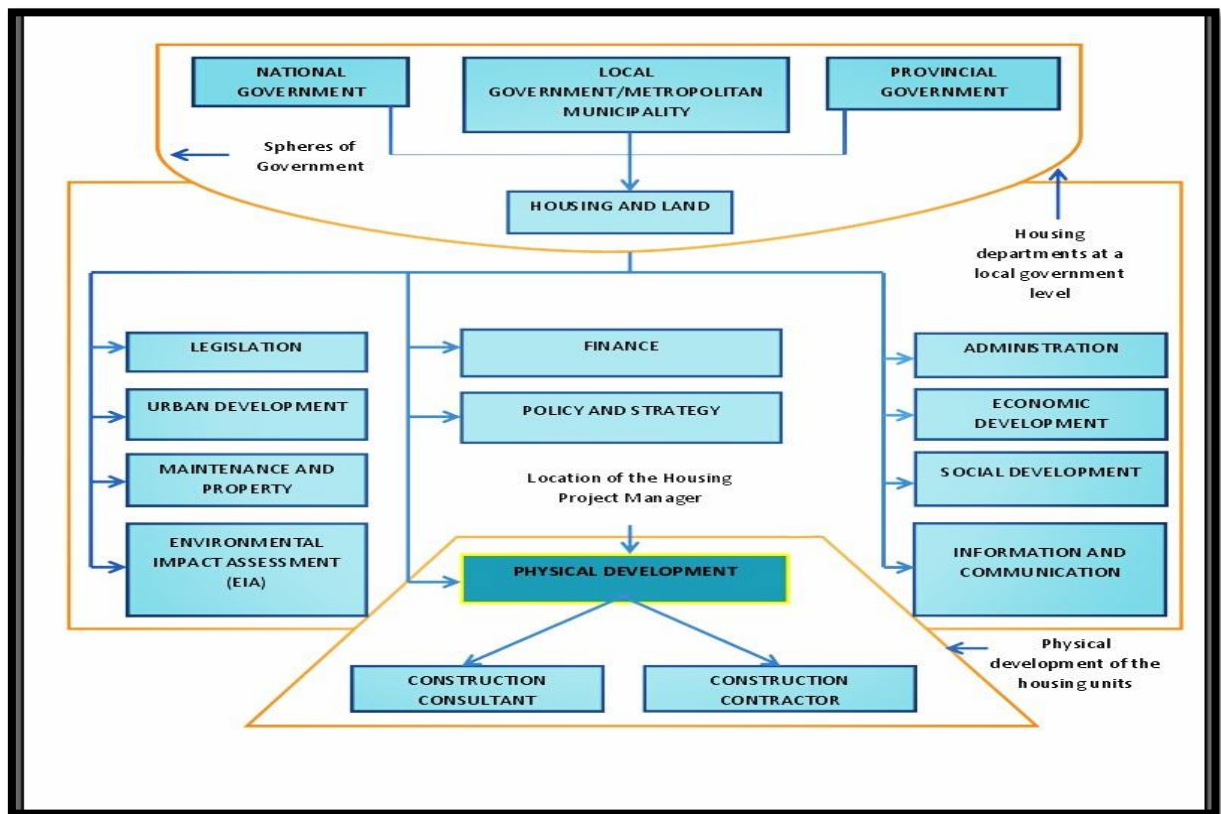


Figure 1: Position of Project Managers within the Government Housing Sector (Vosloo 2012:4)

1.3. THE STATEMENT OF THE PROBLEM

According to Leedy & Ormrod (2010:48) the heart of any research project is the problem and that the problem should be clearly stated and complete. The statement of the problem is therefore the basis of a study and should be understood from the beginning as the drive and focus of a study.

The statement of the problem of this study is:

Municipal project managers experience problems which slow down the delivery rate of housing projects.

1.4. SUB- PROBLEMS

The researcher identified the following to be the key sub-problems to support the statement of the problem, as stated above. The sub-problems are as follows:

1.3.1.1. Project managers experience problems with time, cost and quality on housing projects which affect the delivery of housing projects.

1.3.1.2. The extent of impact resulting from the problems experienced is not known.

1.3.1.3. It is not known what solutions to housing delivery problems have been developed and implemented.

The researcher acknowledges the fact that there could be more sub-problems related to the main problem; problems that may concern not only the Nelson Mandela Bay Municipality (NMBM) but other municipalities as well. For the purpose of this treatise the researcher has considered the above sub-problems sufficient to address the main problem in parts.

1.5. HYPOTHESES

Leedy & Ormrod (2010:4) refer to a hypothesis as “*a logical supposition, a reasonable guess or an educated conjecture*” and that it provides a tentative explanation for a phenomenon under investigation which will aid in resolving one or more sub-problems. According to Leedy & Ormrod (2010:4-5) the logic is the one-on-one correspondence between problems and hypotheses.

From the above, it is apparent that hypotheses have to be sequenced the same way as the sub-problems corresponding with them.

The hypotheses for this study are:

1.4.1. Problems in housing delivery are experienced by municipal project managers.

1.4.2. Problems experienced by PMs impact negatively on overall housing project performance and the delivery rate.

1.4.3. Solutions to project management of housing projects have been developed and implemented.

1.6. DELIMITATIONS

Leedy & Ormrod (2010:57) state that for every research project the researcher needs to clearly indicate his or her intentions including what will not be done in the project, as the problem statement only stated what will be done. Research problems typically emerge from larger contexts and larger problem areas. These writers further state that whatever the researcher intends not to do should be stated in the delimitations.

It is for the above reasons that the researcher limited this study to the housing projects of the NMBM undertaken in the last five (5) years only for validation of information that will be provided in the study. The 5year period is a short period and therefore the researcher is convinced that the problems that are hoped to be treated are still new and if not still continuing with the housing PMs on housing projects.

The study investigates the problems experienced by project managers on housing projects that lead to slow and inadequate housing delivery in the Nelson Mandela

Bay (NMB) only. Project managers in the study include PMs employed by NMBM, Provincial Department of Housing (PDoH) (now known as Provincial Department of Human Settlements (PDHS)), Housing Development Agency (HDA), National Home Builders Registration Council (NHBRC), consulting firms, construction contractors and other practitioners who deal directly with municipal housing projects within the NMB.

1.7. ASSUMPTIONS

The research has been based on the following assumptions:

Housing delivery is dependent on project management practices by PMs.

Housing project managers are adequately qualified and have sufficient skills to perform and deliver on their designated responsibilities

Project management problems exist, as will be explained in later text, whilst the projects are being supervised and monitored by project managers

The respondents used in this study will provide adequate information on housing delivery trends in NMB.

The researcher will be able to identify the project management problems experienced by PMs, how these impact on project performance and housing delivery, and what solutions have been developed and implemented.

1.8. IMPORTANCE OF THE STUDY

The revised National Housing Code (South Africa, 2009) considered developmental changes from 2000 and converted the national housing programmes into flexible provisions and guidelines. These guidelines, including policy principles, norms and standards, are to be adhered to by all housing

assistance programmes introduced since 1994. The Housing Code further states that the Government's vision for housing development is:

'Government's housing development mandate emanates from the Constitution. It is therefore Government's duty to work progressively towards ensuring all South Africans can access secure tenure, housing, basic services, materials, facilities and infrastructure. Government will have to apply measures of a legislative, administrative, financial, educational and social nature to fulfil its housing obligations' (South Africa, 2009:9).

The aforesaid obligations are deemed to be necessary to assist with the realization of a better South Africa where every South African will have adequate housing.

According to Ewing & Mammon (2005:1 and Scheepers 2011:10), housing delivery is not taking place at a rate that will eliminate the backlog. Hassan, Jyue, Ramli & Tufail (2011:2) state that the existence of abandoned housing projects, due to the failure of private developers to complete the approved housing schemes, has led to underperformance in the construction of housing projects. It is therefore evident that the Government is far from realizing its plans where every South African will have adequate housing.

This study is intended to advise on possible ways to address project management problems arising during the implementation of housing projects in the NMB through investigation and analysis of information by the researcher. This research report also seeks to inform further research and /or future study on this subject matter.

The improvement in project management of housing projects will not only benefit the NMBM, but the communities that will be receiving improved services from the NMBM and other municipalities, should it be utilized by the project managers in practice. The study anticipates to assist the NMBM to regain trust (through

timeous delivery of good quality projects), to serve as reference (having a source to consult when faced with similar problems for advice on how to tackle some issues) and for economic improvement (through reduction and / or elimination of budget overruns and the quality of houses attracting more investors to the areas where these projects are implemented).

1.9. OBJECTIVES OF THE STUDY

The objectives of this study are:

- To ascertain the nature of the problems experienced by the municipal project managers on housing projects within NMB;
- To determine the extent of impact of the problems experienced in housing delivery within NMB; and
- To investigate the solutions that have been developed and implemented by the municipal project managers as a means of addressing these problems and/or reducing their impact(s) on housing delivery.

1.10. THE OUTLINE OF THE TREATISE

The outline for the treatise is as follows:

- Chapter 1: The problem and its settings
- Chapter 2: The review of related literature
- Chapter 3: Research methodology
- Chapter 4 : Report on the findings of the empirical study
- Chapter 5: Conclusions and recommendations

CHAPTER 2

THE REVIEW OF RELATED LITERATURE

2.1. INTRODUCTION

South Africa is faced with the challenge of developing previously disadvantaged communities as well as upgrading the existing infrastructure to cope with the high demand, according to Agumba, Adegoke, Fester, and Otieno (2003 in Agumba, 2006:1).

“According to official statistics, over 2.1 million households in South Africa lack adequate housing...” (Tissington, 2012:50)

The aforesaid highlight the need for effective project management skills to ensure timeous delivery of projects to crush the existing housing and infrastructure backlogs.

This chapter reviews the literature that relates to problems experienced by Housing PMs with the objective to identify common project management problems in comparison with the ones experienced by PMs. Previous research findings and solutions to address the identified project management problems will be reviewed.

2.1.1. PROJECT MANAGEMENT WITH REFERENCE TO HOUSING PROJECTS

Project Management is defined as the application of knowledge, skills, tools, and techniques to project activities to meet project requirements (Campbell, 2011:5

and Method123, 2003). According to Munns and Bjeirmi (1996:81), project management is a process of controlling the achievement of the objectives of a project, and is recognized as an effective tool for handling novel and complex projects. From these definitions, as well as the recognition of project management as an effective tool, it can be deduced that a project manager should be able to manage any form of a project from the simple to the most complex projects.

The following quotation illustrates the extent to which project management is being used in more and more sectors, including the government sector, which is mandated to provide housing for poor people:

“South Africa has seen a dramatic increase in the use of project management in the construction, information technology, and defence and development sectors. In Education, Publishing and The Government Sector, principles of project management are also being applied. It was only in the 1990s that project management gained dramatically in popularity in the government sector...” (Agumba, 2006:25).

According to Agumba (2006:26) project management has emerged as a ‘specialist management function’ to deal with planning, organizing, directing and controlling the complex relationships and activities in a project. This implies that managing a project is as important as any other form of management and with high responsibility to the project. The project manager’s involvement from the project inception enables planning, managing and ultimately guiding all of its activities, thereby leading to the project’s success. It also denotes that project management requires certain skills, understanding and competencies in order for it to be applied effectively and without this requisite knowledge the individual appointed to execute project management work may not be able to deliver the project as expected.

The NMBM, as a government entity that implements various housing projects for its communities, has certain requirements for the appointment of its housing

project managers. Bekker (2011, in Vosloo 2012:3) states that managing housing projects is different from managing other projects. Vosloo (2012:3) compares most of the housing projects with developing a small town or a suburb. Developments of such nature require not only one stakeholder but a circle of affected and interested individuals from the inception until the project is completed.

The input of different stakeholders throughout the project's life is put into action by the housing project manager. The whole interaction process and input from stakeholders affects the responsibilities of the housing project manager in a different way compared to the role of other project managers, according to Vosloo (2012:3).

The project management of housing projects should therefore be considered sensitively to guarantee accommodation of the various project stakeholders input to allow the easy flow of project management processes until the project is completed and handed over to the communities.

2.1.2. OVERVIEW OF THE CURRENT HOUSING SITUATION IN THE NMBM

The NMBM covers a geographic area of 1950 km² comprising the Despatch, Port Elizabeth and Uitenhage areas. NMBM is situated on the coastline of the Eastern Cape Province of South Africa and is the biggest municipality in the Eastern Cape with a current population of 1,152,115 million (NMBM, 2013/14:1).

Out of the total population of NMB, 276 850 formal households exist of which, 71 239 households are classified as indigent (Stats SA, 2011). Approximately 44% of the indigent households receive at least one social grant, (Stats SA, 2011). There are 22 411 informal households in the Nelson Mandela Bay (NMB) area and 49 000 backyard shacks, (NMBM, 2013/14:9).

The overall employment status of NMBM is demonstrated in Table 1a. Table 1a reflects high level of dependency on government subsidies for housing provision and all other basic needs as most of the residents are unemployed and others are not economically active. These communities cannot afford to buy houses and are highly dependent on government subsidies for housing provision and all other basic needs.

Table 1a: Demographic Information for NMB Indicating Employment Status		
Official Employment Status	Working age population	% of Working age population
Employed	290155	36.48%
Unemployed	209088	26.29%
Other not economically active	289969	36.46%
Not Applicable	6180	0.78%
Labour Total	795392	100.00%

(Census 2011; Stats South Africa)

The distorted development in NMB has been manifested by a highly uneven historical distribution of income and wealth -see Figure 2(Page 14). The highly uneven historical distribution of income and wealth in the NMB is reflected in the distorted development patterns that are visible in the housing in various suburbs of the City. The low income levels, as shown in Figure 2, illustrate the major cause of the housing backlog currently in the NMBM.

The best project management practices are needed for the execution of housing projects with minimum problems and to deliver the projects within the given time and budget. The outcome will be the realization of the Government's plans to provide houses for all South Africans.

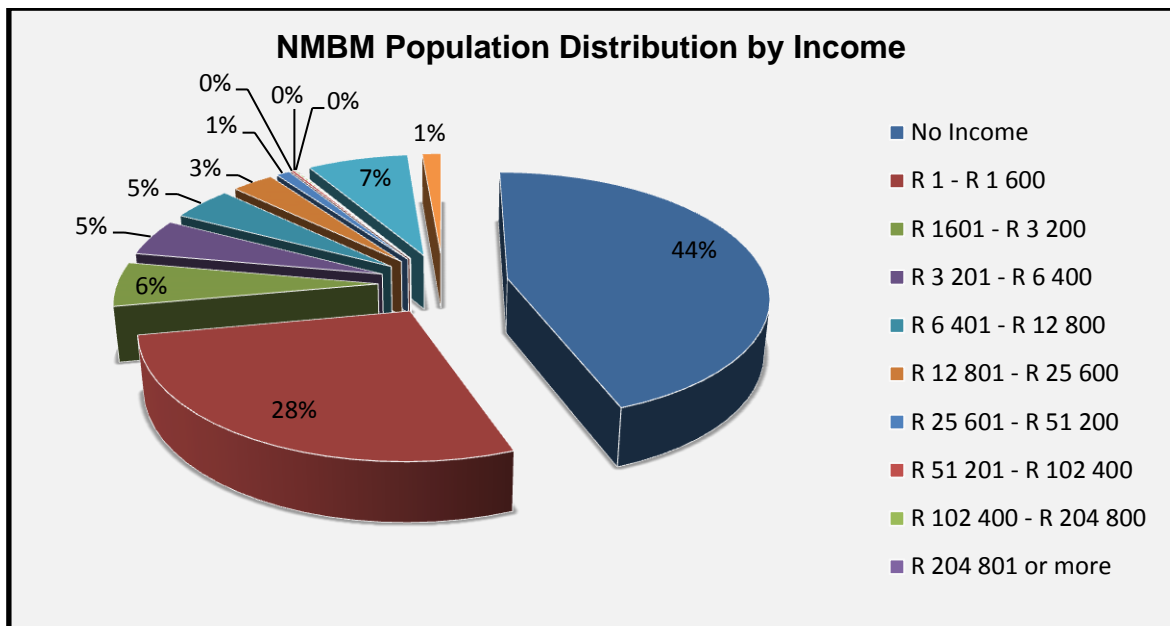


Figure 2: Population Distribution by Income for NMBM. *(Census 2011; Stats South Africa)*

Note: The “No Income”, “Unspecified” and “Not Applicable” labels in Figure 2 include those outside the working age group of 15-65 years

2.2. SUB-PROBLEM 1

PROBLEMS EXPERIENCED BY PMs ON HOUSING PROJECTS

2.2.1. INTRODUCTION

Project management offers techniques to manage projects. However, if the techniques are not properly used or managed, projects are likely to fail. Although the literature emphasises the fact that a project is accomplished through project management, projects still fail due to poor management and planning. According to Nicholas & Steyn (2008:7):

“Construction projects are often on the news—sometimes because of problems owing to cost overruns or schedule slippages... the real cause is frequently poor management and lack of control”.

This highlights that the problems experienced in a project may attract bad publicity which may have bad consequences on the profiles of individuals involved with such a project.

The success of a project is determined by how well the “triple project constraints”, namely cost, time and quality, are managed in a project (Venkataraman & Pinto, 2008:2-6; Nicholas & Steyn 2008:332). According to Smith (2002:46), a project fails if it does not meet its time, cost and performance objectives.

Smith (2002:46) further states that in practice the success or failure of a project is determined by whether all the stakeholders are satisfied with the its final project outcome. Housing projects have to succeed both in achieving the project objectives and meet the expectations of the stakeholders. Direct involvement of stakeholders throughout a project is vital to allow for easy scope adjustments, cost and time delays attached to those changes.

2.2.2. EXPERIENCED PROBLEM 1 – PROJECT DELAYS

According to Babaei (2011:140), timing is one of the most important indicators of the success of projects. Wentzel (2010:12) states that time relates to effectiveness, which in construction refers to how well the project was implemented or the degree to which targets of time and cost were met from the start-up phase to full production.

According to Ashworth & Hogg (2002, in Wentzel, 2010:12), the duration of a project or completion dates are critical to the success of a project, and in some situations if these dates are not met due to poor workmanship, it could lead to total

failure in meeting the client's objectives. Agumba (2006:50, citing Reiss 1992), states that timing is a vital aspect at the start of a project's life cycle and that the actual start and finishing times are set once the project has been confirmed and signed for. Smith (2002:34, citing Duncan 1996:59) also emphasizes the fact that time management is required to ensure the timely completion of a project.

From the foregoing literature review, the inference can be drawn that despite project schedules, unforeseen circumstances may delay the project such as strikes, weather, scope changes, contractual matters and other project-related delays.

According to Bell (2011:292), certain delays may be unforeseen or unavoidable despite the best management practices. According to Alwi & Hampson (2003:2), the causes of project delays are related to poor design, user changes, weather, site conditions, late deliveries, economic conditions and increases in quantity of work versus the original scope of work.

Bell (2011:294) states that delays are also due to legal, contractual, construction scheduling, or eminent domain issues, external factors, corruption or any variety of detrimental conditions and that some delays may be due to negligence or other improper conduct. According to Hampson, Peters and Walker (2001, in Alwi & Hampson, 2003:2), destructive conflict resolution leads to additional costs and delays to a project.

Chan & Kumaraswamy (1997, in Alwi & Hampson 2003:2) classify the five principle common factors of delays as: poor risk management and supervision; unforeseen site conditions; slow decision-making involving all project teams; client-initiated variations; and necessary variations of works.

The literature cites various reasons that relate to ineffectiveness in time management. Andangndou (2005:7) categorizes the reasons for this perceived ineffectiveness of time management into poor planning, no prioritization of activities, interruptions, walk-ins, unnecessary meetings and paperwork.

Housing projects are similar to the projects as referenced above, but their complexities need to be identified in order to find ways to reduce such delays. In the South African situation, the effects and impact of delays which could have been avoided will be determined by conducting empirical studies.

2.2.3. EXPERIENCED PROBLEM 2 – COST OVERRUNS

The construction industry is faced with severe problems of poor cost management that leads to a significant amount of cost overruns in both developed and underdeveloped countries (Azis, Karim, Memon & Rahman, 2013:1). According to Chimwaso (2001 in Azis *et al.* 2013:1) this needs serious attention as construction projects are rarely completed within budget.

Cost is one of the main drivers for the success of a project because as early as its conceptualisation stage, the cost to achieve that project scope is taken into consideration. According to Agumba (2006:51), the application of cost controls to a construction project commences with the cost estimations and the associated budget allocation for the project which is utilised by the project manager for cost control purposes during project life cycle.

Budgets function as a project control mechanism that sets the standard against which future expenditure will be monitored (Venkataraman & Pinto, 2008:83). This control mechanism may lead to a single point of responsibility in terms of planning and monitoring the budget against the planned and / or inception budget.

According to Smith (2002:34, citing Duncan, 1996:73) project cost management, which includes resource planning, cost estimating, and cost budgeting and cost control, is required to ensure that the project is completed within the approved budget.

The overall budget control of the project is undertaken by project managers as they monitor the overall project through the collection of all the project data from their project teams to identify and report the problems encountered, and the possibility of over expenditure. Proper management of costs throughout the project is necessary to avoid these problems and cost overruns as far as possible and to achieve the objectives of the project within the planned budget. Project managers therefore need to account for any shortfalls occurring, (Nicholas & Steyn, 2008:305; Venkataraman & Pinto, 2008:83).

According to Campbell (2011:346) budget and cost control problems occur for many reasons, including: the lack of skill or discipline in estimating costs in the original plan; inadequate detail in the plan; schedule delays; unforeseen technical problems; changes in material or service costs which were not anticipated; changes in the scope of the project that are not reflected in the updates to the budgets and /or inadequate documentation of project changes; poor communication; lack of control; and inaccurate reporting.

Crawford, Frimpong & Oluwoye (2003 in Bakar, Durdyev, & Ismail, 2012:4) state that major delays and cost overruns occur during the project implementation phase. Effective monitoring is required throughout the project and frequently at implementation phase as the project approaches its maturity (realization) stage.

The Housing Subsidy Quantum (HSQ) is the amount that is annually announced as the various housing subsidy and programme grant amounts as well as the amounts that apply to the variation of the project costs to cater for special development requirements (South Africa, 2009:3-14).

The HSQ applicable to housing projects is intended to subsidize people earning between 0 and R3, 500 per month, as well as for homes classified as indigent. It is annually revised based on the fixed cost price of servicing of a stand and the construction of a 40sqm house per financial year, (South Africa, 2009:3-14)

The researcher has considered the HSQ as one of the implementing tools for housing projects, as it is the basis for budget planning.

2.2.4. EXPERIENCED PROBLEM 3 – PROJECT QUALITY

Quality is defined as meeting the specifications and that; projects should aim beyond specifications and delighting the client (Nicholas & Steyn, 2008:333). Wentzel (2010:13, citing Hoyle 2006) argues that the word quality has many meanings:

“A degree of excellence; conformance with requirements; fitness for use; delighting customers; freedom from defects, imperfections or contaminations.”

These definitions emphasize that a project should aim at meeting predetermined specifications and that the project must be fit for its intended use. In the case of a housing project, a complete house should provide secure tenure with access to basic services, (water, sanitation, access roads and electricity).

Project quality, therefore, requires that the project be managed throughout its duration. Nicholas & Steyn (2008:333, and Agumba, 2006:52 citing Reiss, 1992) state that the “bitterness” of quality normally remains long after the “sweetness” of meeting the schedule has been forgotten.

This indicates that in case of the housing projects, if quality was not properly managed during the construction of houses, whatever failures that may be experienced long after the construction is finished, the damage may be more than

what could have been managed during the construction period. This may be exacerbated in housing projects because of the repercussions in the community and the potential political consequences.

Poor workmanship which affects the quality of the end product is directly linked to time constraints and cost reductions made by certain clients. Additional problems contributing to poor workmanship in construction include the lack of motivation, control and coordination between the main contractor, consultants and the client (Wentzel, 2010:13-14).

According to Bank, Makhubalo & Maqasho (2010:50) many municipalities have procurement policies that favour emerging contractors and material suppliers without sufficient consideration of the mentorship needs and capacity constraints of these contractors. Agumba (2006:1-2) further states that the policies introduced after 1994 to address the issue also emphasize the importance of opportunities for previously marginalized small and medium enterprises.

The aforesaid alludes that the current policies which entrench the appointment of emerging contractors should also provide for guidance through learning and growth of the emerging contractors to enhance their performance and, to improve on quality of projects achieved.

Bank *et al.* (2010:50) also state that the lack of interest from established companies opens the way for emerging contractors to enter into the housing market; and that the municipalities often have to work on a trial-and-error basis due to lack of established black contracting companies.

The lack of experience and inability to perform to the required standards further accelerates the problem of producing high quality houses in municipalities, including the NMBM.

2.3. SUB- PROBLEM 2

THE IMPACT OF PROBLEMS EXPERIENCED ON HOUSING DELIVERY

2.3.1. INTRODUCTION

The NMBM has been reportedly faced with major challenges with reference to housing delivery. The challenges involve the eradication of informal settlements, the lack of capacity within the municipality to deliver on its functions and within operational budgets, resistance to relocation, insufficient community participation as well as the challenge to deal with the housing backlog (PMG, 2003).

It is apparent, then, that there are problems with the project management of housing projects which slow down housing delivery and that the slow and inadequate housing delivery by the NMBM is obviously a matter that needs immediate attention to improve in housing and related service delivery matters. Humphreys, Mian, Sherman & Sidwell (2004:3) state that there is a constant stream of public reports and commentary about projects which fail to meet predetermined objectives, many of them being the publicly funded projects which attract much adverse publicity. Humphreys *et al* (2004:3) further state that construction projects have a number of critical factors that can facilitate a broad evaluation of the viability of a project and that their impact includes cost and time overruns, inadequate build quality, poor project relationships, loss of reputation, public outcry and legal disputes.

