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Evaluating low income housing construction challenges and their impact in completing housing projects on time. Case studies of Mpumalanga and uMlazi Housing Projects.

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Declaration

I, Thembinkosi Treasure Malinga confirm that all the information used in this dissertation is my own work and has not been previously submitted to the School of Built Environment and Development Studies or any other body for any purposes. Ideas that have been taken or adopted from other authors or sources are rightfully acknowledged.

Author

Thembinkosi:…… Date:……...

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Abstract

In terms of housing development in South Africa, the delivery of low income housing is a vital process in providing satisfactory housing for the less fortunate and the imperfectly accommodated, which is an effort to decrease poverty and improve quality of lives which has been a challenge for South African government over the years. The South African citizens have the right to access adequate housing. The government has provided housing but the houses are not delivered on time. In between the duration of housing projects, there are certain challenges that arise which delay the projects and affect the completion date. This study was aimed at finding the challenges that are encountered during the construction of low income housing and how they have an impact on completing housing projects on time. The research study made reference to uMlazi and Mpumalanga Housing Projects. The data for this study was gathered through conducting semi-structured interviews with project managers, contractors, the KZN department of human settlements and beneficiaries.

The findings gathered from the informants were analysed using thematic analysis. After the analysis of the findings, it was evident that more challenges were experienced by project managers who were responsible for the project from the conceptual stage to the handing over stage. The contractors did experience challenges which were dealt with sometimes with the help of the project manager. It also helped the contractors to work with experienced project managers. The KZN DHS was affected by the delays financially as the projects were not completed on time. From the finding, recommendations were provided which involved; The project manager must know how to manage exceptions and risks because there are always risks in every project; Good early cost advice is essential in order that the best possible information be available on which the judgement to abort, amend or proceed with the project can be made; communication is vital when dealing with the beneficiaries or the community where the project is taking place; If construction has to take place on steep slopes and there is no option of relocation, there has to be a bigger budget amount for the construction of the project and developing a schedule which includes adding time to the original schedule just in case something important is delayed unexpectedly was recommended.

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List of abbreviations:

ANC : African National Congress

BNG : Breaking New Ground

CBD : Central Business District

CPM : Cost Per Thousand

DA : Democratic Alliance

DHLGTA : Department of Housing, Local Government and Traditional Affairs

EIA : Environmental Impact Assessment

HDA : Housing Development Agency

KDF : Kayamandi Development Forum

KZNDHS : KwaZulu Natal Department of Human Settlements

LED : Local Economic Development

MBO : Management by Objectives

MUT : Mangosuthu University of Technology

NDP : National Development Plan

NEMA : National Environmental Management Act

NHBRC : National Home Builders Registration Council

PHP : Peoples Housing Process

RDP : Reconstruction and Development Programme

SABS : South African Bureau of Standards

SAPS : South African Police Service

UDF : United Democratic Front

Chapter 1: Introduction and Research Methodology

1.1 Introduction

Low income housing projects in South Africa take much longer than anticipated to be fully completed. It should be understood that projects will be completed on time but that is not the case. Most housing projects are delayed or sometimes when completed on time the end product is of poor quality. When a housing project is delayed there are significant financial, social and quality implications to all the parties involved (Olawale, 2010).

The implementation of every project is time bound which means that a project begins at a certain time and ends at specific time. The essence of time in every project will determine the cost of the overall project (Chitkara, 1998). Time delay in a project will attract penalties while completing the project on time or before the scheduled time can earn rewards. However, in spite of the efforts by a project team to complete a project on time there can be certain changes from the original estimated time that can occur (Govender, 2011).

In a project time is very important as it determines the deadlines for certain tasks and the specific amount of time they will take. In order to ensure that tasks are completed on time, time has to be managed (Baars, 2006). The importance of time in a housing project starts at the project plans where it is determined that certain activities must happen before other activities can commence and how much time they will take. Time is also critical in monitoring the progress, the deadlines and also in adjusting the schedules of the project because that will assist in project reporting where there is analysis and explanations as to why certain tasks are completed quicker than others (Baars, 2006).

However, according Kerzner (2013) when a project is on time and within the allocated budget, that does not guarantee project success. The end product when delivered might be of poor quality which is unacceptable to the client. Furthermore, the true measure of

project success is determined by what the client sees at the completion of the project (Kerzner, 2013).

The construction industry in South Africa is faced with many challenges, among which is delay in project execution. Project delay is a major setback in the construction industry in South Africa and not only in housing. The problem of delays in the construction sector is a major phenomenon in South Africa and other countries (Khoza, 2014). According to Amoatey et al. (2014) a study that was conducted by the Social Security and National Insurance Trust in 2013 revealed that 4,700 housing projects in Ghana were stalled or completely abandoned due to various reasons. However, the construction sector holds immense potential for stimulating growth and generating employment.

In South Africa there are low income housing projects which have been delayed because of various reasons. The awarded party fails to deliver the required product where either the quality of the houses is compromised or more time is taken for houses to be completed. For example, there was an uMlazi Housing Project which has taken more time than the scheduled time for the project to be completed.

The increasing housing backlog and delayed construction deteriorates the relationship between the communities and the municipalities. In order for the South African Government to achieve its aim of eliminating the housing backlog there are proper project management techniques that need to be implemented, controlled and monitored (Baloyi, 2007). According to Shebob (2011) it was found that completing a construction project on time is a sign of project efficiency, however the construction process is dependent on several unpredictable or predictable factors that can occur from various sources, including the performance of the different parties involved, availability of resources, site conditions and contractual conditions. This research project seeks to investigate the challenges that are encountered during the construction of low income housing projects that hinder the completion of housing projects on time.

1.2 Problem Statement

In 1994 the democratic government came to power during the time when the housing sector had a housing backlog due to the *apartheid* policies from the previous government. The national government embraced a new housing policy which aimed at building 1 million houses by the year 1999 (Masike, 2011). By the year 1999 the promised 1 million houses had not been constructed and even today there are still certain problems with housing delivery (Masike, 2011). There are statistics from the Department of Housing and Local Government which indicate that since 1995 there have been approved housing projects that were not successfully completed on time (DHLGTA, 2008). The 1994 Housing White Paper prioritized the needs of the poor, the involvement of the private sector and encouraged community participation (Masike, 2011).

The construction phase of low cost housing sometimes takes longer than anticipated because of certain challenges. These challenges have an impact on the quality and the cost of the low income housing project. Some approved projects, which are not completed on time, are abandoned and the quality of work on the completed projects is defective, the houses crack and infrastructure deteriorates prematurely (Amoatey et al., 2014). In some cases, the houses produced in general do not meet the standards set out by the government, exceeding the budget limit or overspending on a housing project which puts the project manager and the municipality on a collision course with the National Treasury and the Department of Housing (Baloyi 2007).

Finsen (1999) states that the challenges in the completion of projects frequently lead to disputes and a large proportion of arbitration cases that have to do with additional time and additional costs. It is therefore imperative that the causes of construction challenges are investigated in order to minimise additional time and expense due to delays in the completion of projects.

In most cases, construction contracts are signed with a definite time for completion and the extent to which this time is met is frequently seen as a major criterion of project

success (Le Roux, 2011). However, there has been universal criticism of failures in the building industry to deliver projects in a timely manner. Bramble and Callahan (1992) state that many things may occur on a construction site to increase the time of performance of the overall project or affect the project process and cause project delay (Odeyinka and Yusif, 1997).

There are various problems related to project management that are experienced by different stakeholders in the construction of low income housing and there is a severe shortage of project management skills. The main focus seems to be on quantity while quality is not satisfactory (Baloyi, 2007). The government's role in the construction sector is crucial as the government has policies in support of the construction of human settlements. The government is involved in the construction of all public utility structures such as residential houses, institutions, public amenities and commercial centers. The delays in housing construction are commonly observed in government projects because the demand is too high and there is limited number of competent construction companies. Therefore, the construction process is not well managed and thus leads to delays. The duration of the construction process is progressively becoming an issue of worry among the stakeholders in the construction industry. This is due to the increasing rates of interest, inflation, commercial pressure and land disputes that may arise (Njau, 2014).

Although the public sector plays a significant role in the provision of housing units, it is however still behind the required quantity demand in the country. In such situations the private sector becomes involved to try and reduce the gap between the demand of the public and the supply by the government (Njau, 2014). Although the private sector has a role to play in housing construction it aims at maximizing profits which is in most cases beyond the financial capability of low income households.

Considering that client satisfaction is the crucial variable underpinning current and future prospects in human settlement development, it is necessary to investigate these challenges and find best possible mitigation strategies (Odeyinka, 1997).

1.3 Objectives of the study

This study seeks to accomplish the following objectives:

1.3.1 To identify the challenges encountered during the construction of low cost housing.
1.3.2 To assess the impact of the challenges that occur during construction of low cost housing.
1.3.3 To determine the role and application of project management principles during housing construction.
1.3.4 To determine how the department of human settlements is affected by these challenges.
1.3.5 To find possible solutions to be used as mitigation strategies.

1.4 The Main Research Question

What are the common challenges which are encountered during the construction of low income housing which result in delaying the completion of housing projects?

1.5 Subsidiary questions

1.5.1 What are the challenges that are encountered during the construction of low income housing?
1.5.2 To what extent can the challenges be detrimental to the project?
1.5.3 How effective is the role and application project management principles during housing construction?
1.5.4 How is department of human settlements affected by the delay in the construction of low income housing projects?
1.5.5 How can the challenges be mitigated to provide adequate human settlements on time?
1.5.6 What policies are in place with regard to housing construction?

1.6 Hypothesis

The challenges that are encountered during the construction of low income housing projects can have a negative impact on the completion of projects on time.

1.7 Defining key concepts

1.7.1 Low income housing projects

Low income housing is housing that is given to South African citizens earning a gross income of not more than R3, 500.00 per month (Sokhela, 2006). According to Oladapo (2001) the concept of low income housing relates to dwellings developed for the poorest sections of the South African population. In relation to this study, low income housing projects refer to houses that were constructed for the low income group in uMlazi and Mpumalanga Townships. These are people who earned between R0-3,500 a month as a household income.

1.7.2 Completion of projects on time

Completing a project on time means the completion of all the activities in the project within the given period of time. According to Nagarajan (2004) it is best to identify critical activities in a project to ensure that the project is completed in the shortest possible time by proper monitoring and control of the critical activities. It is important to complete projects on time because it shows good project management as sometimes there are no additional costs incurred and the client is pleased. Project time management must be used to ensure projects are completed on time.

Time is a valuable asset to squander. This is the most important asset in a task. Every activity is time-bound therefore, without proper time management a project can head towards being delayed. When it comes to project time management, it is not just the time of the project manager but it is the time management of the project team that is of great importance (Olawale, 2010). This concept was used in this study because the research is about the challenges that can prevent housing being finished on time.

1.7.3 Time as a variable for project management

Time is very important for each participant in the construction process of low income housing. To manage time in a project helps to prioritize the tasks, where they are aligned in order of importance and dealt with one at a time. When a project is proceeding on time and there are no delays, work is done efficiently and there is a future probability of success (Khoza, 2014). Time is fundamentally critical for every member in the development process including the client, engineers, architects, contractual workers, especially project managers and those who provide bonding and insurance coverage. Effective management and the administration of the contract time and change provisions are central to the avoidance and mitigation of extended time and cost overruns (Driscoll, 2013).

When a project is not completed on time, the issue of inflation becomes a problem. When there is an increase in prices of the materials and the project is not yet completed that can cause a project to be delayed because of the extra costs that will be needed. The more the project is delayed and not completed on time, the more the cost increases. According to Adam (2014) cost increments have been distinguished by administrative organizations and by researchers as one of the causes of cost overruns. Furthermore, approximately 20-25% of all cost overruns can be ascribed to price increases. Contributing factors to cost overruns can be the lack of the contractor's experience, inaccurate time and cost estimates, poor site administration and supervision, schedule delay, frequent design changes, variance of costs of materials, cash flow and financial difficulties faced by contractors (Memon et al., 2012).

The cost of a project can be described as one of the most important issues of project success. Despite its proven significance, it is common to see a construction project failing to achieve its objective within the specified cost (Durdyev, 2012). If the budget increases and there is no additional money for the extra costs, compromises will have to be made. The quality of the houses tends to be compromised when there are insufficient funds to complete a project. This usually happens when the contractor does

not have a quality assurance plan that complies with the stipulations of the latest SABS specifications (Gabula, 2012).

1.8 Aim of the study

In South Africa low cost housing is built for low income earners or poor households. The beneficiaries in most cases are not always satisfied with the houses they receive. Housing departments countrywide have been involved in controversies with regard to late delivery and quality of housing. In this dissertation, the challenges that are encountered during the construction of low income housing are investigated, identified and resolutions and mitigation strategies are proposed as alternatives to solving the dilemma. The significance of this study is to contribute to the delivery of low income housing on time without compromising the quality and increasing the cost of a project.

1.9 Research Methodology

In order to address the challenges in the construction of low income housing, an overview of the research methodology is presented. The research methodology demonstrates how the objectives of the study were achieved. It describes the research type, the target population and the sampling method used to identify informants (Hartas, 2010).

1.9.1 Qualitative Research

It involves an interpretive naturalistic way to deal with its topic. Qualitative research involves the studied use and collection of a variety of empirical materials, case studies, personal experience, introspective, life story, interviews, observational, historical, interactional and visual texts that describe routine and problematic moments and meanings in people's lives. The qualitative research approach is also based on literature studies (Newman, 1998). A qualitative research method was utilized as a part of this study to assemble the required information. The qualitative research method is vital in this research because it involves systematic interpretation of data from a variety

of methods to construct concepts and explanations of the phenomenon in question (Hancock, 1998).

1.9.2 Secondary sources of data

Secondary data is information that has been gathered and is normally accessible in electronic structure (Kumar, 2008). In this research secondary data was acquired from published material, journals, books, government documents and online sources. Secondary data is frequently gathered, broken down, and studied with a particular reason in mind; in this case data relating to housing construction and the importance of time. Secondary data assists in saving time, money, enhances the comprehension of the issue and helps to improve the understanding of the problem and it also provides a basis for comparison with the data that is collected by the researcher (Groves, 2009). Secondary data was obtained through a comprehensive literature review conducted using relevant publications and information sourced from different authors. The literature examined was concerned with what had been said, and the ideas and agreements about the research subject. Sources included books, journal articles, government documents, newspapers and online material.

1.9.3 Primary sources of data

Primary data is unique information gathered for a particular exploration objective. It is gathered particularly to address the issue being referred to and is conducted by the decision maker, a marketing firm, a university or Extension researchers (Kumar, 2008). In this research, primary data was used because collecting data first hand helped understand clearly what the research was based on and some of the information that might be left out from secondary data was easily acquired by collecting primary data. UMlazi and Mpumalanga Townships were chosen for this study.

The reason for using two case studies was to find out if the challenges that were encountered during construction were the same, had the same effect and to compare the common challenges. They are both in KwaZulu-Natal under eThekwini District.

UMlazi is situated on the south bank of Durban 17km from the Durban CBD. UMlazi inherited the troubling impact of politically-sanctioned racial segregation arranging strategies described by spatial and monetary confinement (LED Plan, 2008). For research purposes the study took place at uMlazi G and H where housing construction had been delayed or abandoned.

Mpumalanga Township is in a peri-urban area situated inside the Outer West Region of the eThekwini Municipality, roughly 50km from Durban CBD and about 5km from Hammarsdale industrial area and only 9km from the N3 to Pietermaritzburg. Mpumalanga Township has an urban lifestyle as well as a traditional life style since it is surrounded by communities under the traditional leadership of Amakhosi and Izinduna. Schools are available in the area but have not been considerate with respect to convenience. This is evident in some areas such as the Shiyabazali area. A structurally decaying Mpumalanga college is also found in the area (Mpumalanga B). Sections D and J were chosen for the study as there were housing construction delays in those sections.

1.9.4 Sampling Method

Sampling consists of selecting some part of a population to observe so that one may estimate something about the whole population. The importance of the theory of sampling lies in the fact that for a large population, it is neither practical nor necessary to collect data from each and every member of the population. Simply put, the purpose of sampling is to get information about the population from a sample (Sharma, 1997). Purposive sampling was used in this study in selecting the respondents for the study who were the experts that were working on the low income housing projects (Kumar, 2008).

A purposive example is one where individuals from a pre-indicated group are intentionally sought out and sampled. Purposive samples have an over-representation of people or events of interest to the researcher. This means that they are not usually representative of the whole population under study. Purposive sampling is used to

justify the inclusion of rich sources of data that can be used to generate or test out the explanatory frameworks (Groves, 2009).

The informants were the project managers, the contractors, the Provincial Department of Human Settlements and the beneficiaries of the houses constructed that were delayed. These informants were identified because they were the ones who were involved in the construction of the low income housing. Information that was required from these individuals was information related to the challenges that caused the low income housing projects to be delayed.

1.9.5 Interviews

An interview is where usually two people converse on a particular topic, where one individual, the questioner, is looking for reactions from the other individual, the interviewee. The structure and style of the meeting is dictated by its motivation (Gillham, 2000). For this study semi-structured interviews were conducted which were face-to-face.