The impact of the problems experienced during project management which lead to the low rate of housing delivery, is a matter that cannot be underestimated as these problems pose many threats to projects. The impact that relates to each of the sub-problems will now be reviewed.

2.3.2. IMPACT 1 – PROJECT DELAYS

Project delays impact negatively on the overall project performance. The possible outcome is adjustment to the budget, a compromise in quality and the reduction of scope to accommodate delays. Project delays are a common experience in most construction projects and these lead to unnecessary increase in costs, a problem which may lead to the termination of a project prior to its completion due to all the incurred unrecoverable costs.

According to Olatunji (2010:iv) factors causing project delays differ from country to country. Olatunji (2010:iv) further states that the project delays cause projects to exceed initial time and cost estimates. This projects that project delays may affect the planned delivery project time and that these delays may subsequently lead to increased project costs.

According to Alwi and Hampson (2003:1, citing Al-Ghafly & Al-Khalil, 1999), the delay of project completion is a serious problem in construction such that in a certain case, delays often contribute to costly disputes and adverse relationship amongst the project participants (clients, consultants, contractors, sub-contractors and suppliers).

2.3.3. IMPACT 2 – COST OVERRUNS

Cost overruns '*occur when the final cost of the project exceeds the original contract value at the time of completion*' Avotos (1983:142, in Arcila 2012:6). This highlights the need to plan for, and manage, the original contract value.

The risk of exceeding budgets includes the discontinuity of a project due to the lack of extra funds to cater for the remaining work and delays in the project schedule as the project manager needs time to find an alternative way to sponsor the project till completion. Lichtenberg (2005:2) states that severe overruns in cost and time frequently bedevil large programmes, projects, strategic ventures, among other things, in both the public and private sectors.

The availability of project costs may also have a direct influence on project time and the overall project quality. Nega (2008:48) states that the problem of cost overrun is a worldwide phenomenon especially in the construction industry and its ripples are normally a source of friction among clients, consultants and contractors on the issue of project cost variation and that project cost overruns create a significant financial risk to clients. This seems to indicate that the impact on a project is great due to cost overruns.

In the case of housing projects, the HSQ, even though it is stated that it considers the cost variance for special project requirements, its financial figures are fixed and therefore does not leave much room for adjustments during project implementation. The researcher deducts that shortfalls based on the HSQ as a limited source of funding may cause inconvenience to both the PMs and project communities.

Further delays may be experienced if the project costs are exceeded as funding is predetermined by National government and will only recommence once the necessary feedback has been obtained and once the procurement proposals are granted.

2.3.4. IMPACT 3 – PROJECT QUALITY

According to Bank *et al.* (2010:10), the initial houses offered under the RDP did not offer good quality and state-built homes for the poor and needy households. The poor quality of buildings, inadequate services and small top-structures fuelled further complaints. The lack of quality assurance in the race to meet delivery targets in all provinces raised a great deal of criticism (Bank *et al.* 2010:10). The complaints and criticism are an indication of dissatisfaction from the communities.

Mkuzo (2011:52-54) states that poorly built houses impact negatively on the government's efforts towards sustainable development and that South Africa is a '*resource scarce*' country where Government's finances need to be spent as wisely as possible. The substandard workmanship has led to many houses delivered having to be demolished, rebuilt and those with minor defects, to be fixed (Mkuzo, 2011:57).

The poor quality of houses tarnishes the image of the municipality concerned, in this case the NMBM. The municipalities are perceived to have highly qualified individuals designated for such quality management measures during the project management processes, and especially during the execution phase.

These impacts will be investigated by means of an empirical study.

2.4. SUB PROBLEM 3

EXISTING SOLUTIONS TO PROBLEMS EXPERIENCED ON HOUSING PROJECTS

2.4.1. INTRODUCTION

In project management, planning is the basis of every success of a project. The solutions that have been proven as available tools to remedy project management problems are discussed below. The extent to which they are utilized by housing project managers is, however, not known at this stage. The researcher wish to highlight that a project manager with the requisite skill, knowledge and experience should be able to deal with any issues on the ground, such as problem-solving, quality control and conflict resolutions. That will form part of the investigations of this study.

2.4.2. SOLUTION TO EXPERIENCED PROBLEM 1 – PROJECT DELAYS

Project delays have been identified as one of the most important project success indicator, according to Babei (2011:140). There are techniques employed in the management of time, termed construction planning techniques, including the bar chart, the critical path method (CPM), the flow chart and the line of balance method (Olatunji, 2010:15). These can be used to prevent delays, however, causes of delays and ranking their importance still present problems, as indicated in the following citation.

“Many small and large size contractors in recent years have voiced their concerns over the difficulty to overcome delay problems. The main reason is because the contractors have no ability to identify the important causes of

delay occurring during the construction process. Ranking the importance of delay variables by Project Managers enables identification of the most important variables and assists them to seek best alternative solutions".
(Alwi & Hampson, 2003:1)

This aforesaid statement emphasizes the role of a project manager in planning and decision-making processes within the project he or she manages and further strengthens the obligation that the project manager has in advising on best solutions to avoid or eliminate project delays.

Proper project planning and scheduling will assist in tracking the activities completed and the outstanding activities that are outstanding for that project and to identify the critical activities. According to Andongndou (2005:22-24), planning aids are a critical part of effective management as it is not possible to remember everything. Various planning aids, from different sources, include the action planning sheets, milestone charts, and PERT (Programme Evaluation and Review Technique) diagrams, Gantt chart, Network Diagrams and MS ProjectsTM.

In the modern technological world, MS ProjectsTM has gained much popularity as the programme does most of the functions such as budgeting, cost estimating, budget tracking, scheduling, Gantt chart, network diagrams, resource allocation and resource levelling. Most of the project management reporting ways are readily available if all the project information is made available at the start of the project.

2.4.3. SOLUTIONS TO EXPERIENCED PROBLEM 2 – COST OVERRUNS

It is considered necessary for project planning to balance the cost with the original budget, scope, time and quality to ensure that accurate and up-to-date information is communicated with the relevant project stakeholders. (Hassan, Jyue, Ramli &

Tufail, 2011:3) highlight the need for cost management from project inception where estimating of schedule activity costs develops an approximation of costs of resources needed to complete each activity. This schedule should be used as a baseline for comparing planned costs and actual costs.

Wentzel (2010:13) suggests that regular cost reports should be produced throughout the construction stage of the project and that from the cost reports, potential overspending can be identified before it occurs and corrective action taken. According to Nicholas & Steyn (2008:305), overruns are covered by overrun allowance which is added to the most likely cost (final cost estimates) to yield cost where probability of exceeding it is less than 10 percent.

The overrun allowance is controlled by a programme manager or corporate managers and is not available to project managers without approval. The project manager can only influence the most likely cost before it is finalized by adding project contingency.

A project's contingency amount is the amount added to estimates in order to offset uncertainty. This is to account for external factors that affect project cost but cannot be pinpointed. The size of project contingency depends on the perceived risk and the likelihood of cost escalation due to unknowns (Nicholas & Steyn 2008:305; Venkataraman & Pinto, 2008:95).

It may be considered a risk to exceed the project's planned amounts because the contingency amount may not be adequate to cater for all the cost overruns. In cases where contingency amount is exceeded and there is a need for overrun allowance, the project manager has to motivate in writing the reasons for such and based on the soundness and judgement of that motivation, an approval may or may not be granted. This process may lead to project delays as well, whilst waiting for the approval.

There are various methods of remedying the cost estimating and budgeting for projects. Campbell (2011:162-176) advises that:

- *“A project budget should never be completed without completing a thorough work breakdown structure (WBS) to get the effort that will be required to complete the project*
- *A thorough risk assessment should also be completed in order to allow enough flexibility on the budget (or schedule) to handle the risks effectively*
- *A thorough assessment of skills and experience available for the project work to be done needs to be conducted as this may affect the project quality in terms of both time and schedule*
- *Specific consideration to the time value of money should be taken into account (Cash Flow Analysis, Payback , Net Present Value(NPV) and Internal Rate of Return)*
- *Contingency planning is also an important consideration for project budgeting”.*

From the aforesaid methods of remedying the project cost estimation and budgeting, the researcher draws attention to contingency planning on housing projects, which the HSQ does not consider or recognise. During the project implementation phase budget monitoring and reporting on each completed phase or task within the project through budget reviews are necessary. The contingency amount requires ultimate guard, should there be a need to utilise it.

The modern technology offers systems for calculating and tracking the costs. These include MS Excel and MS ProjectsTM which also provide a graphical presentation to corporate managers and contribute to a clear understanding of the project milestones, project forecasting and the progress expectations. The utilization of these programmes in practice will be indicated.

2.4.4. SOLUTION TO EXPERIENCED PROBLEM 3 – PROJECT QUALITY

A “good quality house” is a strong, durable, and defect-free constructed house that rests squarely on the correct usage and application of building materials at the construction’s job site (Makamu, 2007:50)

Quality is as important as the cost and time in a project. However, in government projects it appears that there is much compromise with regards to the quality of work produced during the project implementation.

According to Nicholas & Steyn (2008:333), the quest to be competitive often strains project teams to accelerate project schedules and to cut costs leading to increased rework, changes and greater work load on project teams. The need for quality management is more critical due to the fact that every project effort is linked to satisfaction and without meeting the client’s expectations there will always be dissatisfaction. Lazarus (2007:22-23) highlights the fact that project quality management ensures that the design and construction of a project meet the quality requirements established by an organisation.

In housing development projects, like all other projects, the project team needs to be sensitized about quality at all the stages in order for good quality houses to be produced. The quality management processes need to be followed very carefully to avoid redoing the work as well to avoid the costs involved with redoing work that was negligently performed without meeting quality standards as set during the quality planning phase.

Agumba (2006:54 states that according to Alshawi & Ingirige 2003), reworking or redoing the work may be caused by conflicting information not received in time by the parties concerned and that the projects are normally managed according to the experience of the project managers who are specifically appointed for this task.

This suggests that when communication is well planned and monitored throughout the project all the other processes, including quality, will effortlessly balance and improve.

Quality needs to be considered with a critical eye as it not only affects the time but the costs as well. However, special attention needs to be paid to how project schedules and costs are managed to ensure that the consequences do not compromise project quality.

Wentzel (2010:13 citing Hwa & Pheng 1994) states that when focusing on poor workmanship in the design and construction processes, the selection of contractors in terms of the relevant procurement system to enhance quality construction production must be considered as important. The appointment of suitable contractors can be regarded as another critical step in quality assurance.

The inference to be drawn is that quality performance is not only based on the product produced at the end of the project but also that special attention needs to be paid during the procurement stages where evaluation of the capabilities and performance skills is done prior to the actual construction.

2.5. SUMMARY OF CRITICAL FINDINGS FROM THE LITERATURE

According to Humphreys *et al.* (2004:1-3), construction projects have a number of critical factors that can facilitate a broad evaluation of the viability of a project 'health' and adverse impacts include cost and time overruns, inadequate build quality, poor project relationships, loss of reputation, public outcry and legal disputation. The aforementioned is a collective indication of project management problems experienced during project life.

This alone highlights the link between project quality, time and costs which all need to be managed simultaneously as they each affect the progress of a project one way or the other. The foregoing statements and the findings from the literature reviewed from most researchers that the researcher consulted for this study are summarized as follows:

- Table 1b illustrates a summary of factors leading to problems experienced in housing projects. These problems relate to sub- problem 1 of this report.
- Table 1c illustrates a summary of the impacts of problems experienced in housing projects. These impacts relate to sub- problem 2 of this report.
- Table 1d illustrates a summary of existing solutions, identified by literature, to problems experienced in housing projects. These solutions relate to sub- problem 3 of this report.

The additional factors identified as having an impact on the problems experienced on housing projects are as follows:

- Problems of capacity and sustainability within the municipalities
- Stakeholder involvement.

It is therefore evident that there are problems experienced by PMs on housing projects, (Table 1b). The extent of the impacts of these problems as identified in Table 1c will be further explored during the empirical studies. The literature reviewed also confirmed that solutions to project management exist. The extent of usage of these solutions (Table 1d) will further be investigated during the empirical studies.

Table 1b: Factors Leading to Problems Experienced on Housing Projects (as per literature reviewed).

Factors relating to project time	Factors relating to cost overruns	Factors relating to project quality
<ul style="list-style-type: none"> • Poor design • User changes • Weather • Site conditions • Late deliveries • Economic conditions • Legal issues • Contractual issues • Poor construction scheduling • Well-known or domain issues • No prioritization of activities • Unnecessary meetings • Interruptions • Negligence or improper conduct • Contamination/corruption • Detrimental/negative conditions 	<ul style="list-style-type: none"> • Inaccuracy in estimating original plan costs • Inadequate detail in plan • Schedule delays • Poor communication • Unforeseen technical problems • Inaccurate reporting • Changes in material cost • Service costs that were not anticipate • Changes in scope of the project that are not reflected in the updates to budget • Inadequate documentation of project changes • Lack of control 	<ul style="list-style-type: none"> • Quality specifications are not clearly communicated • Lack of motivation • Lack of control • Lack of coordination amongst project stakeholders • Pressure to finish the project on time • Lack of accountability • Insufficient supervision • Irregular inspections • Lack of experience and ability to perform

Table 1b: Factors Leading to Problems Experienced on Housing Projects (as per literature reviewed). *Continued*

Factors relating to project time	Factors relating to cost overruns	Factors relating to project quality
<ul style="list-style-type: none"> • Increase in quantity • Destructive conflict resolution • Poor risk management and supervision • Slow decision-making involving project teams • Client initiated variations • Necessary variations of works • Poor planning 		

(Author's own construction)

Table 1b indicates the problems experienced by PMs on housing projects and categorizes them in relation to cost, time and quality effects on the project performance. It is also clear that there are many problems relating to time and that the effects of time can directly affect the cost and quality of a project. The same is applicable to the cost and quality of a project which may also have a direct influence on project delivery time.

The literature concludes that the performance of a project is dependent on the time, cost and quality of the project; as if they are well managed the project is regarded as successful (Venkataraman & Pinto, 2008:2-6; Nicholas & Steyn 2008:332 and Smith 2002:46).

Table 1c :Impacts of Problems Experienced on Housing Projects (as per literature reviewed)		
Impact of project delays	Impact of project overruns	Impact of poor project quality
<ul style="list-style-type: none"> • Quality specifications are not clearly communicated • Negatively impact on budgets • Negatively impact on project scope • Project termination • Incomplete projects • Costly disputes and averse relationship amongst project participants 	<ul style="list-style-type: none"> • Project discontinuity due to lack of extra funds to complete the remaining work • Delays in the project whilst getting alternative sponsor • High project risk due to predetermined (or limited) budget • Lengthy legal processes justifying the reasons for project discontinuity and getting legal mandate to reappoint a new contractor. • Scope reduction to accommodate the available funding • Reduced level of service • Social instability and political unrest 	<ul style="list-style-type: none"> • Quality specifications are not clearly communicated • Increased complaints and criticism from end users or beneficiaries • Poorly built houses have to be demolished, rebuilt and those with minor defects be fixed • Increased project costs • Project delays • Unnecessary scope changes • Project discontinuity

(Author's own construction)

Table 1c shows the impacts of problems in relation to time, cost and quality on the overall project delivery. The impacts, as per the leading factors discussed in Table 1b are also directly linked to either time, cost and quality effects on the project.

Table 1d: Solution to Problems Experienced on Housing Projects (as per literature reviewed).		
Existing solutions to project delays	Existing solutions to project cost overruns	Existing solutions to project quality
<ul style="list-style-type: none"> Scheduling of activities and resources is used as a planning tool from project inception Tracking of project activities is practiced Planning aids such as computers, action planning sheets, MS ProjectsTM packages are used Monitoring physical progress is practiced Monitoring programme is done continually Progress meetings are conducted 	<ul style="list-style-type: none"> Planning for budget from project inception is done Budget monitoring during project implementation phase is practiced Reporting on achieved deliverables and reviewing budget Use of modern technology such as MS Excel, MS ProjectsTM, etc. Is very effective Tracking expenditure to date over the actual work done is practiced 	<ul style="list-style-type: none"> Site inspections are done regularly Quality control is practiced through the project Work that needs to be redone is redone even if it takes longer to complete or more budget to complete Work is not redone only fixing of the problematic area is done and project continues All defects are attended to prior to project handover Project handover is done before defects are attended to

(Author's own construction)

Table 1d indicates the existing solutions, as per literature review, to the problems experienced on housing projects. The indication is that these solutions exist and the extent of utilization in practice will be determined by conducting the empirical studies.

2.6. CONCLUSION

Government departments nationwide are faced with similar challenges of providing houses within a limited time to improve service delivery and to reduce the housing backlog. With local government being the closest to people (the face of government) there is a greater demand for the improvement of the lives of the poor people by providing them with proper housing and with other basic services such as water, electricity and access roads. Mkuzo (2011:33) emphasizes that due diligence should be applied during the construction of a house as housing is an important part of people's lives.

The summary of literature reviewed on problems experienced on housing projects will be utilized to determine the methodology for conducting the empirical studies in Chapter 3.

CHAPTER 3

RESEARCH METHODOLOGY

3.1. INTRODUCTION

Chapter 2 identified the problems experienced by PMs on housing projects, their impact and the solutions that exist to deal with such problems. Chapter 3 sets out the methodology for the data collection and the analyses of the collected data to assist in addressing the main research objective. The basis of methodology and data collection strategies is the information obtained from the literature reviewed in Chapter 2.

3.2. RESEARCH DESIGN AND METHODOLOGY

The requirement for conducting research is to first select the appropriate methodology in order to gather information about the problems experienced by PMs. The combination of both qualitative and quantitative research methodology will be applied to further explore the findings from the literature review and the extent of application in practice in order for the researcher to advise on mitigation measures to the problems experienced by PMs. The qualitative information will be based on the readily available information on project records.

The quantitative research methodology will inquire about if and how the participant knows the project environment they are working on, and how that knowledge can be translated into a numeric value. This will require the use of questionnaires on surveys. Qualitative research methodology will provide a depth of understanding

on issues that are not possible through the use of quantitative research, by using case studies.

The descriptive survey or nominative research design will be considered for this study. This survey consists of a series of questions with summarized responses which will be sent to research participants. The participants will choose from the provided summary of responses. The researcher will conduct the frequency counts and draw conclusions from the responses of the sample.

Both the design and methodology preferred seemed to favour the research study's intentions to investigate the problems experienced by PMs on housing projects.

3.3. DATA COLLECTION STRATEGIES

The succeeding sub-sections will dwell more on the data, data collection, population sampling, data analyses, interpretation, questionnaire design strategies, short comings and conclusions on this chapter.

3.4. THE DATA

According to Leedy & Ormrod (2010:88), research is a viable approach to a problem only when there is data to support it and that, through data, research seeks to discover the underlying truths to that problem. For purposes of this research, the data has been grouped into two categories (Table 2) and the most appropriate method of collecting data identified.

Table 2 represents the sources identified by the researcher as the best sources for information relating to the problems experienced by PMs on housing projects.

Table 2: Sources of Data	
Primary Data	Secondary Data
<ul style="list-style-type: none"> • Municipal project managers • Management of the housing delivery department • Provincial Department of Housing (PDoH) (now known as Provincial Department of Human Settlements (PDHS)), • Housing Development Agency (HDA), • National Home Builders Registration Council (NHBRC), • Consulting firms and • Construction contractors who deal directly with municipal housing projects within the NMB • Other Practitioners Involved with Housing projects 	<ul style="list-style-type: none"> • Annual reports • Newspaper articles and Media • Journals • Treatises • Dissertations • Books • Use of internet • NMBM records • Library
Methods of collecting data	Methods of collecting data
<ul style="list-style-type: none"> • Interviews • Questionnaires • Case studies 	<ul style="list-style-type: none"> • Reviewing of related literature • Documentary analysis • Website analysis

(Author's own construction)

3.4.1. PRIMARY DATA

Leedy & Ormrod (2010: 89), state that the researcher's only perceptions of truths are various layers of truth-revealing facts and that the layer closest to the truth is the primary data and that the primary data is often valid, most illuminating and most truth-manifesting. The primary data will be collected through case studies, interviews and questionnaires.

The researcher is involved with the Housing Projects as a municipal project manager which allowed easy access to information which will be utilized as case

studies to support the hypotheses. The researcher utilized every opportunity to gather the information from the respondents and random questions from the questionnaire were recalled, asked and all the answers were noted.

The case study interviews and report will follow the analysis of responses from the questionnaires.

3.4.2. SECONDARY DATA

Leedy & Ormrod (2010:89) state that the secondary data is mostly derived from the primary data. The secondary data is the information that may not actually reflect on the real issues of housing delivery in the NMBM but the accumulated data relating to the housing projects in general.

The secondary data was obtained by studying the topic in a wider context, in addition to the literature on the NMBM Projects. The researcher also drew generic principles and knowledge from theory and previous research on similar topics or studies elsewhere.

3.5. RESEARCH POPULATION AND SAMPLING METHODS

The purposive sampling method will be used for this study as this sampling method was found to be the most appropriate and convenient for the research study as the study itself is limited to problems experienced by PMs on housing projects.

The aforesaid convenience includes:

- (i) Savings on travel costs as the sample is within the NMB where the researcher currently resides and works; and,
- (ii) The availability of respondents in close proximity and interaction with the respondents for clarity and concerns.

The surveys will cover a sample population of one hundred potential respondents that are actively involved with the project management of low-income housing projects in conjunction with the NMBM in NMB. The research population is: (a) NMBM participants; (b) participants from the consulting firms; (c) participants from the construction contractors; (d) participants from NHBRC; (e) participants from HDA; (f) participants from Provincial DHS .and all other participant practitioners involved with housing projects.

A project specific questionnaire to conduct case studies of Kleinskool Area K and Walmer Area O projects will be conducted through selected individuals, from the original sample, that are directly involved with the execution of the case study projects.

The above mentioned samples are considered the most appropriate to provide first-hand information on the project management experiences to find out:

- Whether, and to what extent the respondents agree or disagree with the main problem and the sub-problems and
- Whether their responses support the hypotheses and sub-hypotheses indicated in Chapter 1 of the study.

This also indicates that the information provided will not be biased as various organisations will have participated and answered questionnaires independently.

3.6. DATA INTERPRETATION, PRESENTATION AND ANALYSIS

Leedy & Ormrod (2010:253) further state that in a quantitative research numbers are used to make better sense of the world, and that numbers are meaningless unless analysed and interpreted to reveal the truth that rests beneath them.

In this research study, all questions will provide a severity rating with which the respondents used to answer the questions. Each question is numbered for ease of reference. Once all the data is collected, it will be captured in an electronic format for statistical purposes. Statistical analyses will be performed based on the frequency and rating of responses, thereafter interpreted in relation to the problem, sub-problems and hypotheses of the study.

The data will be presented graphically presented for interpretation and where necessary the information data will be tabulated. The final conclusions will be drawn based on the frequency rating of the respondents, the impact scoring and the overall interpretation of data. The findings are presented towards the end of the study.

3.7. QUESTIONNAIRE DESIGN

Questionnaires have been chosen as the main instrument for data collection of this study and the interviews will be conducted with the PMs within the NMBM. This form of data collection enables the researcher to interact and interface directly with the research sample.

The literature reviewed steered the content of the questionnaire and its design. The research questionnaire will be divided into the following parts:

Section 1: *Details of the Participant* such as job title (position), gender, field of expertise, company, sector, years of experience in housing development (or human settlements), individual background and professional registration categories. The intension was to understand the capacity and availability of skills within the Housing Sector.

Section 2: *Factors impacting on project success and performance* including questions relating to problems that affect project success and their impact in the overall project performance.

The respondents will be requested to give their input on the factors which lead to project failure by indicating with “yes” if they are in agreement and “no” if they are not in agreement with the listed factors and moreover indicate the impact of the agreed factor on the project performance by rating it between the score of 1-5 as indicated below:

Severity Rating	Definition	Negative % on project performance	Score
Calamitous	Continuously the reason for project failures identified	≥ 80%	5
Bad	Mostly the reason for project failure identified	60% - 79%	4
Moderate	Sometimes the reason for the project failure identified	40% - 59%	3
Minor	Less frequently the reason for project failures identified	20% - 39%	2
Slight	Seldom reason for project failures identified	< 20%	1

Section 3: *Solutions to problems experienced in projects* questions concerning successful project management techniques applied during the initiation, planning execution and commissioning of projects.

The respondents will be requested give their input on the usage of these helpful tools in project management by indicating with “yes” if they are in agreement that the tools as listed support the success of projects and “no” if they are not in agreement and; moreover indicate the frequency of usage on their projects by rating between the score of 1- 5 as indicated below:

Frequency of Usage Rating	Definition	Negative % on project performance	Score
Always	Mostly used as a useful tool from initiation to the end	≥ 80%	1
Sometimes	Only used for certain stages within the project	50% - 79%	2
Seldom used	Only used for specific projects once in a while	40% - 49%	3
Never	Never used any planning tool for the project	20% - 39%	4
Don't know	I am not familiar with any of the terms used	<20%	5

Section 4: *Project Retrospection* involves assessing the effectiveness of each completed project with which the respondent was involved. These questions assisted in confirming whether the completed projects could be considered a success or failure; and to bring forth factors that contributed to the success or failure of the specific projects.

The sections 1, 2 and 3 were designed such that there was a rating on the problems experienced, their effect, their overall impact and the extent of usage on the housing projects. The highest scores in section 1 and 2 indicated the worst cases, whilst the lowest score in section 3 indicated the best preferred frequency of usage of the exiting solutions to housing projects.

The expected feedback will be used to determine if the findings from the literature reviewed are the same in practice inorder to validate the research conclusions and recommendations.

3.7.1. CASE STUDY QUESTIONNAIRE

A case study is suitable for learning more about a little known and poorly understood situation, according to Leedy & Ormrod (2010:137).

Two projects were chosen for the case studies due to the nature of problems experienced that the researcher discovered during the observation period. The problems relate to common practices in the project management and the researcher is content that these problems are the signpost of the extent of problems experienced by PMs on housing projects. The researcher has for this reason considered them as the best projects to analyse for the case studies. The two projects will be discussed in detail in Chapter 5.

The case study interview questionnaire will be generated from the unsuccessful projects, Kleinskool Area K and Walmer Area O, which are expected to be part of the feedback from the respondents in the main questionnaire. The researcher is familiar with some of the unsuccessful projects, as a municipal PM. The researcher had enough time to observe the situation on various projects whilst being involved as a project manager.

The project specific interviews will be conducted voluntarily only with those respondents with the relevant knowledge to participate, to assist in clarifying the origin of problems that affect the project success. These respondents include the PMs from the provincial DHS, and the NMBM's PMs for both infrastructure and housing delivery. The chosen sample of respondents is directly involved as PMs in the projects. Their responses will be analyzed and treated for the case study information which will be reported at the end of the study.

3.7.2. EVALUATION OF THE QUESTIONNAIRE

The questionnaire utilized for this study was evaluated by promoter, Prof. J.J. van Wyk, and the NMMU statistician, Dr. J. Peterson. All the suggested changes were made and the questionnaire was concluded for dispatching.

3.8. POSSIBLE SHORTCOMINGS ON DATA COLLECTION

The researcher acknowledges that the research may have shortcomings as not all the PMs and the targeted management group in the NMB area will respond to the questionnaire. The beneficiaries of housing projects are also not included as part of consultation during the empirical studies. Also, the predetermined responses provided with the questionnaire may limit the respondent's ability to elaborate on certain issues contained in the questionnaire.

3.9. CONCLUSION

One hundred questionnaires were distributed amongst the housing practitioners in the NMB area as per the chosen study sample, and this number was to cater for adjustments in cases where not all respondents return their questionnaires and where there were misrepresentations or errors. This meant that where some of the questionnaire feedback was invalid, the remaining valid feedback would supersede the invalid for the success of the study. The target was that at least 60% of the feedback should be valid.

The researcher is confident that the questionnaires that were sent out are sufficient to allow for the collection of information needed for the study. Chapter 4 will report on the feedback obtained, validated and analysed from the respondents.

The data interpretation as well as findings from empirical studies will be presented at the end of Chapter 4.

CHAPTER 4

REPORT ON THE FINDINGS OF THE EMPIRICAL STUDY

4.1. INTRODUCTION

This chapter reports in detail on the findings and the results from the empirical study conducted in relation to problems which have been identified.

4.2. FEEDBACK FROM QUESTIONNAIRES

Out of the 100 questionnaires circulated, only 76 valid responses were received, representing a 76% response rate (Table 3) which the researcher considers a fairly good rate for purposes of this study

Table 3: Questionnaire Response		
Questionnaires sent	Questionnaires received	Response Percentage
100	76	76%

4.3. THE DATA, ANALYSIS AND DISCUSSION

The validation of the data was done through an electronic system that indicates whether the data captured is valid or not valid. Furthermore the researcher presented, analysed and discussed the data in detail as specified in the sections which follow.

4.3.1. SECTION 1

DETAILS OF THE PARTICIPANT

Q.A1. Position held (please tick appropriate box) Executive Director ☐ | Project Manager ☐ | Assistant Director ☐ Director ☐ | Engineer ☐
Technologist ☐ Town Planner ☐ | Other (Please specify) ☐

Figure 3 indicates that respondents hold a variety of management and technical positions, 8% at executive director level, 9% at director level, 12% at assistant director level, 18% project managers, 9% engineers, 8% technologists, 12% town planners and 24% distribution at other levels within the project management of housing projects.

The positions in organizations influence the reaction to instructions and this may have a negative impact on projects at times. Figure 3 therefore gives an indication that all levels of authority were represented during the survey.

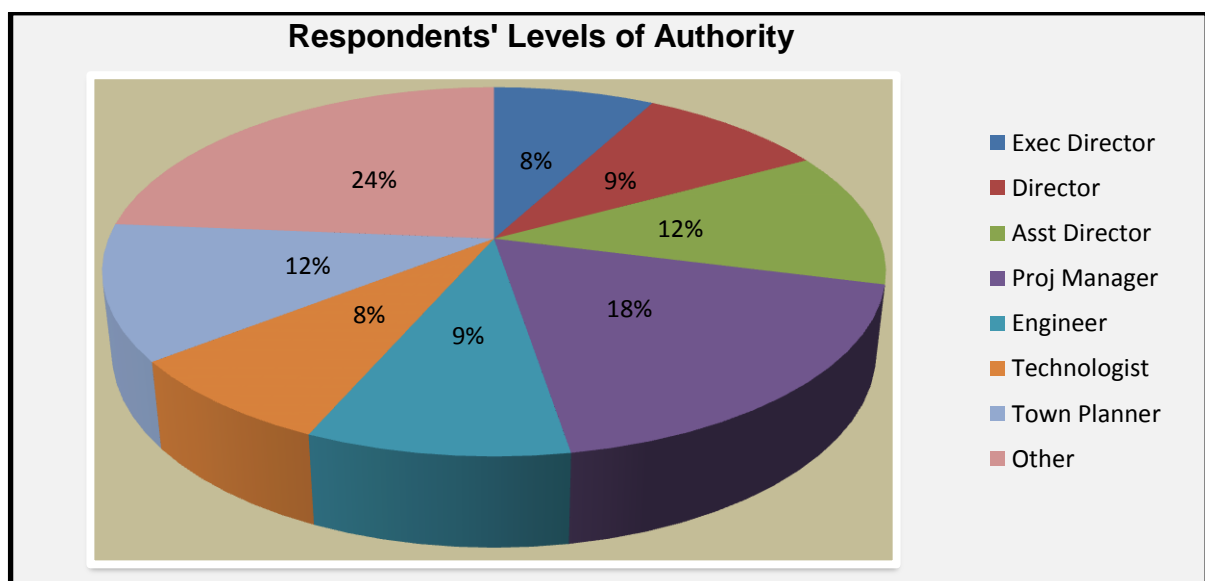


Figure 3: Respondents' Levels of Authority in Decision-Making of Housing Projects

Q.A2. Years of Experience in Housing projects (please tick the appropriate box)

0-5 yrs ☐ | 6-10 yrs ☐ | 11-15 yrs ☐ | 16-20yrs ☐ | >20yrs ☐

The results indicate that 59% of respondents have less than 10 years' experience, while 20% have between 11-20 years' experience, and 21% have been employed in the housing sector for over 20 years (Figure 4). The latter statistics indicate the potential for mentoring young and less experienced practitioners.

Kagerer and Gandarilla (2011:11) emphasize the importance of the transfer of skills in construction, from the older generation to the younger generation and that the older managers who have practical knowledge and experience might have to retire or migrate to other companies whilst the industry has not yet addressed the transfer of their expertise and skills to the younger generation in a sustainable way.

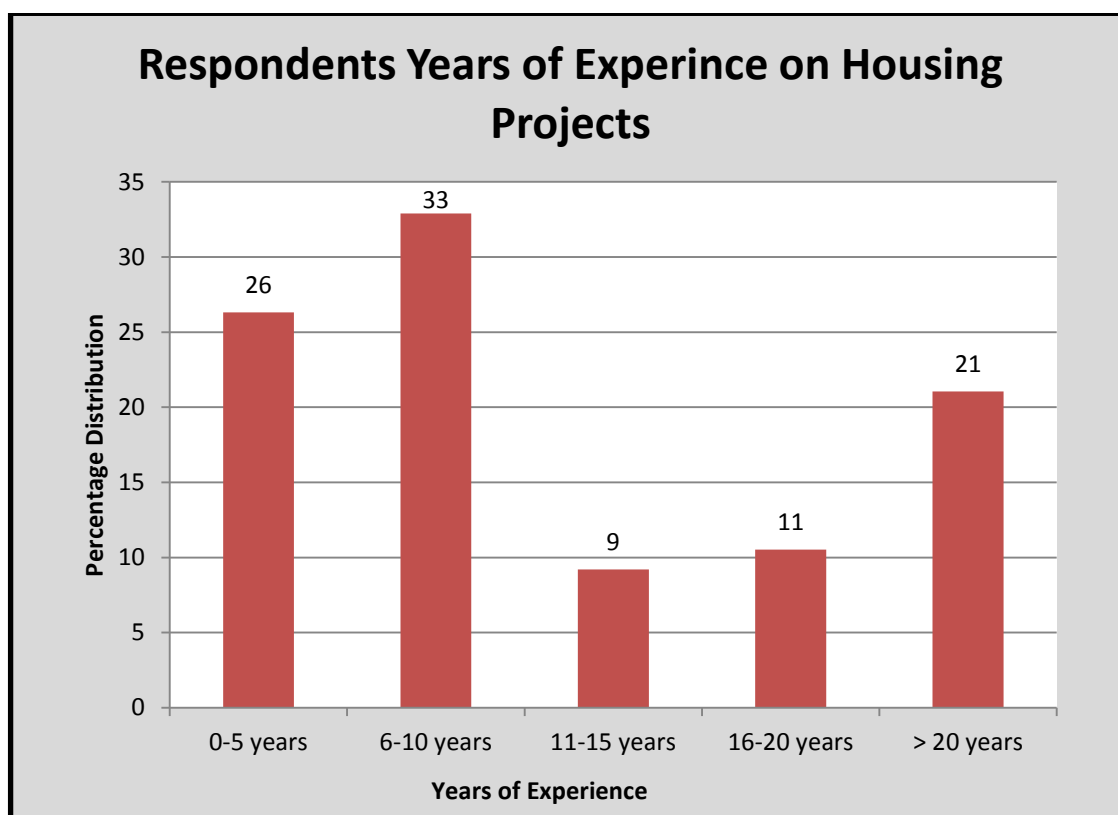


Figure 4: Respondents' Years of Experience in Housing Projects

Q.A3. Sector (Please tick the appropriate block)

(1) Public ☐ | (2)Semi-Public ☐ | (3)Private ☐ | (4) Other (Please specify) ☐

Figure 5 shows that 29% of respondents are from the Private Sector, 12% from the Semi-public Sector and 59% are from the Public Sector. This satisfies sectors dealing with housing projects are represented with the majority of respondents from the Public sector.

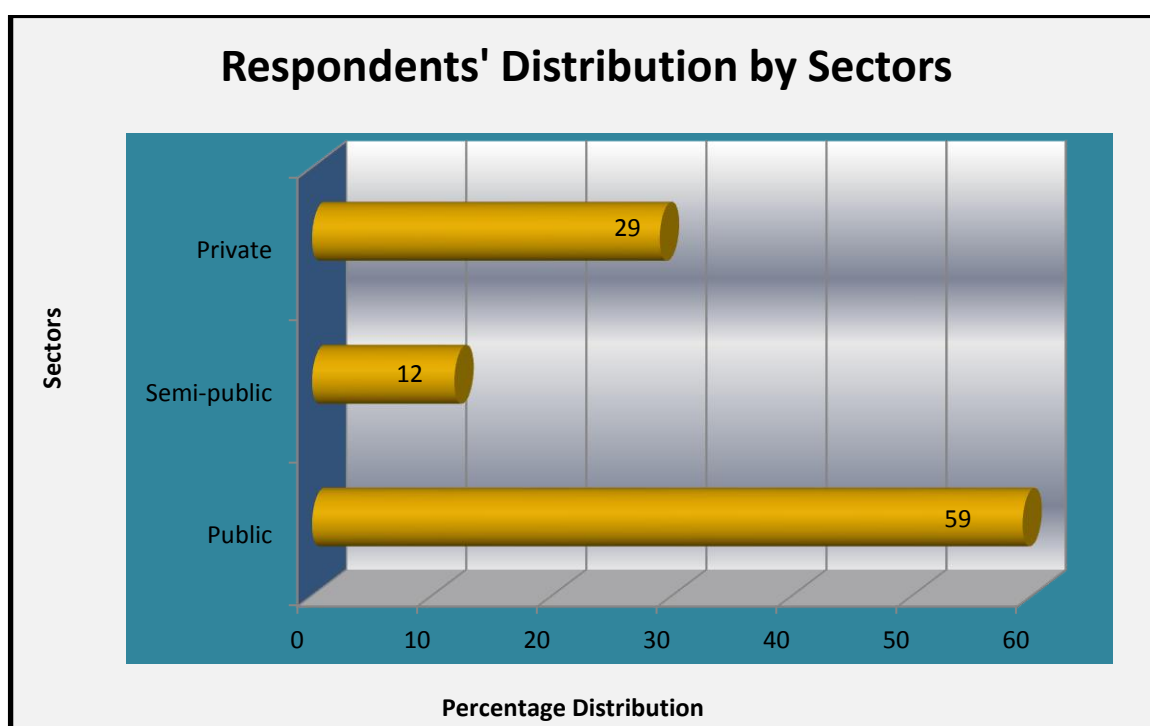


Figure 5: Respondents' Distribution by Sectors

Q.A4. Organization (please tick the appropriate box)

Municipality ☐ | (2) Construction Company ☐ | (3) Consulting Firm ☐

(4) Provincial Department ☐ | (5) Housing Development Agency ☐

(6) NHBRC ☐ (7) Other (Please specify) ☐

Although there was only one respondent from NHBRC, the overall distribution of the respondents from various organizations (Figure 6), was sufficient for the study, 42% is from NMBM, 26% from the consulting firms, 13% from the Provincial DHS and the remainder distributed amongst HAD (8%), contractors(8%), NHBRC (1%) and other (1%).

The feedback is favourable as the highest response is directly from PMs within the NMBM, balancing the population sample targeted for the study.

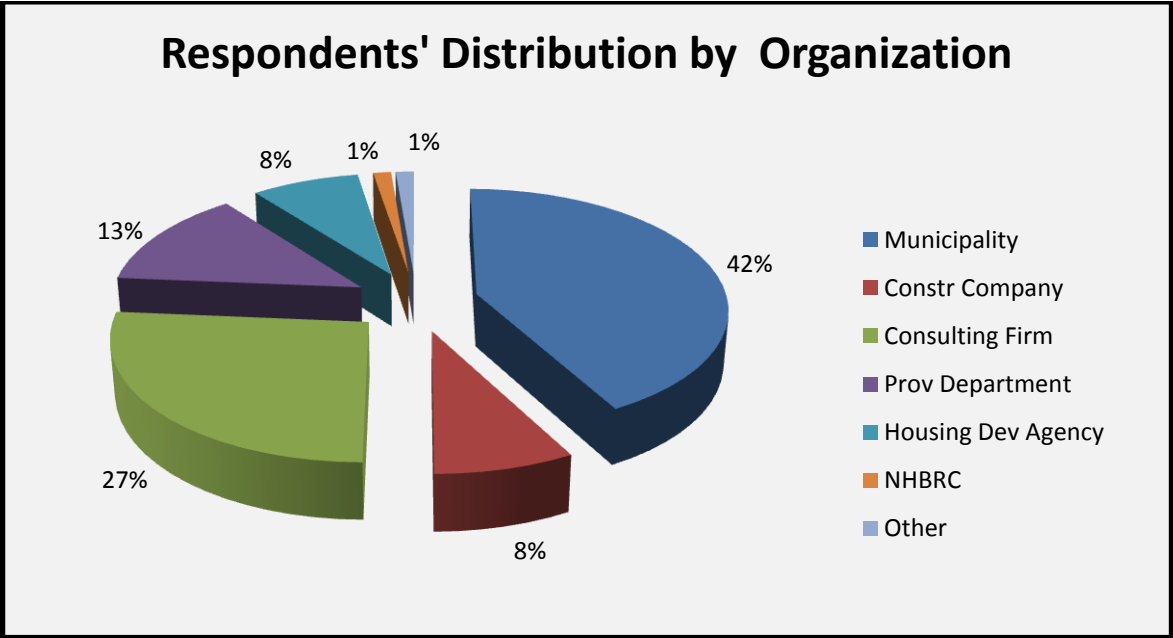


Figure 6: Respondents' Distribution by Organization

Q.A5. Age: *(please tick the appropriate box)*

<20 yrs ☐ | 21-25 yrs ☐ | 26-30 yrs ☐ | 31-35 yrs ☐
36-40 yrs ☐ | 41-45 yrs ☐ | 46-50 yrs ☐ | >50 yrs) ☐

The age of the respondents in housing (Figure 7) is fairly distributed amongst the respondents. 4% are less than 20 years of age, 10% are between 21 and 25

years, 13% is from 30 years and below but not lower than 26 years,21% are between 31 and 35 years, 11% between 36 and 40 years, 12% between 41 and 45 years, another 12% between 46 and 50 years, and, the 17% is above 50 years. The number of respondents above 50 years gives hope for the mentoring of the majority (48%) of respondents below 36 years.

These respondents may attain skills from the older generation (36 years and older) through enquiries when faced with problems in housing projects. The age influences the level of maturity to respond to project problems and the older generation may influence the younger generation to diversify or change their career paths.

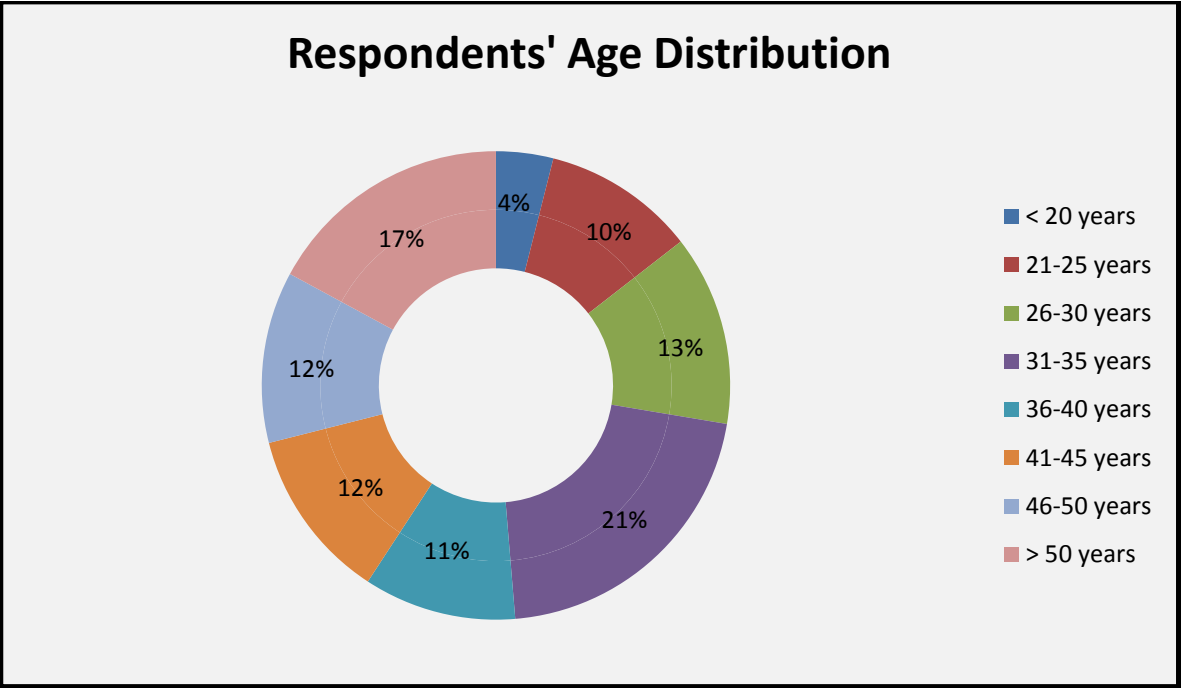


Figure 7: Respondents' Age Distribution

Q.A6. Gender (Please tick the appropriate box)

Male ☐ | Female ☐

The male to female ratio is 56/20 which implies that are more males (74%) and only 26% of women involved with the housing projects. Geertsema (2007:iv), notes

that there is a significant improvement and indications of an increased number of females in future. However, the current indication, 56/20 alludes that an endeavour needs be initiated to attract more women in the industry.

It is an employment equity requirement that there should be a gender balance in all aspects of employment. This also implies compliance with the government housing sector.

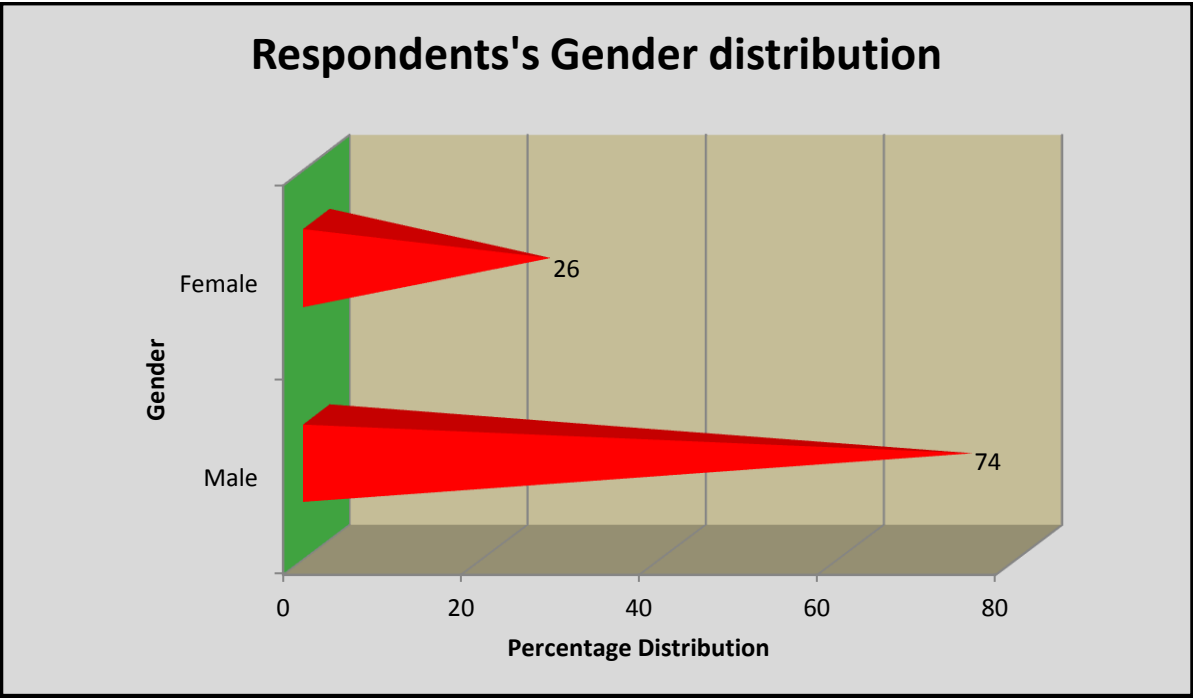


Figure 8: Respondents' Gender Distribution

Q.A7. Previously Disadvantaged Individual (Please tick the appropriate box)

Yes ☐ | No ☐

Information on previously disadvantaged individuals (PDIs) in Figure 9 shows that 67% of respondents are previously disadvantaged individuals and only 33% had the privileged advantages. The disadvantage could be based on an environment in which one was raised, the opportunities for growth, exposure to decision-making and freedom of speech and many other factors which may affect an individual's

reaction towards decision-making as well overall behaviour whilst controlling a project.

Kagerer and Gandarilla (2011:12) state that, *what we are, how and where we were raised influence behaviour and our ability to learn and change*. This suggests that the individual background and culture may influence the project performance.

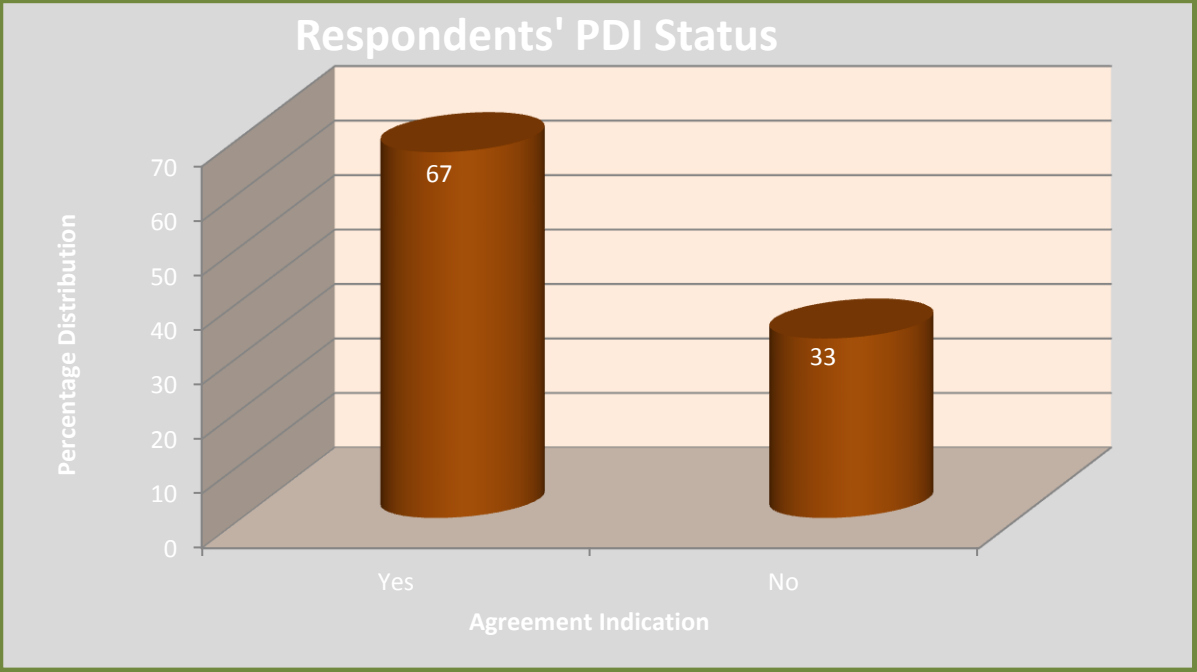


Figure 9: Respondents' PDI Status

Q.A8. Qualification Levels (please tick the appropriate box)

Matric ☐ | College Certificate or Diploma ☐ | 3 year National Diploma ☐
3 year Degree ☐ | B-Tech. Degree ☐ | Honors Degree ☐
Masters Degree ☐ | PhD ☐ | Other (Please specify) ☐

The level of qualification of the majority of respondents (34%) is a 3-year diploma, followed by 17% of Honours and 15% B-tech degree levels, 12% with certificate or college diploma, 8% with Matric and only a few at the Masters (8%) and (1%)

Doctoral levels (Figure 10). The existence of a few highly qualified respondents implies that the information and feedback given by these respondents could bear more weight in relation to accepting their judgement in terms of the occurrence of the problems in housing projects.