1.9.5.1 Semi-structured interviews

Semi-structured interviews with the selected relevant stakeholders in the construction of low income housing projects were conducted to obtain primary data. These stakeholders were the two project managers, two contractors, one human settlements official and the forty beneficiaries. Semi-structured interviews played an important role in obtaining the required information and understanding the question at hand. This method gave the researcher and the respondent much more flexibility (Punch, 2009).

1.9.5.2 Project Managers

Face-to-face interviews were carried out with project managers who facilitated the selected low income housing projects. They were interviewed with regard to the challenges that were encountered in the construction of the low income housing

projects. In this study two case studies were used and therefore there was a need to interview two project managers who were involved in the low income housing projects in uMlazi (sections G and H) and Mpumalanga (sections D and J).

1.9.5.3 Contractors

Contractors were interviewed because they were included in the development of the houses. These were the individuals who provided the researcher with information on some of the challenges that caused the low income housing projects to be delayed. Contractors who were involved in the construction of the houses in uMlazi G and H and Mpumalanga D and J sections were interviewed. One contractor was interviewed for each township.

1.9.5.4 Province (Department of Human Settlements)

The Provincial Department of Human Settlements was interviewed to get their perspective on how the delayed projects affected them as they were the ones who provided the funding for the projects. A project monitor was interviewed at the Department of Human Settlements. This was the person who oversaw the projects and monitored the progress of the projects.

1.9.5.5 Beneficiaries

The recipients of the low income houses were also interviewed to get information on how they were affected during the project delay. 40 beneficiaries were interviewed in uMlazi and Mpumalanga. In uMlazi, in section G ten beneficiaries were interviewed and in section H ten beneficiaries were interviewed. In Mpumalanga, in section D ten beneficiaries were interviewed and in section J ten beneficiaries were interviewed.

1.10 Data Analysis

After data has been collected from the people and different data sources it needs to be analysed. This can be done by separating qualitative and quantitative data and synthesizing all the data. Thematic analysis was used to analyse data because it was more effective for this type of research. It is a very common procedure used for organizing and working through data. Thematic analysis is not a unified entity, but describes a general interest in the exploration of themes (Hartas, 2010). It is based around the creation of themes that are described in different categories. This analysis

strategy assisted in categorizing the challenges in different themes to get a better understanding.

1.11 Structure of the dissertation

Chapter 1: Introduction and Research Methodology

The introduction is based on the research problem. The background of the research is provided in the introduction and the definition of terms. This chapter also discusses the research methodology describing the way the research was conducted, methods of primary and secondary data collection, and analysis.

Chapter 2: Theoretical Framework and Literature Review

In this chapter the key concepts are defined and explained. The theoretical framework is about the theories that can apply in the construction of low income housing. Challenges that are encountered during housing construction are examined in this chapter.

Chapter 3: Historical Background of the Case Studies

This chapter is about the case studies that were used in this research and how they came about. A case study is used to provide a clear understanding of the research phenomenon.

Chapter 4: Research Findings, Data Analysis and Interpretation

The data gathered from the field is analysed in this chapter. The responses and results from the questionnaires and interviews are analysed. With the data interpreted from the findings a conclusion is reached.

Chapter 5: Summary of Findings, Recommendations and Conclusion

The last chapter summarizes the findings, suggests recommendations which are influenced by the findings and provides the conclusion of the study.

Chapter 2: Theoretical framework and Literature Review

2.1 Introduction

Delivering completed housing projects to communities is a very challenging task as demonstrated by the late or stalled housing projects in the country. The delivery of housing projects depends on the execution of tasks and activities within time, cost and quality specifications. This simply means that a project should be delivered in line with the project objectives, within the time allocated and according to the given specifications. In this chapter the theories that relate to the construction of low income housing are explained, from their origin to their relevance to the study. The first theory is the goal setting theory and the second theory is management by objective theory. There are different arguments from different authors that analyse the two theories. The literature relevant to low income housing construction is examined in this chapter. Time as a key factor in project management is discussed followed by the challenges that can be encountered during the construction of low income housing. The legislative framework relating to the topic is identified and explained. Lastly, the chapter elaborates on the international experiences of housing projects that were not completed on time.

2.2 Goal Setting Theory

The goal setting theory was created and refined by Edwin A. Locke in the 1960s. Locke recommended that individuals are spurred to work when they have a goal (Greenberg & Baron, 2000). Goals tell an employee what needs to be done and how much effort will have to be expended. This theory is generally used in the construction industry on the grounds that efficiency every day by any workers depends on a certain output of work. For instance, bricklayers or piece layers need to lay a certain number of bricks or blocks to account for the day's work and pay. This is related to the concept of goal-setting theory which assumes that an individual is committed to the goal. Locke (2010) observes that goal-setting focuses behaviour and motivates employees. In this theory the assumption is that the construction worker's perception of the significance of the incentives accorded to them will be important in improving the work performance. This

is most likely to occur when goals are made public; the phenomenon is most often experienced in the construction industry (Githenya and Ngugi, 2014).

Moreover, the goal setting theory emphasizes setting performance goals for the worker. It is about actions, performance and also classified as a behaviour-based theory of motivation. Effectively, this theory is all about setting targets (goals) which makes working tasks more manageable. The goals must be acknowledged, basically allocating goals to workers may not bring about their dedication to those goals, particularly if the goals will be hard to fulfil. One capable technique for getting acknowledgment is to permit the workers to partake in the goal setting process. Contributing in setting up the goals is important because it helps the workers better comprehend the goals, guarantee that the goals are not unreasonable and assists them in achieving the goals. The variable of self-productivity becomes an integral factor with respect to forced goals in light of the fact that a few people might dismiss forced goals yet in the event that they have self-proficiency, they can in any case keep up high individual goals to achieve the forced goals (Lunenburg, 2011).

The goal setting theory is based on two basic principles. The first principle is that difficult goals lead to higher performance than the easy goals. Meaning that if a certain task is found to be too easy there is no motivation to do it, but if it is challenging and the end result is achieved, there is a sense of personal satisfaction that is developed which creates motivation to do the same task again. The second principle of the goal setting theory stresses the importance of feedback. In particular, feedback on performance is essential when aiming to achieve difficult goals and also so that a person is able to appreciate how much they have done and how effective it is (Brain, 2002).

This theory is relevant to this study and can be used for team motivation during the construction of low income housing. For most employees, goals are more effective when they include a deadline for completion. Deadlines serve as a time control mechanism and increase the motivational impact of goals. Being aware that a deadline is approaching, the employee will invest more effort into completing the task. In contrast, if plenty of time remains for attaining the goal, the employee is likely to slow

down his or her pace to fill the available time. However, when deadlines are too tight, particularly with complex tasks, the quality of work may suffer (Lunenburg, 2011). Therefore, this means that project managers must be able to balance time, scope of work, quality and cost more effectively which is what project management is about (Kerzner, 2013).

2.3 Management by Objective Theory

Management by objectives (MBO) was initially promoted by Peter Drucker in 1954. Peter was working for General Motors at the time. MBO depends on the reasoning that different orders inside of organizations should be coordinated. Drucker (1954) contended that all associations exist for a reason and, to accomplish that reason, top administration sets objectives and targets that are regular to the entire association. The MBO approach injects an element of dialogue into the process of passing plans and objectives from one organizational level to another.

For example, a superior or manager brings particular objectives and measures with his subordinate to a meeting; the subordinate likewise brings particular targets and measures that he or she sees as proper or adding to better achievement of the employment. Together they add to a gathering of particular objectives, measures of accomplishment, and time periods in which the subordinate submits himself or herself to the achievement of those objectives. The subordinate is then considered in charge of the achievement of the objectives. At the end of the day MBO is participative objective setting, picking a course of activities and choice making (Githenya and Ngugi, 2014).

An imperative piece of the MBO is the estimation and the examination of the employee's genuine execution with the measures set. Ideally, when employees themselves have been involved in setting out objectives and choosing the course of action to be followed, they are more likely to fulfil their responsibilities. Some of the important features and advantages of MBO are motivation, involving employees in the whole process of setting objectives and increasing employee empowerment (Githenya and Ngugi, 2014).

This expands employee job fulfilment and responsibility, allows for better communication and coordination. Frequent reviews and interactions between superiors and subordinates help to maintain harmonious relationships within the organization and also to solve many problems. Subordinates tend to have a higher commitment to objectives they set for themselves than those imposed on them by another person. Managers can ensure that objectives of the subordinates are linked to the organization's objectives, and everybody will have a common goal for the whole organization (Githenya and Ngugi, 2014).

MBO evokes many different points of view. Some think of it as corporate planning or strategy while others think of it as an appraisal tool. There are also companies who use this theory as a motivational tool. It is clear that management by objectives has varied applications. Humble (1982) defines the MBO theory as a dynamic framework which incorporates the organization's needs to accomplish its objectives for benefit and development. Humble’s definition clearly shows the importance he places on corporate planning.

Some theorists suggest that the MBO theory is primarily a contract between superior and the immediate subordinates. McGregor (1960) sees the theory as a performance appraisal tool. The approach by McGregor suggests that we look at two sets of assumptions about individuals and their reaction to work. The first assumption is that individuals work to survive and require a strict authoritarian approach to dealing with subordinates. Secondly, the assumption states that people do not dislike work but in fact derive satisfaction from it. It is important for the person who works closely to the workers (the contractor) helps them achieve their fuller capabilities and not to exercise external control over them.

McGregor suggests another approach of appraisal where the subordinates assume the responsibility of setting objectives for themselves and then review those objectives with their superior. This approach encourages self-appraisal and self-development and the emphasis is on performance. In housing construction this theory can be applied as it can assist in completing a housing project on time. For example, the architect has to be

made aware of the objectives and goals of the project and when he/she is expected to be completed with the given task. If the architect completes given tasks within the expected timeframe the following task can begin. This increases commitment and motivation in the subordinates. In research, it is suggested that performance improved when people had specific objectives as opposed to when they were simply asked to do their best (Gupta, 2009). The relevance of this theory in this study is that it aims to improve the construction process where the objectives are clear and agreed upon by the employees. This can assist in completing projects on time and averting delays. This theory is used in this study to show that it can be used as a motivational tool for the project team to apply in order to complete projects on time.

2.4 Literature Review

2.4.1 The construction of low income housing

Low income housing alludes to those houses that are produced for individuals who do not have houses and who cannot afford to purchase their own houses. Low income housing in South Africa is in various forms, there is free housing provided to the poor who are mostly unemployed. There is also rental low income housing which is also occupied by low income earners. It includes various forms of tenure, excluding immediate individual ownership (Masike, 2011). The study focuses on freehold low income housing that was provided to the qualifying beneficiaries.

The provision of low income housing has become an indispensable process in development. Giving satisfactory housing to the destitute and the deficiently housed trying to diminish neediness and enhance personal satisfaction has been a challenge for the South African government particularly post-politically-sanctioned racial segregation since 1994. The Department of Human Settlements is responsible for the delivery of low income housing (Gabula, 2012).

The Department of Human Settlements specified a minimum low income house size of 30m^2 gross floor area (KZN Human Settlements, 2011). Low income houses are commonly criticised for being ill designed, without any consideration for energy

efficiency and are of poor quality. There are ongoing quality concerns regarding low income housing. The South African policy on housing for the poor was originally based on maximizing the volume of delivery but many stakeholders have raised concerns on the resultant quality of units that were delivered (KZN Human Settlements, 2011).

Most low income housing projects are located at the periphery of the cities where the land is cheaper but there is a lack of basic services. The location of low income projects is influenced by the financial constraints of the housing sector. The aim of the housing sector is to provide a vast number of houses within available financial resources. Therefore, the cheapest land is selected for low income housing projects with little consideration given to the location, availability of services and public transport system. EThekwini Municipality is faced with a situation where current and proposed low income housing projects are badly located and reinforce the *apartheid* spatial planning system. Even though some of the projects are *in situ* upgrades, no options are presented to allow people to relocate to more accessible areas (Aucamp and Moodley, 2002).

According to Friedman (2010) encouraging subsidized housing developments in areas that are already rife with poverty has not provided incentives for low income residents to stay but it has attracted economically disadvantaged residents from elsewhere to these neighbourhoods. However, any tendency for such developments to concentrate low income households must be considered against their potential implications for overall community revitalization.

The development of low income housing may not only eliminate vacant or abandoned lots and provide decent housing to disadvantaged populations, but it might also help to attract new businesses and job opportunities as well as increasing neighbourhood policing and surveillance. This can be done to the extent that low income housing developments can remedy some of the immediate social and economic problems of an area and generate positive spillovers that can serve as a catalyst to reducing poverty in the future (Govender, 2011).

The construction of low-income housing projects is a replicated process and it is associated with uncertainties that arise from the unavailability of resources. Government

agencies or contractors have to select a construction system that meets low-income housing projects constraints including project conditions, technical, financial and time constraints (Marzouk, 2010).

2.4.2 Project management in housing construction

Project management can be defined a process of planning, organising, directing and controlling of company resources to achieve and complete specific goals and objectives (Njau 2014). It can also be said that project management refers to the business securing the end objectives of a project whilst there are risks, opportunities and problems that are encountered during the process of construction. Burke defines project management as an objective that needs to achieved by executing a task or a set of tasks within certain constraints (Makhone, 2010).

A project can five or less phases depending on the working environment but every project has different milestones. Activities which are undertaken during the different phases may vary depending on the nature of the project. A housing project consists of the design phase which is where the project is conceptualized defined and designed. The construction phase which includes landscaping, building the structure and finalising the interior. The last phase is the handover phase. During each of the project phases there are inspections namely the approval of the building plans by the authorities (design phase), the approval of the building standards (construction phase) and the final inspection during the handing over of the project (Baloyi, 2007).

In any project most of the planning takes place during the project initiation stage where the project plan is formulated with certain expected deliverables that have time frames associated with them. However, during the later project stages the initial project plan can change due to certain circumstances. It is important to have a contingency plan in place to cater for such circumstances. In the contingency plan all the possible risks that can have an impact on completing the housing project on time must be identified and if such risks do arise they must be managed effectively to ensure project objectives are

achieved. Effective project management can prevent project delay by ensuring that the unexpected and unwanted situations are detected early and dealt with (Masike, 2011).

2.4.2.1 Competency in project management

Competency is defined as the underlying characteristic of an individual that is related to the superior performance in a job or situation. Competence integrates knowledge, skills, demonstrable performance and core personality characteristics which are all vital in project management. The importance of competency in project management stems from the assumption that if individuals who manage and work on projects are competent they will perform effectively which will lead to successful projects (Crawford, 2002).

According to Crawford there are project managers that do not necessarily have the required competence or perform the full activities required to promote and implement the changes that they are leading as part of their projects. In project management, professional competence is attained by the combination of knowledge acquired from training and other skills developed in the course of the work. Nine performance indicators for project management competency are developed to comprise team building, decision making, leadership, honesty and integrity, mutuality and approachability, communication, learning, understanding and application, self-efficacy and maintenance of external relations (Githenya and Ngugi, 2014).

2.4.2.2 Time as a key factor in project management

Time is a very important factor for each participant in the construction industry. This is because changes are based on time and vice-versa. To manage time in a project helps to prioritize the tasks, where they are aligned in order of importance and dealt with one at a time. When a project is proceeding on time and there are no delays there is a future probability of success and work is done efficiently (Khoza, 2014). Nonetheless, the time measurement in projects has more to it than the standard measurements of length of time (begin and end) or planning.

The construction process is a complex undertaking. It involves many different activities and participants from initial planning through to execution. The requisite tasks, and the roles and responsibilities of the architect, engineers, construction managers, contractors, and subcontractors can be organized in a number of different ways to deliver a construction project. Despite these many options, building a major construction project today without experiencing schedule delays and cost overruns is often the exception (Driscoll, 2013).

According to the Department of Public Works of South Africa there must be quality assurance plans for construction projects. The consultants of selected construction works must confirm in writing with the Department of Public Works that they have a quality assurance plan. This is done to ensure that designs carried out are up to an acceptable standard. Preference will be given to construction companies who have SABS accreditation or complaint quality control systems (Gabula, 2012).

Maritz (2005) purports that in the South African construction industry defects are commonly caused by poor or missing information. In order to prevent the crisis South Africa is currently facing of defective housing, the potential contractors that are bidding for a housing project must be able to show that they have in place a quality management system complying with SABS standards. Furthermore, a project manager must invest in quality management systems from the beginning of the project in order to avoid poor results. A quality management system will assist in preventing poor quality housing, poor supervision and inspection. In some instances, the subcontractors' work is not inspected by the foreman on a regular basis which means that poor workmanship goes without notice until later in the project. This emphasises that competence in supervision can increase the rate of success and quality of construction projects (Gabula, 2012).

According Maaninen-Olsen and Mullern (2009) a great part of the many-sided quality in and around activities comes from time related angles, for example, grouping, term, synchronization and the rate or rhythm. Projects are not stable substances but instead advance after some time which shows that the time from beginning to end ought to be

seen rather as a procedure of progress, or an arrangement of exercises developing over the long term. The importance of time control is widely recognized in the construction industry. Applying time control techniques in a housing project will assist the project to be completed on time. The most well-known time arrangement and control strategy is the Gantt Bar Chart and the basic way technique (CPM). These systems are the most utilized as a part of the business because they are the most efficient and convenient. Then again, in spite of the wide use of the time control systems, time still invades development projects (Olawale et al., 2010).