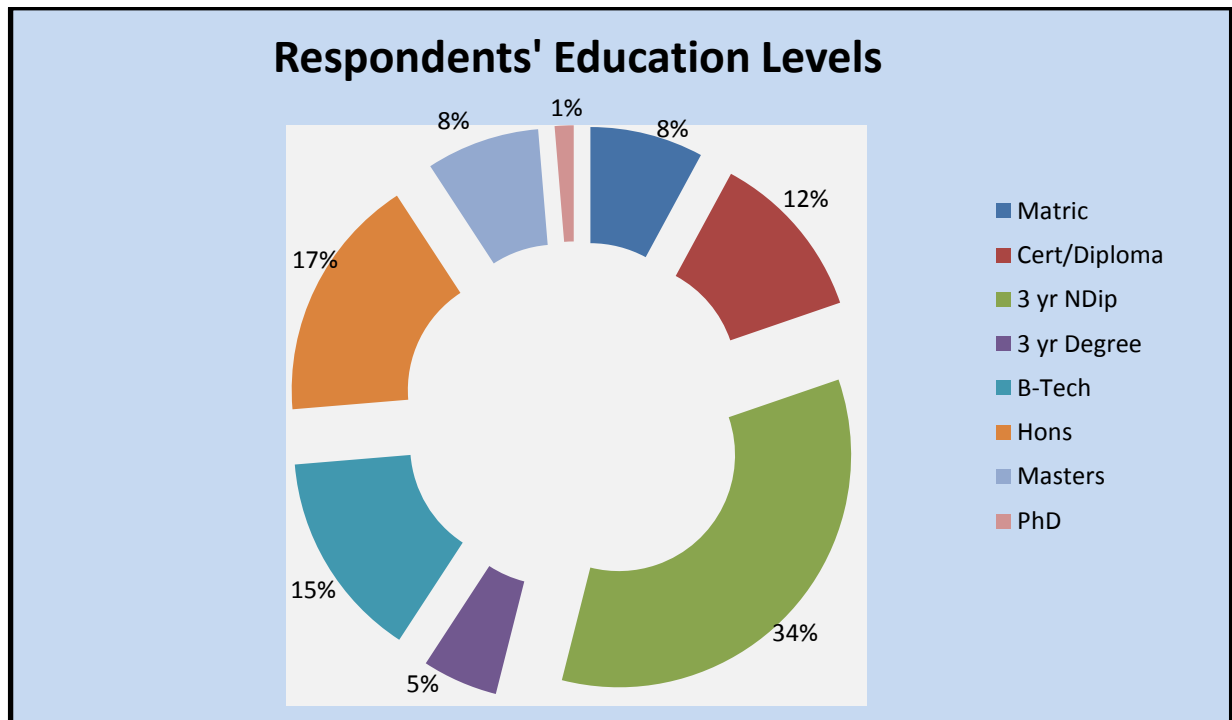


Figure 10: Respondents' Education Levels

Q.A9. Type of Qualification (please tick the appropriate box)

Civil Engineering ☐ | Construction Management ☐ | Quantity Surveying ☐

Architectural Engineering ☐ | Building ☐ | Structural engineering ☐

Environmental Engineering ☐ | Geotechnical Engineering ☐

Town Planning ☐ | Other (Please specify) ☐

Figure 11 indicates that the majority 42% of respondents have civil engineering expertise, 4% have construction management, 1% is quantity surveyors, 8% are architects, 12% have building qualifications, 21% are town planners and 12% of respondents have other qualifications.

This highlights the existence of multi skills in the management of housing projects. However, the limited number of qualified quantity surveyors and construction managers highlights the imbalance of these skills as these qualifications are critical in estimating and management of construction and the housing projects.

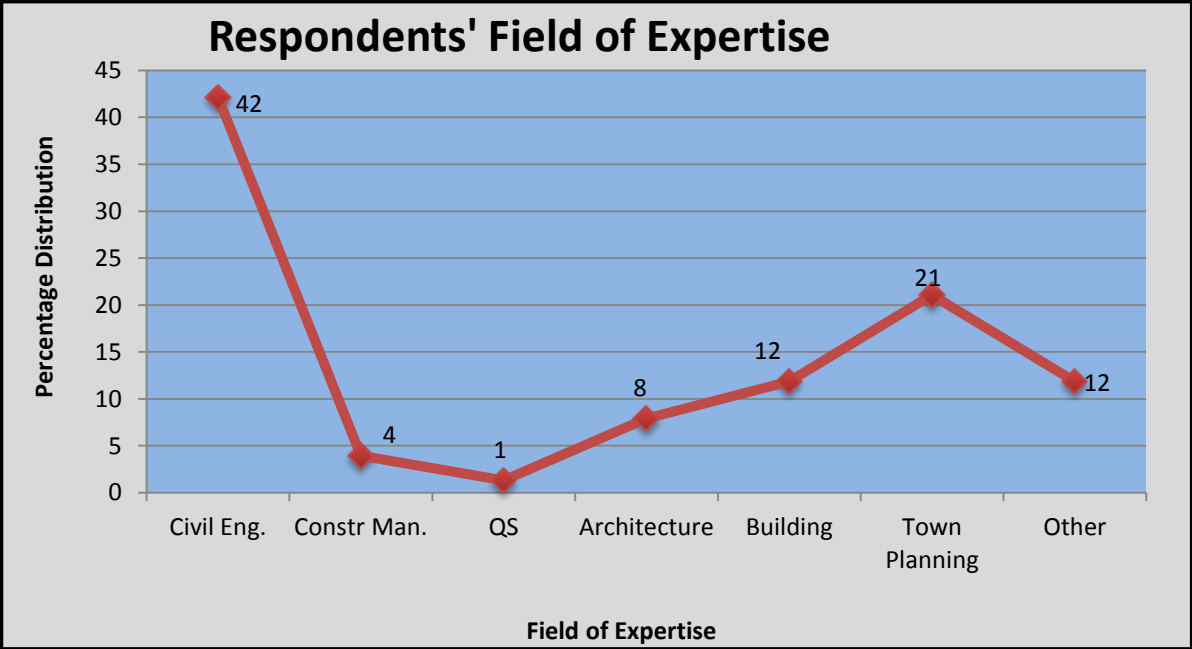


Figure 11: Respondents’ fields of Expertise

Q.A10. Professional Registration (Please tick appropriate box)

ECSA ☐ | SAICE ☐ | IMESA ☐ | SACPCMP ☐ | PMI ☐
Not registered/ Other (please specify) ☐

Out of the overall percentage of respondents, only 37% are registered with professional bodies, and the remaining 63% are not registered with any professional nor voluntary body. Registrations with Professional bodies or Voluntary associations assist with the individual career development and improve accountability. The indication is that most (63%) of PMs are either not registered or registered with other similar associations.

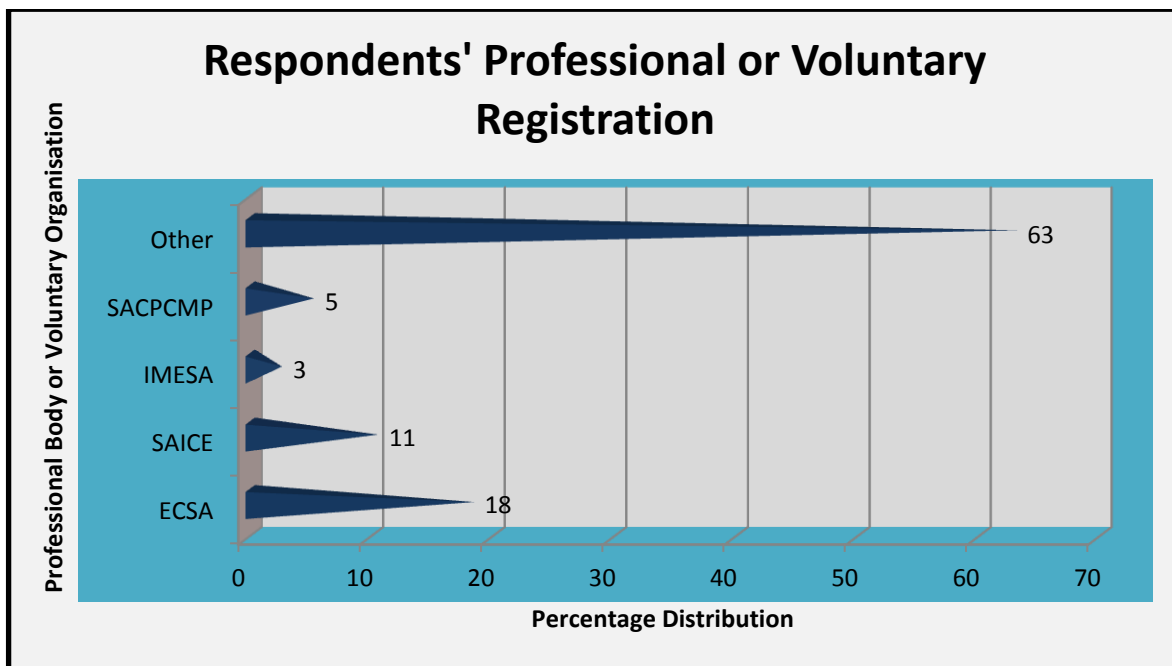


Figure 12: Respondents' Distribution by Registration with Professional Bodies or Voluntary Organisations

4.3.2. SECTION 2

FACTORS IMPACTING ON THE PROJECT PERFORMANCE

Project management provides effective methods that can be used to manage projects Munns and Bjeirmi (1996:81). However, if the methods are not properly used or managed, projects are not likely to achieve the intended outcome (i.e. in terms of costs, quality and time), Nicholas & Steyn (2008:7).

The following sub-sections detail the respondents' input on the factors which lead to project failure, and indicate the effect that each factor has on overall project performance.

The researcher's analyses of the responses are presented in the following sub-sections.

4.3.2.1. PROJECT TIME

Q.B1. Project delays relate to poor design.

The majority of respondents (74%) agree that project delays relate to poor design. Table 4a indicates that 29% of respondents are of the opinion that the effect of delay due to poor design is slight., followed by 24% moderate, a 22% who state that the effect is minor, 18% state that it is bad and only 7% of them state that the effect is calamitous.

The researcher's point of view is that a poorly designed project can be costly to reconstruct if the designs are discovered to be incorrect at, or close to, completion stage.

Table 4a: Project delays relate to poor design.										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	22	17	18	14	5	76	1.00	2.00
74%	26%	Percentage	29%	22%	24%	18%	7%	100%		

Q.B2. Project delays relate to user changes

The majority of the respondents (86%) agree that project delays relate to user changes. The effect of such delay is moderate according to the 32% of

respondents. However, 26% indicated that there is slight effect, whilst 21% indicate “bad” with reference to project delays (Table 4b). Below average, 18% indicate minor effects and 3% indicate calamitous effects.

In essence, the user changes vary per project and the effects, according to the respondents is moderate. The indication is satisfactory in housing projects as the researcher is of the opinion that changes are not common at the implementation stage, all issues of concern will have been resolved during the planning stages.

Table 4b: Project delays relate to user changes.

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	20	14	24	16	2	76	3.00	3.00
86%	14%	Percentage	26%	18%	32%	21%	3%	100%		

Q.B3. Project delays relate to weather

A sizable majority of the respondents (88%) agree that project delays relate to weather. The 36% of respondents denotes that the delays experienced due to weather are minor, 29% state that there are slight effects, 26% however state that the moderate effects on delays are experienced, 5% rate this delay as bad and the remaining 4% rate it as a calamitous effect.

The implication is that even though the delay is practicable, severe weather conditions may lead to calamitous delays in housing projects (Table 4c).

Table 4c: Project delays relate to weather										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	22	27	20	4	3	76	2.00	2.00
88%	12%	Percentage	29%	36%	26%	5%	4%	100%		

Q.B4. Project delays relate to site conditions

Table 4d indicates that 84% of respondents agree that project delays relate to site conditions. The highest rating (33%) indicate that the effect of delays due to site conditions is minor, 24% indicate that the delays are slight, 26% indicate moderate effects, 13% bad and 4% calamitous

Site conditions are delays that can be mitigated at the beginning of the project but certain instances do not allow for any mitigation, hence the bad to calamitous rating by the respondents (17%) below average.

Table 4d: Project delays relate to site conditions										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	18	25	20	10	3	76	2.00	2.00
84%	15%	Percentage	24%	33%	26	13%	4%	100%		

Q.B5. Project delays relate to late deliveries

The responses indicate that 93% of the respondents agree that project delays relate to late deliveries. The effect of such delays (Table 4e) is at a peak which indicates majority (46%) of respondents agree that it is moderate to overall delays in projects. The remainder of respondents (54%) is divided between slight to minor (33%) effects and bad to calamitous (21%) effects.

The deduction is based on the majority that this delay is moderate even though certain late deliveries may cause calamitous effects on the project.

Table 4e: Project delays relate to late deliveries										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	15	10	35	12	4	76	3.00	3.00
93%	7%	Percentage	20%	13%	46%	16%	5%	100%		

Q.B6. Project delays relate to economic conditions

It is apparent that 83% of the respondents agree that project delays relate to economic conditions. Table 4f indicates moderate (26%) effects when compared to the overall project delays. Calamitous (12%) and slight (20%) to minor (18%) delays can also be expected depending on the severity of economic conditions.

The researcher's opinion is that economic conditions may affect the project.

Table 4f: Project delays relate to economic conditions										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	15	14	20	18	9	76	3.00	3.00
83%	17%	Percentage	20%	18%	26%	24%	12%	100%		

Q.B7. Project delays relate to legal issues

It is evident that 88% of the respondents agree that project delays relate to legal issues. An equal division of respondents show the effect of this delay between moderate (30%) and bad (30%). The remainder of respondents, however, remain with the slight (20%); minor (12%) and calamitous (8%) delay effects on the projects (Table 4g).

This alone indicates that the legal issues in housing projects are experienced more often and that the legal process promotes project delays.

Table 4g: Project delays relate to legal issues										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	15	9	23	23	6	76	15.2	multiple	3.00
88%	12%	20%	12%	30%	30%	8%	100%	20%		

Q.B8. Project delays relate to contractual issues

The majority (91%) of the respondents agree that project delays relate to contractual issues. Table 4h shows the rating effects as per respondents' point of view where the majority (33%) of respondents indicate that the effect of this delay is moderate on housing projects. The 25% reflect this delay as is bad, 20% indicate a calamitous delay and 22% is a combination of both slight (13%) and minor (9%) delay ratings. It is therefore concluded that contractual issues cause delays in a project.

Table 4h: Project delays relate to contractual issues										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	10	7	25	19	15	76	3.00	3.00
91%	9%	Percentage	13%	9%	33%	25%	20%	100		

Q.B9. Project delays relate to poor construction scheduling

The majority (83%) of the respondents agree that project delays relate to poor construction scheduling. The highest score rating as per respondents feedback (Table 4i) seems to indicate that moderate (29%) delays result from poor construction scheduling, whilst 26% denote bad effect resulting from this, 21% have experienced minor delays regarding poor construction scheduling. Calamitous and Slight effect are both rated at 12% each.

The variation is based on the respondents' experience. However the highest scoring points to the fact that poor construction scheduling delays are moderate delays on projects.

Table 4i: Project delays relate to poor construction scheduling										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	9	16	22	20	9	76	3.00	3.00
83%	17%	Percentage	12%	21%	29%	26%	12%	100		

Q.B10. Project delays relate to well-known or domain issues

The majority, 84%, of the respondents agree that project delays relate to well-known and domain issues. Table 4j indicates the moderate (37%) effects, 22% shared by both slight and minor effects, 16% however indicate bad effects and 3% also warn of the calamitous effect this delay might have on the project.

It is significant that respondents experience delays due to known factors which might have been mitigated prior to the expanded effects in the project. This indicates that there is an element of inexperience amongst the project team or leaders in housing projects.

Table 4j: Project delays relate to well-known or domain issues										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	17	17	28	12	2	76	3.00	3.00
84%	16%	Percentage	22%	22%	37%	16%	3%	100		

Q.B11. No prioritization of activities

According to feedback, 80% of the respondents, agree that project delays relate to non- prioritization of activities. It is indicated that 32% of respondents rated this delay as bad (Table 4k). It is also noted that minor (22%), slight (20%), moderate (18%) and calamitous (8%) delays are experienced by respondents.

It can be concluded that there is poor commitment from the PMs.

Table 4k: Project delays relate to no prioritization of activities										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	15	17	14	24	6	76	4.00	3.00
80%	20%	Percentage	20%	22%	18%	32%	8%	100		

Q.B12. Unnecessary meetings

Respondents (74%) agree that project delays may be caused by unnecessary meetings. The highest rating indicates that delays experienced are slight (29%). This is followed by moderate (26%), minor (20%), bad (18%) and calamitous (7%) effects.

This implies that this delay is very insignificant but the effects can be adverse if left unattended to. This is drawn from the rating on bad and calamitous effects of this delay (Table 4l).

Table 4l: Project delays relate to unnecessary meetings										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	22	16	20	13	5	76	1.00	3.00
74%	26%	Percentage	29%	20%	26%	18%	7%	100%		

Q.B13. Interruptions

A majority (90%) of the respondents agree that project delays relate to interruptions. This delay is minor (25%) when considering the highest score, but the 24% of respondents indicate a bad effect. Above average the rating is moderate (21%), 12% rated the effect as slight whereas an 18% rated the effect of interruptions as calamitous.

It can be concluded that even though interruption may be taken as minor delays their effect can be bad at times. The fact that PMs agree that interruptions cause delays, strict measures are necessary (Table 4m).

Table 4m: Project delays relate to interruptions										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	9	19	16	18	14	76	2.00	3.00
90%	10%	Percentage	12%	25%	21%	24%	18%	100%		

Q.B14. Negligence or improper conduct

Table 4n shows that 88% of the respondents agree that project delays relate to negligence or improper conduct. Indications are that the delay experienced has minor (28%) effects compared to the rest of respondents where a 25% rate indicates a bad effect, 14% state that there is a slight effect experienced because of this delay, 21% indicate moderate effects whilst the 12% indicate calamitous effects.

The difference in ratings show that the experience in terms of this delay varies, but the researcher distinguishes the worst case scenario as the two ratings do not vary much and may lead to calamitous delays.

Table 4n: Project delays relate to negligence or improper conduct										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	21	16	19	9	76	2.00	3.00
88%	12%	Percentage	14%	28%	21%	25%	12%	100%		

Q.B15. Project delays relate to corruption

An equitable number (86%) of the respondents agree that project delays relate to corruption. Moderate (25%) and Bad (25%) ratings are shared views of the respondents with the highest rating. This signifies that corruption exists in housing project and that the delay may bad. The calamitous (17%) supports this argument (Table 4o).The remaining 20% indicate slight effects and the 13% indicate minor effects.

Table 4o: Project delays relate to corruption

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	15	10	19	19	13	76	multiple	3.00
86%	14%	Percentage	20%	13%	25%	25%	17%	100		

Q.B16. Time is influenced by detrimental (negative) conditions

Respondents (88%) agree that project delays relate to detrimental (negative) conditions. The delays that are experienced are moderate (42%) but can be bad (14%) and calamitous (12%) in a housing environment as indicated in Table 4p, 12% state that the effect is slight and the 20% rate the effect as minor.

Table 4p: Project delays relate to detrimental (negative) conditions

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	9	15	32	11	9	76	3.00	3.00
88%	12%	Percentage	12%	20%	42%	14%	12%	100%		

Q.B17. Project delays relate to increase in quantity

The majority (79%) of the respondents agree that project delays relate to increase in quantity of work to be performed in a project. Table 4q indicates the frequency of moderate (34%) effects experienced. 26% and 25% of respondents experience minor and slight effects respectively whilst the 12% and 3% of bad and calamitous effects are experienced as well.

There is a rare occurrence of calamitous delays relating to increase in the quantity of work on a project. This indicates the capability of PMs in the involved with housing projects.

Table 4q: Project delays relate to increase in quantity

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	19	20	26	9	2	76	3.00	2.00
79%	21%	Percentage	25%	26%	34%	12%	3%	100		

Q.B18. Destructive conflict resolution delays a project

The majority (93%) of the respondents agree that project delays relate to flawed conflict resolution. The effects of delays due to flawed conflict resolution are moderate (32%), followed by bad effects (26%), Table 4r The 20% indicate that minor effects are experienced, 13% experience slight effects and the 9% calamitous effects.

This alludes that the conflicts exist during the project management of housing project even though their effect is moderate, bad cases are somewhat experienced too.

Table 4r: Project delays relate to destructive conflict resolution

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	10	15	24	20	7	76	3.00	3.00
93%	7%	Percentage	13%	20%	32%	26%	9%	100%		

Q.B19. Poor risk management and supervision

The majority (95%) of the respondents agree that project delays relate to poor risk management and supervision. This delay is moderate (28%) according to the majority of respondents. However a bad (26%) follows in close proximity to the rated delay. These ratings are followed by 13% calamitous or slight effects on delays and a 20% minor effect is experienced. (Table 4s).

Table 4s: Project delays relate to poor risk management and supervision										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	10	15	21	20	10	76	3.00	3.00
95%	5%	Percentage	13%	20%	28%	26%	13%	100		

Q.B20. Slow decision-making involving project teams

Respondents (95%) agree that project delays relate to slow decision-making involving project teams. This delay, according to Table 4t, is moderate (29%) according to the majority of respondents. However, a bad (28%) follows in close proximity to the rated delay.

These are also followed at closely by a calamitous rate (21%) which means that some decisions are critical in a project and that, they may have an adverse effect on the project or can bring a project to a halt. 12% of respondents state that there are slight effects and the 11% state that there are minor effects due to slow decision-making involving project teams.

Table 4t: Project delays relate to slow decision-making involving project teams										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	9	8	22	21	16	76	3.00	3.00
95%	5%	Percentage	12%	11%	29%	28%	21%	100%		

Q.B21. Client- initiated variations

The majority of respondents (86%) agree that project delays relate to client-initiated variations. Table 4u indicates a moderate (35%) delay, whilst the combined percentage (43%) indicates slight to minor delays are experienced due to client oriented variations. 21% of respondents state that bad effects are experienced and 1% state that calamitous effects are due to client-initiated variations.

It is important to highlight that in housing, the priority is to deliver project on time to the communities. The delays relating to variations initiated by the client may cause a conflict of interest with the project community and the project may be stopped due to community unrest in certain instances.

Table 4u: Project delays relate to client initiated variations										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	14	19	26	16	1	76	3.00	3.00
86%	14%	Percentage	18%	25%	35%	21%	1%	100		

Q.B22. Necessary variations of work

The majority (90%) of the respondents agree that project delays relate to necessary variation in the work to be done. The necessary work may cause minor (30%) or moderate (30%) delays in projects (Table 4v). The respondents also state that slight (17%), bad (16%) and 7% calamitous effects due to necessary variations of work are experienced.

The frequency indicates that slight or bad delays may be experienced. This may be due to the amount of work that needs to be done.

Table 4v: Project delays relate to necessary variations of works										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	13	23	23	12	5	76	multiple	3.00
90%	10%	Percentage	17%	30%	30%	16%	7%	100		

Q.B23. Poor planning

The majority (88%) of the respondents agrees that project delays relate to poor planning project teams. Respondents (29%) indicate that this delay is calamitous. This rating is supported by the bad delay indication in the following rating (26%). This denotes that there is a problem with poor planning of housing projects (Table 4w). The remainder of respondents state that the effect is minor (16%), 22% state that the effect is moderate whilst the 7% state that the effect is slight.

Table 4w: Project delays relate to poor planning										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	5	12	17	20	22	76	5.00	4
88%	12%	Percentage	7%	16%	22%	26%	29%	100		

4.3.2.2. COST OVERRUNS

Q.C1. Inaccuracy in estimating original plan costs

The majority (78%) of the respondents agree that project cost overruns are due to inaccuracy in estimating the costs of the original plan. Table 5a indicates that the effect of inaccuracy in estimating original plan costs is moderate (42%). The 29% of respondents indicate slight effects, 13% minor, 12% bad and 13% calamitous effect due to inaccuracy in estimating the original plan costs.

This implies that PMs require some improvement in cost estimating for housing projects.

Table 5a: Project cost overruns relate to inaccuracy in estimating original plan costs										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	15	10	32	9	10	76	3.00	3.00
78%	22%	Percentage	20%	13%	42%	12%	13%	100		

Q.C2. Inadequate detail in plan

Most (68%) of the respondents agree that project cost overruns are due to inadequate detail in project management plan. Table 5b indicates that 28% is shared by a rating of slight and moderate delay whilst the 26% indicates bad condition for cost overruns. 17% of respondents indicate that minor effects are experienced and 1% indicated that calamitous effects may be experienced.

Cost planning is a problem that requires attention with regards to PMs.

Table 5b: Project cost overruns relate to Inadequate detail in plan										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	21	13	21	20	1	76	multiple	3.00
68%	32%	Percentage	28%	17%	28%	26	1%	100		

Q.C3. Schedule delays

Respondents (80%) agree that project cost overruns are due to schedule delays. Table 5c indicates that cost effect is either minor (28%) or moderate (28%), 18% indicate bad effect, and its significance is acknowledged due to the fact that delays are directly linked to cost. The researcher's opinion is that, the more the project delays the worse the cost situation becomes, 22% state that the effect is minor, 15 state that its bad and a 4% calamitous effect may be experienced.

Table 5c: Project cost overruns relate to schedule delays										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	17	21	21	14	3	76	multiple	2.50
80%	20%	Percentage	22%	28%	28%	18%	4%	100		

Q.C4. Poor communication

It is apparent from the table below that 84% of the respondents agree that project cost overruns are due to poor communication. According to respondents (33%) the effect of poor communication on costs is moderate. It is also notable that 25% indicate a bad effect resulting from poor communication (Table 5d). The 22% state that the minor effects may be experienced, 9% state that slight effects are experienced and 11% calamitous effects are indicated.

Notwithstanding the highest rating from respondents, poor communication has bad effects on projects and may accelerate project delays and compromise project quality.

Table 5d: Project cost overruns relate to poor communication										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	7	17	25	19	8	76	3.00	3.00
84%	16%	Percentage	9%	22%	33%	25%	11%	100		

Q.C5. Unforeseen technical problems

The 84% of the respondents agrees that project cost overruns are due to unforeseen technical problems. Table 5e shows that the effect of these unforeseen technical problems is moderate (39%), however bad (24%), slight (14%), minor (16%) and calamitous (7%) effects may be experienced.

Unforeseen problems are part of project life, it is therefore important that PMs acquire the necessary skill to capacitate them in dealing with them.

Table 5e: Project cost overruns relate to unforeseen technical problems										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	12	30	18	5	76	3.00	3.00
84%	16%	Percentage	14%	16%	39%	24%	7%	100		

Q.C6. Inaccurate reporting

The majority (80%) of the respondents agrees that project cost overruns are due to inaccurate reporting and their effect is moderate (38%) in project costs, followed by a minor (21%) , slight (14%), calamitous (7%) and bad (20%) effect ratings (Table 5f).

Reporting is part of communication and is a basic skill in project management which includes project progress, shortfalls and variations. A project manager who lacks this skill may fail to deliver projects on time due to delays in communication and perhaps the failure to motivate for extra cost needed to complete his or her project.

Table 5f: Project cost overruns relate to inaccurate reporting										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	16	29	15	5	76	3.00	3.00
80%	20%	Percentage	14%	21%	38%	20%	7%	100		

Q.C7. Changes in material cost.

The 80% of the respondents agrees that project cost overruns are due to changes in material cost. The effects are moderate (30%) and followed by bad (22%) compared with other frequency ratings (Table 5g). The respondents also indicate slight (20%), minor (18%), and calamitous (9%) effects due to changes in material costs.

This indicates that material cost effect can be moderate but bad where conditions allow. Material costs change timeously for various reasons and PMs have to keep abreast with the changing times and costs for that matter.

Table 5g: Project cost overruns relate to changes in material cost										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	15	14	23	17	7	76	3.00	3.00
80%	20%	Percentage	20%	18%	30%	22%	9%	100		

Q.C8. Service costs that were not anticipated

Table 5h indicates that 90% of the respondents agree that project cost overruns are due to service costs that were not anticipated. The effect on cost is between moderate (38%) followed by minor (30%), slight (13%), bad (12%) and calamitous (7%) effects. This implies that cost planning needs to be strengthened in housing projects to accommodate cases of unanticipated costs.

Table 5h: Project cost overruns relate to service costs that were not anticipated										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	10	23	29	9	5	76	3.00	3.00
90%	10%	Percentage	13%	30%	38%	12%	7%	100		

Q.C9. Changes in scope of the project that are not reflected in the updates to budget

A large number (90%) of the respondents (Table 5i) agrees that project cost overruns are due to changes in scope that were not reflected in budget update.

These lead to moderate (36%) effect on project costs and this is followed by the bad (25%), minor (16%), slight (14%) and calamitous (9%) effects on the project.

Table 5i: Project cost overruns relate changes in scope of the project that are not reflected in the updates to budget										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	12	27	19	7	76	3.00	3.00
90%	10%	Percentage	14%	16%	36%	25	9%	100		

Q.C10. Inadequate documentation of project changes

The majority (78%) of the respondents agrees that project cost overruns are due to inadequate documentation of project changes. Table 5j illustrates that inadequate documentation of changes has minor (28%) effect on project costs. However, the (21%) rating shared between bad and slight effect indicates that there might be instances where the project costs are highly affected or not affected at all. The remainder is divided between moderate (18%) and calamitous (12%) ratings.

The implication is that documentation of changes is required throughout the project to avoid unnecessary cost.

Table 5j: Project cost overruns relate to inadequate documentation of project changes										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	16	21	14	16	9	76	2.00	3.00
78%	22%	Percentage	21%	28%	18%	21%	12%	100		

Q.C10. Lack of control

The majority (92%) of the respondents agrees that project cost overruns are due to a lack of control. Table 5k indicates that the effect on costs resulting from lack of control is calamitous (28%) and this rate is followed by moderate (26%) effect and a bad rating of (20%). Other respondents are split between the slight (14%) and minor (12%) effects that are due to lack of control.

In essence lack of cost control may turn a good project into a disastrous project. PMs should control project cost for them to deliver timeously successful projects.

Table 5k: Project cost overruns relate to lack of control										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	9	20	15	21	76	5.00	3.00
92%	8%	Percentage	14%	12%	26%	20%	28%	100%		

4.3.2.3. PROJECT QUALITY

Q.D1. Quality specifications are not clearly communicated

The majority (68%) of the respondents agree that poor project quality can be achieved if quality specifications are not clearly communicated. (Table 6a) reflects slight (29%) effects on quality on projects. Respondents also state that moderate (27%), bad (17%), minor (16%) and calamitous at (11%) effects are experienced.

The specifications are essential for management of quality. If the specifications are not clearly communicated the effect might be calamitous leading to the demolition of already built structures and reworking of complete projects. This alone does not just affect quality but increases costs and duration of the project.

Table 6a: Project poor quality is due to quality specifications that are not clearly communicated										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	22	12	21	13	8	76	1.00	3.00
68%	32%	Percentage	29%	16%	27%	17%	11%	100%		

Q.D2. Lack of motivation

A large number (74%) of the respondents agrees that project quality relates to a lack of motivation of team members. The effects of the lack of motivation amongst team members on quality is moderate (36%), 24% indicate a minor effect whilst the 22% indicate slight effects. The other effects experienced are bad (14%) and calamitous (4%)

Demotivated teams can be reckless and may add to uncertainties on the quality produced depending on the reasons for demotivation.

Table 6b: Project poor quality is due to lack of motivation										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	17	18	27	11	3	76	3.00	3.00
74%	26%	Percentage	22%	24%	36%	14%	4%	100		

Q.D3. Lack of control

The majority (92%) of the respondents (Table 6c) agrees that project quality relates to a lack of control. The effect of the lack of control on projects is bad (32%) and a 25% of respondents rated it as moderate. If quality is not controlled it promotes the chances of compromise of quality material in favour of cheap material which later leads to reworking of the project and a calamitous (14%) effect on quality. Slight (12%) and minor (17%) effects are also experienced.

Table 6c: Project poor quality is due to lack of control										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	9	13	19	24	11	76	4.00	3.00
92%	8%	Percentage	12%	17%	25%	32%	14%	100		

Q.D4. Lack of coordination amongst project stakeholders

Respondents (92%) agree that the lack of co-ordination amongst project stakeholders affects project quality. Table 6d indicates that its effect is moderate (36%) and a few (30%) of respondents view it as a bad effect on the project. Slight (9%), minor (17%) and calamitous (8%) effects are also experienced.

The lack of co-ordination may lead to influential stakeholders' withdrawal from the project. For an example if the project sponsor withdraws, the project may end before completion or the remaining stakeholders may continue with the project with a reduced quality standard.

Table 6d: Project poor quality is due to lack of coordination amongst project stakeholders										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	7	13	27	23	6	76	3.00	3.00
92%	8%	Percentage	9%	17%	36%	30%	8%	100		

Q.D5. Pressure to finish the project on time

It is evident that 84% of the respondents agree that project quality relates to pressure to finish the project on time. Table 6e reflects a moderate (39%) effect on the quality of project. The pressure to finish may lead to omissions as thorough inspections are needed for quality production. Pressure does not allow any reviews and this might have a calamitous effect on the project. The respondents are also of the view that the slight (21%), minor (9%), bad (20%) and calamitous (11%) effects are experienced due to pressure to finish the project on time.

Table 6e: Project poor quality is due to pressure to finish the project on time										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	16	7	30	15	8	76	3.00	3.00
84%	16%	Percentage	21%	9%	39%	20%	11%	100%		

Q.D6. Lack of experience and ability to perform

The majority (86%) of the respondents agree that project quality relates to lack of experience and ability to perform. The indication of effects (Table 6f) is that lack of experience and ability to perform has bad (29%) effects on project quality, and the succeeding calamitous (22%) respondents' rating is an indication of the extent of effect the lack of experience has on the project. The 20% minor or moderate effects as well as slight (9%) effects are also experienced by the respondents due to lack of experience and ability to perform work.

The lack of experience needs to be addressed for housing project problems to be reduced.

Table 6f: Project poor quality is due to lack of experience and ability to perform										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	7	15	15	22	17	76	4.00	4.00
86%	14%	Percentage	9%	20%	20%	29%	22%	100%		

Q.D7. Irregular Inspections

Table 6g indicates that 70% of the respondents agree that project quality relates to irregular inspections. Bad (30%) effects are indicated and the 24% reflect minor effect on project quality. Irregular inspections have a bad effect and may lead to unanticipated revelations in the project that may lead to a calamitous (9%) effect on project quality. Slight (17%), moderate (20%) and calamitous (9%) effects are also experienced by the respondents.

Table 6g: Project poor quality is due to irregular inspections										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	13	18	15	23	7	76	4.00	3.00
70%	30%	Percentage	17%	24%	20%	30%	9%	100%		

Q.D8. Insufficient supervision

The majority (88%) of the respondents agree that project quality relates to insufficient supervision. The effect of insufficient supervision is bad (37%) on the overall project quality. Project quality problems exist because of insufficient supervision of work which may lead to calamitous (13%) situations if there are no improvements. There are also slight (9%), minor (16%) and moderate (25%) effects due to insufficient supervision of work.

Table 6h: Project poor quality is due to insufficient supervision

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	7	12	19	28	10	76	4.00	3.50
88%	12%	Percentage	9%	16%	25%	37%	13%	100%		

Q.D9. Lack of accountability

The majority (91%) of the respondents agree that project quality relates to lack of accountability. Table 6i indicates bad (41%) effects resulting from lack of accountability. The worst effect is calamitous (16%) may also be experienced with the lack of accountability. Slight (9%), minor (13%) and moderate (21%) effects are also experienced by the respondents.

PMs need to account for the quality of work produced on their projects to eliminate the problem experienced in housing projects.

Table 6i: Project poor quality is due to lack of accountability

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	7	10	16	31	12	76	4.00	4.00
91%	9%	Percentage	9%	13%	21%	41%	16%	100%		

4.3.2.4 IMPACTS OF PROJECT DELAYS

Q.E1. Quality specifications are not clearly communicated

The majority (74%) of the respondents agree that a negative impact of project time may be experienced if quality specifications are not clearly communicated. Table 7a shows that the impact is minor according to majority (26%) of respondents, on project quality. Slight (24%), moderate (21%) or bad (21%), and calamitous (8%) impacts are also experienced by the respondents.

This however is not a true reflection of what happens with housing projects as communication is an integral part in any project. If quality is compromised, time and costs are affected.

Table 7a : Time delays may lead to quality specifications not clearly communicated										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	18	20	16	16	6	76	2.00	2.5
74%	26%	Percentage	24%	26%	21%	21%	8%	100%		

Q.E2. Negative impact on budgets

The majority (90%) of the respondents agree project delays impact negatively on the project's budget. Table 7b indicates that the extent of such an impact is bad (37%) although 28% indicate that the impact is moderate on project budgets. Slight (9%), minor (18%) and calamitous (8%) impacts are also experienced by the respondents.

Budget and schedule improvements are required to eliminate the indicated impact from occurring.

Table 7b : Time delays may lead to negative impact on budgets										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	7	14	21	28	6	76	4.00	3.00
90%	10%	Percentage	9%	18%	28%	37%	8%	100%		

Q.E3. Negative impact on project scope

The majority (90%) of respondents agree that project delays negatively impact on the scope of the project. The severity of this impact is bad (33%) according to the majority of respondents, Table 7c. The 29% of respondents state the impact is moderate, 16% state that the impact is minor, 17% state that the impact is slight whilst the remaining 5% state that the impact is calamitous.

This highlights the importance of adhering to schedules to ensure that project slippages are reduced or eliminated completely.

Table 7c : Time delays may lead to negative impact on scope										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	13	12	22	25	4	76	4.00	3.00
90%	10%	Percentage	17%	16%	29%	33%	5%	100%		

Q.E4. Project termination

The majority (90%) of the respondents agree that project delays may lead to project termination. The impact (Table 7d) of that is bad (30%). The 14% of respondents state that the impact is slight, 12% state that it is a minor impact, 24% state that the impact is moderate and the remaining 20% state that the impact is calamitous

Table 7d : Time delays may lead to project termination										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	9	18	23	15	76	4.00	3.50
90%	10%	Percentage	14%	12%	24%	30%	20%	100%		

Q.E5. Incomplete projects

The majority (96%) of the respondents agree that project delays lead to incomplete projects. The severity of that impact is bad (26%) to calamitous (25%). However a severity rating of moderate (26%), slight (7%) and minor (16%) impacts are also experienced by the respondents (Table 7e). Project discontinuity due to schedule delays is bad as the project's intensions are not realized on time.

Table 7e : Time delays may lead to incomplete projects										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	5	12	20	20	19	76	multiple	4.00
96%	4%	Percentage	7%	16%	26%	26%	25	100%		

Q.E6. Costly disputes and adverse relationship amongst project participants

Most (94%) of the respondents agree that project delays lead to costly disputes and adverse relationships amongst project participants. Table 7f shows a bad (26%) to calamitous (21%) impact in worst cases. The severity may also be moderate (26%) where the project is not directly affected. Slight (16%) and minor (11%) impacts are also experienced by the respondents.

Table 7f : Time delays may lead to costly disputes and adverse relationship amongst project participants										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	12	8	20	20	16	76	multiple	3.00
94%	6%	Percentage	16%	11%	26%	26%	21%	100%		

4.3.2. IMPACT OF COST OVERRUNS

Q.F1. Project discontinuity due to lack of extra funds to complete the remaining work

The majority (90%) of the respondents agree that project cost overruns may lead to project discontinuity due to a lack of funds to complete the remaining work. The severity of this impact is calamitous (29%), however (26%) also indicate a bad severity rating support this calamitous rate (Table 8a). Moderate (21%), Slight (12%) or minor (12%) impacts are also experienced by the respondents.

The discontinuity of a project due to lack of extra funds to complete the project is bad as communities await the projects in anticipation. When a project starts, community's impression is that the *'house has finally arrived'*. The stoppage may

lead to communities even demolishing the incomplete projects out of anger and disappointment.

Table 8a: Cost overruns may lead to project discontinuity due to lack of extra funds to complete the remaining work

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	9	9	16	20	22	76	5.00	4.00
90%	10%	Percentage	12%	12%	21%	26%	29%	100%		

Q.F2. Delays in the project whilst getting alternative sponsor

The majority (70%) of the respondents agrees that project cost overruns may lead to project delays whilst trying to acquire the sponsor for the remaining project work. Table 8b indicates a moderate (32%) impact on the overall project. Slight (26%), minor (13%), bad (18%) and calamitous (11%) impacts are also experienced by the respondents.

This indicates that there could be costs involved whilst waiting for the project sponsor due to damage to the work already completed might lead to a need for extra funds to rework it.

Table 8b: Cost overruns may lead to delays in the project whilst getting alternative sponsor

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	20	10	24	14	8	76	3.00	3.00
70%	30%	Percentage	26%	13%	32%	18%	11%	100%		

Q.F3. High project risk due to predetermined (or limited) budget

Respondents (92%) agree that project cost overruns may expose the project to high risks due to budget limitations. The severity of this impact is moderate (29%). The bad (26%) impact indicated a successor to moderate rating is noticeable due to uncertainties of project risks (Table 8c). Slight (25%), minor (9%) and calamitous (11%) impact are also experienced by the respondents.

This impact may require proper project planning and estimation to minimise such risks.

Table 8c: Cost overruns may lead t to high project risk due to predetermined (or limited) budget										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	19	7	22	20	8	76	3.00	3.00
92%	8%	Percentage	25%	9%	29%	26%	11%	100%		

Q.F4. Lengthy legal processes justifying the reasons for project discontinuity and receiving legal mandate to reappoint a new contractor.

A number (88%) of the respondents agrees that project cost overruns may lead to lengthy legal processes. The severity of cost overruns due to lengthy legal processes and their impact may be bad (33%) as indicated in Table 8d. The 24% of respondents indicated moderate severity rating, 18% indicate calamitous. Slight (14%) and minor (11%) impact are also experienced by the respondents.

In practice the legal processes may drain the project finances in a calamitous way. The bad severity rating is therefore acceptable as being the closest indication to calamitous.

Table 8d: Cost overruns may lead to lengthy legal processes justifying the reasons for project discontinuity and receiving legal mandate to reappoint a new contractor

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	8	18	25	14	76	4.00	4.00
88%	12%	Percentage	14%	11%	24%	33%	18%	100%		

Q.F5. Scope reduction to accommodate the available funding

A number (84%) of the respondents agrees that project cost overruns may lead to project scope reduction to accommodate the remaining budget. The severity of this impact (Table 8e) is moderate (29%). Considering a 21% bad and 17% calamitous ratings, 21% of respondents also state that the impact is slight and 12% rate it as minor impact.

It can be deducted that the scope reduction due to cost overruns impacts negatively on the project and that it is a matter requiring improvement.

Table 8e: Cost overruns may lead to scope reduction to accommodate the available funding

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	16	9	22	16	13	76	3.00	3.00
84%	16%	Percentage	21%	12%	29%	21%	17%	100%		

Q.F6. Reduced level of service

The majority (82%) of the respondents agree that project cost overruns may lead to reduced level of service. The severity rating of this impact is moderate (33%).

A reduced level of service compromises quality and can have a bad (20%) impact on the project. The 22% indicate slight severity rating which is questionable due to the fact that quality and costs are critical factors in a project (Table 8f). Minor (12%) and calamitous (13%) impacts are also experienced by the respondents.

Reduced level of service is hence a problem on housing project.

Table 8f: Cost overruns may lead to reduced level of service										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	17	9	25	15	10	76	3.00	3.00
82%	18%	Percentage	22%	12%	33%	20%	13%	100%		

Q.F7. Social instability and political unrest

The majority (92%) of the respondents agree that project cost overruns may lead to social instability and political unrest due to unfinished projects. The severity of this impact (Table 8g) is calamitous (37%). Slight (7%), minor (5%), moderate (26%) and bad (25%) impacts are also experienced by the respondents.

Social instability and political unrest is obviously a problem for housing projects. Mitigation measures are required to minimise this risk

Table 8g: Cost overruns may lead to social instability and political unrest										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	5	4	20	19	28	76	5.00	4.00
92%	8%	Percentage	7%	5%	26%	25%	37%	100%		

4.3.2.6 THE IMPACT OF POOR QUALITY ON HOUSING PROJECTS

Q.G1. Quality specifications are not clearly communicated

The majority (74%) of the respondents (Table 9a) agree that if quality specifications are not clearly communicated, poor quality may be produced leading to a slight (24%) impact on the overall project performance. Moderate (22%), minor (18%) and calamitous (20%) impacts are also experienced by the respondents.

This is however not a true reflection of impact as if quality specifications are not clearly communicated and poor quality is produced, its impact is severely bad on the project.

Table 9a: Poor quality may lead to quality specifications are not clearly communicated										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	18	14	17	12	15	76	1.00	3.00
74%	26%	Percentage	24%	18%	22%	16%	20%	100%		

Q.G2. Increased complaints and criticism from communities.

The majority (92%) of the respondents agree that poor project quality may lead to increased complaints and criticism from the communities and that the impact is moderate (30%) or bad (30%) on the overall project quality (Table 9b). Slight (16%), minor (5%) and calamitous (18%) impacts are also experienced by the respondents.

Table 9b: Poor quality may lead to increased complaints and criticism from communities										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	12	4	23	23	14	76	multiple	3.00
92%	8%	Percentage	16%	5%	30%	30%	18%	100%		

Q.G3. Poorly built houses have to be demolished, rebuilt and those with minor defects be fixed.

The majority (100%) of the respondents agree that poor project quality produced may lead to poorly built houses having to be demolished, rebuilt and those with minor defects fixed. Table 9c indicates that highest severity rating is bad (34%) and may be calamitous (26%). Slight (7%), minor (9%), and moderate (24%) impacts are also experienced by the respondents.

This implies that the impact of poor quality on housing project requires immediate solution.

Table 9c: Poor quality may lead to poorly built houses have to be demolished, rebuilt and those with minor defects be fixed.

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	5	7	18	26	20	76	4.00	4.00
100%	0%	Percentage	7%	9%	24%	34%	26%	100%		

Q.G4. Increased project costs

The majority (94%) of the respondents agree that poor project quality produced may lead to increased project costs. The severity rating is bad (30%) and 25% reflect that the impact is calamitous (Table 9d). Moderate (22%), slight (13%) and minor (9%), impacts are also experienced by the respondents.

Increased project costs are a problem in housing as the risks involved compromise the quality of these projects.

Table 9d: Poor quality may lead to increased project costs

Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	10	7	17	23	19	76	4.00	4.00
94%	6%	Percentage	13%	9%	22%	30%	25%	100%		

Q.G5. Project delays

The majority (92%) of the respondents agree that poor project quality may accelerate project delays. Table 9e indicates a bad (33%) impact, whereas 28%

state that the impact is moderate, 16% state that the impact is calamitous, 14% state that the impact is slight and 9% state that the impact is minor.

The bad impact denotes that the problem is experienced in a severe manner and remedy sections are necessary to reduce or eliminate this problem.

Table 9e: Poor quality may lead t to project delays										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	11	7	21	25	12	76	4.00	3.00
92	8	Percentage	14%	9%	28%	33%	16%	100%		

Q.G6. Unnecessary scope changes

The majority (76%) of the respondents agree that poor project quality may lead to unnecessary scope changes and Table 9f indicates that this may impact moderately (30%) on the overall project quality. 28% of respondents indicate a bad impact, 22% indicate a slight impact. In essence the quality impact may be moderate but the influence on time needs to be noted as it can be badly affected.

Table 9f: Poor quality may lead to unnecessary scope changes										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	17	13	23	21	2	76	3.00	3.00
76%	24%	Percentage	22%	17%	30%	28%	3%	100%		

Q.G7. Project discontinuity

The majority of respondents (88%) agree that poor project quality may lead to project discontinuity. Table 9g shows that a bad (28%) impact is experienced Moderate (12%), slight (17%), minor (22%) and calamitous (21%) impacts are also experienced by the respondents.

Project discontinuity due to poor quality is a bad reflection on a project manager and a problem on housing projects.

Table 9g: Poor quality may lead to project discontinuity										
Agreement Indication (%)		Level of impact	Slight	Minor	Moderate	Bad	Calamitous	Total	Modal Score	Median
Yes	No	Frequency	13	17	9	21	16	76	4.00	3.00
88%	12%	Percentage	17%	22%	12%	28%	21%	100%		

4.3.3. SECTION 3

SOLUTIONS TO PROBLEMS EXPERIENCED BY PROJECT MANAGERS

Project management techniques, together with the use of modern technology assist in the effective control of a project from the initiation phase until the project handover, Munns & Bjeirmi (1996:81). The sub-sections below provide the respondents' input on the use of project management tools, and the frequency of usage in their projects for ensuring timeous project success.

4.3.3.2 EXISTING SOLUTIONS TO PROJECT DELAYS

Q.H1. Scheduling of activities and resources is used as a planning tool from project inception

The majority (100%) of the respondents agree that scheduling of activities and resources is always used as a planning tool from a project's inception. Table 10a illustrates that scheduling of activities is always (59%) practised, 22% sometimes schedule activities, 11% seldom, and 4% never schedule activities and a 4% who do not know scheduling of activities.

The responses imply that there is a project planning problem which involves scheduling of activities.

Table 10a: Scheduling of activities and resources is used as a planning tool from project inception										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	45	17	8	3	3	76	1.00	1.00
100%	0%	Percentage	59%	22%	11%	4%	4%	100%		

Q.H2. Tracking of project activities is practiced.

The majority (90%) of the respondents agrees that the tracking of project activities is always practised throughout the project's life cycle. Table 10b illustrates that scheduling of activities is always (50%) practiced. The concern, however is, the remaining distribution of respondents who (24%) sometimes schedule activities, 14% seldom, 5% never schedule activities and a 7% who do not know tracking of

project activities. The responses imply that there is a project planning problem which involves scheduling of activities.

Table 10b: Tracking of project activities										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	38	18	11	4	5	76	1.00	1.50
90%	10%	Percentage	50%	24%	14%	5%	7%	100%		

Q.H3. Planning aids such as computers, action planning sheets, MS Project TM packages are used

The majority (88%) of the respondents agree that planning aids such as computers, action planning sheets and MS Project TM packages are always used in a project, (Table 10c). The illustration is that only 53% always use planning aids. The remainder of respondents (47%) imply that these planning aids are not frequently, 21% sometimes, 16% seldom, 9% never and 1% does not know if planning aids are used or not, hence the problem of time on projects, because the planning aids can assist to reduce time spent on a project.

Table 10c: The use of planning aids on projects										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	40	16	12	7	1	76	1.00	1.00
88%	12%	Percentage	53%	21%	16%	9%	1%	100%		

Q.H4. Monitoring physical progress is practiced.

The majority (96%) of the respondents agree that monitoring of physical progress is always practised during project execution. Table 10d indicates that 72% of respondents always monitor the physical progress on projects even though 12% sometimes monitor progress and 11% seldom monitor progress, 4% never monitor progress. The remaining 1% does not know whether they monitor progress or not.

This highlights the existence of lack of monitoring even though there are solutions to mitigate project problems experienced in housing projects.