Time is a terrible resource to waste and the most valuable resource in a project. Every task in a project is time bound and therefore time management in a project is very important because without it many problems can result for different people. The project manager is not the only person responsible for time management, but the whole project team. The scheduling of activities is one of the easiest ways of managing project time. The way it works with this approach is that the activities of the project are estimated and the durations are determined based on the resource utilization for each activity. The costs always play an important role in time management due to the fact that schedule overruns are quite expensive (Martin, 2004).

The time management process has steps in which each step addresses a particular zone of time management in a project.

- The defining of activities – This involves sequencing the activities in order, estimating resources and estimating the time it would take to complete the tasks. The purpose of the process is to deconstruct the work packages into scheduled activities where the basis for estimating, scheduling, executing, monitoring and controlling the work of the projects is easily supported and accomplished (Heldem, 2013).
- Sequencing activities – To manage the project time, it is critical to identify the activity sequence. This will assist because the activities identified in the previous step must be sequenced based on the execution order. During the sequencing of activities, the activity interdependencies must be considered. This is the step

where the first activities are done and completed and then the second activities follow in an orderly manner (Driscoll, 2013).

- Resource estimating for activities – It is in this step where the estimation of amount and types of resources required for activities is done. This includes the estimation of needed team resources, financial resources and equipment. The duration of an activity varies depending on the number of resources allocated for it. The project management team must have a clear understanding when it comes to resource allocation in order to accurately manage the project time (Heldem, 2013). This step is very important in project time planning as estimates are about the time it will take to complete an activity, so it is critical that this step is completed with much greater accuracy. It is noteworthy that the duration is measured in hours, days and weeks (Devaux, 2015).
- Development of the schedule – This step involves the process whereby the sequencing of activities, resources needed for the activities and the duration of each activity is used to optimize the overall project schedule. This is where the use of software packages comes in; the development of the Gantt chart in order to visually monitor the activities and the milestones (Devaux, 2015).
- Schedule control – This is the last step which involves monitoring and controlling the schedule. It is performed throughout the duration of the project and ensures that the work done lines up with the schedule plan. What the schedule control requires is the use of progress reporting, schedule change control systems for when there are changes that need to be made, performance management and variance analysis to determine if additional action is required to get the schedule back in line with the plan (Heldem, 2013).

2.4.3 Benefits of completing a project on time

Setting the required amount of time to carry out a housing project and completing it within the estimated time has been of great interest for most professionals and it has traditionally been identified as a key success factor in a construction project. However, despite the many advances made in the discipline of project management in general,

over the past decades housing construction projects have experienced poor performance regarding their planned duration (Guerrero et al, 2014).

Completing a project on time indicates that the project was implemented effectively. A project is viewed as "successful" in the event that it is finished on time, inside budget and to the predefined quality measures. Rwalamila and Hall (1995) found that the timely completion of a project was frequently seen as a major criterion of project success and that severe criticism arises if a project takes much longer than the stipulated time to complete. Furthermore, completing a project on schedule realistically reflects the contractor's ability to organize and control the site operations, to optimally allocate resources and to manage the flow of information to and from the design team and among the subcontractors (Guerrero et al., 2014).

2.4.4 Advantages of completing a project on time

- Enhanced customer satisfaction – When a project is done on time and within budget, the client will be pleased which means that a happy client will bring future business. This will also create a greater standing and competitive edge in the marketplace. Client satisfaction determines the success of a project. According to Todt (1996) good scheduling and cost performance means very little in the face of a poor performing end product; in the long run what really matters is whether the parties associated with, and affected by, a project are satisfied.
- It shows that the project was well managed – A well-managed project is completed on time, within the budget without the quality being compromised and according to client specifications. Time and cost overruns are normally markers of project execution and it ought to be noticed that a project finished with the least time and cost shortfalls is a very much overseen project (Choudhury, 1988). A well-managed project is not abandoned but comes to an end.
- There will be no cost implications – The initial amount of money will be used and there will be no additional costs. If a project is not managed well its costs will go up, conversely if a project is managed well its cost should come down.

- Pride among project team members – Every person in the construction industry wants to be proud of their accomplishments when a project is done, especially within time and with no additional costs.

2.4.5 Disadvantages of not completing projects on time

- A project completed beyond the estimated time results in heavy penalties and cost overrun – Once the expenses of a project have expanded essentially past the first estimate, construction can be halted or delayed until additional funds are secured. Any deferral in the finish of a project will unavoidably bring about expanded costs, for example, the general supervision costs, project establishment costs, insurance costs plus potentially the application of damages or liquidated damages (Weaver, 2005).
- There will be insufficient resources if a project is delayed – If a project is not completed on time, there might be skill shortage as some of the workers will drop out because of contractual obligations. Lack of required skills leads to poor quality of the end product. The impact of low quality standards can clearly be seen in some of the construction of low cost housing for the poor.
- Contractor can be replaced – A contractor that is not performing according to the required standard is bound to be replaced. This is bad for the contractor but mostly for the client as the recruitment of a new contractor may take time and increase costs. For example, in the Mpumalanga province a new contractor was appointed to finish the Reconstruction and Development Programme (RDP) houses in Emjindini Extension 13 and 14. In 2014 the Mpumalanga Department of Human Settlements had to appoint a new contractor to complete the 73 houses that were left incomplete by the first contractor in 2011.
- Bad reputation for the project team – No professional in the construction industry wants to be part of a project that is delayed or blocked as this might hinder participation in other projects.
- Initiation of protests by beneficiaries for delayed housing – A delayed housing project not only affects the client but also the beneficiaries who become restless

and initiate protests. A protest can add delays to the project but can be avoided if a project is completed on time. In 2014, residents from the Orange Grove informal settlement in East London took to the streets to protest against delays in a local housing project.

- Incomplete houses can be used by criminals for criminal activities – A house that is not occupied for some time and where no construction is going on can attract people without houses to occupy them. In certain cases, horrific crimes can take place in these houses because they are usually not guarded.

2.5 Delays as barriers to completing projects on time

According to Bahadir (2014) housing construction is subject to several types of lengthy delays. Even before a project gets off the ground and construction begins it takes on average six months to secure authorization for a new housing project. This is the conceptual development stage which is a genuine challenge to project managers, districts and communities. The wrong definitions or misinterpretation of a client's needs and how information is gathered are the first factors that cause a project to stall or be delayed. The projects that stall or are delayed in the conceptual phase have a negative effect by creating mistrust within the communities and a perception that projects will not be completed. Furthermore, these effects can be observed in communities which were promised houses but the housing projects never materialized because of wrongful conceptual development (Baloyi, 2007).

Delays are very common in the construction industry and their magnitude varies significantly from one project to another. Delays can be caused by any number of reasons and as a result produce serious economic consequences for different agents involved in the construction process. A delay in a housing project may be due to poor performance motivated by causes such as failure of a contractor to manage the construction process, changes in project design or inclement weather. But delays can also be caused by initial estimates that are too optimistic about the final duration of works (Chan and Kumaraswamy, 1997).

Governments are also affected when there are delays in the construction of low income housing. The beneficiaries will blame the local government if housing construction is delayed or halted. When a project is delayed for any reason and not completed on the initial estimated time there are going to be cost implications, protests etc.

There are numerous studies that have been done on the identification of influencing factors of project time and cost overruns worldwide. Olawale (2010) states that in Nigeria the most important variables causing construction delays and cost overruns are:

- Inadequate financing and payment of completed works – during relevant phases of a housing project funds are not adequately released which causes delays. Due to organizational lapses or bureaucracy milestone payments are not made on time and inadequate cash flow leads to delay in payment of workers' salaries.
- Poor contract management – Projects get delayed when the required management principles are not utilized during the project execution, which is why most projects have consultants as the contract managers who liaise between the client and the contractor.
- Poor site management and supervision – the problem of inadequate supervision is caused by managers who, for instance, have too many responsibilities or lack experience.
- Mistakes and discrepancies in design documents – Improper design stalls project execution because of the time it takes for a design to be reviewed, amended and accepted for construction work. If errors are observed in the design, the construction is temporarily suspended until such errors are dealt with.
- Shortage of materials including imported materials – This includes late deliveries, the damage of materials and poor quality of materials.
- Design changes – This is sometimes caused by the insufficient time given to designers to produce quality designs and in some instances it is because there is a shortage of experienced personnel (Bordat, 2004).

Locally in the Eastern Cape Province challenges that were encountered during construction and after completion of the RDP projects were over costing, completion delays, poor quality of the end product, poor layout planning, poor construction and

material delivery delays. Such challenges become a challenge for the government because it ended up spending millions of Rands on the completion of the projects and repairs for defective workmanship (Gabula, 2012).

In order to prevent delays and for a successful project to be achieved, the design documentation including drawing and specifications should provide the contractor with a clearly defined basis to plan the resource needs of a construction project. Information flow between all project team members should be timely and well organized and also the person responsible for making decisions should be clearly identified. Chalabi and Camp (1984) found that inadequate communication between project team members was an important reason for delays in housing projects which hampers the job to be done and results in problems in the project coordination and schedules (Chan and Kumaraswamy, 1997).

These are the challenges that can delay a housing project and have an impact on the completion time:

2.5.1 Environmental challenges

During the construction of housing projects there are environmental challenges that are encountered which are sometimes inevitable. Constructions of housing projects, amenities and infrastructure have a significant impact on the environment. The direct impacts include use of land, natural resources and energy which can lead to greenhouse gas emissions and production of other wastes. The indirect impacts depend on a range of factors including location (whether the development is in an ecologically sensitive area), the use of the building throughout its life span and the urban form created through construction. When it is raining a project cannot continue and can be delayed by the rain because construction is impossible during this time (Akanni et al., 2014).

The environment within which the construction of a housing project occurs may impact considerably on its development as construction projects are always affected by environmental challenges. Geographical location of a housing project, weather patterns

and ground conditions are the most commonly encountered challenges. Some of the environmental challenges are unpredictable and as such management actions have not been able to prevent their occurrence. However, Martin and Thomas (2004) opined that managers of construction works must take significant consideration of physical effects of the site when planning the management strategies to deal with environmental challenges (Akanni et al., 2014). It is therefore important to create a contingency fund which can be used in emergency situations such as delays due to bad weather.

2.5.1.1 The slope

The physical nature of land includes the slope of the land which can be a challenge during the construction of a housing project. If the slope of a site is steep it will become uneasily accessible, expensive to build houses on and also the installation of services will become costly too. A steep slope has a greater risk of erosion, which is the loss of topsoil from an area because of lack of vegetation due to activities such as trampling or overgrazing. For the slope to be stable or keep in place there needs to be vegetation; once vegetation is removed instability and erosion potential increase. The stability of the slope depends on the type of soil because if the soil around a building is eroded the structure becomes less stable (Sowman and Urquhart, 1998).

Steep slopes also make living conditions difficult because development on a steep slope can cause significant destruction to the scenic beauty of the area, decreased water quality, downstream runoff and flooding problems, loss of sensitive habitats, erosion, slope failures, high utility costs, and high costs for maintenance of public improvements. If the drainage systems are properly installed they can help improve the stability of steep slopes (Chair, 2008). It is best to deal with such by avoiding steep slopes for the construction of low income housing. If construction has to take place in such locations and there is no option of relocation, there has to be a bigger budget for the construction of the project.

2.5.1.2 The ground surface and sub-surface

It is very important to consider the ground surface of a site and also not forget the subsurface when constructing a housing project. The conditions of the ground surface and the slope have an impact on the stability of the site. If the subsurface is not considered and there are obstacles, it might be difficult to install services underground because the subsurface conditions can influence the cost and suitability of providing services such as water-borne sewerage, pit latrines and piped water. If the ground surface has rocky ground it means that the cost of service provision is going to be high because the installation of water pipes, drainage systems and sanitation will be expensive (Sowman and Urquhart, 1998).

There are housing projects that have been delayed due to unforeseen geotechnical problems to the extent that it was not feasible to proceed. This becomes a challenge during construction because construction cannot proceed and not only that, a new site needs to be considered (HDA, 2013). A geotechnician is very important in avoiding sites that are not feasible for construction to take place. If construction has to take place, it is advisable that more funds are invested in the project.

2.5.1.3 Sensitive natural environments

These areas are the ones that play an important role in maintaining a healthy ecosystem and in supporting life, such as wetlands, coastal forests or desserts. These areas provide homes for rare or endangered animals and plants. They can also be of interest to scientists and as tourist attractions. These areas can be easily disturbed and damaged by human activities. No development should occur on these types of areas. If the site is close to sensitive areas, the sensitive area should be protected by a buffer between the development and the rare plants or endangered species to ensure their protection. It is important to protect the diversity of life in the environment especially the rare types of plants and animals for the benefit of future generations (Sowman and Urquhart, 1998).

The built environment has a significant impact on the natural resources where it accounts for one sixth of the world's freshwater withdrawals. The constructed houses have an impact on areas beyond their immediate location, affecting the watersheds, air quality and transportation patterns of communities. The buildings that are built without due consideration to environmental impact and natural resources conservation will result in detrimental wastage affecting the ecological integrity. The excessive use of resources in the construction industry like energy and growing demand for raw materials is largely responsible for depletion of natural resources worldwide and the acceleration of global warming. As there is a concern of global warming around the world, the environment needs to be considered during construction of low income housing, which is a challenge for some contractors (Memon et al., 2012).

The South African government recognized the need for more sustainable housing programmes. The South African National Building Regulations requires that environmental sustainability measures must be included in all new and refurbishment housing plans and designs. This legislation is reflected in the National Housing Code for low cost housing construction and was promulgated in November 2011 (Green Building Council of South Africa, 2012).

2.5.2 Financial challenges

This is one of the significant challenges that is very detrimental to a housing project and has an impact on completing the project on time. The client not being able to meet the payment of interim certificates delays a project significantly. An example of a housing project that was delayed or not completed on time is the uMlazi Housing project. According to the contractor the construction of the low income houses was halted by the Provincial Department of Human Settlements by not providing enough funding, but the Department denied that. The beneficiaries were stunned by that wondering why their houses were not being completed. The construction of the houses stopped when the company closed for the festive season on 12 December 2014, but did not resume when it was supposed to on 12 January 2015. In uMlazi G Section hundreds of houses were left without windows and doors. Walls and floors have not been plastered and painted.

Beneficiaries and their family members are crammed in small shacks while waiting for the houses to be completed. Theft was also a problem in the construction of the house's (New24, 2015).

There are sometimes changes made by the project clients during construction which can be a challenge. This will result in an increase in the construction cost where the contractors need to get the material and equipment beyond their normal boundaries. Housing construction involves huge amounts of money and some contractors find it difficult to bear the heavy daily construction expenses when payments are delayed. Work progress can be delayed due to late payments from the clients because there is inadequate cash flow to support construction expenses (Durdyev et al., 2012).

Late payment is defined as the failure of the paymaster to pay inside the time that was agreed upon (Harris and McCaffer, 2003). The different parties involved in the process of payment claims, such as the client, project manager, contractor, banker and other construction players, may cause a payment to be delayed which can also have an influence on the supply chain of payment as a whole. Problems in payment at the higher end of the hierarchy will lead to serious knock on cash flow problems down the chain of contracts. Some of the underlying causes of late payment include the withholding of payment by the client, the client’s poor financial and business management, contractor’s invalid claim, inaccuracy of valuation for work done, insufficient documentation and information for valuation and heavy workloads of the consultant to carry out evaluation for work done (Rahman et al., 2009).

Cash flow management is a challenge that if neglected can have an impact on the construction of a housing project. This is a process of monitoring, analysing and adjusting a project's cash flow. As indicated by Ward (2008) the most important aspect of cash flow management is to avoid extended cash shortages that are caused by having a gap between cash inflows and outflows. Cash flow is the lifeblood of the construction industry and ease of cash flow is an essential element in delivering a successful project.

Moreover, a well-managed cash flow is important to enable the delivery of a successful project by performing a cash flow analysis on a regular basis to identify cash flow problems. Therefore, it is important to develop and use strategies that will maintain an adequate cash flow for the project and subsequently improve the timely performance of a project. Poor cash flow management can be caused by a contractor handling too many projects at the same time, contractor's unstable financial background, unqualified contractor underbidding on the project cost, lack of regular cash flow forecasting and poor credit arrangement with creditors (Rahman et al., 2009).

The external factor of poor economic conditions such as currency and inflation rates would significantly have an impact on a housing project's cash flow and affect the timely performance of the project. The causes of financial market instability which can lead to cash flow problems in the construction of a housing project include inflation of material prices, labour wages and transportation costs. Increment of foreign exchange rate for imported materials can also have an impact on the estimated cost of the project (Rahman et al., 2009).

In a situation where there is a lack of cost control management in housing projects resulting in cost overruns there are possible mitigation strategies that can be done. There should be monthly cost meetings between the project manager and the client (and other team members when required) where variations and cost challenges are discussed. There should be a cost changes document that must be developed and circulated to all project team members (HDA, 2013).

If there is poor performance by the contractor which results in delaying a project and cost overrun, there must be a proactive approach to be taken by housing development managers in replacing poor performing contractors and a monitoring and evaluation programme should be in place before commencement of the project. There may be financial challenges due to unforeseen circumstances such as geotechnical problems and bad weather. It is advisable that all projects in the budget should allow for a contingency budget ranging from 2.5% to 5% depending on the nature of the project. To prevent poor quality housing and cost overruns during construction there should be a

quality planning and assurance programme that must be in place and approved by the housing development manager (HDA, 2013).

2.5.3 Social challenges

During the construction of a housing project it is imperative that the community is aware of the project and also involved in it. Community participation is crucial in housing construction and can benefit all the stakeholders involved in the project. The involvement of the community in planning a project is vital because the community needs to be informed about a project that will commence in their community which can have benefits such as job opportunities (Bamberger, 1986).

Involving the community in a project can also help in resource mobilization as it is easier when the beneficiaries themselves are committed to a project, actively involved in its design and implementation. The community can be open-minded when participating in a project as community resources can be provided in the form of labour and materials (Bamberger, 1986). This will prevent community conflicts and protests which can delay the project and lead to unnecessary cost increases which can be avoided. For example, in Cape Town there was a project that was blocked because of community conflict. In the N2 Gateway Project there was an extension of time claim to add five million Rand as a result of a contractor being stopped by the community. Therefore, it is important that the aspect of community participation is considered in the agenda of housing delivery (HDA, 2013).

There are complexities that are involved in housing projects which are best addressed when beneficiaries and providers work together to plan, design, coordinate and evaluate services. This will definitely result in more efficient and effective services that respond to locally identified needs. Since community participation in the decision making process has mutual benefits, it is best that the beneficiaries have increased involvement in the construction of housing projects (Bamberger, 1986).

The participation of the community in the process of development and in development projects must allow the members of the community to air their own views and convictions to address specific conditions prevailing in their communities. Furthermore, it must be acknowledged that participation as a voluntary process can make a definite contribution to developing communities. According to the White Paper on a new Housing Policy and strategy for South Africa, development does not entail the delivery of goods and services to a passive community but requires involvement of the community and empowerment of the community (Masike, 2011).

During the construction of a housing project theft can occur which can delay a project and increase the cost. In KwaZulu-Natal, a housing project in Emjindini was delayed due to extensive theft of building material. The project manager claimed that the project could not be completed on time. If the community works together and assists in dealing with such situations, a project can be completed on time with no additional costs incurred (Nkosi, 2014).

Baloyi (2011) states that it is critical during the construction of housing projects that the local ward councillors are included in the process as they will demand that the workers employed during construction are from the community. The important thing to note is that the execution of housing projects without the support of the local community via the ward councillors can result in the community stalling or even stopping the construction process of the housing project through public demonstrations.

2.5.4 Political challenges

According to Akanni and Oke (2014) the political environment is concerned with government policy and the effect of political decisions upon housing projects. In the construction industry the significant roles played by the government are mostly as clients, regulators of the national economy and the regulators of the construction environment with laws that guide ethics and construction practices. Thus the government can increase or decrease demand for construction services through budgetary measures and monetary policies. In its capacity as regulators of the

construction environment governments influence the development and building approval processes and enforce compliances with Acts and regulations. Mansfield observed that governments may also invoke their powers to initiate or stop projects on political, social and environmental grounds (Akanni et al., 2014).

A housing project in Stellenbosch was delayed because of the involvement of political organisations in the project. The beneficiaries of the housing project protested against the involvement of the Kayamandi Development Forum (KDF) in the housing development process. The KDF was formed in 2014 as a forum for local political organisations to work closely on development issues but was disputed by the beneficiaries because they believed the forum was involved with the African National Congress (ANC). This caused the Stellenbosch Civic Association to pull out from the forum because they felt the structure was monopolized by the ruling party, the ANC. The beneficiaries were demanding the municipality to remove the KDF in the involvement of the project as it was also not working with residents in the area.

To deal with political interference and prevent protests caused by the community/beneficiaries, it is advisable that a project steering committee is set up for community decision making on a project. The role that the committee is intended to play is that of advisory, enhanced communication and participatory decision making on development options and choices. Before construction begins the committee should be formulated consisting of councillors and representatives of the beneficiary communities. The project steering committee plays a vital role as a liaison between the community and the developer (King and Steyn, 2006).

2.5.5 Institutional challenges

Housing projects are often delayed by institutional challenges which can be caused by the three spheres of government. There are Acts and regulations in the housing industry that are systematic which cover the entire process of housing delivery. These include the local authority power, planning process, construction safety, quality, workers' welfare, arbitration and payments etc. The Acts and regulations were established to

help protect relevant parties and ensure that housing is delivered in a legal and fair manner (Bahadir, 2014).

However, the rules and regulations aim to protect and control the housing delivery system, it is evident from certain studies that some housing delays result from excessive rules and regulations. According to Epstein (2015) the delays in the housing delivery are due to the incompetence of the local authority in handling housing project approval and confusion in the housing planning framework. Moreover, institutional delay refers to the delays in the process, discrepancies, procedure and approval that result from necessary compliance with the rules and regulations (Bahadir, 2014).

In 2013 the Department of Human settlements launched a rental housing strategic plan because there were projects that had not been completed. The land that was sold to the private sector to develop housing for the poor was not utilized extensively. This happened because at the time there was no formal policy in place to regulate such deals. There are also projects that were started by private developers but end being finished by the government because some private developers were simply incompetent. This is a challenge that delays projects massively because in certain cases there may be a need to employ a new project team to complete the project (Bahadir, 2014).

The official municipal procedures or processes for registering housing developments on erfs can delay the approval of housing development plans. What can also hinder the acceptance of housing plans resulting in a delay or stalling of the housing project is land ownership and proclamation. In some instances, the tender process can be a delaying factor with a long gap between the confirmation and appointment of the contractor and the actual start date of project execution by the contractor (Baloyi, 2011).

The process of appointing the consultants that are going to manage the housing projects can be lengthy. The appointment of the contractors by the consultants and the approval of the contractors by the municipality can also be a lengthy process. The communication between the municipality and the contractors is deemed to be a risk capable of causing delays in housing projects (Baloyi, 2011). For example, there was a

housing project that was delayed because of a series of municipal approvals that were not approved on time (Epstein, 2015).

In the Hibiscus Coast Municipality there was a housing project that was delayed, it was called the KwaMasinenge Housing project. The project was a special agreement between the municipality and the Department of Human Settlements that encountered challenges. These include late variation allowance calculations after which thirty sites were unaccounted for, the late commencement of construction as well as a fourteen-month administrative delay from Ugu district municipality relating to the sewerage system for the project. The results of the delays caused the project to cost R155 388 701.28 up from its initial R76 471 796.00 (South Coast Herald, 2015).

2.5.6 Technical challenges

The inability of the contractor to come up with a workable work programme at the initial planning stage results in project delay. This failure is interconnected with lack of systematic site management and inadequate contractor experience with regard to projects. The improper planning at the initial planning stages of a project manifests throughout the project and causes delays at various stages. A project that is well planned can be well executed (Bahadir, 2014).

In a case where there are different contractors doing different activities, the handover between these contractors can be a delaying factor. For instance, when there is a contractor appointed for doing the top structure and another appointed to do the roofing. When there are different contractors appointed to do the electrical wiring and setting of the water pipes. The handing over of tasks between the contractors can be a delaying factor as one contractor might not be finished with their task on time for the other to begin their task (Baloyi, 2011).

Technical challenges can be dealt with during the construction phase of a project. During the planning stages of a project there should be scheduling of project tasks in terms of time estimated. There is a need for project planning that must encompass on going communication with the stakeholders to bring together an appropriate level of

expectation on a project. If there are changes to the project, they must be closely supervised in consultation with the stakeholders (Gabula, 2012). Proper project packaging is vital in any project including housing projects. Accumulating all the key components of a project is essential to the success of the project. It will also provide a clear understanding of how a project will be managed, coordinated and phased (UMhlaba Consulting Group, 2013).

The planning phase in the project life cycle is an important phase that requires attention and if done correctly could prevent certain challenges that could delay a project. During this phase the team identifies all the work that needs to be done. Project tasks and resource requirements are identified, along with the strategy to produce them. It is at this phase that a project plan is created outlining all activities, tasks, dependencies and timeframes. Coordinating the preparation of the project budget by the project manager is done at this phase. The budget is then used to monitor and control cost expenditures during project execution because if it is not monitored, there can be cost overruns (Baron, 2006).

2.6 Legislative framework related to housing construction

The South African Constitution (1996) cherishes the privilege of everybody to have entry to satisfactory housing and makes it mandatory upon the state to take sensible authoritative and different measures inside of its accessible assets to accomplish the dynamic acknowledgment of this privilege. In response to this Constitutional imperative, government has, in terms of the Housing Act, 1997 (Act No 107 of 1997) introduced a variety of programmes which provide poor households with access to housing opportunities. The policy principles set out in the White Paper on Housing of 1994 aimed to provide poor households with houses as well as basic services such as potable water and sanitation on an equitable basis (Masike, 2011).

The South African government is faced with a major problem which is the inability to increase the delivery of houses to the citizens (Burgoyne, 2008). To eliminate this problem a series of legislations and policies have been put in place since the beginning

of the democratic dispensation in 1994. The White paper on housing policy was introduced that initiated the procedure of giving moderate housing to poor people. The policies and strategies which are contained in the White paper are administered, endorsed and enforced by the National and the Provincial Department of Housing (Baloyi, 2007).

According to Govender (2011) the housing policy as defined in the White paper aims at meeting the basic needs of the population, especially of poor households, building the economy, democratising the state and society and developing human resources. The disadvantaged are the first targets of the housing policy which are the people living in inadequate shelters and earning less than R3, 500 per month.

To regulate the housing building industry and to offer consumer protection through a warranty scheme, from 1 April 2002 the National Home Builders Registration Council (NHBRC) was established in terms of the Housing Consumers Protection Act, 1998 (Act No 95 of 1998). The legislative framework specifies that houses that need to be delivered must now comply with the norms and standards of the National Building Regulations and minimum technical standards of the NHBRC, the houses must be constructed by builders registered with the NHBRC and ensure that all houses constructed are approved by the NHBRC (Masike, 2011).

In 2004 the Department of Housing introduced the Breaking New Ground (BNG) a strategy which is aimed at redirecting housing development. The plan of the BNG is to redirect and enhance existing mechanisms towards more responsive and effective delivery. It strives to promote the achievement of a non-racial, integrated society through the development of sustainable housing settlements and quality housing. Some of the numerous objectives set out by the BNG plan include accelerating the delivery of housing as a key approach for poverty alleviation and utilizing provision of housing as a major job creation strategy. The strategy ensures that property can be considered by all as an asset for wealth creation and empowerment thereby influencing growth in the economy (Baloyi, 2011).

Improving quality of life for the poor, promoting social cohesion and crime prevention strategies are also listed as BNG's main objectives, by providing community supporting facilities through housing delivery. It aims to make use of housing as a tool for the development of sustainable human settlements in support of spatial restructuring, promoting and facilitating an affordable rental and social housing market and the upgrading of informal settlements.

The Department of Housing states that the BNG plan is not aiming to replace the existing policy but to enhance it. Tomlinson (2006) argues that the BNG has brought significant shifts in the housing process in South Africa. The BNG plan shifted the focus away from quantity to quality of housing delivery, particularly for the delivery of sustainable human settlements (Govender, 2011).

An approach that can be used in the completion of low income housing projects on time can be the People's Housing Process (PHP). PHP is a low income housing delivery approach promoting the involvement of beneficiaries in the development of their own houses. The process is a self-help mechanism which allows groups of people to work together to pool their resources and contribute their labour to build homes. Through supplementing the standard housing subsidy with savings, additional loans or labour, communities that are implementing the PHP are able to build bigger and better homes. In addition, the PHP builds human capacity, social cohesion and brings communities closer together (Masike, 2011).

The PHP is supported by the National Housing Policy and focuses on poor families in both urban and rural areas, using capital subsidies to allow people to build their own homes. It assists people in obtaining access to technical, financial, logistical and administrative support to build their own homes on either an individual or a collective basis. Projects that are done under the PHP have been proven to be better than standard housing developments, but only a limited number of houses to date have been delivered using this method (Masike, 2011).

2.7 Precedent Studies

2.7.1 Malaysia (International)

In Malaysia delays occur in the construction of houses for the people as industry is famed for poor risk management with many projects failing to meet deadlines and cost targets. The Ministry of Housing and Local Government has emphasized some common issues associated to the poor workmanship, the unwillingness of the developer to pay compensation for late delivery and late payments in the construction industry. Moreover, Chai et al., (2015) claim that the main reason for the prevention of completion of projects on time are the delays. A delay is regarded as an unexpected extension of time beyond the date of the agreed period that the parties were granted to deliver a project. The delays involved different parties (local authorities, developers, consultants and contractors) and occurred at different stages of housing delivery (development approval, design, construction and handing over).

The late delivery in construction projects has become a common problem in the industry, especially housing projects in Malaysia. Its impacts are so significant that it tends to decelerate the implementation of projects under the Malaysia five year plan. In that country, the housing sector has been one of the construction industry's significant contributors. The sector became important for its role as a physical output contributor as well as provider of a basic human need. As the production of the housing industry becomes significant socially and financially, the need to ensure the efficient and effective delivery becomes inevitable (Chai et al., 2015).

In housing projects, the delivery of completed housing units is crucial not only in public housing but in the private sector as well. To complete the projects on time and within schedule is an essential benchmark for the proprietor, executors as well as house buyers. Additionally, it is also crucial to the pursuit of fulfilling the promise stipulated in the Sales and Purchase Agreement between the developers and buyers. Thus, time management issues are currently given significant attention in relation to housing delivery. Several researchers and practitioners involved with the industry have stressed

the fact that time has its own essence and has proven to be one of the most important factors for the success of the housing industry. It is noted that housing delays in the construction sector have become a norm due to their frequent occurrence and uncontrollable measures (Chai et al., 2015).

In Malaysia, there were complaints regarding abandoned projects, poor workmanship, delay in issuing certificates of fitness, handing over delay, and developer reluctance to pay compensation for late delivery payment; problems related to maintenance charges were common as highlighted by the Ministry of Housing and Local Government Malaysia. A proper understanding of delays is essential for the contractors, subcontractors, and the developers, as well as the beneficiaries. If issues of delays are unable to be solved by these parties, then involvement of the government or other third parties might be needed. This might include laws and legal procedures as well. Thus, it is necessary to choose suitable techniques and processes for the completion of the construction work while also considering all the relevant facts, probable causes of delays, time of delivery, and the potential conflicts that might take place so as to take preventive measures to overcome difficulties associated with these factors (Chai et al., 2015).

The problem of delays in the construction industry is a global phenomenon. Many housing projects are not completed within scheduled completion dates and are over budget. However, every country has their own challenges but the result of the challenges is the same. It is clear that there needs to be better application of project management in housing projects to prevent delays. Project management includes arranging, sorting out and overseeing assets to realize the effective finishing of particular projects objectives and targets (Masike, 2011).

2.7.2 New Germany (Local)

A housing project in New Germany (KwaZulu Natal) has been delayed for more than a decade. The incomplete project initiated as 25 double storey flats but has become some sort of ghost town. During the construction process there was poor workmanship as

there was no proper excavation done before commencement of the project. The contractor was not competent at all during the construction of the project and therefore was excluded from the project. As the project was done in phases some of the units were complete and a few people moved in during the year 2006. Two years later the residents were told they had move out because the flats were in no condition to be occupied. There were no railings on the second floor of the flats which was a danger to the occupants. Among the essential necessities of a house that were missing was electricity and running water. Some people who had been on the waiting list for years tried to occupy the flats but were evited. Soon after that the government employed security guards to protect the flats from invaders. This project was not completed on time because both the project manager and the contractor were not competent enough and as a result it was a colossal fail (Rondganger, 2016).

Chapter 3: Historical background of uMlazi and Mpumalanga Township

3.1 Introduction

This chapter seeks to analyse the areas in which the case studies exist. The historical background of the townships will be discussed. This will help with an understanding of how the townships came about, what has changed in the last decade. Information regarding the location will be provided including a map of the area, social and economic activities in the townships will be discussed followed by the educational information and availability of basic facilities.

3.2 Geographical location of uMlazi

The formal township of uMlazi is located 15km south of the Durban central business district, refer to figure 1. UMlazi is approximately 4500 ha and in between the Ezimbokodweni river in the south and the uMlazi river in the north. For the purpose of this research sections G (refer to figure 2) and H (refer to figure 3) will be used as focal points as the study could not cover the whole of uMlazi due to time and financial challenges.