Table 10d: Monitoring of physical progress on projects										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	55	9	8	3	1	76	1.00	1.00
96%	4%	Percentage	72%	12%	11%	4%	1%	100		

Q.H5. Monitoring programme is done continually

A majority (92%) of the respondents agree that monitoring of a project's programme is done continually. 58% always monitor their project's programme. However, 1% of respondents never monitored projects, whilst 4% are do not know whether projects are monitored, and 37% indicate that they sometimes or seldom monitor a project's programme (Table10e).

This implies that even though there are existing ways to monitor projects, there are still project managers who do not monitor programmes continually thereby accelerating the problems experienced in housing projects.

Table 10e: Monitoring of project program										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	44	16	12	1	3	76	1.00	1.00
92%	8%	Percentage	58%	21%	16%	1%	4%	100%		

Q.H6. Progress meetings are conducted

The majority (100%) of the respondents agree that progress meetings are conducted. The degree of conducting progress meetings, according to Table 10f varies, 68% of respondents always conduct progress meetings, 18% sometimes does, 9% seldom or never conduct a project progress meeting, and 4% of respondents are do not know whether progress meetings are conducted.

This implies that there are communication problems as project matters are normally discussed at these meetings.

Table 10f: Frequency of progress meetings conducted.										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	52	14	6	1	3	76	1.00	1.00
100%	0%	Percentage	68%	18%	8%	1%	4%	100%		

4.3.3.1 EXISTING SOLUTIONS TO COST OVERRUNS

Q. 11. Planning for budget from project inceptions is done.

The majority (96%) of the respondents agree that planning for a project's budget from project inception is done. Only 78% of the respondents always plan for a budget from inception, 8% only plan sometimes, whilst 13% seldom or never plan at all and the remaining 1% is not aware if they plan for a budget at project inception (Table 11a).

This indicates that there are still problems with budgeting for housing projects.

Table 11a: Planning for budget on projects										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	59	6	6	4	1	76	1.00	1.00
96%	4%	Percentage	78%	8%	8%	5%	1%	100%		

Q.12. Budget monitoring during project implementation phase is practiced

The majority (100%) of the respondents agree that budget monitoring during the project implementation phase is practised. Only 66% of recipients always monitor their budget, 22% sometimes monitor it, 11% seldom or never monitor their budget and 1% does not know whether they monitor the budget or not, (Table 11b).

This implies that there are problems relating to budget monitoring.

Table 11b: Budget monitoring at project implementation

Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	50	17	5	3	1	76	1.00	1.00
100%	0%	Percentage	66%	22%	7%	4%	1%	100%		

Q.13. Reporting on achieved deliverables and reviewing budget.

The majority (96%) of the respondents agree that they report on achieved deliverables and review a project's budget accordingly. Table 11c shows that 63% always report on achieved deliverables and review a budget, the 20% sometimes practise that while 12% seldom or never practise this and the 5% know neither achieved deliverables nor review budget is ever reported, (Table 11c).

The aforesaid indicate the existence of poor reporting on projects.

Table 11c: Reporting on achieved deliverables and reviewing budget

Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	48	15	8	1	4	76	1.00	1.00
96%	4%	Percentage	63%	20%	11%	1%	5%	100%		

Q.14. Use of modern technology such as MS Excel, MS ProjectsTM, etc. is very effective

The majority (96%) of the respondents agree that the use of modern technology such MS Excel, MS ProjectsTM is very effective. Table 11d indicates that 66% of

the respondents always use the tools while 16% use them sometimes, 17% seldom or never use them and 1% does not know whether these tools are used.

This indicates that there are PMs who do benefit from the effective use of modern technology and also that there may be inaccuracies and delays in system they currently utilize.

Table 11d: Effective use of modern technology on projects										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	50	12	9	4	1	76	1.00	1.00
96%	4%	Percentage	66%	16%	12%	5%	1%	100%		

Q.15. Tracking expenditure to date over the actual work done is practiced.

The majority 96% of the respondents agree that tracking current project expenditure on the actual work done is practised. Only 66% always practise this, 21% sometimes do so, 9% seldom or never do so and the 4% do not know whether tracking of expenditure on work done is practised, (Table 11e).

This implies that there are still uncertainties with tracking of expenditure hence the inaccuracy in budgeting and estimation for projects.

Table 11e: Tracking expenditure on projects										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	50	16	4	3	3	76	1.00	1.00
96%	4%	Percentage	66%	21%	5%	4%	4%	100%		

4.3.3.3. EXISTING SOLUTIONS TO PROJECT QUALITY

Q.J1. Site inspections are done regularly

The majority (94%) of the respondents agree that project site inspections are done regularly. The indication is that 75% of respondents state that this is always done regularly, 17% sometimes do inspections, 4% seldom inspect a project and the other 4% do not know whether inspections are done in a project, (Table 12a).

Even though the majority of respondents do inspections regularly, there is a concern relating to the 8% who do not know or seldom inspect the project.

Table 12a: Frequency of site inspections										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	57	13	3	0	3	76	1.00	1.00
94%	6%	Percentage	75%	17%	4%	0%	4%	100%		

Q.J2. Quality control is practiced through the project

A majority (92%) of the respondents agree that quality control is done in the project. The majority, 66% of respondents always practice quality control on projects, 21% sometimes do quality control, 9% seldom do quality control and the remaining 4% do not know whether quality control is done, (Table 12b).

The deduction from the information above is that although quality control is practiced, there are still areas which need to be accentuated for improvement.

Table 12b: Frequency of quality control on projects										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	50	16	7	0	3	76	1.00	1.00
92%	8%	Percentage	66%	21%	9%	0%	4%	100%		

Q.J3. Work that needs to be redone is redone even if it takes longer to complete or more budget to complete

A substantial number (88%) of the respondents agree that work that needs to be redone is redone even if it takes longer to complete or an additional budget to source. Table 12c indicates that 43% always practise this, 38% sometimes, 16% seldom or never redo work even if takes longer to complete and 3% do not know whether they have to redo any work even if it takes longer to complete or an additional budget to source.

This implies that there is a redoing of work as a product of initial poor quality of work.

Table 12c: Work that needs to be redone is redone.										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	33	29	10	2	2	76	1.00	2.00
88%	12%	Percentage	43%	38%	13%	3%	3%	100%		

Q.J4. Work is not redone only fixing of the problematic areas is done and project continues

The majority (76%) of the respondents agree the work is not redone but only the fixing of problematic areas is done and the project continues. The 36% of respondents always fix problematic areas and continue with the project, 36% sometimes fix problematic areas, 27% seldom or never fix problematic areas and continue with the project and the remaining 1% does not know if work is not redone and only fixing of problematic areas is done for the project to continue. (Table 12d).

This indicates that problems exist due to known factors.

Table 12d: Frequency on fixing of problematic areas										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	27	27	11	10	1	76	multiple	2.00
76%	24%	Percentage	36%	36%	14%	13%	1%	100%		

Q.J5. All defects are attended to prior to project handover

The majority (84%) of the respondents agree that all project defects are attended to prior to a project's handover. Table 12e indicates 63% always attend to the defects before handover, 22% sometimes attend to projects' defects before a projects' handover, 12% seldom or never attend to project defects before handover and the 3% do not know whether project defects are attended to before a handover.

This indicates the negligence on the necessary quality inspections before projects are handed over.

Table 12e: Defects are attended to before project handover										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	48	17	6	3	2	76	1.00	1.00
84%	16%	Percentage	63%	22%	8%	4%	3%	100%		

Q.J6. Project handover is done before defects are attended to.

A number (64%) of the respondents agree that a project's handover is done before defects are attended to. Table 12f indicates that 37% always handover a project before defects are attended to, 21% sometimes handover a project before attending to defects, 41% seldom or never handover a project without attending to defects first and the 1% do not know whether a project is handed over before defects are attended to.

Table 12f: Project handover is done before defects are attended										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	28	16	7	24	1	76	1.00	2.00
64%	36%	Percentage	37%	21%	9%	32%	1%	100%		

4.3.3.4. STAKEHOLDER INVOLVEMENT

Q.K1. People are not involved during the planning stages of their project

The respondents (60%) agree people are not involved during the planning stages of their project Table 13a indicates that 38% of respondents is always the case,

28% state that people are sometimes not involved at planning stages, 33% state that people are seldom or never involved during the planning stages of their project and 1% do not know whether people are involved during the planning stages of their project (Table 13a).

Table 13a: Community involvement at planning stages										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	29	21	16	9	1	76	1,00	2.00
60%	40%	Percentage	38%	28%	21%	12%	1%	100%		

Q.K2. There are no employment opportunities for local contractors.

The respondents (52%) agree that there are no employment opportunities for local contractors. The reflection on Table 13b indicates that 47% do not always employ local contractors, 20% state that sometimes there are no employment opportunities for local contractors, 32% indicate that there are seldom or never any employment opportunities for local contractors and a 1% does not know if employment opportunities are offered to the locals.

It is the researcher's point of view that housing projects should encourage the involvement and employment local contractors.

Table 13b: There are no employment opportunities for local contractors										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	36	15	16	8	1	76	1.00	2.00
52%	48%	Percentage	47%	20%	21%	11%	1%	100		

Q.K3. The changes in the project are discussed with communities as the project progresses

The majority (88%) of the respondents agree that changes in a project are discussed with communities as the project progresses. Table 13c indicates that 47% state that this is always the practice, 32% only practise this sometimes, 20% seldom or never discuss changes in the project with communities and 1% state that they do not know whether project changes are discussed with communities as the project progresses.

The aforesaid indicates that there are still communication problems relating to project communities.

Table 13c: The changes in the project are discussed with communities as the project progresses										
Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	36	24	13	2	1	76	1.00	2.00
88%	12%	Percentage	47%	32%	17%	3%	1%	100%		

Q.K4. All the project stakeholders are introduced at the beginning of the project

The majority (90%) of the respondents agree that all project stakeholders are introduced at the beginning of the project. Table 13d indicates that 72% of respondents always introduce stakeholders at the beginning of the project, 13% state that this is sometimes done, 11% state that stakeholders are seldom or never introduced at the beginning of the project and 4% do not know whether stakeholders are introduced at all.

The information entailed in Table 13d concludes that there are times when project stakeholders are not involved at the beginning of the project which may also create problems when bringing them on board to discuss project matter at execution.

Table 13d: Introduction of project stakeholders at project inception stage

Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	55	10	5	3	3	76	1.00	1.00
90%	10%	Percentage	72%	13%	7%	4%	4%	100%		

Q.K5. Change of stakeholders is communicated through the project team

The majority (86%) of the respondents agree that the change of stakeholders in a project is communicated through the project team. Table 13e indicates that 67% always practise this, 17% sometimes do so, 12% seldom or never communicate stakeholder changes through the project team and the 4% do not know if this is done in practice.

This implies that communication problems exist on housing projects.

Table 13e: Change of stakeholders is communicated through the project team

Agreement Indication (%)		Frequency of Usage	Always	Sometimes	Seldom used	Never	Don't know	Total	Modal Score	Median
Yes	No	Frequency	51	13	6	3	3	76	1.00	1.00
86%	14%	Percentage	67%	17%	8%	4%	4%	100%		

4.3.4. SECTION 4: PROJECT RETROSPECTION

In this section of the questionnaire, the respondents compare the similarity of the problems experienced with a specific project, which they had been involved with, to the general problems experienced in project management, and how the specific projects were completed.

Q.M1: Project duration: A set (41%) of the respondents' projects were implemented over a 12 month period followed by 16% with 6 month duration. The duration of projects ranged from 2-36 months (Figure 13).

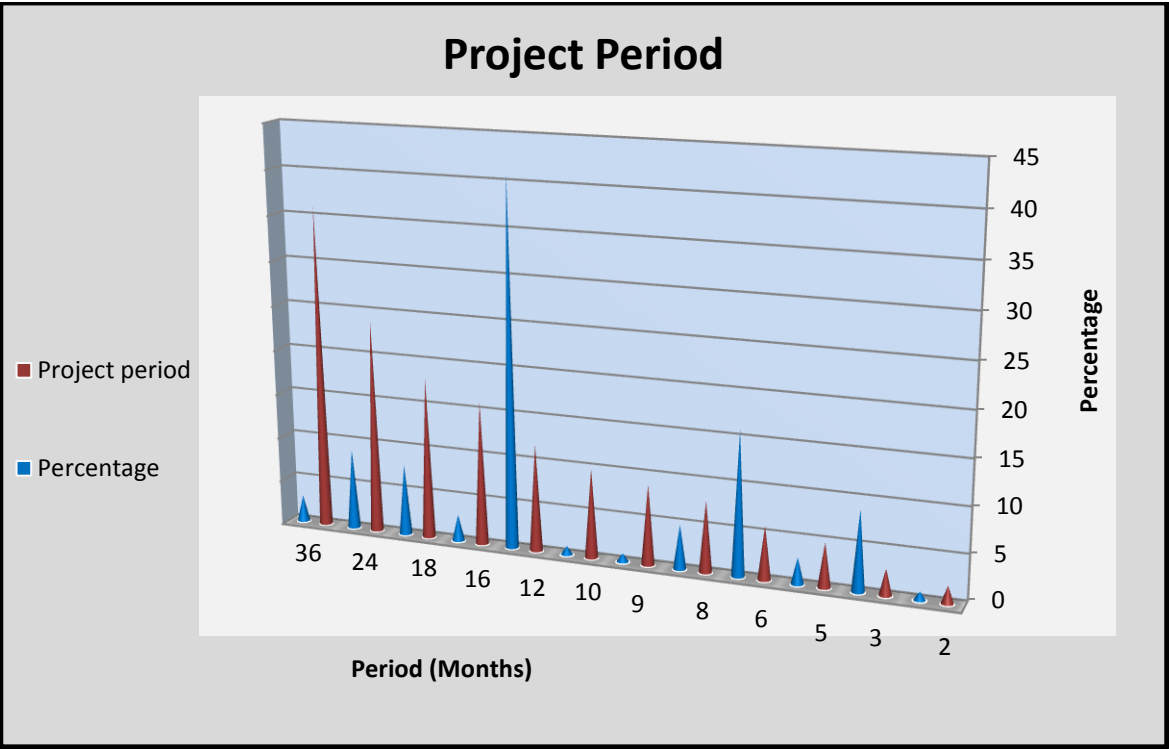


Figure 13: Project Period

Q.M2: Key Responsibilities: A majority (72%) of respondents' responsibilities involved project management (Figure 14).

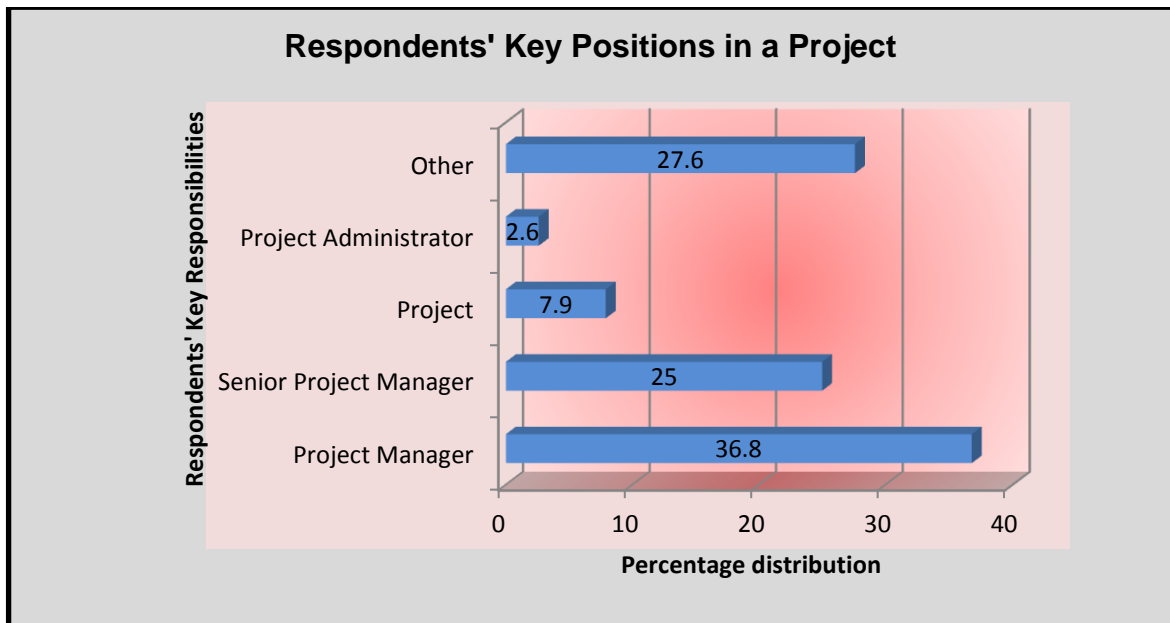


Figure 14: Respondents' Key Positions in a Project

Q.M3: The type of project the respondents worked on were mostly construction and engineering projects at 77% followed 13% of information technology and other projects (Figure 15).

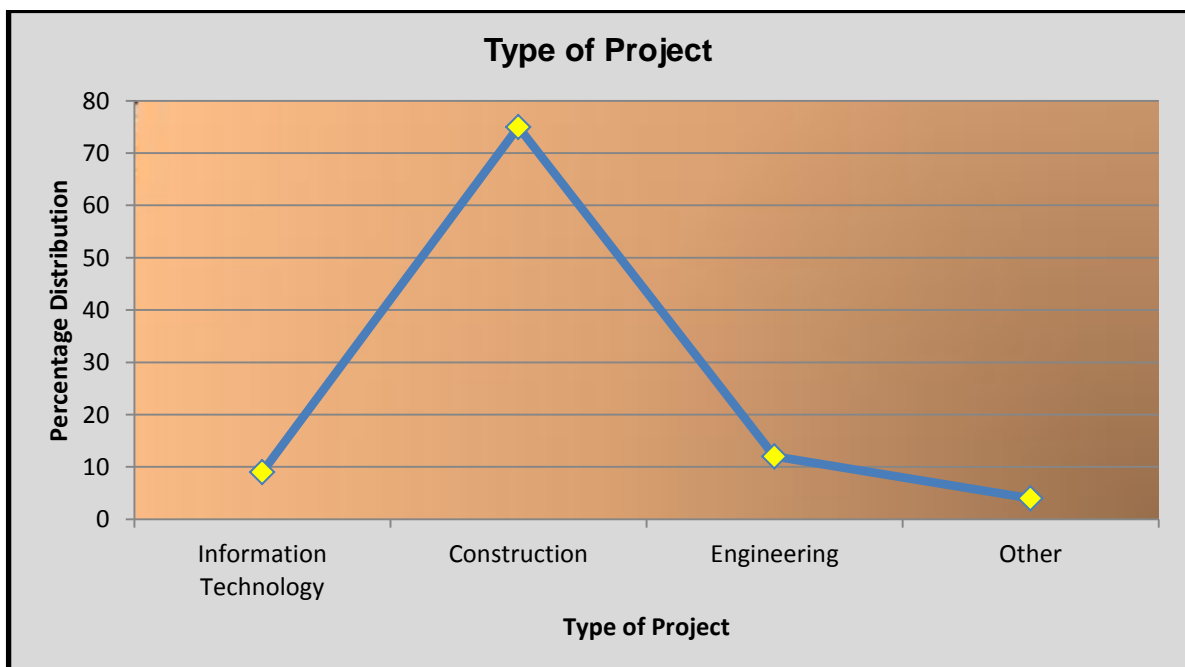


Figure 15: Type of Project

Q.M4-1: A majority (72%) of the respondents agree that their projects took longer than planned and only 28% of the projects were delivered on time.

Q.M4-2: A set (53%) of respondents agree that the final cost of the project did not exceed the initial budget for the project and 47% exceeded the original budget for the project.

Q.M4-3: A majority (87%) of the respondents agree that final deliverables of the project satisfied the requirements of the stakeholders.

Q.M4-4: A majority (80%) of the respondents agree that project requirements (scope), constraints and specific schedule elements / dates (milestones) were clearly identified and communicated to stakeholders.

Q.M4-5: A set (65%) of respondents agree that all project stakeholders were committed to the goals of the project.

Q.M4-6: A majority (88%) of respondents agree that all the team and stakeholder roles and responsibilities were clearly delineated and communicated in the project.

Q.M4-7: A majority (74%) of respondents agree that skilled people were assigned to all project roles.

Q.M4-8: A majority (87%) of respondents agree that the project manager/ leader was assigned to accept the overall responsibility of the project.

Q.M4-9: A majority (65%) of respondents agree that the project scope was changed at any stage in the project.

Q.M4-10: A majority (84%) of respondents agree that all project deliverables (time, scope, budget and quality) were monitored closely throughout the project's life cycle.

Q.M4-11: A majority (80%) of respondents agree that project's status (progress) was circulated and disseminated to all stakeholders and project team timeously.

Q.M4-12: A majority (79%) of respondents agree that project resources were analysed for both over and underutilization.

Q.M4-13: A majority (76%) of respondents agree that early warning signs of problems that occurred in the project were timeously responded to.

Q.M4-14: A majority (93%) of projects used contractors.

Q.M4-15: A majority (91%) of respondents agree that suppliers were also used for the project.

M4-16: A majority (74%) of respondents agree that project delays can be attributed specifically to contractors.

M4-17: A substantial (55%) of respondents agree that project delays can be attributed to suppliers.

M4-18: The success rate of the projects implemented by the respondents is indicated in Figure 16, a majority (82%) of projects were successful, only 18% were not successful with 1% disastrous projects.

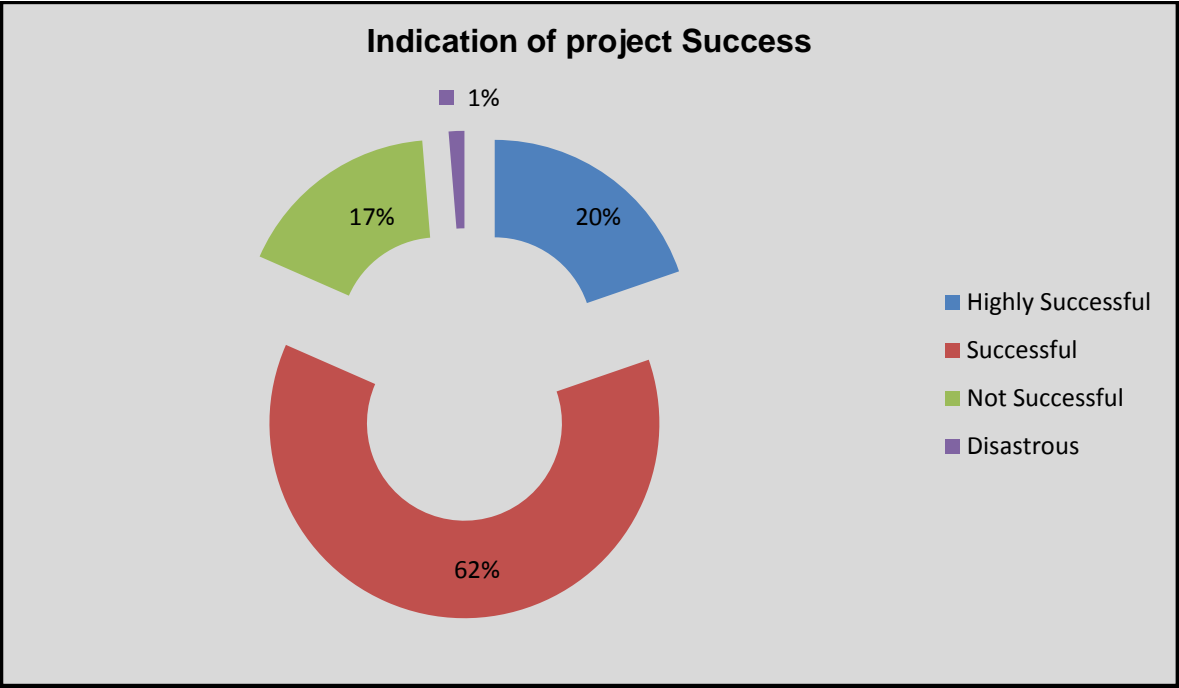


Figure 16: Indication of Project Success

4.4. SUMMARY OF DATA INTERPRETATION

4.4.1. PROJECT DELAYS AND THEIR IMPACT ON HOUSING

The results of the survey indicate an average of 86% respondents is in agreement with problems relating to time. Figure 17a below represents the causes of project delays and the rate of effect they have on project delays. The ratings are based on the highest scorings of respondents obtained from the analyses of data.

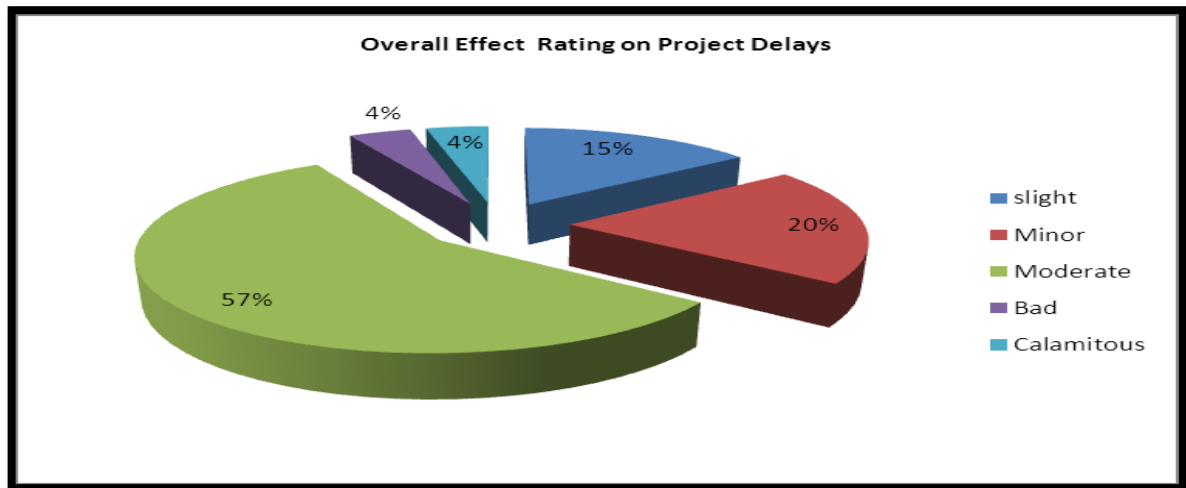


Figure 17a: Overall Effect Rating on Project Delays

From Figure 17a, it can be deduced that the effects of the delays in time are moderate. The majority (89%) of respondents generally agree that project delays have impact of the overall project. Figure 17b indicates the impact severity of delay on a project.