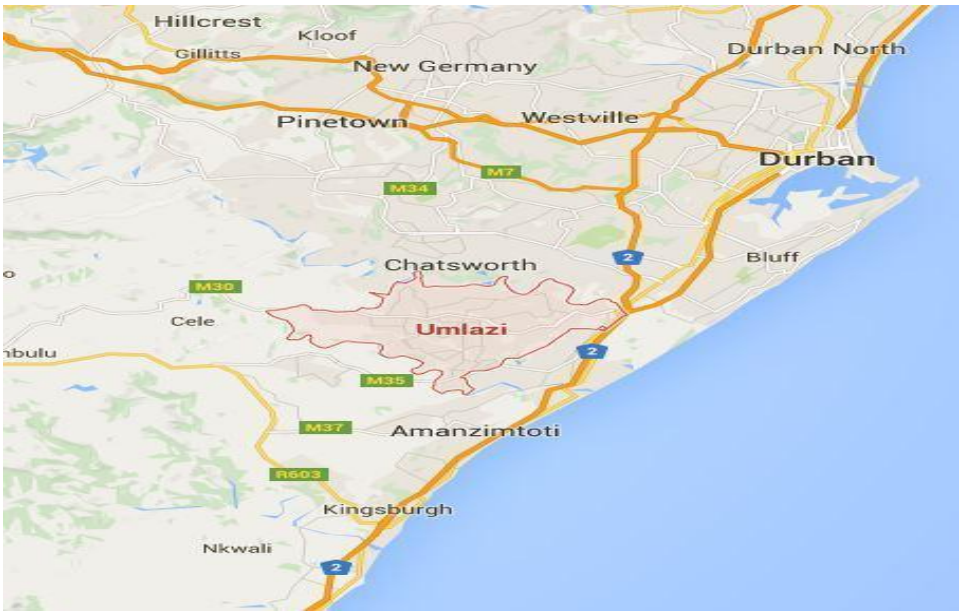

Figure 1 uMlazi Township Source: Google Maps, 2015

Figure 2 Section G uMlazi Township Source: Google maps, 2015

Figure 3 Section H uMlazi Township Source: Google maps, 2015

3.3 Historical Background of uMlazi Township

In 1800s, before uMlazi was a township it was a Mission Reserve that was created by a Deed of Grant in favour of the Church of England. The church authorities were allocated 476 acres of land as Glebe land. There were 7521 acres of land which constituted a mission reserve for the settlement of the natives under the guidance of the Trustees. According to Khumalo (1993) the government proposed the idea of converting uMlazi mission reserve into a township. The purpose was that uMlazi had to serve as a dormitory town for people who were relocated from central areas such as Cato Manor because of the government creating the *apartheid* city (Khumalo, 1993).

The government argued that Cato Manor was a slum and therefore it had to be destroyed. The people who were chased away by the government found the nearest place which happened to be uMlazi. The Mission Reserve was against this action that was taken by the government and united in its condemnation of the idea. Unexpectedly, the parliament in Cape Town announced that the people of uMlazi had agreed that the mission reserve should be converted into a township. The relocation of the African people in Cato Manor to uMlazi took place in the early 1960s which means that the building of the township began in 1961. In 1962 there were houses that were available for occupation. By the year 1963, uMlazi was absorbing 50% of the people who were removed from Cato Manor and 4000 houses had been occupied (Gumbi, 1995).

UMlazi has become one of the biggest townships in South Africa and has developed a suburbia sprawl model. Initially when the township was designed no names were given to the roads or sections. Instead alphabetical letters except I, O were used to refer to each section or unit. In each section there would be a number of 1000 to 2000 houses with a primary school and other facilities but not every section had its own school (Ndaba, 2003). The major facilities would cater for a number of sections, meaning that they were available for the whole township. Giving directions in uMlazi was a problem as the roads did not have names so reference was made to house numbers within a section. The first houses to be built by the Durban Corporation were in sections V, A, B, C and D. After the completion of the houses in section V, the houses were built in

alphabetical order of the sections. UMlazi is situated in a hilly and undulating environment and the topography underlines the scarcity of flat land for housing construction (Ndaba, 2003).

3.4 Popularity of uMlazi

UMlazi has the combination and co-existence of formal housing with informal housing which is one of the townships characteristics. One of the reasons that caused this combination was the continual migration of people from the rural areas who come to the township in search of better economic opportunities, quality of life and employment (Gumbi, 1995). UMlazi is well known because it is one of the places that attracts celebrities and the youth for entertainment. Places like Max's Lifestyle and Eyadini Lounge are well known throughout South Africa. UMlazi is also well known because it is where the Mangosuthu University of Technology (MUT) is located.

Figure 4 Mangosuthu University of Technology Source: Google maps, 2015

The MUT has its origins in the semi-independent homeland of KwaZulu. Back then when Mangosuthu Buthelezi was Chief Minister, he wanted to establish a higher education institution close to Durban to provide young people from disadvantaged backgrounds with the opportunity to further their education beyond secondary school level, as he did. Supported by an Anglo American Chairman Fund grant, in 1979 the institution came into being as a technikon with an initial enrolment of fifteen students. Today, more than ten thousand students are studying at the university (Landman, 2013). In KwaZulu-Natal, MUT is one of five universities and located in the province with the second highest population in the country. MUT is located 25km south of the centre of Durban in uMlazi. The academic activity is divided between three faculties, engineering and the built environment, natural sciences and management sciences.

The first black employee of the broadcasting corporation was from uMlazi. Mr K.E. Masinga was known as ‘Uyise ka Radio Bantu’ the founder of Radio Bantu. Mr Masinga’s residence was in section E. There is a road that is named after K.E. Masinga in Durban city centre (Tshabalala, 1998).

3.5 Socio economic activity

The location of uMlazi was in close proximity to the emerging industrial and commercial business activity in the south of Durban. The township served as a dormitory area for cheap labour required in the city. Initially the emphasis was not on creating a viable community with required social and economic infrastructure but on the provision of accommodation. This lowered the quality of life of the uMlazi residents (Tshabalala, 1998). According to Dayomi and Ntiwane (2013) 34% of the population is of working age, the economically active age group 15-65 years, and is employed in the formal economy. During the year 2011 the unemployment rate stood at 24%, this included people working informally and people seeking employment (refer to figure 5). The elderly, retired workers and youth below the age of fifteen were considered non-economically active and they represented 36% of the population (Dayomi and Ntiwane, 2013).

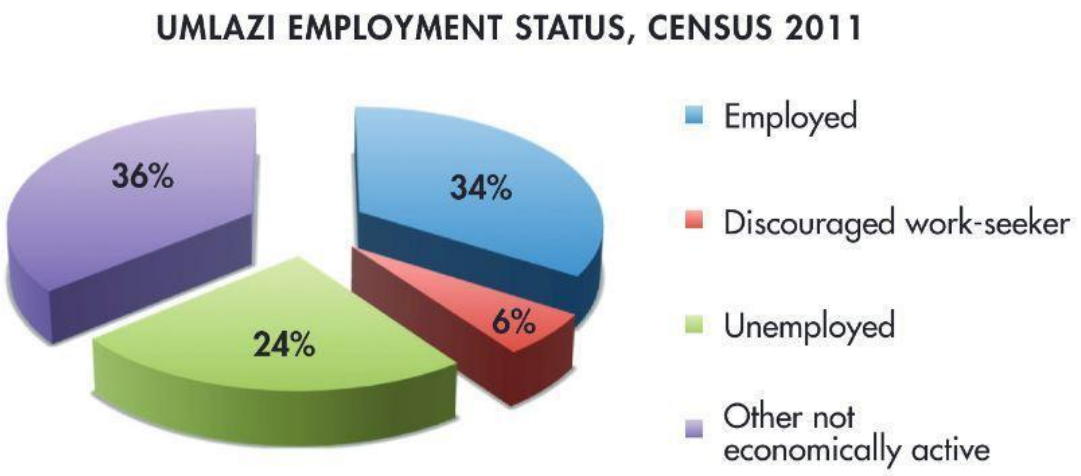

Figure 5 uMlazi employment status Source: Dayomi and Ntiwane, 2013.

One of the locations where socio-economic activities take place is uMlazi Mega City which is a mall located at 50 Mangosuthu Highway. The mall was developed in 2006 and has a single floor. There is a wide variety of experiences to be enjoyed by the customer in the shopping complex. The pioneer of township shopping experience is what the mall is affectionately called and it has played a crucial role in changing perceptions in retail property sector and that of major retail chains. The mall is strategically located at the entrance of uMlazi Township and attracts many customers including those who do not reside in uMlazi (umlazimegacity, 2015).

Another place that came as a catalyst for economic development and job creation in uMlazi was the KwaMnyandu Mall. The mall is linked to KwaMnyandu railway station which is the second busiest station in KwaZulu-Natal. The Mall is also located strategically to ensure that it enjoys maximum foot traffic while at the same time providing commuters convenient access to shopping (King, 2014).

3.6 Educational information

There is a total of thirty-one primary schools, seventeen secondary schools, one technical college and one university of technology within uMlazi. There is a school for the mentally disturbed, a school for the deaf, a school for the physically handicapped

and a school for the blind. There are also boarding schools in the township. There are some schools in uMlazi that are well known for their outstanding academic results (Tshabalala, 1998). There are many residents in the township who are unskilled and have low levels or no level of education which is a problem because many of the unemployed seeking employment are unemployable due to their lack of skills and education which plays a large part in determining the future levels of employment. However, since 2009 there has been an increase in the number of people completing school in uMlazi (Umlazi Business Plan, 2009).

3.7 Water

According to the Department of Water and Sanitation, uMlazi receives its water supply predominantly from Wiggins Water Treatment Works. The Folweni reservoir also caters for the township when there is demand increase. The pipe infrastructure works adequately but would need to be re-assessed for future developments (uMlazi Business Plan, 2009).

3.8 Health

There is one hospital and ten clinics located in uMlazi and there are private doctors' practices. The private doctors are mostly found where there are economic nodes like commercial centres, railway stations and taxi ranks. The Prince Mshiyeni Hospital has a total of 1200 bed facilities. It serves surrounding areas including KwaMakhuta, Adams Mission, Lamontville, Folweni, Umgababa etc (Umlazi Business Plan, 2009).

3.9 Recreational facilities

There is one stadium (King Zwelithini Stadium) and seven sports fields that can be found in uMlazi. These fields have a capacity for 15,000 people. There is a swimming pool located in D section within uMlazi.

3.10 Availability of facilities/amenities in the area

Located within uMlazi is the magistrate's court, police station, the Tehuis Park which is located within ward 76 close to the Prince Mshiyeni Hospital. There are five community halls that can be found in uMlazi. They have a carrying capacity of 3,000 people. The uMlazi area has two cemeteries that are located in sections S and T. However, these cemeteries are said to be full thus the community is utilizing cemeteries in other areas. There are two libraries and one is located within W section. The carrying capacity is 60,000 books. There are forty-nine worship facilities and one post office located within uMlazi (uMlazi Business Plan, 2009).

3.12 Mpumalanga

3.13 Locality

Mpumalanga falls within the outer west region of eThekwini Municipality. The township is located on the western edge and along the southern edge of the N3 freeway. The area straddles the MR385, which is an urban service corridor linking the township to the N3 and to Cato Ridge (refer to figure 6). The area is comprised of the formal areas of Mpumalanga Township, Hammarsdale and parts of Georgedale the informal/peri-urban areas of Georgedale, Mlaba Village, Sankontshe, Mophela and Ntshongweni and the agricultural/rural area of Camperdown Rural. For the purpose of this research sections D (refer to figure 7) and J (refer to figure 8) will be used as focal points as the study could not cover the whole of Mpumalanga due to time and financial challenges.

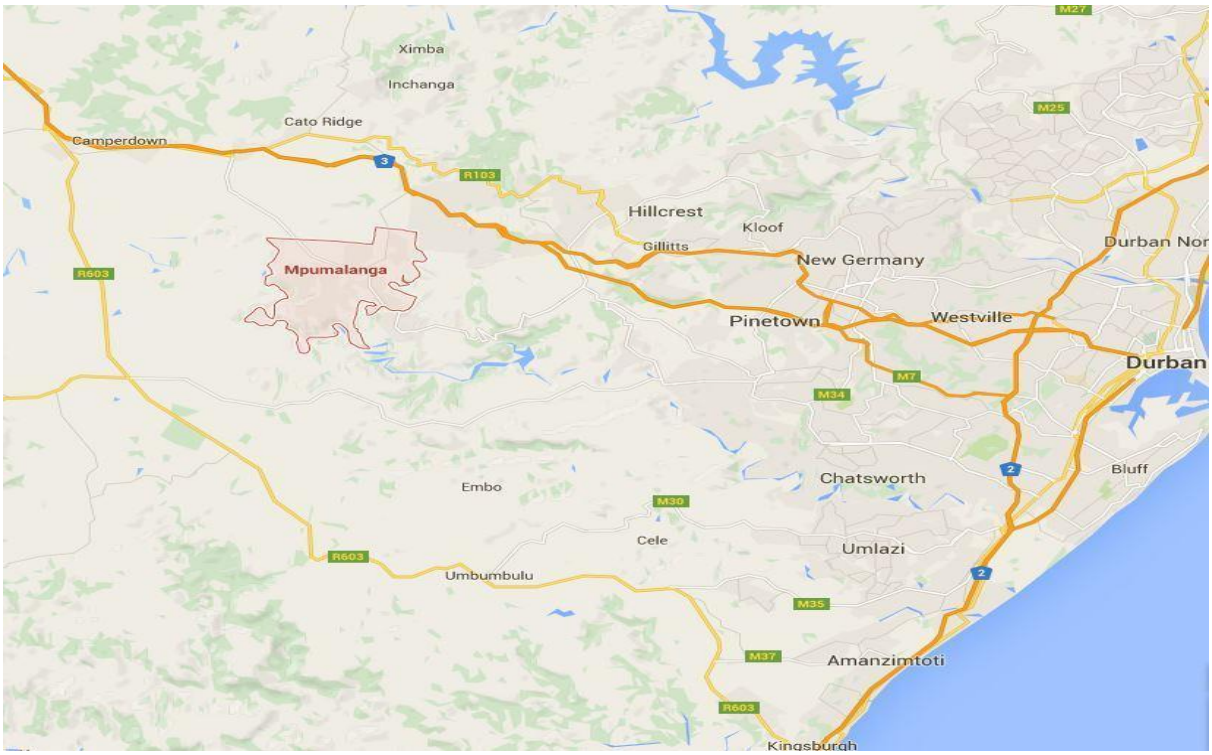

Figure 6 Mpumalanga Township Source: Google Maps, 2015

Figure 7 Section D Mpumalanga Township Source: Google Maps, 2015

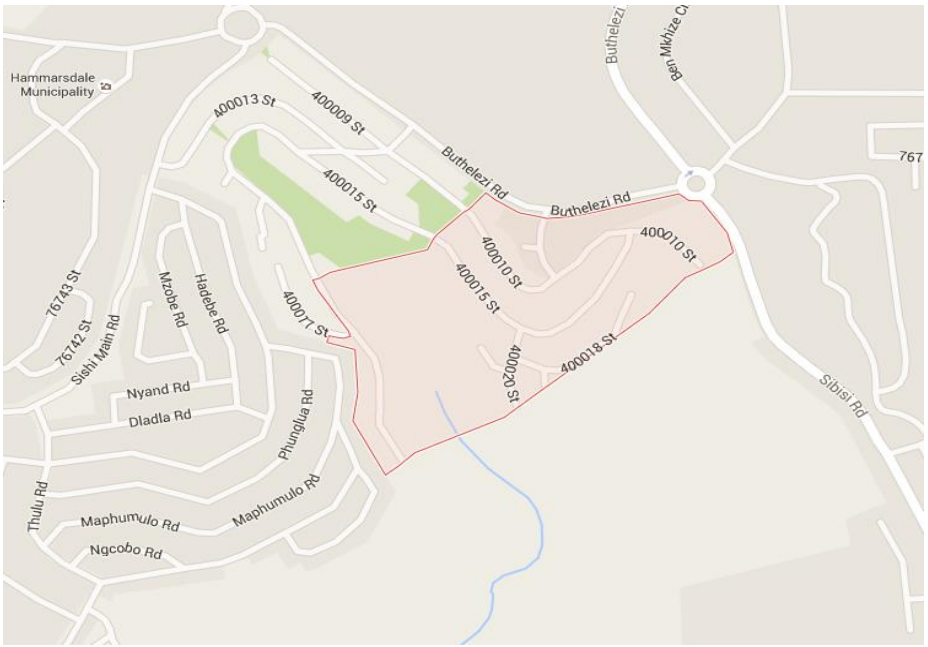

Figure 8 Section J Mpumalanga Township Source: Google Maps, 2015

3.14 Historical background of Mpumalanga Township

The area was established by the local municipality in the late 1960s as a typical *apartheid* labour reserve. The township was established according to regulations laid down by the Department of Bantu Administration to regulate the larger squatter population renting on African owned freehold land and to facilitate easy access for transport, surveillance and monitoring. It was initially conceived as a labour reserve and provided labour to subsidized industries located in Pietermaritzburg, Pinetown and Durban given its proximity to these three centres (Mosoetsa, 2004).

The township emerged to serve the decentralised textile industries. These industries were prompted by government incentives, hence many served as primary means of income for labourers. The Industrial Development Corporation that was behind the establishment of Hammarsdale argued that the well-established textile industry would have tremendous employment potential for semi-skilled operatives and that could raise the standard of living of the people. The policies that were formulated by the *apartheid* government facilitated the growth of manufacturing industries such as clothing and textiles which have become major employers throughout the province of KwaZulu-Natal. These policies by the past government promoted labour intensive industries through a process of industrial decentralisation which led to the development and growth of industrial geographic zones such as Hammarsdale (NDP, 2009).

The Hammarsdale clothing factory was established in 1957 and within three years Hammarsdale had three textile factories and a manufacturer of sewing machines with a total labour force of 2135. By the end of 1971 there were thirteen factories and 8500 workers were employed in the area. During the 1980s nearly every second person was working in the one of the factories in Hammarsdale. A number of people continued to work in clothing and textile factories in Pinetown, Pietermaritzburg and Durban (Bonnin, 2007).

Hammarsdale became the industrial growth point and main source of employment for not only the residents of Mpumalanga Township but the whole province. However, an

estimated 60 factories have been closed down in the past few years which led to 3,500 Mpumalanga residents losing their jobs. The majority of the workers that worked in those factories are now unemployed and new entrants in the labour market. During the 1980s the import substitution industrialisation was becoming a less preferred *apartheid* government economic policy.

The phase of government decentralisation (pre-1994) erupted into war in the area. The war was between the ANC, IFP and UDF members of the society. Other factors contributing to war were loss of jobs as industries shut down, social networks obliteration due to political preferences, dwelling units' vandalism, residential area zones or sections etc. In 1982 many factories started relocating to other places deemed to be cheaper and politically stable. The factories referred to the political instability and violent history as a prime reason for the need to retrench and relocate. This meant that the Mpumalanga Township's link to and reliance on Hammarsdale posed a serious threat to the survival of many individuals, households and the entire community all of which depended on clothing factories for wage employment (Bonnin, 2007).

3.15 Socio-economic activity

The clothing and textiles sector is the largest employer in the area, however it is threatened in term of employment decline. The manufacturing sectors that are important to the local area, apart from clothing and textiles, are furniture manufacturing and recycling, other non-metallic minerals products, food and beverages. The clothing and textile sector makes up about 24% of the firms in the region. With a total of 66 firms, 16 of them belong to this sector. There are approximately 56% of firms that are involved in manufacturing and manufacturing clusters. There are a limited number of formal large businesses in the study area to supply the local area with employment opportunities. According to the Draft West Spatial Development Plan, Mpumalanga is situated within the region of agricultural importance (NDP, 2009).

A shortfall exists in the provision of social facilities to meet the demands of the existing population of about 120,000 people in the area. This includes schools, sports fields,

clinics and parks which are needed mostly by the young population that will also generate future demands for housing, employment and livelihood opportunities. Additional housing needs to be provided to address the backlog and to meet the demand generated by the growing population. What also impacts on families and the community are the high levels of unemployment that constrain the social and economic development in the area. There is limited availability of local employment opportunities and social facilities in the Mpumalanga Township because the area is isolated from major metro systems of opportunity which results in local residents needing to commute long distances to surrounding areas to access jobs and social facilities (Royal HaskoningDHV, 2014).

Agriculture is one of the most prominent economic activities in the area. The large parcels of farming land are a source of employment and economic empowerment in the area. Due to the soil type of the majority of the study area, one can conclude that agriculture owes its magnificent existence to the unfettered natural fertile (clay and silt) soil. The fertility of the soil, in residential areas is advantageous as it contributes to livelihood betterment and food security. Corn, onions, potatoes, tomatoes, cabbages and spinach are yielded in backyard gardens and consumed or sold for income (Royal HaskoningDHV, 2014).

3.16 Infrastructure of Mpumalanga Township

In the Upper Mgeni water supply area there is limited scope for water supply growth, however, water provision is relatively adequate in recently built residential units. There are water reservoirs that supply the study area which are the Georgedale High Level and Low Level, Hammarsdale High Level, Hammarsdale Low Level and Shongweni reservoirs. The Georgedale reservoir is the Command reservoir and supplies the bulk of the study area. The reservoir has a capacity of 22.73Ml and its estimated daily demand to reticulation is 5.5Ml (Royal HaskoningDHV, 2014).

Industrial companies also have privately connected water with the municipal grid. Electricity is also provided to a large extent in the study area. Electric connections are

seemingly legal, with the connections conforming to Eskom standards power provision and power line connections. Sewerage services have also been provided in residential units with houses being designed to dispose of sewage from the dwelling unit to the municipal sewerage connection grid. Refuse boxes are not provided in the residential area and have been removed in the rail station (Fennemore et al., 2006).

Pedestrian pathways are available alongside the road and through residential units and passive open spaces. Some have been planned and some are unplanned in respect of town planning standards. A railway route forms part of the initial and historic planning of Hammarsdale. The railway serves as the transportation route which services the residents and the industrial sector. People use the decaying and old railway stations to access railway transport, and the industrial companies use the railway to transport goods such as coal, timber, paper to the CBD. Public transport is also available and has been catered for through the planning and provision of taxi ranks and bus stations (Fennemore et al., 2006).

3.17 Educational information

Schools are available in the area but have not been considerate with respect to convenience to some community members. In some areas such as the Shiyabazali area, community learners walk long distances to access primary and secondary schools. The schools are functional although some lack security features such fencing and gates to secure the premises and protect the children. There is a total of thirteen schools in Hammarsdale (NDP, 2014).

3.18 Recreational facilities

Recreational spaces are not sufficiently distributed with regards to accessibility, convenience and social cohesion. There are parks, open spaces and a stadium (Mpumalanga Stadium) in section B. The Minitown settlements have no planned recreational facilities. Only informal and unmaintained sports fields and unplanned passive open spaces are apparent (NDP, 2014).

3.19 Availability of facilities/amenities in the area

Around economically and socially active areas are where a police station (SAPS) is located to provide safety and security measures for the residents and economic participants. A hospital is not available and only the Mpumalanga and the Hlengisizwe (operating 24 hours) clinics service the community (Mosoetsa, 2004)

Chapter 4: Research Findings, Data Analysis and Interpretation

4.1 Introduction

The following chapter presents the data collected from the informants. The responses and results from the interviews are analyzed and with the data interpreted from the findings a conclusion is reached. The data was collected through interviews with project managers, contractors, officials from the Department of Human Settlements and beneficiaries from uMlazi and Mpumalanga Townships. The findings are divided into different themes.

4.2. Financial challenges encountered by project managers and contractors

According to the project manager, in uMlazi there were financial challenges where there was a need for additional funds from the Department of Human Settlements. The site where construction took place was very steep which meant that excavations, compaction and retention had to take place which was expensive. The projects in both sections G and H were *in situ* upgrading projects. In section G, each and every site where a house was to be built excavation, compaction and retention had to take place.

There were situations where the cost of excavation, compaction and retention was more than the cost of building the actual house. These processes were necessary especially the retaining walls because if they had not been done properly the houses would not have been stable and would have collapsed. Retention was done at the front and back of the site, and sometimes even at the sides. Excavations and retention were not only done for the houses but also for the roads, storm water drainage and the sewerage system. Installation of the services was challenging and costly because of the topography of the site. Normally, low income housing should not have taken place on a steep slope but because there was no other suitable land for housing construction to take place there was no alternative.

The subsidy to build each house was R64,000 but sometimes close to R90,000 was spent on excavations, compaction and retaining the site, before even construction of the

house began. A letter of motivation had to be written to the Department of Human Settlements explaining the conditions of the site and requesting more funds for the project to continue. It also depended on whether the department had the additional budget because they also had a fixed amount which they had to spend. In a situation where the department had no additional budget the municipality had to intervene and come up with the additional funds.

The municipality also provided what is called top up funding to complete the project. The project manager stated that the National Department of Human Settlements allocates the same budget for Gauteng and KwaZulu-Natal which is a challenge for KwaZulu-Natal considering the different topographies of these provinces. According to the project manager, KwaZulu-Natal should get a slightly higher budget than Gauteng. The project manager who worked on the Mpumalanga housing projects said that there were no financial challenges as the budget was sufficient for the project and no money had to be added by the Department of Human Settlements.

From the contractor's point of view in the Mpumalanga housing projects, the terrain was steep which made it difficult for delivery trucks especially when it was raining. The subsurface of the site was rocky which made it difficult to dig the foundations. The site was also not easily accessible because of the steepness of the slope. "It is preferable not to build on a challenging site because of environmental impacts and additional costs, but there is a lack of suitable locations to build low cost housing" elaborated the contractor. The installation of the drainage systems was a challenge because of the slope. The contractor in uMlazi encountered the same challenge of a steep slope which did not make it easy for housing construction to take place. The steepness of the slope also posed a challenge for the construction of roads and the installation of services.

The delivery of building materials by truck was not possible because of the steepness of the site. The materials had to be dropped by the truck at a particular place and then hand delivered to the site. In both the townships a great deal of money was spent on the sites during the excavation, compaction and retention before construction of the houses started. It was challenging for the contractors to work to the very tight budgets they were

given. A contractor who was working in uMlazi mentioned that there was no negotiation on the budget and they had to use what they were given. They made sure that the money was spent effectively and efficiently so they could get the job next time.

The workers employed by contractors were underpaid as the budget they were given was very tight. These financial challenges certainly had an impact on completing the housing projects on time. The time factor of the projects was affected. A project needs all the necessary funds to be completed. Financial implications are leading factors in stalling housing projects. The conditions of the site determine the overall budget of a project and can have a drastic impact on completing housing projects on time.

4.3 Social challenges encountered by project managers and contractors

In Mpumalanga Township social challenges were experienced by the project manager during the construction of the houses. There were some cases where eight people had to be relocated from where they were staying because the terrain was not stable and construction could not take place there. There were people who did not take relocation easily as they did not want to move. They complained that the government was providing them with smaller houses than the houses they owned before. They protested that they were not leaving their homes where they had enough space to grow crops and move to a place where growing crops was next to impossible.

Often the people who did not want to move were the elderly. They said that they did not want to abandon the grave sites of their families. In that situation the community as a whole came together with the social facilitators from the municipality to try and convince the people who did not want to move to do so because some of them were in need of the houses and what they were doing was delaying the project.

Before housing construction began for *in situ* upgrading there was usually poor planning in terms of the plot sizes and the positioning of the houses on a plot. In certain cases, there was more than one household on a plot which became a challenge when construction began because all the households would demand a house but only one house could be provided because the rest of the space would cater for the

infrastructural services that came with housing. During the construction process of the houses, there was sometimes a challenge when the beneficiary had an eight room shack with no services but would be provided with a four room fully serviced house. The beneficiary complained that the house was too small for the family and that it would bring conflict among the family because who was going to get a room and who was not.

There were certain cases where the house of a beneficiary was built beyond the site boundary to the neighbouring site. That caused a big problem because the other neighbour felt that his neighbour was invading his space and wanted the house to be demolished. That also caused a delay but a minor one as it did not delay the whole project. This usually happened as the project was an *in situ* upgrading one, where there were houses being constructed on the neighbour's site due to the lack of space. However, that was dealt with by the local councillor and social facilitators who called a meeting to explain to the people about upgrading their homes and that they needed to accommodate one another if the other neighbour did not have enough space for the house to be constructed.

In uMlazi there were seven people who had built their houses and shacks under electric power lines, which was not allowed and dangerous but nevertheless they did it saying there was no available space for them to build their houses. As it is not allowed by the South African Property law, a housing project cannot take place under electrical power lines. That meant that the people were not going to be provided with houses in such locations and therefore they had to be provided with housing in a different location. What became a challenge was moving the people from one location to another as it was necessary for some of the households.

Relocation was a process as there were those who did relocate but demanded a bigger site protesting that where they were coming from they had a much bigger site. About 30% of the people said relocation was not an option because their survival was at that place. There was 10% who said they had small businesses in the area and their children went to schools close by. 50% said they were working in places close by and moving was not going to benefit them. This was a challenge that even affected the

municipality because if the people did relocate to housing provided by the government they would do so only to sell the houses illegally and move back to their original houses or shacks.

There were social challenges faced by contractors during the construction of low income housing in Mpumalanga. There was a case where a contractor wanted to build a road because houses come with roads and other services. Now when the road passed through a site of a beneficiary, that individual was not happy about it. He did not want any road on his property because he was growing crops which provided for his family. Even though he was getting a fully serviced house and was going to use that same road. He was not the only one; there were people who did not want the sewerage pipes to cross their yards. This was a challenge for the contractor because dealing with all these people was delaying the construction process. There were strikes caused by the workers because they were not remunerated equally. The contractor then had to sit down with the workers and agree on equal remuneration which delayed the project because that should have been done before the project began.

In uMlazi there were social challenges that delayed the projects. There were people who would maybe on a Friday night build a shack next door to a house where construction was taking place and on Monday claim a house to be built for them. Theft was also a challenge during construction because some days when a contractor arrived on site he found that some of the material had been stolen. Security had to be enforced to prevent the stealing of materials.

Another challenge was late deliveries where the material would arrive at 15:00 and the workers punch out at 16:00. That meant that little work would be done which delayed the project. Social challenges have an impact on completing housing projects on time because if they are not dealt with properly can lead to unnecessary cost increases and delay the completion time of a project. Community unrest results in a non-conducive environment for project execution, resulting in a slower pace of project work which delays the project.

4.4 Political challenges encountered by project manager and contractors

In uMlazi there were a few political groups with one being the dominant one which was the ANC. What was a challenge was that the position of the local councillor was held by a person who used it as a means of economic survival rather than delivering for the community. To gain votes the councillor claimed to the people that he was building the houses for the people, but it was the Department of Human Settlements who was building the houses for the people.

The people who opposed the local councillor tried to disrupt the construction of the houses thinking it was the local councillor who was responsible for the project. These people would initiate protests claiming the houses were too small, lacked quality and would steal building material to try and stop the project. The opposing parties would make sure they found something faulty about the project to protest against by burning tires and harassing those who were working on the project. The reason for these political parties doing what they did was to make the local councillor look like a failure by disrupting the project. However, they did not achieve their goal of stopping the project but it was delayed.

In Mpumalanga there were no political challenges as most of the people in the area supported the dominant party which was the ANC party. However, in certain cases when there were elections coming, the ruling party would promise houses to all the people in the community which caused a problem when allocation time came because people were demanding houses that they had been promised. There was a situation when there were political interventions in the project which caused certain people to be allocated wrong houses.

The community was not pleased about this and halted the allocation of the houses until the rightful beneficiaries were allocated their houses. The local councillors had a great relationship with the municipality which made it easier to work with them. The people employed to work on the project were not selected by which political party they supported but they were employed according to the skills they possessed. The other

political parties in the area were not against the project. They showed support because they knew the project was about community development.

During the construction process of the houses in Mpumalanga and uMlazi there were not many political challenges encountered by the contractors. The reason being was that there was one dominant political party. In Mpumalanga there were no political disputes around the community that delayed the project in any way. In uMlazi there were some political disputes against the local councillor and those against the councillor tried to stop the project but failed. There was a case where the local councillor gave the people false information to get votes. That caused a brawl because about four people claimed that if they supported another political group they were not going to get housing. Those people initiated protests trying to stop the project.

4.5 Technical challenges encountered by project managers and contractors

According to the project manager, in Mpumalanga a project was awarded to a contractor who had more on his plate but did not mention that. The project was not given full priority and was delayed because not enough attention was paid to it. What also happened was that when a contractor was awarded a project and could not handle it, he passed that project onto another contractor of his choosing and if that contractor could not handle it either it was passed to a third contractor who then agreed to do the project but was not the initial contractor to be given the project. That delayed the project and it did not start on the original date it was supposed to start. There were also situations where the architect did not complete the drawings on time and the project was delayed.

During the construction of the houses in uMlazi, the contractor came on site and found that the soil was not suitable for construction to take place. In that particular case construction had to be stopped so a more suitable location could be found for construction to take place. A geotechnician was called again to determine the suitable areas of the site for construction to take place. What usually caused this delay was that, when a geotechnician was performing his surveys he did not analyze every point on the

site. He selected randomly certain points on a site where he took samples of soil for investigation to determine if the soil was suitable for construction to take place. Not every point on site was tested for suitability and the places that were not tested were sometimes not suitable for construction to take place. The procedure of the projects was dependent on these technicalities being resolved which had an impact on completing the projects on time.

4.6 Institutional challenges encountered by project managers

The institutional challenges that were encountered by both project managers in Mpumalanga and uMlazi was dealing with all the legislation involved in construction of low income housing. There is the National Water Act of 1998 that had to be dealt with which delayed the commencement of the project. The Act stipulates that no housing construction can take place within 32m of a water course. A water course according to the Act can be temporary or permanent. That was a challenge because there were houses that were located within this 32m buffer and people were not delighted after they were told that those households located within the 32m buffer would not get the houses.

A motivational letter had to be written to the Department of Water Affairs asking for relaxations because there were people already residing within the 32m buffer. The Department of Water Affairs had to send a wetland specialist. The specialist deemed the place unsuitable and relocation was imminent. What was also a challenge was that there were a limited number of specialists who were very busy with other projects not only housing but every project close to a water course.

The Environmental Impact Assessment (EIA) had its own regulations that had to be applied before construction began. The EIA regulations with regard to housing construction fall under Section 24(5) and Section 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The NEMA Section 24(5) stipulates that “any development activity, including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more require environmental authorisation from the competent authority. The

construction of facilities including associated structures for the bulk transportation of sewage and water, including storm water also require authorisation" (Mbhele, 2009).

A report had to be provided that determined the impacts the project would have had on the environment and also mitigation strategies for those impacts. The municipality had its regulations and bylaws that needed to be complied with for example when building a house or executing any demolition work or excavation work no person shall without the authority of the City Engineer alter any sewer, cut into or otherwise endanger or interfere or tamper with any sewer, cable, water main or other works (Durban.gov.za, 2016).