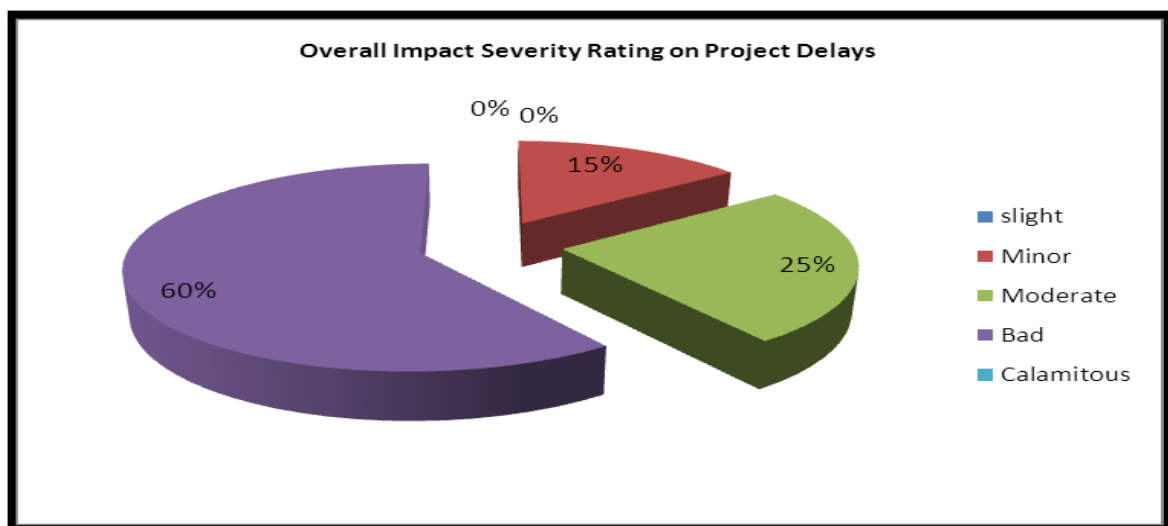


Figure 17b: Overall Impact Severity Rating on Project Delays

Figure 17b indicates that the impact of project delays is bad (60%) even though moderate or minor in certain cases.

4.4.2. COST OVERRUNS AND THEIR IMPACT ON HOUSING PROJECTS

The average of 82% response from the survey agrees that cost overruns occur on projects. Figure 18a indicates the effects of causes of cost overruns. The moderate effects occupy a bigger area (69%), 15% represents the minor effects and an 8% split between calamitous and slight effects on costs.

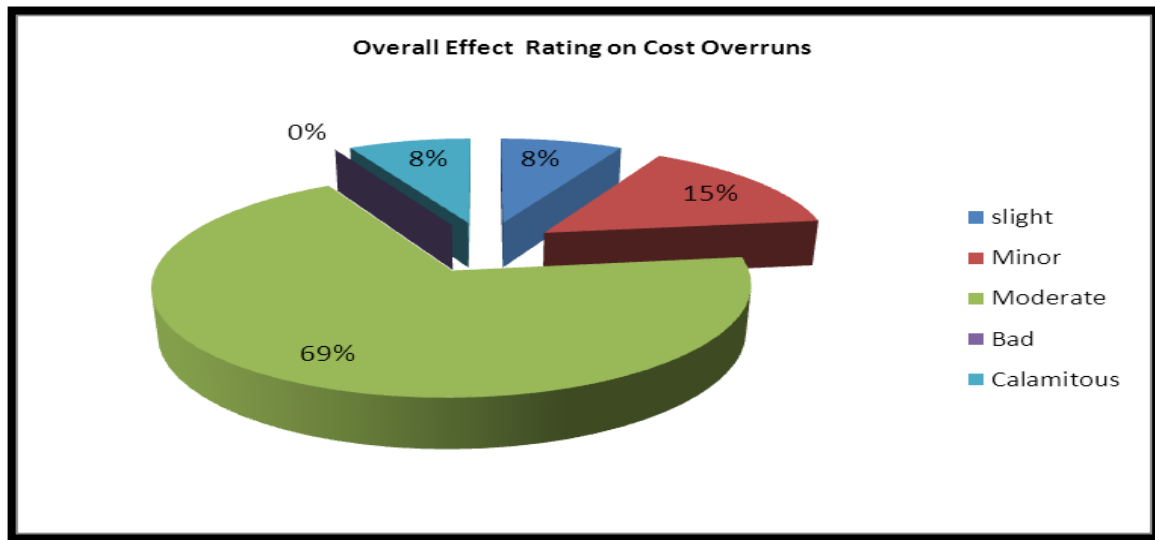


Figure 18a: Overall Effect Rating on Cost Overruns

In assessing the impact of cost overruns, respondents agreed that there are impacts leading to cost overruns. Figure 18b indicates the impacts of cost overruns on projects, where 50% of impacts are moderate and a 25% of bad and 25% of calamitous effects. The overall indication is that cost overruns can severely impact on a project.

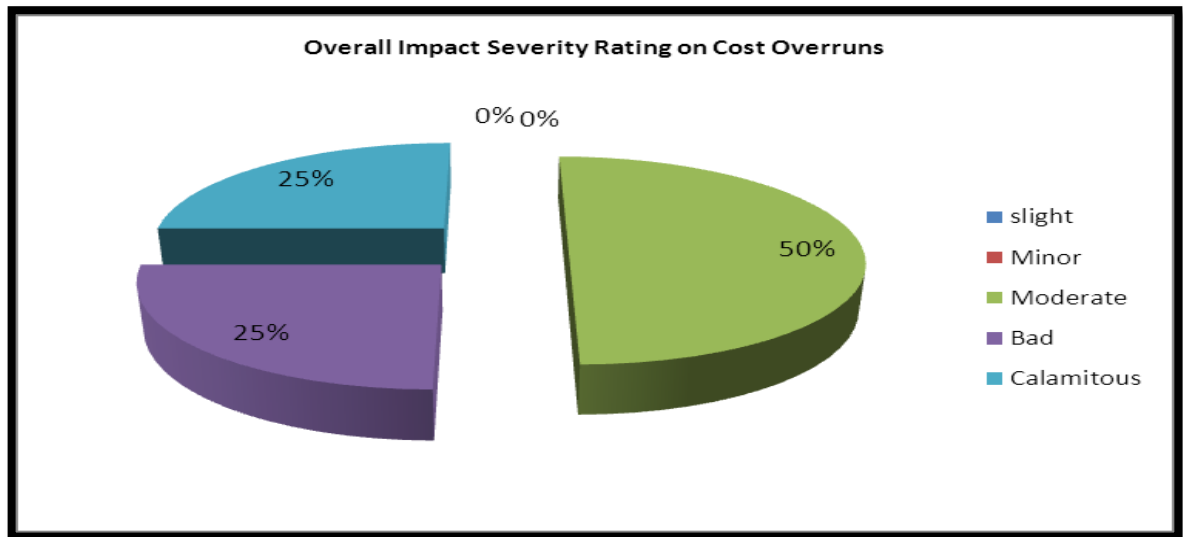


Figure 18b: Overall Impact Severity on Cost Overruns

The impacts of project cost overruns needs to be considered perceptively as housing projects are for communities who have waited for too long to receive a house, some have lived in informal areas for many years and a discontinued or unfinished housing development due to cost overruns becomes a great disappointment to these communities.

4.4.3. PROJECT QUALITY AND ITS IMPACT ON HOUSING PROJECTS

An overall average of respondents (82.9%) agrees that the poor quality of a project is produced. Figure 19a indicates 60% of the causes have moderate effect on projects, 20% slight effects and the remaining 20% bad effects.

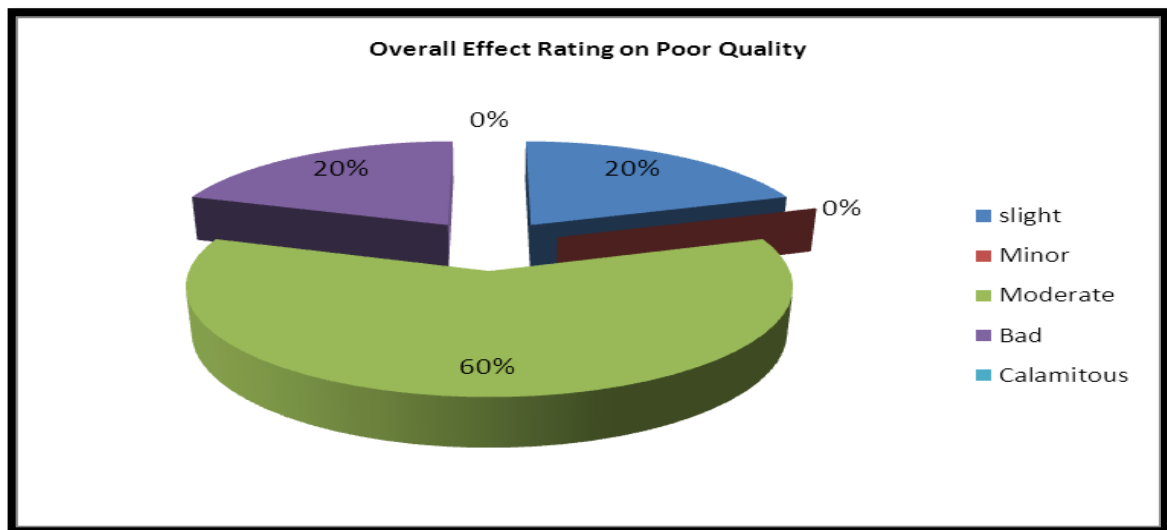


Figure 19a: Overall Effect Rating on Poor Quality

The respondents agree that there is a severe impact on projects due to poor quality and the impact is illustrated on Figure 19b.

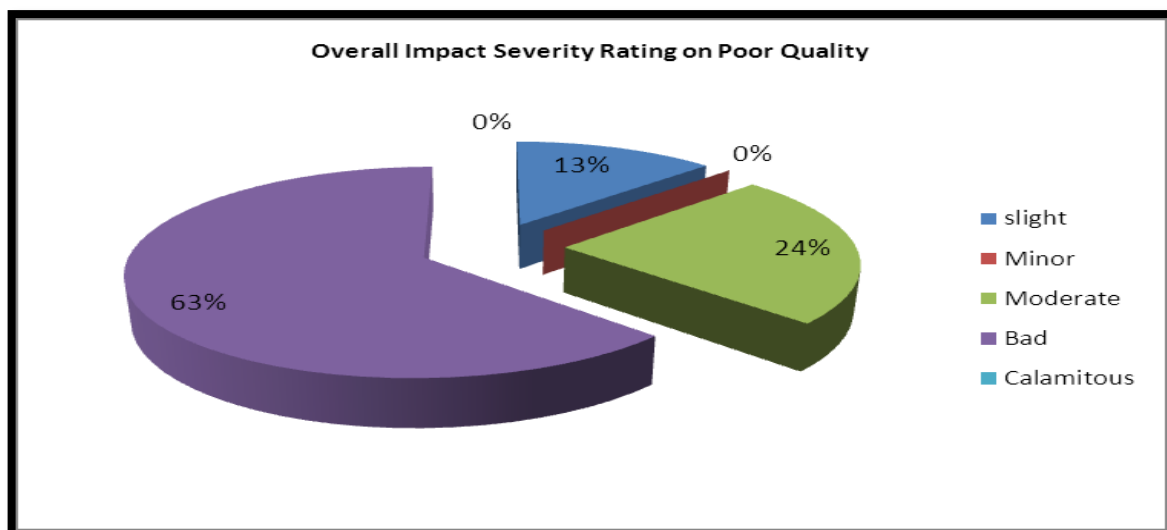


Figure 19b: Overall Impact Severity Rating on Poor Quality

Figure 19b indicates that 63% impacts of poor quality are bad, with 24% moderate impacts in some projects and a 13% slight impact. The highest score indicates that bad impacts result from poor quality.

4.4.4 SOLUTIONS TO PROJECT MANAGEMENT PROBLEMS

The solutions to the problems associated with project management (of housing projects) that have been implemented, will be discussed in Chapter 5.

4.5. INTERPRETATION OF THE FINDINGS

Project management has been emphasized as the most effective method or approach for managing projects successfully. A project's success cannot be achieved without thorough control and tracking of activities, all other elements within the project as well as the progress of the project, (Venkataraman & Pinto, 2008:2-6; Nicholas & Steyn 2008:332 and Smith 2002:46).

The findings from empirical studies are that housing project managers experience problems which, if not properly managed, may have a significant impact on projects. The interpretation of findings provides a detailed indication of the project management problems which have a higher effect and/ or impact on housing projects, as indicated in Table 14. The extent of the impact was rated from 1-5 with 5 being the worst case and it is the reason that only the highest modal scores were considered.

From the Table 14 problems experienced on housing projects may be abridged sequentially as follows:

- Delays due to legal issues
- Delays due to no prioritization of activities
- Delays due to corruption
- Delays due to poor planning
- Cost overruns due to lack of control
- Poor quality due to lack of control
- Poor quality due to lack of experience and ability to perform
- Irregular Inspections
- Insufficient supervision
- Lack of accountability

The impact of problems experienced may be summarized as follows:

- Delays impact negatively on budgets
- Delays impact negatively on project scope
- Delays may lead to project termination
- Delays may lead to incomplete projects
- Delays may lead to costly disputes and adverse relationships amongst project participants
- Cost overruns may lead to project discontinuity due to lack of extra funds to complete the project
- Cost overruns may lead to lengthy legal processes justifying reasons for project discontinuity and getting legal mandate to reappoint a new contractor
- Cost overruns may lead to social instability and political unrest

- Poor quality may lead to increased complaints and criticism from the communities
- Poor quality may lead to poorly built houses having to be rebuilt and those with minor defects fixed
- Poor quality may lead to increased project costs
- Poor quality may lead to project delays
- Poor quality may lead to project discontinuity

The above mentioned problems and their impact are also evident with the experience of projects explored under case studies (Chapter 5).

Table 14: SUMMARY OF PROBLEMS WITH HIGH EFFECT AND IMPACT ON HOUSING PROJECT		
Project Management Problem/Impact	Table	Modal Score
Project Delays		
1. Delays due to legal issues	4g	3.00 or 4.00
2. Delays due to no prioritization of activities	4k	4.00
3. Delays due to corruption	4o	3.00 or 4.00
4. Delays due to poor planning	4w	5.00
Project Costs		
5. Cost overruns due to lack of control	5k	5.00
Project Quality		
6. Poor quality due to lack of control	6c	4.00
7. Poor quality due to lack of experience and ability to perform	6f	4.00
8. Irregular Inspections	6g	4.00
9. Insufficient supervision	6h	4.00
10. Lack of accountability	6i	4.00
Impacts of Project Delays		
11. Delays impact negatively on budgets	7b	4.00
12. Delays impact negatively on project scope	7c	4.00
13. Delays may lead to project termination	7d	4.00
14. Delays may lead to incomplete projects	7e	3.00 or 4.00
15. Delays may lead to costly disputes and adverse relationships amongst project participants	7f	3.00 or 4.00
Impact of Project Cost Overruns		
16. Project discontinuity due to lack of extra funds to complete the project	8a	5.00
17. Lengthy legal processes justifying reasons for project discontinuity and getting legal mandate to reappoint a new contractor	8d	4.00
18. Social instability and political unrest	8g	5.00

Table 14: SUMMARY OF PROBLEMS WITH HIGH EFFECT AND IMPACT ON HOUSING PROJECT <i>Continued</i>		
Project Management Problem/Impact	Table	Modal Score
Impact of Poor Project Quality		
19. Poor quality may lead to increased complaints and criticism from the communities	9b	3.00 or 4.00
20. Poor quality may lead to poorly built houses having to be rebuilt and those with minor defects fixed	9c	4.00
21. Poor quality may lead to increased project costs	9d	4.00
22. Poor quality may lead to project delays	9e	4.00
23. Poor quality may lead to project discontinuity	9f	4.00

4.6. CONCLUSION

The respondents from most levels of authority and sectors presented during the empirical study were represented. The 48% of respondents were younger than 36 years of age with a 17% of respondents older than 50 years of age.

The researcher also notes that there is a gap between males and females in the project management of housing projects, where 56% are males and only 20% are females. The 67% of respondents are PDIs and the respondents' level of education vary greatly with only 1% at PhD level, 8% Masters level, 17% Honours level and 74% B-Tech level and below.

Most respondents have Civil Engineering (42%), followed by Town Planning at 21% thereafter a limited number of Quantity Surveying (1%), Construction Management (4%), Architecture (8%) and Building (12%) qualifications. Some respondents only studied up to Matric level only (8%).

The researcher also notes that the respondents' registration levels with professional bodies and / or voluntary organisations is limited, only (%) registered

and the remaining % is not registered or register with organisations which were not included in the study.

The problems experienced and their impacts on housing projects have been explored and concluded that they exists in both the literature and the empirical studies. Chapter 5 will present the testing of hypotheses, conclude the study and suggest recommendations thereof.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. INTRODUCTION

In this chapter the hypotheses are tested in comparison to the data interpreted from empirical studies. The conclusions and recommendations are made at the end of the chapter.

5.2. TESTING OF THE HYPOTHESES

Leedy and Ormrod (2010:278) state that the testing of the hypothesis is the second major function of inferential statistics and that the first hypothesis, problems are experienced by PMs on housing projects (in Chapter 1 of this study) relates to a research hypothesis, the second hypothesis (problems impact negatively on housing delivery) and the third hypothesis (solutions to project management of housing projects have been developed and implemented) relate to statistical hypothesis.

The literature reviewed and the findings from the survey have been utilized to test the hypotheses for this study.

5.2.1. HYPOTHESIS 1

PROBLEMS IN HOUSING DELIVERY ARE EXPERIENCED BY PROJECT MANAGERS

The study alluded that there are problems experienced by PMs in housing delivery. During the empirical studies, the problems that were rated by the respondents are listed and the feedback reflects that the problems exist in housing projects.

Majority of the problems identified are experienced by various project managers in the housing sector. The last column in the Table 15 gives an indication of whether the hypothesis is supported or not supported based on the effect rated by respondents as illustrated below.

Effect Rating	Definition	Negative % on project performance	Score
Calamitous	Continuously the reason for project failures identified	≥ 80%	5
Bad	Mostly the reason for project failure identified	60% - 79%	4
Moderate	Sometimes the reason for the project failure identified	40% - 59%	3
Minor	Less frequently the reason for project failures identified	20% - 39%	2
Slight	Seldom reason for project failures identified	< 20%	1

Where the modal score is higher the mid-point 3 the hypotheses is supported and where the modal score is lower than 3 the hypothesis is not supported.

The Table 15 is categorized according to the hypothesis identified at the beginning of the study.

Table 15: Analysis of results to test Hypothesis 1-Problems are experienced by PMs in housing projects.

PROBLEM IDENTIFIED	EFFECT	MODAL SCORE	REFERENCE	HYPOTHESIS SUPPORTED (YES/NO)
Project delays relate to poor design	Slight	1	Table 4a	No
Project delays relate to user changes	Moderate	3	Table 4b	Yes
Project delays relate to weather	Slight	2	Table 4c	No
Project delays relate to site conditions	Minor	2	Table 4d	No
Project delays relate to late deliveries	Moderate	3	Table 4e	Yes
Project delays relate to economic conditions	Moderate	3	Table 4f	Yes
Project delays relate to legal issues	Moderate/bad	Multiple	Table 4g	Yes
Project delays relate to contractual issues	Moderate	3	Table 4h	Yes
Project delays relate to poor construction scheduling	Moderate	3	Table 4i	Yes
Project delays relate to well-known or domain issues	Moderate	3	Table 4j	Yes
No prioritization of activities	Bad	4	Table 4k	Yes
Unnecessary meetings	Slight	1	Table 4l	No
Interruptions	Minor	2	Table 4m	No
Negligence or improper conduct	Minor	2	Table 4n	No
Project delays relate to corruption	Moderate/bad	Multiple	Table 4o	Yes

Table 15: Analysis of results to test Hypothesis 1-Problems are experienced by PMs in housing projects. *Continued*

PROBLEM IDENTIFIED	EFFECT	MODAL SCORE	REFERENCE	HYPOTHESIS SUPPORTED (YES/NO)
Time is influenced by detrimental (negative) conditions	Moderate	3	Table 4p	Yes
Project delays relate to increase in quantity	Moderate	3	Table 4q	No
Destructive conflict resolution delays a project	Moderate	3	Table 4r	Yes
Poor risk management and supervision	Moderate	3	Table 4s	Yes
Slow decision-making involving project teams	Moderate	3	Table 4t	Yes
Client- initiated variations	Moderate	3	Table 4u	Yes
Necessary variations of works	Minor/moderate	Multiple	Table 4v	No
Poor planning	Calamitous	5	Table 4w	Yes
Inaccuracy in estimating original plan costs	Moderate	3	Table 5a	Yes
Inadequate detail in plan	Slight/ Moderate	Multiple	Table 5b	No
Schedule delays	Minor/moderate	Multiple	Table 5c	No
Poor communication	Moderate	3	Table 5d	Yes
Unforeseen technical problems	Moderate	3	Table 5e	Yes
Inaccurate reporting	Moderate	3	Table 5f	Yes
Changes in material cost	Moderate	3	Table 5g	Yes
Service costs that were not anticipated	Moderate	3	Table 5h	Yes

Table 15: Analysis of results to test Hypothesis 1-Problems are experienced by PMs in housing projects. *Continued*

PROBLEM IDENTIFIED	EFFECT	MODAL SCORE	REFERENCE	HYPOTHESIS SUPPORTED (YES/NO)
Changes in the scope of the project that are not reflected in the updates to budget	Moderate	3	Table 5i	Yes
Inadequate documentation of project changes	Minor	2	Table 5j	No
Lack of control	Calamitous	5	Table 5k	Yes
Quality specifications are not clearly communicated	Slight	1	Table 6a	No
Lack of motivation	Moderate	3	Table 6b	Yes
Lack of control	Bad	4	Table 6c	Yes
Lack of coordination amongst project stakeholders	Moderate	3	Table 6d	Yes
Pressure to finish the project on time	Moderate	3	Table 6e	Yes
Lack of experience and ability to perform	Bad	4	Table 6f	Yes
Irregular inspections	Bad	4	Table 6g	Yes
Insufficient supervision	Bad	4	Table 6h	Yes
Lack of accountability	Bad	4	Table 6i	Yes

5.2.2. HYPOTHESIS 2

PROBLEMS EXPERIENCED BY PMs IMPACT NEGATIVELY ON OVERALL HOUSING PROJECT PERFORMANCE AND DELIVERY RATE

The study assumed that there are negative impacts resulting from problems experienced by PMs in housing delivery. The impacts of problems were rated by the respondents and the feedback reflects that the problems exist in housing projects.

Impact Severity Rating	Definition	Negative % on project performance	Score
Calamitous	Continuously the reason for project failures identified	≥ 80%	5
Bad	Mostly the reason for project failure identified	60% - 79%	4
Moderate	Sometimes the reason for the project failure identified	40% - 59%	3
Minor	Less frequently the reason for project failures identified	20% - 39%	2
Slight	Seldom reason for project failures identified	< 20%	1

The last column in the Table 16 gives an indication of whether the hypothesis is supported or not supported based on the effect rated by respondents. Where the modal score is below the mid-point 3 the hypothesis is not supported. The Table 16 is categorized according to the hypotheses identified at the beginning of the study.

Table 16: Analysis of results to test Hypothesis 2: The problems experienced impact negatively on the overall housing performance and delivery rate.

IMPACT OF PROBLEMS	SEVERITY	MODAL SCORE	REFERENCE	HYPOTHESIS SUPPORTED (YES/NO)
Quality specifications are not clearly communicated	Minor	2	Table 7a	No
Negatively impact on budgets	Bad	4	Table 7b	Yes
Negatively impact on project scope	Bad	4	Table 7c	Yes
Project termination	Bad	4	Table 7d	Yes
Incomplete projects	Moderate/bad	Multiple	Table 7e	Yes
Costly disputes and adverse relationship amongst project participants	Moderate/bad	Multiple	Table 7f	Yes
Project discontinuity due to lack of extra funds to complete the remaining work	Calamitous	5	Table 8a	Yes
Delays in the project whilst receiving alternative sponsor	Moderate	3	Table 8b	Yes
High project risk due to predetermined (or limited) budget	Moderate	3	Table 8c	Yes
Lengthy legal processes justifying the reasons for project discontinuity and receiving legal mandate to reappoint a new contractor.	Bad	4	Table 8d	Yes
Scope reduction to accommodate the available funding	Moderate	3	Table 8e	Yes
Reduced level of service	Moderate	3	Table 8f	Yes
Social instability and political unrest	Calamitous	5	Table 8g	Yes
Quality specifications are not clearly communicated	Slight	1	Table 9a	No
Increased complaints and criticism from communities	Moderate/Bad	Multiple	Table 9b	Yes
Poorly built houses have to be demolished, rebuilt and those with minor defects have to be fixed	Bad	4	Table 9c	Yes

Table 16: Analysis of results to test Hypothesis 2: The problems experienced impact negatively on the overall housing performance and delivery rate. *Continued*

IMPACT OF PROBLEMS	SEVERITY	MODAL SCORE	REFERENCE	HYPOTHESIS SUPPORTED (YES/NO)
Increased project costs	Bad	4	Table 9d	Yes
Project delays	Bad	4	Table 9e	Yes
Unnecessary scope changes	Moderate	3	Table 9f	Yes
Project discontinuity	Bad	4	Table 9g	Yes

5.2.3. HYPOTHESIS 3

SOLUTIONS TO PROJECT MANAGEMENT HAVE BEEN DEVELOPED AND IMPLEMENTED

The study presumed that there are solutions to problems experienced by PMs. The extent of usage was rated by the respondents and the feedback reflects that the solutions are not fully utilized by project managers.

The solutions identified during the literature review and empirical studies are presented in Table 17. The last column of Table 17 gives an indication of whether the hypothesis is supported or not supported based on the effect rated by respondents.

Frequency of Usage Rating	Definition	Negative % on project performance	Score
Always	Mostly used as a useful tool from initiation to the end	≥ 80%	1
Sometimes	Only used for certain stages within the project	50% - 79%	2
Seldom used	Only used for specific projects once in a while	40% - 49%	3
Never	Never used any planning tool for the project	20% - 39%	4
Don't know	I am not familiar with any of the terms used	<20%	5

Where the modal score is higher the mid-point 3 the hypothesis is not supported.

The Table 17 is categorized according to the hypothesis identified at the beginning of the study.

Table 17: Analysis of results to test Hypothesis 3: There are exiting solutions to problems experienced by PMs

SOLUTION	FREQUENCY OF USAGE	MODAL SCORE	REFERENCE	HYPOTHESIS SUPPORTED (YES/NO)
Scheduling of activities and resources is used as a planning tool from project inception	Always	1	Table 10a	Yes
Tracking of project activities is practised	Always	1	Table 10b	Yes
Planning aids such as computers, action planning sheets, MS Projects packages are used	Always	1	Table 10c	Yes
Monitoring physical progress is practised	Always	1	Table 10d	Yes
Monitoring programme is done continually	Always	1	Table 10d	Yes
Progress meetings are conducted	Always	1	Table 10e	Yes
Planning for budget from project inception is done	Always	1	Table 11a	Yes
Budget monitoring during project implementation phase is practised	Always	1	Table 11b	Yes
Reporting on achieved deliverables and reviewing budget	Always	1	Table 11c	Yes
Use of modern technology such as MS Excel, MS Projects™ is very effective	Always	1	Table 11d	Yes
Tracking expenditure to date on the actual work done is practised	Always	1	Table 11e	Yes
Site inspections are done regularly	Always	1	Table 12a	Yes
Quality control is practised through the project	Always	1	Table 12b	Yes

Table 17: Analysis of results to test Hypothesis 3: There are exiting solutions to problems experienced by PMs.
Continued

SOLUTION	FREQUENCY OF USAGE	MODAL SCORE	REFERENCE	Yes
Work that needs to be redone is redone even if it takes longer to complete or additional budget to complete	Always	1	Table 12c	Yes
Work is not redone, only the fixing of problematic area is done and the project continues	Always/ Sometimes	Multiple	Table 12d	Yes
All defects are attended to prior to project handover	Always	1	Table 12e	Yes
Project handover is done before defects are attended to	Always	1	Table 12f	Yes
People are not involved during the planning stages of their project	Always	1	Table 13a	Yes
There are no employment opportunities for local contractors	Always	1	Table 13b	Yes
The changes in the project are discussed with communities as the project progresses	Always	1	Table 13c	Yes
All project stakeholders are introduced at the beginning of the project	Always	1	Table 13d	Yes
Change of stakeholders is communicated through the project team	Always	1	Table 13e	Yes

5.2.4. CASE STUDIES

The researcher used Section 5: Project Retrospection in the questionnaires to confirm the study hypothesis and for greater clarity on the nature of problems experienced by PMs. The project success indication in Figure 16 (page 117) gives an 18.4% of unsuccessful housing projects.

The feedback from the interviews about the problems relating to the unsuccessful projects reflected various circumstances leading to project failures. A set of questions were sent to the affected respondents for clarity, in addition to the original questionnaire. Some respondents were interviewed after project meeting and whenever opportunity allowed.

The researcher chose to present the following projects as a case study presenting the different circumstances that led to project failures. These projects are:

- Kleinskool Area K
- Walmer Area O

The Kleinskool Area K Scenario

This project, the construction of civil engineering services to 349, was supposed to be completed as early as 2005 and it extended to 2006. There are still defects being fixed continuously in the same project area. The initial project budget was exceeded.

The contractor abandoned the site with minimal progress achieved and could not justify the over-expenditure. The contractor's intentions to vacate the site were not communicated to the project managers. The matter went through a lengthy legal process for resolution. Investigations were conducted on the extent of the existing work completed and the proposed scope.

A new contractor had to be procured. Further delays to complete the remaining work were due to the late approval of funds for a pre-funded failed project.

The Walmer Area O Scenario

The Walmer Area O project was a combined top structures and infrastructure project for 437 sites which was due for completion in 2010. The project was completed in 2013.

According to the respondents, the contractor met the tender requirements and had the expertise to perform and deliver the contract/project on time. Houses were built without infrastructure services on the ground.

The contractor had not installed the infrastructure and therefore the houses could not be handed over as complete without it. It was discovered that the contractor only specializes with the construction of houses and not the infrastructure.

There were also delays due to procurement of the sub-contractors and their non-delivery of work. Subsequent to the two sub-contractors for infrastructure installation could not perform the work, delays were experienced due to payment issues between the main contractor and NMBM.

5.3. CONCLUSION

The main problem that the researcher identified at the beginning of the study was that there are problems experienced by PMs on housing projects and they slow down the housing delivery rate. The problem was hence subdivided into sub-problems in order to investigate thoroughly the extent of the main problem.

The survey conducted by the researcher and the literature reviewed agree in indicating that there are problems experienced by PMs in housing projects and that they impact severely on the housing delivery. Table 14 (Page 113) represents the project management problems and their impact together with modal scores which assist with the ratings of importance and the required attention for improvement in order to ensure future timeous delivery of housing projects, and any other project thereof. Similar problems were identified by the literature reviewed in this study.

The problems experienced by PMs have been addressed by existing solutions which, when utilized properly, may help to remedy the current situation. However, the outcome of the study reveals that these solutions are not used by all the project managers. The researcher, based on the foregoing findings, concludes that:

- The procurement process is flawed and this is evident when considering the performance of contractors involved with the execution of housing projects
- Problems relating to corruption affect the execution and delivery of housing projects.
- Skills development of individuals involved with the housing projects will ensure timeous delivery of housing projects.
- Attention to detail during the planning of housing projects needs to be strengthened.
- Problems with the quality of housing projects that are produced require attention, and the current housing rectification projects support this.
- Project delays experienced serve as a major inconvenience in all aspects of a project because they affect, scope, quality, cost and the stakeholders at large.
- Proper project control in the execution of housing projects is essential.

At a closer introspection to the project management problems identified by the researcher through the case studies and, based on the questionnaire feedback are as follows:

- Irregular site inspections by project managers from all parties
- Lack of accountability by all parties
- Lack of commitment
- Supplychain management (SCM) is weak
- Lack of necessary skill and experience as contractors leave before they finish their work indicates that there is poor management of service providers
- Approval of funding for projects is a lengthy process.

The correct assumptions made at the beginning of the study and based on the overall findings are:

- Housing delivery is dependent on project management practices by PMs, and now that there are problems experienced with project management of these projects, delivery is slow.
- Project management problems exist whilst the projects are being supervised and monitored by project managers
- The respondents provided adequate information for the study and
- The researcher was able to identify problems experienced, their impact and solutions developed and implemented by the project managers.

The assumption that the PMs are adequately qualified and have sufficient skills to perform and deliver designated responsibilities is incorrect as the problems experienced as well as the underutilization of existing solutions on housing projects suggest that there are inadequate skills in the project management of housing projects.

5.4. RECOMMENDATIONS

The objectives of the study to ascertain the nature of the problems experienced by the municipal project managers on housing projects within NMB; determine the extent of impact of the problems experienced in housing delivery within NMB; and investigate the solutions that have been developed and implemented by the municipal project managers as a means of addressing these problems and/or reducing their impact(s) on housing delivery, have been explored through both the literature and in practice.

Considering the literature, project introspection, case studies and the survey in general, the researcher has identified the following project management areas which are recommended for improvement in NMBM housing projects:

Procurement and administration of contracts - the procurement of service providers, especially consultants and contractors, needs to be strengthened so as to increase the level of accountability and to protect the public from receiving poor quality services from companies with a poor capacity and /or reputation.

In order to address the accountability and poor quality in project management for improvement, the researcher proposes that:

- Severe disciplinary measures regarding the documentation supplied by the tenderers be established and contractors or consultants that do not perform according to specifications in the documents provided at the award of a tender should not be awarded any further contracts within NMB for a reasonable period of redemption.
- The period of redemption provides contractors or contractors a limited timeframe for a recorded individual improvement on other projects outside the NMB which can be verified and validated by supporting evidence.

A review of the SCM policies is necessary to strengthen the decision-making within the SCM. This is necessary to certify that non-qualifying contractors are prohibited from tenders to execute housing projects and to re-assure communities of safety and quality standards provided by the municipality. This will assist in regaining the trust of the communities who the NMBM is serving and all fruitless expenditure will be minimised greatly, if not avoided completely.

Corruption - The MFMA (Chapter 2 and 3) guides the behaviour of officials involved in the procurement process to avoid corruption and misinterpretation of contract and tendering data. Strict measures should be implemented to ensure adherence by all parties.

Skills Development - The initiative to develop individuals involved with housing projects needs to be addressed holistically, because it is not only official project managers who lack requisite skills, but also service providers as well. In order to strengthen and develop the requisite skills for the execution of a housing project, it is necessary for the NMBM to consider mentoring or on-going support to officials and the SMMEs that are appointed. This will assist in keeping track of their performance and also assist where they are lacking. Once the SMMEs are functioning well, and the officials' skills strengthened, it is only then that they should be allowed to work independently on housing projects.

Execution of projects – This requires joint efforts from all parties involved in a project. The project manager needs to be aggressive in leading the project especially not to compromise the standards set by the contract. All project participants should be vigilant with the monitoring of and adherence to all aspect of projects from inception. This will ultimately guarantee avoidance of variations, compromise of project quality and unnecessary project delays. Variations are costly in all aspects of project management and the NMBM cannot afford to have projects performing in that fashion continuously.

Administration of project quality - Project managers need to plan for quality of the projects and acknowledge that projects cannot be executed and treated the same way repeatedly; each project is unique and always leads to new experiences. Quality inspection should not just be done periodically but timeous remedial action should be taken promptly to avoid disappointment well to guarantee project success. By reacting timeously on quality issues, a project manager can save time, cost and possible scope changes.

Administration of project time - project managers should apply suitable planning techniques and be accountable for the project's duration as they are the ones who check the execution of plans and agree with the contractors. These programmes should be followed at all times and regular check-up and reviews need to be done after each milestone achieved and if no milestone is achieved, a proper and sound explanation should be provided on the monthly or weekly reports and a plan of action to remedy the situation should be provided too. Project managers, however, should avoid such programme slip-offs as they can be costly and may delay a good project.

Administration of project costs - Project managers need to prepare the cost management plans in advance since once the project has commenced it is not easy to track budget changes, if there was no plan in place from the commencement stages. The researcher strongly recommends this as it will act as a motivator to project managers to ensure that their fixed budgets are properly managed and that, when necessary, contingencies are utilized in a manner which does not compromise project standards.

Managing relationship with project stakeholders - should also improve, even at planning stages, due to the fact that all housing projects have people expecting their delivery and the feasibility studies should be communicated, should there be a need for project discontinuity due to non-compliance with legal requirements and environmental standards. All proceedings during implementation need to be

conveyed to stakeholders to strengthen their trust in the project managers. It is also vital to be aware of expertise and responsibilities that each participant carries in a project to avoid misunderstanding with community representatives, as well as to strengthen the relationship amongst team members. In this way even communication channels are cleared and information flow improves throughout the project. This will also assist with the reduction if not elimination of political unrest activities in the project areas. The Ward Councillors should play an active role to educate themselves about the developmental processes. The Housing directorate should prepare document hand-outs which educate the stakeholders of the developmental processes.

Caution for project managers - Project managers need to trust one another and build a network of skills growth as some project managers are more experienced than others. In Figure 4 and Figure 7 the years of experience and the expertise of respondents indicates that the housing sector has limited experience (48% of practitioners are under 36 years of age) and only 32% of respondents have more than 15 years of experience with housing projects. In Figure 11 alludes that there are multi skills in the management of housing projects but a limited number of qualified quantity surveyors and construction managers which highlights the imbalance of these skills as these qualifications are critical in estimating and management of construction and the housing projects

The existence of 17% (Figure 7) housing practitioners over 50 years of and those who have more than 15 years in the management of housing projects needs to be utilized critically to ensure that skills are transferred to the younger generation. The fact that project experience failure whilst there is such an existence of these practitioners denotes that their presence is underutilized.

Seeking assistance does not necessarily mean that a project manager does not know what he or she is doing but that wisdom is required for certain decisions in the project. The skills transfer process does not harm anyone but through the process a project manager can learn. Project Managers need to take time and

record experiences from each project and lessons learned at the end of the project. This will assist in limiting the repetition of similar project mistakes and lead to improved delivery of housing projects, on time, within budget and, with high quality standards.

Project Managers need to improve on their qualifications and registration with professional and voluntary bodies to fortify their accountability and skills. Dedicated time to record experiences from each project and lessons learned at the end of the project is also necessary to generate portfolio of evidence and for individual growth. If this is applied in practice on a full-time bases problems experience on housing projects will be reduced if not eliminated entirely.

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South Africa

QUESTIONNAIRE

Chair for Education in Human Settlement Development and Management

Tel. 041 506 1752 / 082 333 6697

E-mail: nmtshekexe@mandelametro.gov.za

Ref: MSc - Mtshekexe

Contact person: Ntombesibini Octavia Mtshekexe

Date: 28 August 2013

Dear Participant

PROJECT MANAGEMENT CHALLENGES

The attached questionnaire represents a survey on the problems experienced by municipal project managers on housing projects within the Nelson Mandela Bay Municipality (NMBM). The aim of this survey is to get an indication on the existence of the problems that lead to project failures, their severity and impact on the housing projects, as well as the current remedies to such problems. The researcher expects that this survey will produce the information that could be used by the NMBM Housing Project Managers to improve the delivery of housing projects.

This survey is part of a research project towards the completion of a Master's Degree in Built Environment: Project Management which will be submitted to the Nelson Mandela Metropolitan University (NMMU). Therefore, your co-operation is of vital importance to the success of this survey. The completion of this questionnaire is voluntary. Anonymity and confidentiality of information contained in this questionnaire is guaranteed.

All the instructions will be given in each page of the questionnaire, and the estimated time to complete the questionnaire is about twenty minutes. The researcher hereby emphasize that the success of this study depends on your willingness to participate.

Your co-operation is highly appreciated in advance.

Yours truly

Mrs Ntombesibini Octavia Mtshekexxe

Researcher

041 506 1752(Tel) / 041 506 3156 (fax)

082 333 6697 (Cell)

nmtshekexxe@mandelametro.gov.za / zimbini@hotmail.com

Research Supervisor: Prof. J.J. van Wyk

A SECTION 1 - DETAILS OF THE PARTICIPANT																	
A1	Position Held (Please tick the appropriate block):	Executive Director		Director		Assistant Director		Project Manager		Engineer		Technologist		Town Planner		Other (Please specify)	
A2	Years of Experience in Human Settlements projects:	0-5 yrs		6-10 yrs		11-15 yrs		16-20yrs		>20 yrs							
A3	Sector (Please tick the appropriate block):	(1) Public		(2) Semi-public		(3) Private		(4) Other (Please specify)									
A4	Organization (Please tick the appropriate block):	(1) Municipality		(2) Construction Company		(3) Consulting Firm		(4) Provincial Department		(5) Housing Development Agency		(6) NHBRC		(7) Other (Please specify)			
A5	Age:	<20 yrs		21-30 yrs		26-30 yrs		31-35 yrs		36-40 yrs		41-45 yrs		46 - 50 yrs		> 50 yrs	
A6	Gender (Please tick the appropriate block):	Male		Female		Previously Disadvantaged individual (PDI) [Please tick the appropriate block]	Yes	No									
A7																	
A8	Qualification Levels:	Matric		College Certificate or Diploma		3 year National Diploma		3 year Degree		B-tech		Honors Degree		Masters Degree		PhD	Other (Please specify)
A9	Type of Qualification:	Civil Engineering		Construction Management		Quantity Surveying		Architecture		Building		Environmental Management		Geotechnical		Town Planning	Other (Please Specify)
A10	Professional Registration:	ECSA		SAICE		IMESA		SACPCMP		PMI		OTHER/NOT REGISTERED					

SECTION 2 – FACTORS IMPACTING ON PROJECT SUCCESS AND PERFORMANCE

Project management is an effective tool that is used to manage projects, however, if the tools are not properly used or managed; projects are not likely to achieve the intended outcome (i.e. in terms of costs, quality and time).

The researcher would like you to give your input on the factors which lead to project failure by indicating with “yes” if you are in agreement and “no” if you are not in agreement with the listed factors and moreover indicate the impact of the agreed factor on the project performance by rating it between the score of 1-5 as indicated below:

Severity Rating	Definition	Negative % on project performance	Score
Calamitous	Continuously the reason for project failures identified	≥ 80%	5
Bad	Mostly the reason for project failure identified	60% - 79%	4
Moderate	Sometimes the reason for the project failure identified	40% - 59%	3
Minor	Less frequently the reason for project failures identified	20% - 39%	2
Slight	Seldom reason for project failures identified	< 20%	1

B-PROJECT TIME							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
1. Project delays relate to poor design							
2. Project delays relate to user changes							
3. Project delays relate to weather							
4. Project delays relate to site conditions							
5. Project delays relate to late deliveries							

6. Project delays relate to economic conditions							
7. Project delays relate to legal issues							
8. Project delays relate to contractual issues							

B- PROJECT TIME (continued)							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
9. Project delays relate to poor construction scheduling							
10. Project delays relate to well-known or domain issues							
11. No prioritization of activities							
12. Unnecessary meetings							
13. Interruptions							
14. Negligence or improper conduct							
15. Project delays relate to corruption							
16. Time is influenced by detrimental (negative) conditions							
17. Project delays relate to increase in quantity							
18. Destructive conflict resolution delays a project							
19. 19. Poor risk management							

and supervision							
20. Slow decision-making involving project teams							
21. Client initiated variations							
22. Necessary variations of works							
23. . Poor planning							

C- PROJECT COSTS							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
1. Inaccuracy in estimating original plan costs							
2. Inadequate detail in plan							
3. Schedule delays							
4. Poor communication							
5. Unforeseen technical problems							
6. Inaccurate reporting							
7. Changes in material cost							
8. Service costs that were not anticipate							
9. Changes in scope of the project that are not reflected in the updates to budget							
10. Inadequate documentation of project changes							
11. Lack of control							

D- PROJECT QUALITY							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
1. Quality specifications are not clearly communicated							
2. Lack of motivation							
3. Lack of control							
4. Lack of coordination amongst project stakeholders							
5. Pressure to finish the project on time							
6. Lack of experience and ability to perform							
7. Irregular inspections							
8. Insufficient supervision							
9. Lack of accountability							

E- IMPACT OF PROJECT DELAYS AND SCHEDULE SLIPPAGES							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
1. Quality specifications are not clearly communicated							
2. Negatively impact on budgets							

3. Negatively impact on project scope							
4. . Project termination							
5. Incomplete projects							
6. Costly disputes and averse relationship amongst project participants							

F- IMPACT OF COST OVERRUNS AND BUDGET SLIPPAGES							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
1. .Project discontinuity due to lack of extra funds to complete the remaining work							
2. Delays in the project whilst getting alternative sponsor							
3. High project risk due to predetermined (or limited) budget							
4. Lengthy legal processes justifying the reasons for project discontinuity and getting legal mandate to reappoint a new contractor.							
5. Scope reduction to accommodate the available funding							
6. Reduced level of service							
7. Social instability and political unrest							

G- IMPACT OF POOR QUALITY PRODUCED							
Factors	Agreement indication		Impact [Scoring(1-5)]				
	Yes	No	Slight	Minor	Moderate	Bad	Calamitous
			1	2	3	4	5
1. Quality specifications are not clearly communicated							
2. Increased complaints and criticism from communities							
3. Poorly built houses have to be demolished, rebuilt and those with minor defects be fixed							
4. Increased project costs							
5. Project delays							
6. Unnecessary scope changes							
7. Project discontinuity							

SECTION 3: SOLUTIONS TO THE PROBLEMS EXPERIENCED ON PROJECTS

There are various tools available in project management and; with the use of modern technology, which are very helpful and effective in terms of controlling the project from the initiation phase until the handover.

Please give your input on the usage of these helpful tools in project management by indicating with “yes” if you are in agreement that the tools as listed support the success of projects and “no” if you are not in agreement and; moreover indicate the frequency of usage on your projects by rating between the score of 1- 5 as indicated below:

Frequency of Usage Rating	Definition	Negative % on project performance	Score
Always	Mostly used as a useful tool from initiation to the end	≥ 80%	1
Sometimes	Only used for certain stages within the project	50% - 79%	2
Seldom used	Only used for specific projects once in a while	40% - 49%	3
Never	Never used any planning tool for the project	20% - 39%	4
Don't know	I am not familiar with any of the terms used	<20%	5

H- EXISTING SOLUTIONS TO PROJECTS DELAYS AND SCHEDULE SLIPPAGES							
Tools	Agreement indication		Frequency of Usage[Scoring (1-5)]				
	Yes	No	Always	Sometimes	Seldom used	never	Don't know
			1	2	3	4	5
1. Scheduling of activities and resources is used as a planning tool from project inception							
2. Tracking of project activities is practiced							
3. Planning aids such as computers, action planning sheets, MS Projects packages are used							
4. Monitoring physical progress is practiced							
5. Monitoring programme is done continually							
6. Progress meetings are conducted							

I-EXISTING SOLUTIONS TO BUDGET SLIPPAGES AND COST OVERRUNS

Tools	Agreement indication		Frequency of Usage [Scoring(1-5)]				
	Yes	No	Always	Sometimes	Seldom used	Never	Don't know
			1	2	3	4	5
1. . Planning for budget from project inceptions is done							
2. . Budget monitoring during project implementation phase is practiced							
3. .Reporting on achieved deliverables and reviewing budget							
4. .Use of modern technology such as MS Excel, MS Projects™, etc. is very effective							
5. Tracking expenditure to date over the actual work done is practiced							

J- EXISTING SOLUTIONS TO POOR QUALITY

Tools	Agreement indication		Frequency of Usage [Scoring(1-5)]				
	Yes	No	Always	Sometimes	Seldom used	Never	Don't know
			1	2	3	4	5
1. Site inspections are done regularly							
2. Quality control is practiced through the project							
3. Work that needs to be redone is redone even if it takes longer to complete or more budget to							

complete							
4. Work is not redone only fixing of the problematic area is done and project continues							
5. All defects are attended to prior to project handover							
6. Project handover is done before defects are attended to							

K- STAKEHOLDER INVOLVEMENT							
Tools	Agreement indication		Frequency of Usage [Scoring(1-5)]				
	Yes	No	Always	Sometimes	Seldom used	Never	Don't know
			1	2	3	4	5
1. People are not involved during the planning stages of their project							
2. There are no employment opportunities for local contractors							
3. The changes in the project are discussed with communities as the project progresses							
4. All the project stakeholders are introduced at the beginning of the project							
5. Change of stakeholders is communicated through the project team							

M SECTION 5 - PROJECT RETROSPECTION (for a specific completed project)

This section is aimed at assessing a **completed project** in terms of its execution, the problems experienced, their impact and how these problems were addressed.

Please fill in the required information below:

1. Project Period		Months (1)	Completion date	
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2. YOUR KEY RESPONSIBILITIES IN THE PROJECT: (2)

Project Manager		Senior Project Manager	
Project coordinator		Project Administrator	
Other (Please specify)			

3. TYPE OF PROJECT: (3)

Information Technology		Construction	
Engineering		Manufacturing	
Other (Please specify)			
Brief Description of the project			

M4

Item No.	Content	RATING	
		YES	NO
1	Did the project take longer than planned?		
2	Did the final cost of the project exceed the initial (original) budget?		
3	Did the final deliverables (outcomes) of the project satisfy the needs or requirements of all stakeholders?		

4	Were the project requirements (scope), constraints and specific schedule elements/dates (milestones) clearly identified and communicated to all stakeholders?		
5	Were all the stakeholders committed to the goals of the project?		
6	Were all the team and stakeholder roles and responsibilities clearly delineated and communicated		
7	Were skilled people assigned to all the project roles?		
8	Was a project manager/leader assigned to accept the overall responsibility of the project?		
9	Was the project scope of the entire project changed at any stage of the execution phase?		
10	Were the time schedule, budget and quality of deliverables monitored closely throughout the project's life cycle?		
11	Were project status (progress) reports circulated timeously and disseminated to all stakeholders and project team?		
12	Were resources analysed for both over and underutilization?		
13	Were early warning signs of problems that occurred in the project responded to timeously?		
14	Were any contractors used for the project?		
15	Were any suppliers used for the project?		
16	If contractors were used, could any project delays be attributed specifically to the contractors?		
17	If suppliers were used, could any project delays be attributed specifically to the suppliers?		

18. Rate the success of the project:

Highly successful		Successful		Not successful		Disastrous	
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19. Name of the project (Voluntary):.....

THANK YOU FOR YOUR PARTICIPATION IN THE SURVEY. PLEASE RETURN THE COMPLETED QUESTIONNAIRE by 13 **September 2013** TO THE FOLLOWING DETAILS:

E-mail: nmtshekexe@mandelametro.gov.za or zimbini@hotmail.com

Fax: 041 506 3156

Postal Address: No. 185 Whyteleaf Drive, Algoa Park, Port Elizabeth, 6005