The provincial department had its own regulations, which were to provide a fair and equitable standard of planning and development to everyone in the Province, while accommodating diversity such as urban and rural needs and to promote a planning and development system that redresses the historic injustices perpetuated by a fragmented planning and development system (kzndhs.gov.za, 2016). The Department of Cooperative Governance and Traditional Affairs also had regulations and laws that needed to be complied with. A lot of time was spent by the project managers on these legislations trying to comply with them.

4.7 Environmental challenges encountered by contractors

There were environmental challenges that were encountered by the contractors in Mpumalanga. There were places which were environmentally sensitive and construction could not take place at such locations. This was a challenge because there were people already occupying such places and they had to relocate to an area where construction could take place. People did not want to move from their homes even though they were being told construction would not take place in that area but eventually they moved after being convinced by social facilitators from the municipality.

During the construction of the houses in section J, it was impossible for construction to take place when it had rained for a few days because the trucks could not access the site. The road was slippery and building material could not reach the site. Fortunately,

during the construction of the houses there was no drought which meant that there was no shortage of water, which could have been detrimental to the project.

In uMlazi the environmental challenge was that there were people who had built their houses in very environmentally sensitive areas and had been there for more than twenty years. When a contractor arrived and told people that it was not possible to construct houses at such locations, the people did not understand what environmentally sensitive areas were. During the rainy season the project was delayed because construction did not take place. However, in both locations the projects did not have an impact on the environment.

4.8 Challenges encountered by the Department of Human Settlements

The KwaZulu-Natal Department of Human Settlements is allocated a budget by the National Department of Human Settlements for a year which it has to use during that year. The budget depends on the population size of the province and the number of houses that need to be delivered. When these projects were delayed, that affected the timeline of the department and caused financial implications. That became an issue for reaching the target of the houses that needed to be delivered. When a project went beyond the agreed completion time, the department consulted a performance agent to investigate why the project had not been completed on time.

The project managers had to apply for an extension of time for the projects to be completed. The project managers had to provide reasons as to why the projects were delayed. Some of the reasons were strikes caused by the political organisations and sometimes by the unions and workers demanding more wages but mostly it was about the topography of the site, how steep it was, so that more money was needed for excavations and retentions especially in uMlazi. If a project was delayed due to weather conditions (e.g. drought or heavy rainfall) and there was a need for additional funds, the department provided them by following certain protocols if they were available.

4.9 Challenges encountered by the beneficiaries

In uMlazi section G a total of 10 beneficiaries were interviewed and also in section H a total of 10 were interviewed. In sections G and H 80% of the beneficiaries said they were affected by the delay of their houses. They said they were very happy about receiving adequate housing and could not wait to own such houses. “We waited for too long even before the construction took place and waited again when the houses were not being completed”. When the houses were almost complete there was a delay. The houses were not completed in the month that they were expecting them to be completed.

The beneficiaries said they were not told about the delay and why it had occurred. Eight beneficiaries said they were told that the construction would begin after the holidays as it was the festive season but when that was over the construction of the houses did not commence. There were houses that were completed on time because the project had different phases. As time went by some of the beneficiaries realised that they had to do something because their houses were not being completed. Sixty percent of the beneficiaries started completing their houses themselves. They bought glass for the windows, doors and hired local labour to help them complete their houses.

In Mpumalanga, a total of 20 beneficiaries were interviewed with 10 beneficiaries from each section. Eighty percent of the beneficiaries said they were not affected by any delay as some their houses were completed on time. In both sections the beneficiaries said they were consulted about the construction that was going to take place and they knew about the project. The knowledge of the project by the beneficiaries prevented any riots or protests against the project which could have delayed the project.

The local community members were also involved in the project. A beneficiary who was working on the project said that he was indeed affected by the delay of the project because while they were not working they did not receive any money and he was annoyed when it rained because there was no work which meant again no money. One of the beneficiaries said she was very happy about receiving a house but she was not

happy about the corruption which led to some people in the community receiving more than one house. She said there were a lot of political debates between the ANC and DA with regard to the houses but she did not know what they were about. There were some beneficiaries who said the project was carried out very well, they were informed about it and the local community had job opportunities.

The challenges that were encountered by the beneficiaries did not impact on the completion time of the projects. The findings from the study show the importance of the theories identified in chapter two which allude to setting goals and objectives for a project and for every project team member to be committed to achieving them. However, from the findings, there are challenges that come from external sources that no project team member is responsible for which can be obstacles in achieving a project's goals.

4.10 Conclusion

From the findings that were gathered during the research study it is evident that certain challenges were experienced by project managers who were responsible for the project from the conceptual phase to the close-out phase. The contractors did experience challenges which were dealt with sometimes with the help of the project manager. It also helped the contractors to work with experienced project managers. The Department of Human Settlements was affected by the delays financially as the projects were not completed on time. There were beneficiaries who were affected by the delayed projects especially those who were working on the projects.

After the interpretation of the findings it is evident that there are certain policies to adhere to before housing construction begins. There are challenges which are experienced before housing construction begins which can delay the commencement of construction. Housing is more than simply providing a structure, it also includes the infrastructure and services that supply the house. Providing the infrastructure and services can also delay the housing construction process.

Chapter 5: Summary of Findings, Recommendations and Conclusion

5.1 Introduction

In this research study challenges that were encountered during the construction of low income housing in uMlazi and Mpumalanga townships were investigated to find out what impact they had on completing the projects on time. Primary data was used to gather information which was presented in different themes. In this chapter the summary of the findings are presented, recommendations are provided and a conclusion of the study is reached.

5.2 Summary of research findings

This research study explored the different challenges that can delay and sometimes stop the construction of low income housing. To gather the information required for this study qualitative research methods were used which were semi-structured and structured interviews and questionnaires. The project managers who were the implementing agents of the projects in uMlazi sections G and H, Mpumalanga sections D and J were interviewed. The contractors involved during the construction of the houses were interviewed. Two officials were interviewed from the Provincial Department of Human Settlements. Lastly forty beneficiaries in the mentioned sections of the townships were interviewed.

Regarding the financial challenges that were encountered by the project managers in uMlazi and Mpumalanga, the study found that they were not the same. In uMlazi the steepness of the slope posed financial challenges for the project manager. The subsidy to build the houses was not enough and additional funds had to be requested from the Department of Human Settlements. In Mpumalanga the budget was enough to complete the project, which shows that the project was managed well financially.

However, the contractors in both townships experienced challenges working within a tight budget. More of the budget was spent on preparing the site than on the actual house. The budget had to be spent wisely. The topography of the sites posed a

challenge because the sites were located on steep slopes, which created a major challenge for the contractors. The delivery trucks were not able to access the construction sites which meant that materials had to be hand delivered to the sites. The installation of drainage and sewerage systems was expensive which lead to workers being underpaid.

The contractors in both townships encountered the same environmental challenge which was that the locations where the projects took place were environmentally sensitive especially in uMlazi. Building houses in those areas was time consuming, dangerous and expensive. Construction could not take place when it had rained because it was slippery and the sites were not easily accessible.

With regard to the social challenges, the study found that the project managers experienced similar social challenges in the projects they were working on in Mpumalanga and uMlazi. There were people who did not want to be relocated if it was necessary. Some individuals had many complaints that kept coming up during the construction process, which were about the yard spaces, the size of the houses and services crossing their yards.

The contractors experienced different social challenges in Mpumalanga and uMlazi. In Mpumalanga the contractor was faced with a challenge where some of the beneficiaries were self-centered. They did not want the housing construction to affect their properties in any way, which was not possible. In uMlazi the contractor had to deal with individuals who thought they were clever by demanding housing. The contractor had to deal with theft and late deliveries which delayed the construction of the low income houses.

On the question of politics, the study found that in uMlazi there were political altercations which delayed the construction of the low income houses. The office of the local councillor was occupied by someone who was much more interested in improving his own economic life and getting votes than serving the community. In Mpumalanga there were not many political challenges as the local councillor was not being opposed by intra party organizations that showed their frustration about him on the project, which

is what happened in uMlazi. However, the local councillor promised housing to the wrong people and tried to corrupt the allocation of the houses after completion.

The technical challenges that were experienced in Mpumalanga occurred when the architect took some time to hand over the designs. There was some time spent appointing the contractor which caused a delay. In uMlazi the soil described on the geotech report was not the same as on site which meant the report had to be redone. The construction of the houses had to be halted.

Dealing with the legislations that are involved in low income housing construction was a challenge because there are so many bylaws that had to be followed which sometimes contradicted one another. The requirements of all the policies were different and were not in alignment. The project managers had to align all the policies from the different bodies of legislature to make sure the projects went ahead. That was a huge delay that prevented the projects starting on time.

The Department of Human Settlements had a fixed amount of funds that were allocated for different projects. When the projects were delayed, more money was requested from the department which was a challenge because sometimes the provincial department had to request additional funds from the national department. The delayed projects affected the timelines of the department and brought financial frustration to the department.

From the research findings it was clear that during the construction of the low income housing projects in uMlazi and Mpumalanga townships, project management techniques were not applied effectively. Project management is about managing projects according to the required specifications, within the given time and budget. This was not the case with respect to the housing projects that were evaluated in this study. From the research, it was clear that the hypothesis was in fact correct as it stated that certain challenges can have a negative impact on completing a housing project on time.

5.3 Recommendations

It is the goal of every project manager in the construction industry to complete a project on time and within budget. The completion of a project on time indicates that the project was implemented effectively. A project is deemed successful in the event that it is finished on time inside of the spending plan and to the predefined quality measures. However certain occurrences do arise and prevent the project manager from achieving that goal.

With regard to acquiring a project manager who will apply project management techniques, there has to be proper research about the project manager which has to be done by the Department of Human Settlements before a project manager is awarded a project. Acquiring the right project manager is very important in a project; a person who has experience and knows how to deal with unexpected situations during a project. The project manager must know how to manage exceptions and risks because there are always risks in every project.

From the findings there were some community interruptions during the construction of the houses. It is recommended that a project manager must possess a number of skills to effectively manage a project. Some of the skills that are valued in a project manager are team building, leadership, planning, effective communication, conflict resolution, technical expertise and commitment. Most of these skills involve communicating with other individuals involved in the project. Project managers who communicate well and understand the viewpoint of the people they deal with are the most successful (Lindstrom, 2014). Dealing with people is the most important skill any project manager can have.

In dealing with the social challenges, it is recommended that the community is given the opportunity to state their opinions while at the same time informing them about the positive outcomes of the project. The ability to listen to their points of view and give sympathetic attention to their grievances is essential, but as it is almost impossible to satisfy all the parties, compromises may be necessary. The community needs to be

aware when a project is about to take place and that sacrifices will have to be made in some cases where relocation will have to happen. They also have to be told of any underground installations that might cross their yards for example sewerage pipes.

It is advisable to let the community know that the Department of Human Settlements is responsible for the project to prevent any political altercations that may arise during the construction of the houses. This is particularly important when public funding from central or local government is involved or when public spaces and access facilities are affected (Lester, 2014). The project manager must deal with all the policies and Acts in a timely manner. Everybody connected with a project must have the same vision. The vision must be clear, brief, and intelligible.

During the study it was found that some project team members did not complete their tasks on time. Developing a schedule which includes adding time to the original schedule just in case something important is delayed unexpectedly is recommended. This added time allows the schedule to be adjusted without adversely affecting the final completion date (Cobb, 2011). The goals of the project must be known and eagerly supported by all. This will prevent some project team members not completing their tasks on time. Accumulating all the key components of a project is essential to the success of the project. It will also provide a clear understanding of how a project will be managed, coordinated and phased.

The study found that the budget was not sufficient to complete the housing project in uMlazi therefore, it is recommended that good early cost advice is essential in order that the best possible information be available on which the judgement to abort, amend or proceed with the project can be made (Day, 1994). The project manager has to communicate with the department regarding the conditions of the site before construction begins in order for additional costs to be added if necessary. Starting a project with funds that might not be sufficient will delay a project drastically. When housing construction has to take place on a steep slope and there is no alternative location, it is recommended that the budget of the project is increased considering the

conditions of the site. Excavations, building retaining walls and installing services on steep slopes is expensive which is why an increased budget is necessary.

5.4 Conclusion

The housing policy in South Africa refers to a series of activities undertaken by the government and its institutions in order to achieve the delivery of sustainable human settlements. Implementation of the housing policy is not an easy task to accomplish due to the deliberate policy and legislative framework of socio-economic and spatial exclusion and marginalisation created during *apartheid*. However, post-*apartheid* socio-economic rights, the legislative and policy framework created by national government around housing is quite progressive (Khan, 2003). Unfortunately, implementation to date has been skewed and unable to address the land, housing and basic services needs of millions of poor South Africans who still lack adequate housing and access to water, sanitation and electricity. The reality is that on the other side of the coin of the government's progressive and enabling housing policies lays far less progressive implementation.

Low income housing construction usually takes more time to be completed in South Africa which is a challenge facing the housing construction industry. The time factor is sometimes overlooked and that can cause a number of implications on the project and the people involved in the project. Time is valuable and the most important asset in undertaking a project. It is very important for a project to be completed on time within budget and to be of good quality.

For a project to be successful, it is important that the goals and objectives are set out and every person involved in the project is aware of them and committed to achieving them. Delayed projects are a global problem with every country having its own challenges in completing projects on time. There are certain challenges that are experienced during housing construction that can delay the delivery of low income housing projects.

This study examined the challenges that delayed the implementation of uMlazi and Mpumalanga low income housing projects. From what was gathered during the research it can be seen that time is of importance to every person involved in a project, from the client to the beneficiary. It is important that whenever there is an altercation during a project, it is dealt with properly and quickly to prevent delays in the project.

References:

Adam A. Josephson P. Lindahl G. (2014) *Implications of cost overruns and time delays on major public construction projects. Proceedings of the 19th International Symposium on the Advancement of Construction Management and Real Estate, 7-9 Nov 2014,* Chongqing, China.

Akanni P.O. Oke A.E. Akpomiemie O.A. (2014) *Impact of environmental factors on building project performance in Delta State*, Federal University of Technology, Nigeria.

Amoatey C.T., Ameyaw Y.A., Adaku E., Famiyeh S., (2014) *Analysing delay causes and effects in Ghanaian state housing construction projects*, Ghana Institute of Management and Public Administration, Ghana.

Aucamp C.A, Moodley G.Y (2002) *Making Low-Cost Housing Projects More Accessible For Public Transport In Ethekwini: What Are The Costs?* Traffic and Transportation Department, Durban, South Africa.

Bahadir B. Mykhaylova O. (2014) *Housing market dynamics with delays in the construction*, Ozyegin University, Turkey.

Baloyi B.V. (2007). *Housing delivery in South Africa – A Project Management Case Study*, University of Johanessburg, South Africa.

Baars W., (2006) *Project Management Handbook*, Data Archiving and Networked Services, United States of America.

Baron M. (2006). *The Project Life Cycle, The Connexions Project*, Rice University, United States of America.

Behm M. (2008). *Construction Sector*, East Carolina University, United States of America.

Bonnin D. (2007). *Space, place and identity: political violence in Mpumalanga Township, Kwazulu-Natal, 1987-1993,* University of Witwatersrand, Johannesburg, South Africa.

Bordat C. (2004). *An Analysis of Cost Overruns and Time Delays of INDOT Projects*, Purdue University, United States of America.

Brain C. (2002) *Advanced Psychology: Applications, Issues and Perspectives*, Nelson Thores Ltd, United Kingdom.

Bramber M. (1986). *The Role Of Community Participation in Development Planning and Project Management,* Economic Development Institute of The World Bank, United States of America.

Burgoyne M. (2008). *Factors Affecting Housing Delivery In South Africa: A Case Study Of The Fisantekraal Housing Development Project, Western Cape*, University of Stellenbosch, South Africa.

Chair T. (2008). *Lehigh Valley Planning Commission*, Pennsylvania Department of Conservation and Natural Resources, USA.

Chan D.W.M., Kumaraswamy M.M. (1997). *A comparative study of causes of time overruns in Hong Kong construction projects,* University of Hong Kong, China.

Chalabi, F.A. Camp D. (1984). *Causes of delays and overruns of construction projects in developing countries*, *Proceedings of the CIB W65 Vol 3.*

Chai C.S. Yusof A. Habil H. (2015) *Delay Mitigation in the Malaysian Housing Industry: A Structural Equation Modelling Approach,* Universiti Teknologi Malaysia, Malaysia.

Chitkara K., (1998) *Construction Project Management*, Tata McGraw-Hill, India.

Choudhury S. (1988) *Project Management*, Tata McGraw-Hill, New Delhi, India.

Cobb C. G. (2011) *Making Sense of Agile Project Management: Balancing Control and Agility*, John Wiley and Sons, New Jersey, United States of America.

Crawford L. (2002) *Profiling the competent project manager, The frontiers of project management research*, Project Management Institute, United States of America.

Day W. J. (1994) *Project Management and Control*, Palgrave MacMillan, United Kingdom.

Dayomi M. Ntiwane B. (2013) *Socio-Economic Impact Study of Taverns in Residential Areas of the eThekwini Municipal Area (EMA)*, Urban Regional Planners, South Africa.

Devaux S. A. (2015) *Managing Projects as Investments: Earned Value to Business Value,* Taylor & Francis Group LLC, United States of America.

Driscoll T.J (2013). *Managing the time factor: The importance of time management,* HILL International, United States of America.

Durdyev S. Ismail S. Bakar N. A (2012) *Factors Causing Cost Overruns In Construction of Residential Projects; Case Study Of Turkey*, Universiti Teknologi Malaysia International Campus, Malaysia.

Economic Development Unit (2008). *Umlazi Local Economic Development Plan*, South Africa.

EThekwini Municipality: Economic Development Unit (2007). *Draft Township Regeneration Strategy – Mpumalanga / Hammarsdale*, Durban, South Africa.

Freedman M. Owens E. (2010) *Low-Income Housing Development and Crime*, Cornell University, United States of America.

Fennemore et al (2006) *The Hammarsdale Experience – An Exercise In Cooperative Governance,* EThekwini Municipality, Water & Sanitation Unit, South Africa.

Gabula Z.H., (2012). *Factors Influencing the Construction Project Success Rates of Reconstruction Development Programme (RDP) Housing Projects in the Eastern Cape:A Quality Perspective: A Census Study*, Durban University of Technology, South Africa.

Gillham B. (2000) *Research Interview*, Continuum, London, United Kingdom.

Githenya, M. S & Ngugi, K. (2014). *Assessment of the Determinants of Implementation of Housing Projects in Kenya*. European Journal of Business Management 1.

Govender G.B., (2011). *An Evaluation of Housing Strategy in South Africa for the Creation of Sustainable Human Settlements: A Case Study of the Ethekwini Region*, University of KwaZulu-Natal, South Africa.

Green Building Council of South Africa (2012) *Improving Lives By Greening Low-Cost Housing.*

Groves R.M. et al, (2009). *Survey Methodology*, John Wiley & Sons, New Jersey, United States of America.

Gumbi B. B. (1995) *Housing Demand and Supply in Umlazi Township: Towards A Post-Apartheid Policy*, University of Zululand, South Africa.

Gupta M. (2009) *Principles of Management*, Learning Private Limited, New Delhi, India

Guerrero M.A. Villacampa Y. et al (2014) *Modeling construction time in Spanish building projects*, University of Alicante, Spain.

Hartas D., (2010). *Educational Research and Inquiry: Qualitative and Quantitative Approaches*, Bloomsbury Academic, New York, United States of America.

Heldem K. (2013) *PMP: Project Management Professional Exam Study Guide*, John Wiley & Sons Inc, Canada.

Housing Development Agency (2013) *Guidelines for Blocked Housing Projects,* The Housing Development Agency, South Africa.

Khan, F. & Thring, P. (2003) *Housing Policy and Practice in Post-Apartheid South Africa*. Heinemann, South Africa.

Kerzner H. (2013) *Project Management: A Systems Approach to Planning, Scheduling, and Controlling*, John Wiley & Sons, United States of America.

King C. (2014). *Beach, Bush and Booming Property Development*, Property Developer, South Africa.

King D, Steyn H, (2006) *Report to [Housing Portfolio Committee],* Cape Town Department of Human Settlements, South Africa.

Khumalo V. B. (1993) *The squatter problem in Umlazi: a case of urbanisation*, University of Natal, South Africa.

Khoza R.B.M., Kabir H., (2014) *An evaluation of South African low-income housing delivery process: from project quality management perspective, Public and Municipal Finance, Volume 3.*

Kumar R., (2008). *Research Methodology*, APH Publishing Corporation, New Delhi, India.

KwaZulu Natal Department of Human Settlements (2011). *An Investigation into Existing Tools That Could Inform Quality Assurance in Low Income Housing.*

Landman J.C. (2013). *The historical development of surveying programmes in higher education in South Africa*, University of KwaZulu-Natal, South Africa.

Le Roux F.E., (2011) *The Provision of Low Cost Housing in South Africa: A wicked problem with a Systems Theory Solution*, University of Stellenbosch, South Africa.

Lester A. (2014) *Project Management, Planning and Control: Managing Engineering, Construction and Manufacturing,* Elsevier Ltd, United States of America.

Libetwa E.K. (2006) *The Causes of Delays on Government Housing Construction projects in Botswana*, University of Pretoria, South Africa.

Lindstrom D. (2014) *Procurement Project Management Success*, J. Ross Publishing, United States of America.

Lunenburg F.C., (2011). *Goal-Setting Theory of Motivation*, Sam Houston State University, United States of America.

Makone K.I. (2010) *An investigation into factors affecting the performance of construction projects: A case study of the University of Nairobi*, University of Nairobi, Kenya.

Masike M.N., (2011). *An Application of Project management to deliver Low-cost Housing at Metsimaholo Local Municipality*, Vaal Triangle Campus of North-West University, South Africa.

Maaninen-Olsson E. Mullern T (2009). *A contextual understanding of projects – The importance of space and time*, Uppsala University, Sweden.

Martin L., Thomas E., (2004) *Essentials of construction project management*, University of South Wales Press Ltd, Australia.

Mbhele P. M. (2009) *The quality of EIA reports for housing developments in the Nkangala district of the Mpumalanga province,* North West University, South Africa.

Memon A. H. Rahman I.A. Nagapan S. Latif Q.B.A.I (2012) *Challenges faced by construction industry in accomplishing sustainability goals*, Universiti Tun Hussien Malaysia, Malaysia.

Mosoetsa S. (2004) *The Legacies Of Apartheid And Implications Of Economic Liberalisation: A Post-Apartheid Township,* University of Witwatersrand, South Africa.

Mwanaumo E.M., (2014) *An Integrated Approach to Multi-Stakeholder Interventions in Construction Health and Safety*, University of Johannesburg, South Africa.

Mydin O., Sani M.D., Salim A., Alias M., (2014) *Assessment of Influential Causes of Construction Project Delay in Malaysian Private Housing from Developer's Viewpoint*, Universiti Sains Malaysia, Malaysia.

Nagarajan K., (2004). *Project Management*, New Age International Publishers, New Delhi, India.

Ndaba S. G. (2003) *An application of 'Universal Design' as a practical approach to 'Disability Policy' in South Arica: towards planning that meets the needs of all residents: case of Umlazi – Durban*, University of Kwa Zulu-Natal, South Africa.

Neighbourhood Development Programme Unit (2009) *Draft Township Regeneration Strategy – Mpumalanga / Hammarsdale,* EThekwini Municipality: Economic development unit, South Africa.

Newman I, (1998). *Qualitative-quantitative Research Methodology: Exploring the Interactive Continuum*, Southern Illinois University, United States of America.

Njau K. J. (2014) *An Investigation into The Causes of Delays in Government Housing Construction Projects: A Case Study of the National Housing Corporation-Nairobi County,* University of Nairobi, Kenya.

Nkosi R. (2014) *New contractor appointed to complete RDP housing project*, Barberton Times, South Africa.

Odeyinka H. A, Yusif A., (1997) *The causes and effects of construction delays on completion cost of housing projects in Nigeria*, Obafeni Awolowo University, Nigeria.

Olawale, Y., and Sun M. (2010). "*Cost and time control of construction projects: Inhibiting factors and mitigating measures in practice*

Punch K, (2009). *Introduction to Research Methods in Education*, Sage Publications, London, United Kingdom.

Rondganger L. (2016). *Neglected housing project a danger*, IOL, viewed 09 September 2016, from http://www.iol.co.za/news/south-africa/kwazulu-natal/neglected-housing-project-a-danger-2015428.

Rahman H.A., Takim R. Min W.S. (2009) *Financial related causes contributing to project delays*, Palgrave Macmillan, Malaysia.

Report of the Higher Education Quality Committee (HEQC) to Mangosuthu University of Technology (2012) *Audit Report On Mangosuthu University of Technology*, Council on Higher Education, South Africa.

Royal HaskoningDHV (2014). *Mpumalanga Local Area Plan and Implementation Plan,* EThekwini Municipality, South Africa.

Rwelamila, P.D. and Hall, K A (1995). *Total systems intervention: an integrated approach to time, cost and quality management, Construction Management and Economics 13 (1995) 235-241.*

Sharma R (1997). *Sociological Methods and Techniques*, Atlantic Publishers & Distributors, New Delhi, India.

Sokhela S. C., (2006). *The impact of peripherally located low income housing projects in Ethekwini Municipality: A Case Study of slum clearance project*, Welbedacht East, University of Kwa Zulu-Natal, South Africa.

Sowman M & Urquhart P. (1998). *A Place Called Home: Environmental Issues and Low-cost Housing*, University of Cape Town Press, Cape Town, South Africa.

Todt C. (1996) *Success Factors in German and Japanese Project Management: A National Comparison*, Diplom, Hamburg, Germany.

Tshabalala S. P. (1998) *Feasibility Study for an Umlazi Tourist Information Centre*, University of Zululand, South Africa.

UMhlaba Consulting Group (2013). *Housing Project Life Cycle,* Afesis-corplan, South Africa.

Ward S. (2008). *Cash flow management*, CEM Department, KFUPM, Dhahran, Saudi Arabia .

Wengraf T, (2001) *Qualitative Research Interviewing: Biographic Narrative and Semi-Structured*, Sage Publications, London, UK.

Weaver P, (2005) *Delay, Disruption and Acceleration Costs,* Practical PM Pty Ltd, Melbourne, Australia.

Umlazi Business Plan (2009*). Final Report*, KPM Consortium, South Africa.

Available online at http://www.news24.com/SouthAfrica/Local/South-Coast-Fever/Housing-project-delays-explained-20150701 Accessed 1 August 2015.

Available online at http://southcoastherald.co.za/94142/more-delays-for-masinenge-golf-estate/ Accessed August 1, 2015.

Available online at http://www.buffalonews.com/business/real-estate/traffic-environmental-reviews-delay-student-housing-project-at-buffalo-state-20150729 Accessed September 09, 2015.

Annexures:

Questionnaire

Section A: Project Managers, uMlazi and Mpumalanga Housing Project

Social challenges

1. During the construction of the project did you experience any project delays which were results of?

Locals competing for employment opportunities?	Yes (What was it)	No
Relationship between community and the municipality?		
Communication breakdown?		
Community protests against the project?		
Allocation of beneficiaries to the houses?		
Lack of community participation in the process of the project?		

2. Were there any conflicts within the stakeholders involved in the project?

3. How were the conflicts resolved?

Political challenges

4. How was your relationship with the local councillor?

Good	
Bad	
Non-existent	
Mild	

5. Did you encounter any challenges with the ruling party and other political parties?

6. Was there a time when certain people were reserving jobs for the members of their political parties or relatives?

7. Were there any political disputes regarding the development of the project?

8. Did those disputes hinder the construction progress of the project?

Institutional challenges

9. Were there any institutional challenges that were encountered?

10. Did you get support from the ward development committee? If yes, in what way?

Financial challenges

11. Did you experience any financial challenges during the construction of the project? If yes, in what way?

12. Was the allocated budget sufficient to complete the project? If not, why?

13. What were the necessary steps that were taken to acquire and manage the financial resources for the project?

14. If a project is delayed? Who pays for the delay of the project?

15. Besides state financing which other stakeholders were funding the construction of the project?

16. To what extent did the impact of all these challenges have on completing the project on time?

Section B: Contractors, uMlazi and Mpumalanga Housing Projects

Environmental challenges

1. Was the weather a challenge during construction? Did it cause any delays?

2. Was the settlement located in a floodplain, fire prone area windy area?

3. Did the project follow all laws and regulations pertaining to the environment?

Financial challenges

4. Was the budget enough to complete the project?

5. Did you experience problems with material suppliers? If yes, what problems were these?

6. Were your payments received on time? If no, did the delay of payments cause any problems for you?

Slope challenges

7. Did the slope allow easy access to the construction site?

8. Was the topography of the site suitable enough for low income housing construction?

9. Did any excavation and compaction take place before construction of the houses?

10. Did the slope allow for proper drainage systems to be installed?

Political challenges

11. Did the project have the support of the community representatives?

12. Did you encounter any political disputes with the community or other political parties?

Social challenges

13. Were there any protests from the community during the construction of the houses? If yes, what was the cause of the strike?

14. Do you think that it is important for the workers to have a social relationship or the important thing is to get the job done?

15. Did you have conflicts between the workers?

16. What was the impact of the challenges on completing the houses on time?

Section C: The Provincial Department of Human Settlements

1. As the funder of housing projects, how are you affected if any housing projects are delayed?

2. What construction related challenges did you experience during the uMlazi and Mpumalanga housing projects?

3. If a housing project is delayed due to certain challenges, are you obligated to provide financial solutions to these challenges?

4. Due to certain circumstances a housing project goes beyond the estimated time for completion, do you continue to provide funding? If yes Why? What if the delay is not your fault, maybe it was the contractor or community?

5. What about the principle which says that the person who causes an unnecessary delay in the project should pay? Do you consider this? If not why?

Section D: The Beneficiaries

1. Were there any delays during the construction of the houses?

2. Was the community consulted about the construction that was taking place?

3. Were there any protests against the project?

4. Was community members involved in the construction of the houses?

5. Did the construction of the houses harm the environment in any way?

6. Were the local people been employed in the project?

7. Were you in any way affected by the delays during construction? How?

INFORMED CONSENT FORM

Project Title: Evaluating low income housing construction challenges and their impact on completing housing projects on time. Case studies of Mpumalanga and uMlazi Housing Projects.

Specific Location: The study will be based on two places uMlazi Township and Mpumalanga Township. The reason for using two case studies is to find out if the challenges that are encountered during construction are the same and to compare the common challenges. They are both in Kwa Zulu-Natal under EThekwini District. UMlazi is located on the south coast of Durban 17 kilometres from the Durban CBD. Umlazi inherited the dismal effects of apartheid planning policies characterised by spatial and economic isolation (LED Plan, 2008). The study will take place at uMlazi Q where there houses under construction and have been delayed.

Mpumalanga Township is a peri-urban area located within the Outer West Region of the eThekwini Municipality, approximately 50km from Durban CBD and about 5km from Hammarsdale industrial area and only 9km from the N3 to Pietermaritzburg. Mpumalanga Township has an urban life style as well as a traditional life style since it is surrounded by communities under the traditional leadership of Amakhosi and Izinduna. Schools are available in the area but have not been considerate with respect to convenience. In some areas such as the Shiyabazali area. A structurally decaying Mpumalanga college is also found in the area (Mpumalanga B).

My name is Thembinkosi Treasure Malinga (Student Number 211506122). I am registered Masters Candidate at the University of Kwa Zulu-Natal. My research theme is entitled “Evaluating low income housing construction challenges and their impact on completing housing projects on time. Case studies of Mpumalanga and uMlazi Housing Projects.” You are being asked to take part in this research project. I will explain the project to you in detail. You should feel free to ask questions at any time. All potential interviewees are being asked to volunteer for participation in the research study.

My contact details are:

Email: tt4malinga@gmail.com

Cell: 0798111709

The contact details of my supervisor are:

Email: myeniv@ukzn.ac.za

Cell: 072 497 9334

Specific Enquiries (HSSREC Research Office contact details):

Ms Phumelele Ximba

Tel: (031) 260 3587

Email- ximbap@ukzn.ac.za

Description of the project:

The primary objectives of this study is to identify the challenges encountered during the construction of low cost housing, to assess the impact of the challenges that occur during construction of low cost housing, to determine the role and effectiveness in competency and project management skills during construction, to determine how the beneficiaries are affected by these challenges, to find best possible solutions to be used as mitigation strategies and to review literature on best practice with regard to housing construction.

The core research questions are:

1. What are the challenges which are encountered during the construction of low income housing?
2. To what extent can the challenges be detrimental to the project?
3. How effective is the competency in project management skills?
4. How are the beneficiaries affected by the challenges?

5. How can the challenges be mitigated to provide adequate human settlements on time?

6. What policies are in place with regard to housing construction?

7. **Procedures**:

Interviews:

- The interviews will take place once you have been contacted, informed of the parameters of the research, have read over the informed consent form, and have signed the consent form.

- Interviews will be conducted and responses documented (interviews may be recorded)

- The time required will depend on the nature and depth of your responses

- Participants may be contacted again to elaborate on a response or for clarity

Risks or discomfort:

There are no potential risks or discomforts that will be associated with the research process.

Benefits of this study:

There will be no direct benefit to you for taking part in this study. The benefits of the research will contribute towards an existing body of knowledge.

Compensation:

There is no form of compensation for you.

Voluntary participation and withdrawal:

Participation in research is voluntary. You have the right to refuse to be in this study. If you decide to be in the study and change your mind, you have the right to drop out at

any time. You may skip questions whatever you decide, you will not be disadvantaged in any manner.

Questions, Rights and Complaints:

If you have any questions about this research project or any concerns about your rights as a research participant in this study, please feel free to contact me (see contact information at the beginning of the document).

Confidentiality:

As the primary focus of the research is to document opinion on, and perspectives and opinions of low income housing construction related challenges and their impact on completing the projects on time there is no need for confidentiality unless you (the interviewee) request such anonymity (see below). The research is of public interest and most of the themes are in the public domain.

Consent statement:

Do you give your consent for: *(please tick one of the options below)*

Your name, position and organization, or	
Your position and organization, or	
Your organization or type of organization *(please specify),* or	
None of the above	

To be used in the report?

I…… (Full names of participant) hereby confirm that I understand the contents of this document and the nature of the research project, and I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

SIGNATURE OF PARTICIPANT DATE

Please write your email address below if you wish to receive a copy of the final research report: