Managerial implications of municipal infrastructure projects in Dr Kenneth Kaunda District, South Africa

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Abstract

Municipal infrastructure projects in South Africa are not managed properly and their cost could result in a huge financial burden on the country's economy. This is because the national government is responsible for funding municipalities through the Municipal Infrastructure Grant (MIG) to provide services. Lately, the MIG expenditure has been escalating due to inter alia ineptitude of project managers to meet planned expenditure targets.

Findings show that municipalities in Dr Kenneth Kaunda District are inundated by institutional capacity constraints, which create major risks for the implementation of municipal infrastructure projects. Challenges exist in the municipal infrastructure delivery process, especially in planning, budgeting and management of finances. Incompetency amongst project consultants is also a serious issue affecting the successful completion of municipal infrastructure projects. All this inevitably causes delays as poorly planned projects cannot be budgeted for; budgets are regularly miscalculated; funds are not availed in time; and procurement processes are inappropriately done.

It was also found that municipalities have good strategies in place. However, regardless of the availability of good strategies, without a clear execution plan the goodness of the strategy means nothing. Again well formulated IDPs that are not effectively executed will still make communities dissatisfied. It can therefore be concluded that implementation of professional project management in municipal projects could significantly improve the management abilities of the municipalities and consequently deliver the incredible value of project management to the communities.

KEY WORDS: Project Management, Municipal Infrastructure

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LIST OF ABREVIATIONS

ECSA	Engineering Council of South Africa
COGTA	Cooperative Governance and Traditional Affairs
DLG&HS	Department of Local Government & Human Settlements
IDP	Integrated Development Plans
MIG	Municipal Infrastructure Grant
PMI	Project Management Institute
PMU	Project Management Unit
SA	South Africa
SALGA	South African Local Government Association

CHAPTER 1

BACKGROUNG AND MOTIVATION

1 Introduction

Local municipalities in Dr Kenneth Kaunda District, in the North-West Province play an indispensable role in delivering infrastructure projects to their residents. It is expected that local municipalities must use project management as a powerful business tool in the implementation of municipal infrastructure projects. However, it appears municipalities have been failing to achieve intended results within time and budget due to ineffective project management techniques. Among the responses to the myriad challenges of contemporary environment, project management skills of personnel who implement development in public administration at different levels are increasingly highlighted (Vrecko *et al*., 2015:321). Lately there has been a heightened increase in the use of different project management techniques in South Africa; especially in the area of planning, control of time, budget and quality of projects (Van der Waldt, 2014:844).

Municipalities are plagued by institutional capacity constraints, which create major risks for the implementation of municipal infrastructure projects. According to Kanyane (2014:90), the ineptitude of municipal personnel to manage infrastructure projects has hitherto been a serious issue in South Africa. Challenges exist in the infrastructure delivery process, specifically in planning, budgeting and management of finances (Kanyane, 2014:90). This inevitably results in extensive delays as poorly planned projects cannot be budgeted for; budgets are regularly miscalculated; funds are not availed in time; and procurement processes are not appropriately done (Pillay *et al*., 2013:109). This study will aim to explore project management processes followed in Dr. Kenneth Kaunda District and describe managerial implications while implementing municipal infrastructure projects according to the Integrated Development Plans (IDP) of local municipalities.

1.1 Background to study

According to office of the Presidency (2009:13), one of the ten strategic programmes enshrined in the Medium Term Strategic Framework for 2012/2013; is the building of economic and social infrastructure in South Africa. In 2012, the South African government initiated the Infrastructure Investment Programme (hereafter referred to as IIP) (Van der Waldt, 2014:845). Under this programme the local government, was mandated to provide economic and social infrastructure, which includes water, electricity, sanitation, transport and information and communication (Van der Waldt, 2014:845). The IIP likewise aimed to improve access, quality and dependability of public service. Despite such initiatives, municipalities in South Africa are inundated with significant

infrastructure service delivery backlogs to deal with (Mamabolo, 2016:28). This situation is among other factors due to historical, socio-political realities and current demographic trends, including the processes of rapid urbanisation and rising poverty levels (Ruch & Geyer, 2018:269). This seems to be the occurrence in certain low capacity Local and District Municipalities that are situated in rural areas in and around the Dr. Kenneth Kuanda district (Van der Waldt, 2014:845). With the expansion of towns, municipal services normally do not meet the basic needs of the urban population (Zweig, 2015:1). Services such as infrastructure development are frequently affected by lack of planning, low functioning capacity, corruption, lack of maintenance, and undesirable environmental outcomes (Mamabolo, 2016:28). To improve municipal service delivery there emerges a need for innovative management applications and techniques to ensure proper infrastructure development and project management.

The Integrated Development Plan (IDP) outlines the significant role, which project management plays in all municipal endeavours (Drakenstein Municipality, 2013:15). The IDP is a way of planning that includes the whole municipality and its residents in finding possible answers to problems and achieving sustainable development (Sebei, 2014:184). It focuses on coordinating the activities of local and other spheres of government in a logical plan to enhance the quality of life of all in communities (Municipal Systems Act, No. 117 of 1998). Through this plan, Local Municipalities are required to set up a key development plan, which looks at economic and social development for the entire area (Municipal Systems Act, Act No. 117 of 1998). Local Municipalities must develop a framework to determine how land use, infrastructure, services needed, and the way in which the environment should be protected (Ruwanza & Shackleton, 2016:28).

The IDP has also been implemented to address backlogs of services in Local (Category B) Municipalities which came about as a result of the Government's Demarcation procedure (Johannes, 2012:1). Category B Municipality is defined as "*a municipality that shares municipal executive and legislative authority in its area with a district municipality within whose area it falls*" (Steytler, 2003:228) and will be the focus of this study. The Government's Demarcation procedure integrated areas which were formally regarded as rural into existing municipality boundaries (Rogerson, 2018), putting a huge strain on the municipality service delivery budgets and resources. Project Management will therefore play an indispensable role in the whole process; as the project manager must be included during the different stages of projects i.e. community mobilisation, prioritisation of projects, the audit procedure etc. (Abrahamse, 2002:4). Figure 1-1 shows the significant role played by project management in municipal projects as reflected in the IDP. The project manager must be involved at every phase of the project cycle, to guarantee project objectives are met on time; within the allocated budget; utilising available resources and achieving the expected outcomes (Abrahamse, 2002:15).

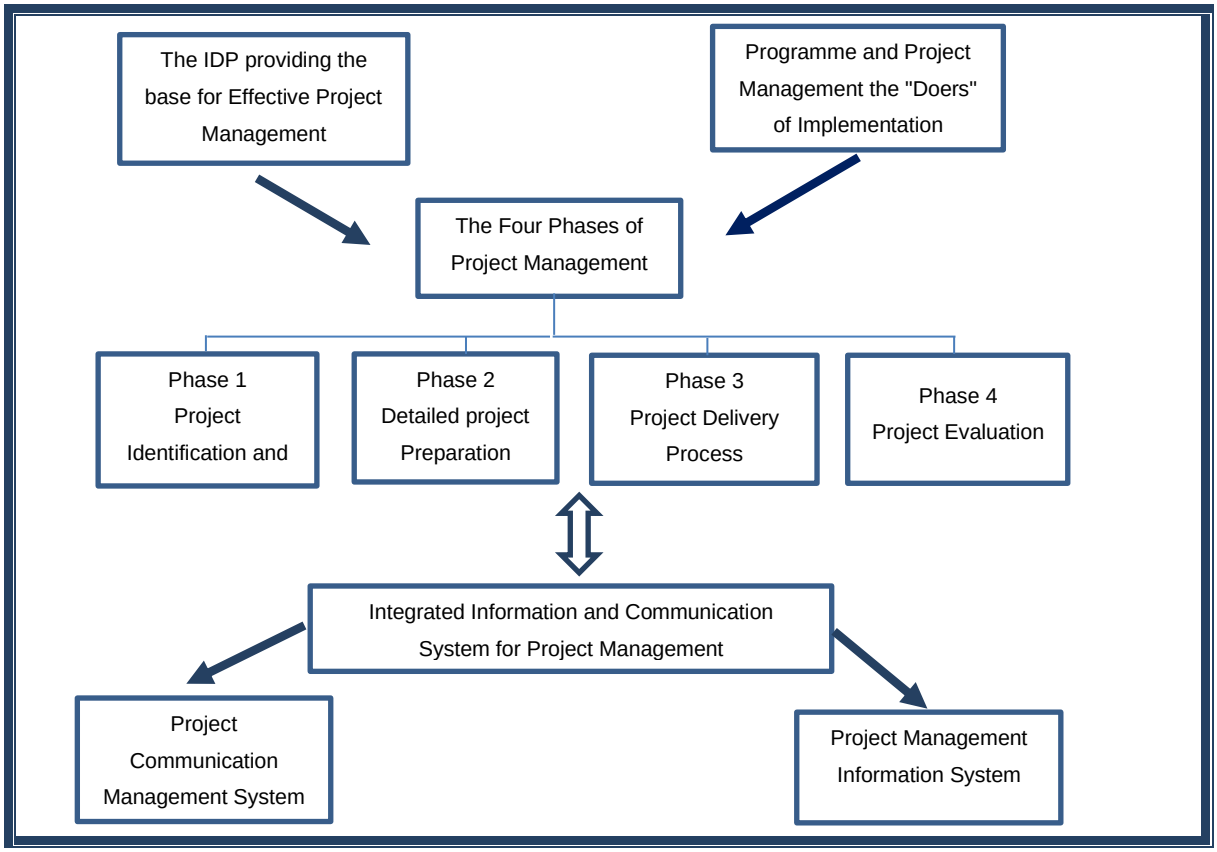

Figure1-1: Programme and Project Management System: Adopted from the IDP - Practical Guide to Municipalities (South African Local Government Association [SALGA], 2012)

According to the IDP the Project Manager must have specialist qualities to be productive in a municipal environment (SALGA, 2012:1). The Project Manager must be assigned on a performance contract to safeguard the interest of the municipality and community at large (Bhengu, 2015:63). Community participation ought to be the main motivation behind development, and the community has to be the main stakeholder in the whole process of project management (Molaba, 2016:98). This study will explore managerial implications of municipal infrastructure projects in Dr Kenneth Kaunda District. Likewise, the study will explore project management processes followed while implementing municipal projects according to the IDP of Category B Municipalities.

1.2 Problem statement

According to Pillay *et al*., (2013:108), municipal infrastructure projects in South Africa are not managed properly; their cost could result in a huge financial burden on the country's economy. This is because the national government is responsible for funding municipalities through the Municipal Infrastructure Grant (MIG) to provide services. Lately, the MIG expenditure has been escalating due to inter alia ineptitude of project managers to meet planned expenditure targets (Pillay *et al*., 2013:109). According to a previous study conducted in the district under investigation

(Dr Kenneth Kaunda), co-operation is lacking between the District Municipality and the Local Municipality; they do not work in harmony (Van der Waldt, 2014:858). It was reported that the District Municipality plans, finances and implements some of the infrastructure projects, and then transfers the project to a Local Municipalities. This results in poor management as the Local Municipalities would have not budgeted for the operation of that particular project.

Another huge problem identified in Dr Kenneth Kaunda District, is municipalities are struggling to recruit and retain skilled employees. The Local Municipalities are facing huge responsibilities for services delivery with low capacity and resources (Van der Waldt, 2014:858). The implementation of professional project management in municipal projects can significantly improve the management abilities of the municipalities and consequently deliver the incredible value of project management to the communities (Vrecko *et al*., 2015:321). However, there is paucity in literature of how the Dr. Kenneth Kaunda District manages its municipal infrastructure projects in terms of the prescribed norms and standards i.e. the IDP; to fulfil the predetermined objectives of improving the socio-economic conditions and quality of life of its residents.

1.3 Primary objective

The primary objective of the study is to investigate the managerial implications for implementing municipal infrastructure projects in Dr. Kenneth Kaunda District according to the Integrated Development Plans (IDP).

1.3.1 Secondary objectives

- To define managerial implications
- To obtain insight into the managerial implications faced by managers in various units of Dr. Kenneth Kaunda District municipalities when managing infrastructure projects.
- To explore the challenges faced by project managers in managing infrastructure projects.
- To explore solutions to the challenges faced by project managers in various units of Dr. Kenneth Kaunda District municipalities.
- To make conclusions and recommendations based on the literature study and empirical study

1.4 Field of study

This falls under project management and will focus on the managerial implications for implementing municipal infrastructure projects in Dr Kenneth Kaunda District. The study will be underpinned by the objectives, principles, components and elements stated in the Integrated

Development Plans. The study will describe the impact of project management on executing infrastructure projects in a Local Municipality.

1.5 Research methodology

This study was performed in two phases. The first phase was a literature review on Managerial Implications of Municipal Infrastructure Projects and the second phase will deal with an empirical study on this topic

1.5.1 Literature review

To ensure a literature review that reflects a broad spectrum of insights a wide range of sources will be consulted. These sources include textbooks on the subjects, published articles, scientific journals and numerous electronic references including sources from websites and search engines. To get relevant literature, keywords relevant to the subject area was used. These included keywords like; Managerial implications, Municipality, Infrastructure projects, Project management, South Africa. The above mentioned databases will provide articles from accredited journals such as the; Journal of public administration and development alternatives, Law, democracy & development, Africa's public service delivery and performance review and Curationis among other journals.

1.5.2 Empirical study

The study followed a constructivism paradigm which is an approach that affirms that people create their own understanding and knowledge of the world through experience and reflecting on their lived experiences (Passalacqua & Pianzola, 2016:8).

1.5.2.1 Study design

The study followed a qualitative, explorative design. *Qualitative*: The phenomena cannot be quantifiable; it encompasses beliefs, attributes and connotations that people have regarding the phenomena in their natural environment (Botma *et al*., 2010:182). *Explorative*: There is need to delve more in-depth into how project managers are managing municipal infrastructure projects, the challenges they are facing and determine if shared meaning exists among project managers in the district (Mollick, 2014:1). The idea is to understand the sample under investigation, instead of generalising results from the sample to the general population of SA.

1.5.3 Development of data collection tool

The study made use of semi structure interview questionnaire which will be developed from reviewing the relevant literature and incorporating important project management principles. The questionnaire was pre-tested by the researcher.

1.5.4 Data collection

During each interview, a covering letter was provided to the interviewee to guarantee confidentiality of their responses.

1.5.5 Population

The population of the study refers to individuals who meet a certain criterion for inclusion in a given setting and in which the researcher is interested (Adams & Lawrence, 2018). This study was conducted in Dr Kenneth Kaunda District in the North West Provinces of South Africa. The study population comprised of personnel involved in the management of infrastructure projects in their local municipalities.

1.5.6 Sampling

The researcher advertised the study first and thereafter purposive sampling was used to select participants that met the inclusion criteria. According Seidman (2013:54), purposive sampling refers to the conscious selection of certain participants to involve in the study. Purpose sampling was used to recruit participants from the population so as to get the most suitable subjects to take part in the study. Eligible participants were given written informed consent before involving them in the study.

1.5.6.1 Sample size

According to Creswell (1998), the ideal sample size for phenomenological studies is between 5 and 25 and Morse (1994) suggests at least 6. For this study the researcher interviewed 8 participants from the four municipalities who met the requirements of the inclusion criteria. However, Francis *et al*., (2010:1229) recommend the idea of saturation for attaining an appropriate sample size in qualitative research. Data saturation means that investigator has gotten to a point in their analysis of data that sampling more data will not give further information linked to their study questions (Francis *et al*., 2010:1229). In this study saturation was reached after 6 interviews.

1.5.7 Inclusion criteria

Both male and female participants in the listed groups below; who were involved in the management of municipal infrastructure projects in Dr Kenneth Kaunda District. Participants were able to speak and understand Setswana or English and be willing to be included in the study.

- Directors of Technical Services and Infrastructure i.e. one per municipality
- Project Managers (one per municipality)
- Project Consultants (one per municipality)

1.6 Data analysis

Interviews were digitally recorded and transcribed verbatim with a view to data analysis (Botma *et al.*, 2010:191:187). Transcriptions were done manually using Creswell's generic (ATLAS-ti) qualitative analysis approach, which focused on themes (Creswell, 2009). This includes:

- Assigning initial codes: This could be a word, a phrase or the respondent's own words.
- Revisiting initial coding: Normally several codes could have been created during this stage. Some codes will be collapsed or renamed because of redundancy.
- Categorisation of codes: Modified codes will be organised into different categories.
- Modifying the initial list based on additional re-reading: After re-reading, a decision will be made on whether categories should be merge or not based on their importance.
- Revisiting categories and sub-categories: Categories will be revisited with a view to finally organise them.
- Shifting from categories to concepts: Codes will be organised into concepts according to the most informative or based on the logical manner of sorting.

1.6.1 Trustworthiness

Trustworthiness refers to the way of demonstrating the plausibility, credibility and integrity of the qualitative research process. To ensure trustworthiness, the researcher applied the methods shown in Table 1-3, which describes steps to establish trustworthiness (Lincoln & Guba, 1985:331).

Table 1-1: Strategies to enhance trustworthiness applied to this research

Criteria	Strategy	Application
True value	Credibility Asks if the researcher	An evaluation of the research proposal by study leaders; interview schedule will be evaluated by experts. To augment credibility of the study, the researcher will seek advice from the research supervisor throughout the study to appraise the research process and outcomes. Field notes will be written to ensure that observations and experiences are captured.
	Reflexive analysis	
Consistency	Dependability	Data will be analysed by the researchers; but consensus discussions will be help with participants to reach consensus about themes
Neutrality	Conformability:	The researcher will consult the supervisor in checking the research process, manual transcription of the audio recordings and independent coding so as to compare the transcription and coding with that of the researcher. Field notes will be available for auditing

1.7 Ethical considerations

Ethical approval and permission

Ethical approval was obtained from the ethics committee of the university to conduct this research. The research proposal was sent to the Ethics Committee of the NWU in order to get ethical approval to conduct the study. Permission was obtained from the Director: District Office in Orkney i.e. Matlosana Local Municipality to conduct the study in their Local Municipalities.

Direct benefits for participants

Participants partaking in the study will directly benefit from the study in the sense that they can voice out on how projects should be management in their district.

Dangers/risks and precautions for participants

The research did not foresee high risk as participants were informed that their privacy and confidentiality would be maintained and that the information they will provide will not be used for other purposes but only for this study.

Privacy/confidentiality

A convenient private interruption free place was identified by the participants and the interviewer. Permission to get a private room was requested from the managers of the facilities selected.

Storage of electronic data

All electronically captured data will be saved by the researcher on a computer the researchers and will be protected by password. An external hard drive will be used to back up all electronic data, which will be locked up in a cupboard within a locked office of my supervisor at the North West University. Data will only be available to the researcher.

Destruction of data

Voice recordings of interviews will be deleted immediately after the transcriptions have been completed and the data has been backed up. After 5 years hard copy data and electronic data will be destroyed according to the North-West University's rules and regulation for data / record management.

1.8 Executive Summary

Among the responses to the myriad challenges of contemporary environment, project management skills of personnel who implement development in public administration at different levels are increasingly highlighted. Lately there has been a heightened increase in the use of different project management techniques in South Africa; especially in the area of planning, control of time, budget and quality of projects However, South Africa municipalities are plagued by institutional capacity constraints, which create major risks for the implementation of municipal infrastructure projects. The ineptitude of municipal personnel to manage infrastructure projects has hitherto been a serious issue in South Africa. Challenges exist in the infrastructure delivery process, specifically in planning, budgeting and management of finances.

This inevitably results in extensive delays as poorly planned projects cannot be budgeted for; budgets are regularly miscalculated; funds are not availed in time; and procurement processes are not appropriately done. The implementation of professional Project Management in municipal projects can significantly improve the management abilities of the municipalities and consequently deliver the incredible value of project management to the communities. However, there is paucity in literature of how the Dr. Kenneth Kaunda District manages its municipal infrastructure projects in terms of the prescribed norms and standards in the (IDP) to fulfil the predetermined objectives of improving the socio-economic conditions and quality of life of its residents. This study will therefore use a qualitative, phenomenological, interpretive descriptive, explorative, contextual

design explore Project Management processes followed and describe managerial implications while implementing municipal infrastructure projects according to the Integrated Development Plans (IDP) of local municipalities in Dr Kenneth Kaunda, North West Province, South Africa.

1.9 Proposed study outline

Chapter 1: General background and problem statement.

This chapter portrays the general background of the study, the research problem, aims and objectives, methodology followed in gathering and analysing data, and ethical considerations followed in the study.

Chapter 2: Literature review.

A comprehensive review of literature linked to this study will be given in this chapter. The chapter will further provide insight to the phenomenon under investigation through the analysis of findings from several researchers on the same topic.

Chapter 3: research results and discussion

This chapter will contain information on how research findings will be presented, and discussed in detail.

Chapter 4: Evaluation of study, conclusion and recommendations.

The chapter will be an evaluation of the study and recommendations, conclusions and limitations of the study will be presented in this chapter.

CHAPTER 2

LITERATURE REVIEW

2 Introduction

This chapter outlines the state of knowledge with regards to key concepts used in this study, namely managerial implications, municipal infrastructure, projects and project management. As such, the intention with this chapter is to sketch the research context as well as to illustrate the current study's fit within the grand scheme of studies that have been conducted on managerial implications of municipal infrastructure projects to date (Botma *et al*., 2010). Having identified which study has been done, where it was done and how it was done, this researcher will continue to point to existing gaps in this field in the chapter/s to follow. In essence, the literature review as presented in Chapter 2 enabled the researcher to gain a fuller, more holistic view of the subject area and to generate ideas as gaps emerged. To begin with, an overview of the search strategies followed in the course of this investigation will be in the following section.

2.1 Search strategy followed

Whenever research is undertaken within a particular field or subject area, there is usually an existing knowledge base on that subject of interest. It is therefore important to be cognisant of existing literature and in order to demonstrate that there has been a critical appraisal of the relevant knowledge base, a comprehensive literature review needs to be done. The literature review also serves to keep one up to date with the latest research findings on the field of study, provides the research context and it helps to illustrate how the current study fits within the grand scheme of things (Botma *et al*., 2010:63-64). The literature review also highlights gaps in the field as the researcher identifies what has been done, where it has been done and how it has been done. Ideas are also generated in this process as the researcher realises what still needs to be investigated in order to get a fuller, more holistic view of the subject area.The literature review is therefore an essential component of the research proces.

Scholarly articles were sourced from the google scholar search engine while policy documents were sourced on Google under the government organisation domains. Furthermore, articles from reputable health sites detailing relevant information pertaining to the subject of interest were also used as well as text books. Other articles were sourced from the databases that are registered under the North West University library site (e.g. EBSCOhost, A-Z Publication Finder, JSTOR etc.). To get relevant literature, keywords relevant to the subject area were used. These included keywords like; *managerial implications,municipal infrastructure, project management, South Africa etc.* The above mentioned databases provided articles from acredited journals such as the;

Journal of public administration and development alternatives, Law, democracy & development, *Africa's public service delivery and performance review* and *Curationis* among other journals.

2.2 Defining managerial implications

In this study, managerial implications refer to the comparison of the what is on the ground regarding project management processes in Dr Kenneth Kaunda District with what is enshrined in the key operating framework i.e. Integrated Development Plan (IDP). Managerial Implications also point to what action should be taken regarding management of municipal infrastructure projects in the Local Municipalities (Abrahamse, 2002:4). The IDP works as an instrument for facilitating and managing development within the areas of jurisdiction.

2.2.1 Integrated development Plan (IDP)

According to Brand (2016:2), in South Africa, local government is the arm of government that is closest to the communities; responsible for the provision of basic services. For local municipalities to provide services to communities they are required in terms of local government legislation to develop an integrated development plan (IDP) and performance management system (PMS) (Ruwanza & Shackleton, 2016:28). The purpose of developing an IDP and performance management system is to ensure that local municipalities plan for, monitor and evaluate the extent to which there is improved service provision for the communities (Abrahams, 2018:132). Municipalities have been developing IDPs and performance management systems since they were established in 1994 (Sithole & Mathonsi, 2015:8).

2.3 Municipal Infrastructure in SA

Municipal infrastructure refers to "*the capital works required to provide municipal services*" (SA Department of Provincial and Local Government 2007:3). Currently South Africa is facing substantial infrastructure service delivery backlogs (Ruch & Geyer, 2018:269). This situation can be attributed to historical, socio-political realities and rapid urbanisation and escalating levels of poverty (Mamabolo, 2016:28). This is true especially for low-capacity municipalities that are located in rural areas (Ruch & Geyer, 2018:269). The Medium-Term Strategic Framework 2012/2013 outlines a programme to build economic and social infrastructure called Infrastructure Investment Programme (IIP) (Van der Waldt, 2014:845), which is aimed at expanding and enhancing economic and social infrastructure, including transport and energy (Fuo, 2013:225). This likewise incorporates essential amenities, for instance, water, sanitation, as well as information and communication infrastructure. The aim of the IIP is to increase access, quality and dependability of public services and to support economic activities, in view of environmental sustainability (Walsh, 2008:2). The Integrated Infrastructure Development Strategy, asserts that

municipal infrastructure projects must be planned for and analysed in an integrated manner (Van der Waldt, 2014:845).

However, it is difficult to analyse the state of infrastructure development in SA municipalities due to several factors (Madumo, 2015:153). One of the factors is that significant differences exist between different types of infrastructure for instance accommodation, electrical energy, water as well as the magnitude and quality of these services in municipalities (Ndzelu, 2016:20-22). A certain municipality, for instance, may do very well in areas of road construction, but performs poorly when it comes to provision of water (Van der Waldt, 2014:845). Brettenny and Sharp, (2016:11), adds that, it difficult to analyse infrastructure development in different municipalities i.e. local, district and metropolitan municipalities is that these municipalities exhibit huge variations. For instance, irregularities exist between metropolitan municipalities; as some local municipalities may find themselves in economically-stagnant state due to lack disparities in tax revenues and staff capacities (Thornhill, 2014:142).

According to StatsSA (2018), communal areas and urban informal areas are the most disadvantaged with 77% and 69% of households lacking access to basic sanitation respectively. Infrastructure development in these areas is also affected by lack of planning, corruption, lack of maintenance, and undesirable environmental outcomes (Mamabolo, 2016:28). To improve municipal service delivery there is dire need for innovative management applications and techniques to ensure proper infrastructure development and project management (Ruiters, 2013:313). Lately there has been a heightened increase in the use of different project management techniques in SA; especially in the area of planning, control of time, budget and quality of projects (Van der Waldt, 2014:844). The concept project management is described in the following sections.

2.4 Defining project

To have a full understanding of the concept project management, the researcher will start by giving an overview of the concept “project”. A project is defined as short-term organisation to which resources are allocated to do work, to bring about valuable change (Merriam Webster Dictionary, 2018). The Project Management Institute (PMI) (2016) defines a project as temporary work undertaken to produce a unique product, service or service. The managerial aspect of a project can be defined as the optimal utilisation of available resources to guarantee that the project output is evaluated on the basis of time, budget and quality constraints (Kerzner, 2003:9). Projects can be carried out at different organizational levels. Typical project may include a single organizational unit or rolled out to a number of organizational units depending on the complexity of the project. It may consist of a single person or several persons in a team. Kerzner (2009:2) adds that a project has several characteristics which are described in the following sections:

2.4.1 The Characteristics of a project

Larson and Gray (2013:5) explain that the main goal of a project is to satisfy a customer's need and that projects have major characteristics which include:

- an established objective;
- a defined life span with the beginning and an end and must be contrary to the on-going duties and responsibilities of traditional jobs;
- usually the involvement of combined efforts of several departments, professionals and specialists;
- typically, something that was never done before meaning it must a non-routine activity with unique elements; and
- Specific time, cost and performance requirements which bind the project.

To make sure that there is no confusion but certainty on what a project is, Larson and Gray (2013:6) explains what a project is not. They elaborate that projects should not be confused with everyday work, that they must not be routine and repetitive work. They are emphasising this because they have realised that too often resources can be used up on daily operations which may not contribute to longer range organisational strategies that require innovative new products.

One can agree with the above that there are tangible issues that arise from the implementation of infrastructure projects whose objective is to enhance service delivery which communities often disapprove through protests. A project must have an established objective and in the context of municipality infrastructure project, projects are aligned to the role of municipalities as the implementing agent of government policies and strategies (Mabuela, 2015:11). The objective of most infrastructure projects commissioned by municipalities are targeted at economic development, service delivery and dealing with social and economic phenomena such as unemployment (Koma & Kuye, 2014:94). Economic theory associates infrastructure investment and implementation to economic growth and development (Ansar *et al*., 2016:360). Thus too much is invested into infrastructure projects and failure is just too costly to investors as well as to infrastructure projects stakeholders in general. This has profound implications for project managers who often have to give an account after the collapse of such projects.

2.4.2 Nature of Projects

Steyn *et al*., (2016:1) give the historical evolution of origin of projects and by stating that through ages, mankind undertook many different kinds of projects and that ancient projects typically involved construction and resulted in structures such as pyramids, the Great Wall of China and cathedrals in Europe. It is thus, important to note at this juncture, that these historical projects have been a source of vast economic activities that have changed the lives of many people from

many generations past, present and to come. The objectives of infrastructure projects, which are the focus of this study, is to create structures and physical outputs that will play a significant role in the lives of people now and in the generations to come. These projects are executed by teams of people coming from a diverse background, culture and skills temporarily to serve the communities.

2.5 Project Management

Project management refers the process of starting, planning, implementing, monitoring and concluding the work of a team to accomplish specific goals and meet specific success benchmarks within time allocated (Kerzner & Kerzner, 2017:1). Project management focuses on managing all the aspect of a project. This implies that project management brings together all the required resources for a project and optimizes them for the project to be successfully completed (Svejvig & Andersen, 2015:279). An example where project management in municipal infrastructure has yielded great results is reported in China. Currently China is going through a serious demographic transition ever in its history, where the urbanization ratio has increased from 36.22% to 52.57% in 2000 to 2013 (Feng *et al*., 2015:76), and it is estimated to go as high as 60% by 2020 (Pan & Wei, 2013:1). All across China urbanization has brought huge infrastructure and construction projects. Nonetheless, a number of challenges have also been reported in the country (Wei *et al*., 2015:4), for example over spending of the budget by project managers, poor quality owing to lack of professionalism and corruption. To curb this situation, the Chinese government adopted a new project management model, (Agent Construction Model [ACM]). This model is used to manage and govern all projects using the same administrative standards. The ACM integrates all available government resources to ensure that all urbanization projects are completed (Weisheng *et al*., 2014:543). All projects are integrated using some of the project management techniques which are described in section 2.6

2.5.1 Project Management in South Africa

Project management applications are also common in SA (Van der Waldt, 2014:844). According to Khalema *et al*., (2015:12), project management principles are commonly used in construction, education, engineering and the government departments. The tools and techniques have hitherto been in use and project management now seen as a rapidly developing discipline (Van der Waldt, 2014:844). Burger (2013:22) adds that in SA, the engineering and construction industries are employing project management tools and techniques extensively to expedite projects. During the 1990s, project management became very popular in the government sector, mainly because of the emphasis that was being put on sound project management principles in the strategies and legislation that had been newly formulated for example the Reconstruction and Development

White Paper of 1994, the Public Finance Management Act 1 of 1999, and other different service delivery approaches (Keita, 2014: 18-31).

2.5.2 Project management applications in the South African local government

According to Steytler & De Visser (2010:9-5), the mandate of local government in SA is to provide municipal services to communities. Municipalities are regarded “community service providers” complementing the local government (Abrahams, 2018:131). Municipalities are there to ensures services provision in a sustainable manner (Ruwanza & Shackleton, 2016:28). This implies that the local government has to structure and manage the administration, budgeting and planning processes giving priority to the basic needs of their communities (Pillay *et al*., 2013:109). The main instrument that municipalities use in this regard is the IDP which has been described in section 2.1.2. Councilors or municipal officials may play the role of local government depending on the nature of the project (Municipal Systems Act, No. 117 of 1998). With regards to all community development; the national legislation and departmental policies prescribe the function of the public manager (project manager) (Drakenstein Municipality, 2013:15). According to Van der Waldt & Knipe (2009:139), development management and project management ought to be connected; while developing and uplifting communities through the application of the principles of project management.

Another key instrument used by municipalities in SA is the Municipal Infrastructure Grant (MIG). According to Department of Local Government (DLG) (2007), this program was established in 2004 to deliver a basic level of service by 2013. The MIG is a restricted grant that is given to particular municipalities using a specific formula (SALGA, 2012). The MIG program obliges municipalities involved to manage projects according to its guidelines (SALGA, 2012). Municipalities participating in the MIG program had to establish Project Management Units (PMUs) These PMUs are there to ensure compliance with the conditions that of the IDPs (DLG, 2007). The MIG Program also compels PMUs to implement and coordinate municipal infrastructure projects by means of project management techniques (DLG, 2007).

2.6 Techniques of project management

Burke (2016:24) asserts that the management of projects uses a number of special tools and techniques, combined with subject related knowledge and skills that have been developed over the years to manager different aspects of the project and facilitate the processing of large amounts of data. This include the critical path analysis (CPM) analysis, Gantt chart, the resource histogram, the earned value graph and tables, activity crashing and matrix organisational structures. According to Burke (2015:24), project management involves the following techniques:

2.6.1 Project Charter

The project charter is one of the special project management documents that translate the project sponsor's business case into project objectives (Muhammad, 2015). The project objectives outline the scope of work, how the project should be managed, and the critical success factors for the project manager to achieve (time, cost and quality). The issuing of the project charter also serves as the authority for the project manager to initiate the project and use company resources (Burke, 2016:24).

2.6.2 Project Plan

According to Kerzner, (2017:179) the project plan is a special project management document integrating the knowledge areas' individual plans to form one combined baseline plan. Burke, (2016:24), adds that such an integration process manages the trade-offs and compromises between the different plans to enable the project to focus on one optimum arrangement that outlines what needs to be done, when and by whom, and to what standards. The plan helps the project managers to issue instructions, monitor progress and take corrective measures to ensure that the predetermined objects are realised (Dayani & Gelbard, 2017:22).

2.6.3 Project Management Structure

Burke (2015:24) emphasises that the project structure is a special project management technique that enables the project manager to form temporary organisational structures and project teams that can be designed to suit the needs of the project and project participants. This will indeed help the lead project manager to build and motivate the team and coordinate the team's work (Schnetler *et al*., 2015:12).

2.6.4 Project Management Processes

According to Pheng (2018:27), all projects consist of processes that fall under the ten areas of the project management reported in literature. These ten areas relate to integration, scope, time, cost, quality, human resource, communications, risk, stakeholder management and procurement (Hornstein, 2015:292). These nine areas can only be started by five processes which include: initiating, planning, execution, monitoring and controlling, and closing. These five project management processes are in a way linked to the general management principles which involve planning, organising, coordinating and controlling (Harrison & Lock, 2017:95). Nevertheless, within the project management sphere, the five processes are adapted for each of the nine knowledge areas and also with different industries and businesses (Pheng, 2018:27).

2.6.5 Project Methodology

Burke (2016:24) rounds up the project management techniques by stating that the project management lifecycle format is a special management technique subdividing the project into a number of identifiable phases that each produces a distinct deliverable. This sequence of phases forms the backbone of the project methodology, interlinking all the topics within a phase and between phases.

2.7 Project life cycle

Flyvbjerg *et al*., (2003:16) state that the project lifecycle gives a framework for managing different types of projects within an industry and that leaders in project management have carried out studies to determine an appropriate process to run projects and found that following a project lifecycle is imperative for any organisation. According to Steyn *et al.,* (2016:23) the project lifecycle refers to the four-step process that is used by a number of project managers when going through stages of project conclusion; familiar to most people involved in projects. Project management life cycle compromise of four phases, namely:

- Project Initiation;
- Project Planning;
- Project Execution; and
- Project Closure as presented in Figure 2-1

The respective phases are discussed in the following sections:

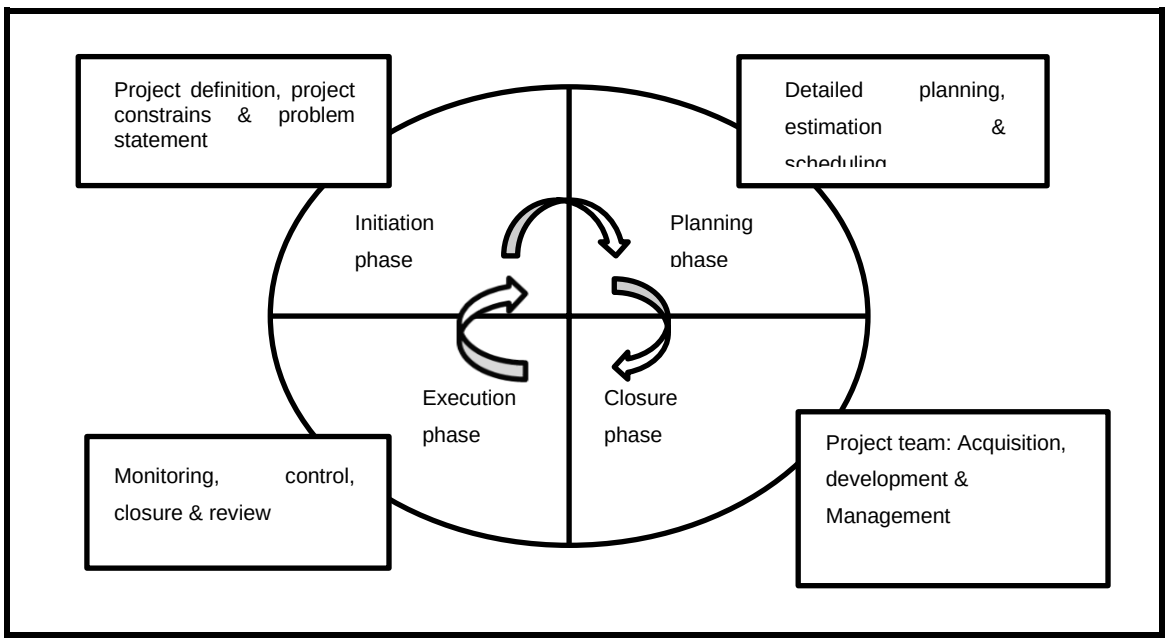

Figure 2-1: The four phases of the project life cycle. Adopted from Project Management Institute (PMI) (2013)

2.7.1 Project Initiation

Donovan (2016:7) states that the initiation phase of the project is the starting point of any project where project managers conceptualise the project. In this phase, the senior management recognises that there is a strategic need and ask themselves the following questions:

- What is the problem?
- Will the development of a project solve that problem?
- What are the specific goals of the project?
- Do we have enough resources to create and support the project?

Larson and Gray (2013:7) state that during the initiation phase the statement of work must be created, the business case must be presented and the business contract must be created. After this, the project managers must define the specifications of the project, establish project objectives, form project teams and assign major responsibilities of the project. Figure 2-1, illustrates the process of initiating a project.

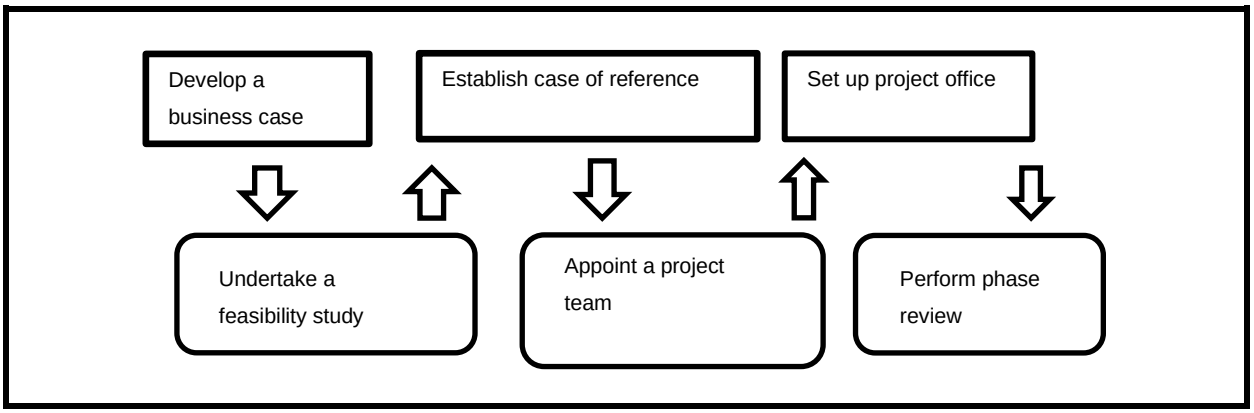

Figure 2-2: Project Initiation: Adopted from Perkins *et al*., (2003:6).

2.7.2 Project Planning

According to Sligo *et al*., (2017:18) project planning is done at the commencement and completion of each project phase. It is an indispensible phase of a project which offers an entire framework for managing the three project constraints i.e. cost, time and quality. It encompasses a clear definition of distinct tasks or activities of the project and the work required to finish each activity (Heravi *et al*., 2015:985). These activities translate to the project team's basic work that is planned, executed and monitored (Tasevska *et al*., 2014:529). It can also be defined as any work with a beginning and an end and needs project resources for example money, time and human resource (Šetinc *et al*., 2015:687). Project activities comprise of project scope, work to be done,

an estimated resource plan, developed project schedules and communication plan (Creemers *et al*., 2015:465). It also involves well established standards and requirements, developing statement of work, creating a baseline project plan, and recognising and evaluating project risks (Sharon & Dori, 2015:366).

Larson and Gray (2013:7) mention that in the planning phase of the project, the level of efforts increases, plans are developed to determine what the project entail, when it will be scheduled, whom it will benefit, what quality level should be maintained, and what the budget will be. Figure 2-3, is an illustration of project planning.

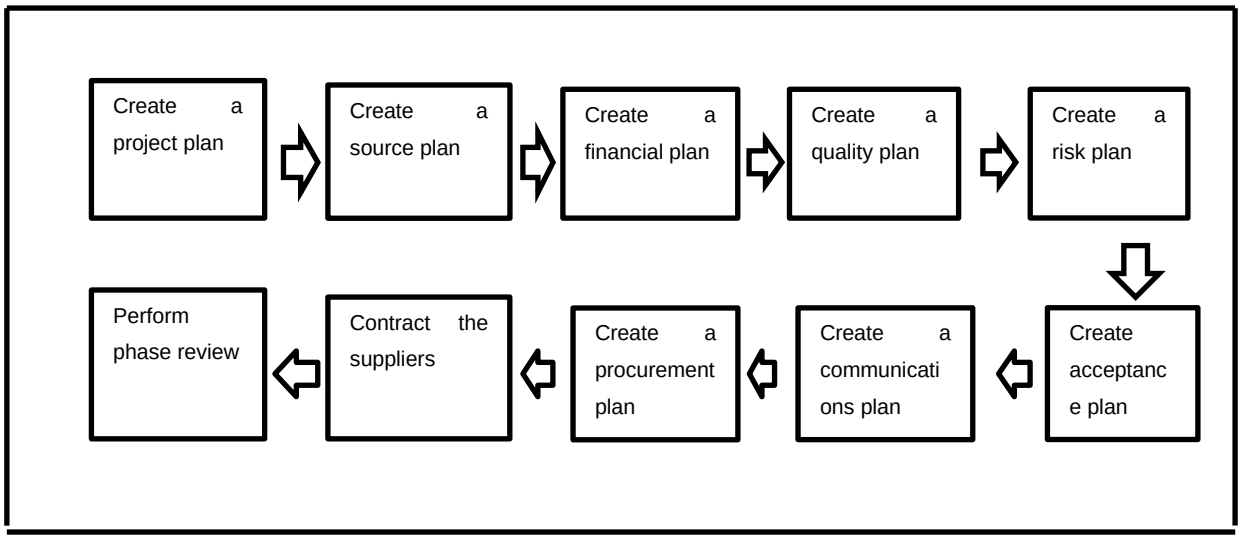

Figure 2-3: Project Planning adopted from: Perkins *et al*., (2003:7)

2.7.3 Project Execution

According to Donovan (2016:13), the execution process is where the work of the project is actually carried out. Here the project teams commence with the work as prescribed in the project plans. The teams are organised and managed properly and the people and resources are coordinated to ensure that the work proceeds smoothly without hindrances (Kerzner, 2017:211). Donovan (2013:13) adds that quality assurance activities are carried out during the execution phase and the stakeholders and project teams are kept informed and updated through progress updates, workshops, meetings and presentations. According to Larson and Gray (2013:13) it is vital to use time, cost and specification measures for control purposes during the execution phase. Figure 2-4, is an illustration of project execution. It will also benefit the project if manager ask the following questions:

- Is the project on schedule, on budget and meeting specifications?
- What are the forecasts of each of these measures?
- What revisions and changes are necessary?

- Can resource planning be optimised?
- Are there major roadblocks that require change management?

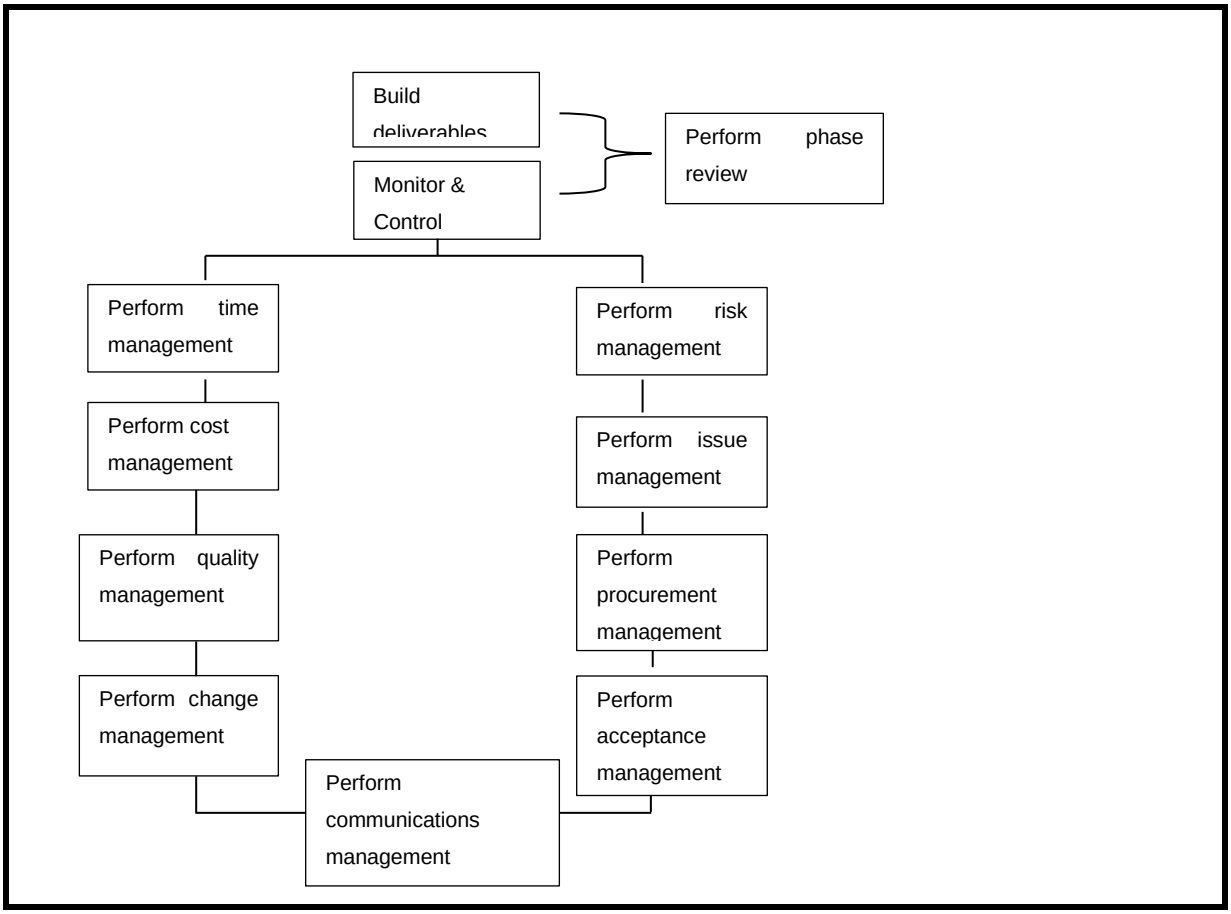

Figure 2-4: Project Execution: Adopted from Perkins *et al.*, (2003:7)

2.7.4 Closure

According to Larson and Gray (2013:9) the last phase i.e. closure, delivering the project product to the client, redeployment of project resources and post project evaluation. Project delivery might include training of the clients and documents transfer (Zohrehvandi *et al*., 2017:274). Redeployment generally involves releasing project materials and equipment to other projects and reassigning of duties to team members (Rahschulte *et al*., 2016:351). Post-project reviews include evaluating project performance and taking note of lessons learned (Larson & Gray, 2013:10). Figure 2-5, is an illustration of project closure.

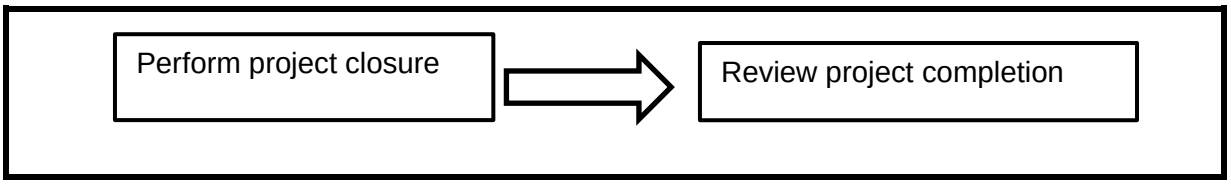

Figure2-5: Project Closure Adopted from Perkins *et al.*, (2003:8)

It is evident from what has been reported in literature that project management techniques work, but the one-size fits all approach will never work (Martinelli & Milosevic, 2016:3). Therefore, it is imperative to also put into consideration the use of technology and other methods in project management. With the inception of novel methods and technology in agile projects, projects can now be broken down into small manageable components through the use of computer aided programmes optimise productivity (Conforto *et al*., 2015:21).

2.8 Importance of project management

Good project management involves much more than keeping project management's iron triangle in check i.e. delivering on time, budget, and scope (Kerzner, 2018:18). It brings clients and teams together, generates a vision for success and ensures that all stakeholders have an understanding of what is expected of them to stay on track for success (Bucero & Englund, 2015:). When projects are well managed, there is a positive impact that echoes beyond delivery of the project product. The following sections describe the importance of project management.

2.8.1 Strategic alignment

According to Larson and Gray (2013:23) project management is important because it guarantees delivery of the right product and provides real value against the business prospects. They argue that every project should have a distinct connection with the organisation's strategy. In this regard Larson and Gray (2013:23) further elaborate that even clients have strategic goals and it is the responsibility of project managers to ensure that they advance the strategic goals of their clients.

2.8.2 Leadership

Project management is indispensable in providing leadership and direction to projects (Aga *et al*., 2016:806) Leadership is important in projects as it allows and enables a project team to do perform at their optimum levels (Kurzydłowska, 2016:104). A project manager is there to assist the team but also ensures clear lines of accountability and ensures that there is no confusion regarding who is in charge and in control of all project activities and processes (Zulch, 2014:172). Kendrick (2015:321) sums it up when he asserts that a project manager at the end of the day is accountable when it comes to project failure or success.

2.8.3 Clear focus and objectives

Burke (2016:94) argues that project management is important because it ensures there is an appropriate plan for executing strategic goals. Project managers can seamlessly realise their objectives when they divide the projects into smaller tasks and this will enable them to stay focused on clear objectives, channel their efforts towards achieving the ultimate goal by completing the smaller tasks and quickly identifying project risks (Andersen & Grude, 2018:228).

2.8.4 Realistic project planning

Larson and Gray (2013:156) explain that project management guarantees proper expectations are set around what can be delivered against time and quantity. In the absence of proper project management, unrealistic budget estimates and project timelines can be set resulting in late deliveries and over expenditure. For project managers to be effective they need to negotiate realistic and achievable timelines and milestones with stakeholders, project teams and management (Burke, 2016:140).

2.8.5 Quality control

Steyn *et al.,* (2016:227) state that project management is important because it ensures the quality of whatever is being delivered, reliably meets the target. Preethi and Manoharan, (2017:92), add that quality control in project management ensures that the quality necessities of the project, as well as testing and other verification systems, have been applied and are effective.

2.8.6 Risk management

According to Larson and Gray (2013:211) every project manager ought to understand that risks are inherent in projects. Project management is imperative as it guarantees risks are well managed and mitigated against to avoid them becoming issues (Pretorius, 2014:22). Steyn *et al.,* (2016:379) assert that risk management is indispensable for project success. In some cases project managers tend to ignore risks and do not want to inform their clients and simply hope for the best. However, the presence of sound processes for identifying, managing and mitigating risks is ideal in preventing risks from becoming issues (Flyvbjerg & Budzier, 2018:10). According to Kerzner (2017), good project management practice entails project managers to meticulously examine all probable risks to the project, quantify them, create a mitigation plan, and an emergency preparedness plan should any of them become an issue.

2.8.7 Orderly process

Donovan (2016:65) argues that project management is important because it ensures availability of the appropriate team for the right job, at the appropriate time. It also guarantees that the proper project process is adhered to throughout the project lifecycle. According to Donovan (2016:65) a good planning and process yields great results as the individuals know what they are supposed to do, at a specified time. A proper project process clarifies duties, rationalises processes and resources, anticipate risks, and develops the checks and balances to make sure that the project is in line with the overall strategy (Zhang *et al*., 2016:82). Project management is ideal as it provides an orderly process that is easily understood (Todorović *et al*., 2015:772). In the absence

of project management, organisations risk project failure, employee attrition and wasting of resources (Eriksson & Kadefors, 2017:492).

2.8.8 Continuous oversight

Kerzner and Kerzner (2017:302) mention that project management is important because it allows project managers to track and report progress that is being made by the project. Larson and Gray (2013:76) add that continuous project oversight guarantees that a project is correctly followed against the original plan so that the project remains on track. When good oversight and project reporting is primed project managers can easily notice when a project is deviating from its projected course. This entails that project managers ought to regularly write up progress reports which allow stakeholders to track the project.

Based on what has been reported in literature, it is very imperative for municipal managers to have proper project management training as it will greatly alleviate most of the challenges being faced in terms of municipal infrastructure development in South Africa. However, it is important to also acknowledge the current advances in technology. Technology has positioned project control at new dimensions demanding innovative skills sets from project managers. Advance in technology has probably reduced the expenses around controlling projects and the quantity of resources required per project. Technologies such as just in time (JIT) and other inventory management technologies have positively impacted the optimization and meeting project timelines. Once the project is completed, it is closed and delivered to client who has the responsibility of maintaining the infrastructure on a long term basis. In the backdrop of complete compliance to the prescriptions of project management is a promise that the outcomes or the delivery will meet objectives on time, budgets and meeting community needs. It is thus an issue for most municipalities in Dr Kenneth District, that some road works do not seem to stay their life spans and some buildings, including the low cost houses, do not seem to be up to standard and hence durability seems questionable in some instances.

It then becomes opportune for this study to explore the managerial implications for infrastructure projects in the Dr Kenneth Kaunda District. Another dimension of analysis is the advent of small business project managers, through black economic empowerment codes, increasingly becoming project management service providers to infrastructure projects as subcontractors or as the main contractors. There is not enough evidence to suggest that project delivery is affected by the identity or even capacity of the project managers. There are just as good small business project managers just as they are good big and established project managers. It thus becomes the job of the outsourcing project managers, in this case municipalities, need to optimize their supply chains as supply chain management is also a critical input for the success of infrastructure projects.

2.9 Conclusion

From the exposition above it is clearer now that without project management teams and clients are exposed to disordered management, vague objectives, shortage of resources, poor planning, heightened risk, poor quality deliverables, over expenditure of budgets and late project delivery. It can therefore be concluded that proper project management is indispensable in the delivery of municipal infrastructure projects because it will ensure project delivery as reflected in the IDP of the particular municipality. The utilisation of project management, when implementing the IDP, will be expedient to the municipalities, as the project manager will play a vital role in ensuring the compilation and the annual review of the IDP processes. However, this integration project management among other implications will involve restructuring the existing organisational structure to a matrix organisational structure. Hence it is imperative to explore the managerial implications of municipal infrastructure projects in Dr Kenneth Kaunda District in the North West Province, South Africa.

CHAPTER 3

FINDINGS AND DISCUSSION

This chapter presents the findings of the qualitative phenomenological, explorative design. The primary objective was to investigate the managerial implications for implementing municipal infrastructure projects in Dr Kenneth Kaunda District according to the Integrated Development Plans (IDP). The study findings were obtained from 7 semi-structured interviews with Directors of Technical Services Infrastructure, Project Management Unit Managers and Project Consultants as described in Chapter 1. The first section of this chapter provides a brief overview of the study participants and the study contexts. This is followed by a presentation and description of the different themes and sub-themes that emanated from the semi-structured interviews. Literature integration was done to discuss the themes and to show how this study contributes to the gap that was identified in literature.

3.2 Overview of study participants

3.2.1 Study participants

As discussed in Chapter 1, the study participants comprised: Director of Technical Services Infrastructure (their role is to plan, manage and provide technical skills at all levels, and are responsible for the following projects: water, sewerage, waste water management, water purification works, waste management, roads, storm water, electricity and asset management), Project Managers (their role is to implement projects in terms of the Integrated Development Plan [IDP]) and Project Consultants (their role is to assist municipalities with the technical expertise in the implementation of municipality infrastructure projects). Table 3-1 portrays the demographic information of the participants who were involved in the study. Seven were involved, of which the majority (4) had more than 10 years of experience with municipal infrastructure projects. Most of these participants were managing several projects that had budgets ranging between R7 million and R80 million. The average lifespan of the projects were between 6 and 18 months depending on the nature of the project.

Table 3-1: Basic demographic characteristics of participants

No.	Municipality	Role	Experience with municipal projects (yrs.)	Average size and budget of projects	Average lifespan of projects
A	Matlosana	Director Technical Services Infrastructure	23	Several ranging from 22 to R85 million	
B	Matlosana	PMU Manager	15	150 million	
C	JB Marks	Assistant PMU Manager	2	80 million	
D	TKQ Trading Consulting Engineers	Consulting Engineer	12	7 Million	
E	DWP Consulting Engineers	Consulting Engineer	6	8 Million	
F	Tshawe Infrastructure Technologies	Consulting Engineer	16	45 Million	
G	Dr Kenneth Kaunda District Council	Director Technical Services Infrastructure	11	70 Million	

3.1.3 Study context

The study will be conducted in Dr Kenneth Kaunda District Municipality in the North-West Province. The District has three local municipalities which include: Maquassi Hills Local Municipality, City of Matlosana and JB Marks Local Municipality (Diedericks & Nealer, 2015:65). The District Municipality's office is in Orkney, i.e. Matlosana local municipality. Dr Kenneth Kaunda District shares the border with Gauteng Province on the north-eastern side and border with Free State Province on the south (Demarcation Board, 2011:1). Table 3.2 shows the population breakdown of the four local municipalities.

Table 3-2: Dr Kenneth Kaunda Local Municipalities' population

Municipality	Population
Kenneth Kaunda District Municipality	695 933
JB Marks	243 527
City of Matlosana	417 282
Maquassi Hills	82 012

Source: (SAStats, Census 2016)

According to the Dr Kenneth Kaunda District Municipality annual report 2016/17 (2017:13), most of the districts' population lives in Matlosana local municipality (57.29%), followed by Tlokwe

(23.39%). Maquassi Hills (11.18%) and Ventersdorp (8.15%) have the least population in the district. Approximately there are 287 000 households in Dr Kenneth Kaunda District and Table 3-3 shows access to basic services for households within the district (SAStats, 2016).

Most (98.65%) of the households in the Dr Kenneth Kaunda District have access to piped water. Over 75% of the general populace have access to refuse removal once per week, while very nearly 85% have sanitation that is connected to a functional sewage system. Approximately 80% of the general populace stay in formal residences and over 80% have access to electricity (Dr Kenneth Kaunda District Annual Report, 2017:17). These municipalities were selected because they are involved in projects aimed at improving the living conditions of the people.

Table 3-3: Access to basic services in local municipalities

	Waste Removal (once per week)	Sanitation (Connected to Sewage System)	Piped Water	Formal Dwelling	Electricity for Cooking	Electricity for Heating	Electricity for Lighting
Dr Kenneth Kaunda	75.76%	84.92%	98.65%	78.46%	83.92%	81.36%	89.77%
Ventersdorp	36.52%	40.70%	97.80%	71.25%	68.87%	58.40%	77.94%
Tlokwe	63.44%	81.44%	98.29%	77.36%	82.64%	79.84%	91.28%
Matlosana	89.64%	93.29%	98.96%	80.11%	86.75%	85.76%	91.28%
Maquassi Hills	53.31%	75.77%	98.19%	75.25%	78.42%	70.83%	83.19%

Source: Dr Kenneth Kaunda District Municipality Annual Report (2017:17)

3.3 Managerial implication of municipal infrastructure projects

Data on managerial implications of municipal projects was captured during the interviews and presented based on themes that emanated from the ten questions (question 4-14) as per the interview guide (***see*** Annexure A).

3.4 Findings from research question 4 - 7

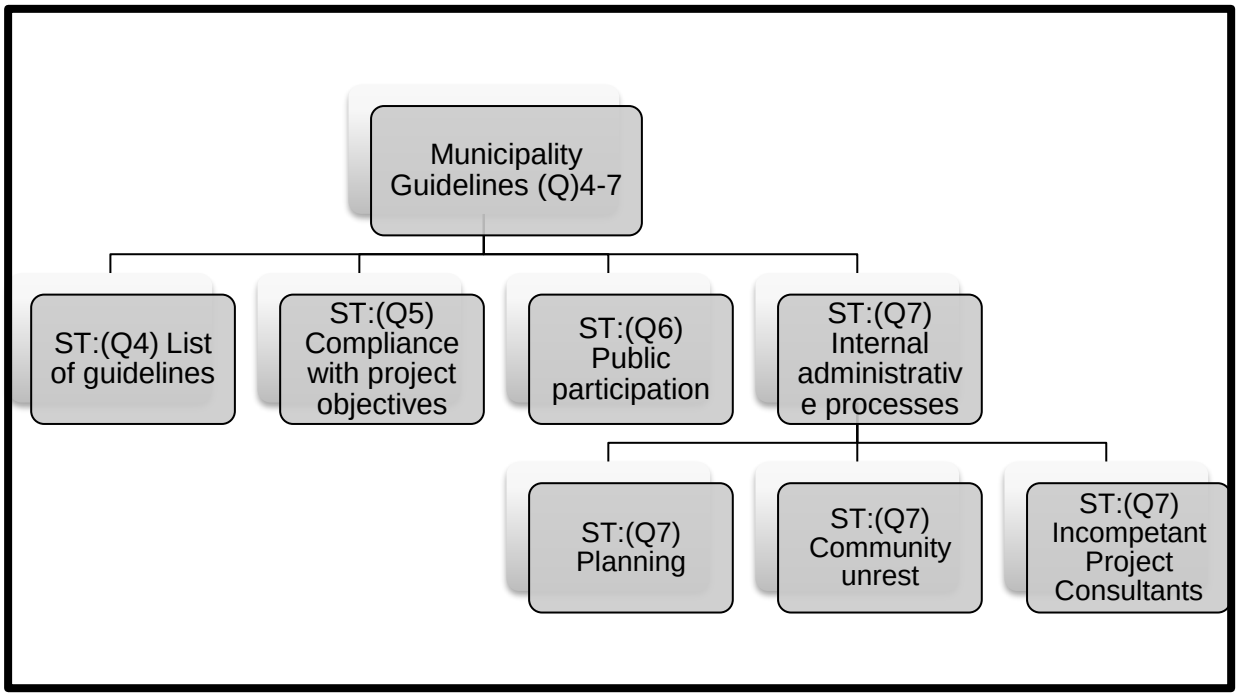

Figure 3-1: Themes and sub-themes according to different participants emerging from question (Q) 4-7

Key: Q4-Q14 refers to interview questions (***see*** Annexure A) and ST (Q) refers to sub-theme related to the question.

Figure 3-1 is a diagrammatic illustration of the themes that emanated from interview questions (**Q**) 4-7. During the interviews participants were asked to describe the policy guidelines which govern the management of their selected infrastructure projects. This section will describe the themes that emanated from the data analysis of the interviews with the participants

Theme 3.4.1: Municipality Guidelines

This refers to general rules or principles that are you in the management of local municipalities. Within the South African context South African Local Government Association (SALGA), which is an amalgamation of 257 local governments is mandated by the amended 2016 constitution to provide common policy positions on several issues and to express local government interests, in addition to providing solutions to challenges that are being faced by local government (Van der Heijden, 2008; Dlanjwa, 2013:27).

Theme 3.4.2: List of municipal guidelines

Participants were asked specific questions (**Q4-7**) that related to the theme *municipal guidelines*. A total of seven participants from the Dr Kenneth Kaunda District municipality and the three

municipalities which fall within the jurisdiction of Dr Kenneth Kaunda District municipality: Maquassi Hills, City of Matlosana and JB Marks were interviewed and shared their experiences with the implementation of municipal infrastructure projects. The first question (**Q4**) under the theme *municipality guidelines* involved participants describing the guidelines that are used within their local municipality in project management. Amongst the guidelines listed by all participants were: the Supply Chain Regulations, Standard Operating Procedures from National Treasury, Municipal Finance Management Act (MFMA), Construction Industry Development Board Guidelines, Municipal Infrastructure Grant, Neighbourhood Development Partnership Grant, Water Service Infrastructure Grant, South African Bureau of Standards and Human Settlement Guidelines and General Conditions of Contract. The participants reported that these guidelines were used based on the nature of the projects being done by the municipalities. For example the Mr T. Tshukudu from the District council had this to say:

> "*Unfortunately we don't get the MIG ourselves because we are not a water services authority,*" (Mr T. Tshukudu, Director Infrastructure Service: Dr Kenneth Kaunda District Council).

The above statement shows that not all the above listed guidelines are applicable to all the municipalities.

Theme 3.4.3: Compliance with project objectives

When managing municipal infrastructure projects *compliance* is the vehicle which guarantees that municipal infrastructure projects are executed according to the objectives of the project (Galvan-Cruz *et al*., 2017:75). Compliance enforces good governance of management municipal infrastructure projects (Rossi *et al*., 2016:112). It assists in reducing risks and other challenges that may be faced during the lifecycle of the municipal projects (Galvan-Cruz *et al*., 2017:75).

Question five (**Q5**), required the participants to describe the way in which these guidelines ensure that projects are executed in a manner that ensures the realisation of their objectives. Compliance with project objectives emerged as a sub theme related to question five (**Q5**), during data analysis. Most participants reported that the guidelines require municipalities to report based on a monthly, quarterly and annual basis and through this they can assess whether the objectives are realised. For example, Mr T. Tshukudu from the Dr KK District Council had the following to say:

> *"In terms of the Supply Chain Management Regulations there is what we call the demand management plan; obviously it's a tool that will enable you to plan your projects in a way that you achieve your objectives. Otherwise in terms of the General Conditions of Contract, it also has the clauses that guide the same objectives in terms of monitoring the*

performance of your service providers (Mr T. Tshukudu, Director Infrastructure Service: Dr Kenneth Kaunda District Council).

The Director Technical Services from Matlosana District also added that they work with grants from various sectors and each grant has specific conditions that the municipality has to adhere to.

"In terms of the conditional grants like the MIG, they have specific sectors that we need to use the grant for…that is water, sanitation roads and also sports facilities and waste disposal sites, we try to stick to that.," (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

Theme 3.4.4: Public participation

Public participation involves the provision of an opportunity to the communities to influence public decisions and hitherto been a significant component of the democratic decision-making process (Maphazi *et al*., 2013:57) In South Africa public participation is recognized as the basis of democracy and service delivery. It is a constitutional right enshrined in the 1996 Constitution.

Participants were asked explain the internal management processes are followed in identifying, planning and executing the infrastructure projects (**Q6**). Public participation emerged as a theme under (**Q6**). Most participants indicated that public participation was indispensable when it comes to identifying, planning and executing municipal infrastructure projects. This is evidenced in the following descriptions of internal management process followed within the municipalities:

"Internally we do public participations through political heads which eventually we develop the IDP and from there we prepare our three year capital plan, which is a three plan for infrastructure plan, we have reduced it to one year to have a service delivery and budget implementation plan. We have those three plans to make sure that the projects are identified openly through public participation and are planned properly through the gazette of their budget allocation." (Mr K. Dikgwatlhe, PMU Manager: City of Matlosana)

"The planning of the project its starts with the community submissions through the IDP processes. The IDP process obviously you have to go to the communities and find out which challenges the communities are facing. Then you try to get some strategies on how do you manage those challenges and obviously then you integrate them into projects. That process is also involves consultation and take it for adoption by council and during the process of implementation we need to go back and explain how far we have progressed in terms of addressing challenges faced by the communities" (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

When participants were asked to describe what hampers the successful completion of municipal infrastructure projects (**Q7**), the following themes emerged: Internal administrative processes, planning, community unrest and incompetent project consultants.

Theme 3.4.5: Internal administrative processes

The municipal administration is responsible for the implementation of specific administrative, legal and regulatory roles (Engelbrecht, 2013;32). An effective functioning of the municipal administration facilitates smooth running of municipal infrastructure projects. However, in the case of municipalities in Dr Kenneth Kaunda District, it was reported that internal administrative processes are amongst the challenges affecting the successful completion of infrastructure projects.

> "*Admistratively it can be issues around, procurement delays, delays in timeous payment of invoices, especially there is a guideline that tells us we have to pay within the 30 days rule, according to national treasury"* (Ms K. Batlhaodi, Assistant PMU Manager: JB Marks).

Theme 3.4.6: Planning

According to Sligo *et al*., (2017:18) project planning is done at the commencement and completion of each project phase. It is an indispensable phase of a project which offers an entire framework for managing the three projects constraints i.e. cost, time and quality. It encompasses a clear definition of distinct tasks or activities of the project and the work required to finish each activity (Heravi *et al*., 2015:985). According to the participants, planning seems to be one of the major challenges faced by the municipalities. This is evidenced in the following statements quoted:

> *"I think planning, where we have to appoint service, sometimes we tend to take long, because the grants have specific conditions to say you must spend it within a specific period, you end up not executing the project within the time frame"* (Mr K. Dikgwatlhe, PMU Manager: City of Matlosana).

> *"Previously we had the problems in terms of planning were we started to planning during the financial and by mid-year we have not started on site so at the end of the day the project is delayed. But now we are trying to start our planning before the begging of the financial year. Latest by August 31 we should have all the contractors on site. That will help us to have substantives work done and we are able to report and spend money usefully"* (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

Theme 3.4.7: Incompetent project consultants

With the context of municipal infrastructure projects, *incompetence* refers to the inability to complete projects successfully. Most participants indicated during the interviews that incompetence of the project consultants is one of the reasons that is affecting successful completion of municipal infrastructure projects. Mr T. Mazabane, of DWP Consulting Engineers had the following to say:

> *"I have noted in some projects that I feel as an Engineer that the consultants played a role in that project not being completed so we need professional people, if we put young Engineers we need to give them some guidance along the way because at the end of the day we ended up paying for something that was not done and those are the basics for project management, we must ensure that what we pay for has be done to the right quality."* (Mr T. Mazabane: DWP Consulting Engineers).

Theme 3.4.8: Community unrest

Akinboade *et al*., (2014:1) defines community unrest as demonstrations in which collective demands are raised by a specific community and these demands are framed in support or defence of that particular community. Community unrest was reported as one of the key factors affecting successful completion of municipal infrastructure projects as evidenced by the following quote:

> *"Further also are the issues of community unrest. The process of recruitment of laborers sometimes there is a lot of interests and any group that is left out has the potential to disrupt the project. If you disrupt the project it delays the achievement of the project objectives"* (Mr S. Mpukwana, Project Manager: Tshawe Infrastructure Technologies).

Theme 3.4.9: Budget allocations

The 1996 constitution provides for the budgeting for allocations to municipalities through grants. These grants enable local municipalities to deliver basic services and execute the functions assigned to them (Oosthuizen & Thornhill, 2017:4). However, according to the participants these grants that are allocated to them do not meet the demands on the ground. Mr R. Madimutsa, Director Technical Services had the following to say:

> *"The biggest for this municipality is the demands we have received from the community or issues that we need to address compared to our allocation of MIG of 85 million is so small. It's so small and there are many competing factors, you ending splitting the small money into various wards."* (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

3.5 Discussion

From the research findings, it appears all municipalities have policy guidelines which govern the management of specific infrastructure projects. The number of projects differ across municipalities and have specific grants allocated per project. Each grant comes with specific conditions. For example, the MIG is allocated to specific municipalities using the allocation formula. The formula enables allocation of funds according to government's policy priorities. The study findings also indicate that these guidelines are important because they ensure that all municipal projects comply with the objectives of the project. Apart from the guidelines the municipalities also have their own internal management processes that are followed in identifying, planning and executing the infrastructure projects. The key process followed as enshrined in the 1996 constitution is public participation. Municipalities are required to determine and compile the needs of the communities through public participation and they come up with a 5 year plan which is referred to as the Integrated Development Plan (IDP). Despite having good policy guidelines, successful completion of municipal infrastructure projects has been mainly affected by (i) Internal administrative processes (ii) poor planning (iii) community unrests (iv) ineptitude of project consultants and (v) budget allocations.

These findings are consistent with a study that was done by Matabane (2017). One of the objectives of the study was to examine the compliance to MIG conditions by a municipality in the Limpopo Province. It was revealed that the strived to comply with the conditions of the MIG. However, it was also reported that the MIG budget allocation was not sufficient enough to meet service delivery demands within the municipality. Kanyane (2014:90) also explored the challenges faced by municipalities in South Africa and reported that financial viability, community unrest, and poor planning were directly linked to poor service delivery.

3.6 Findings from research question 8-10 (Financial Implications)

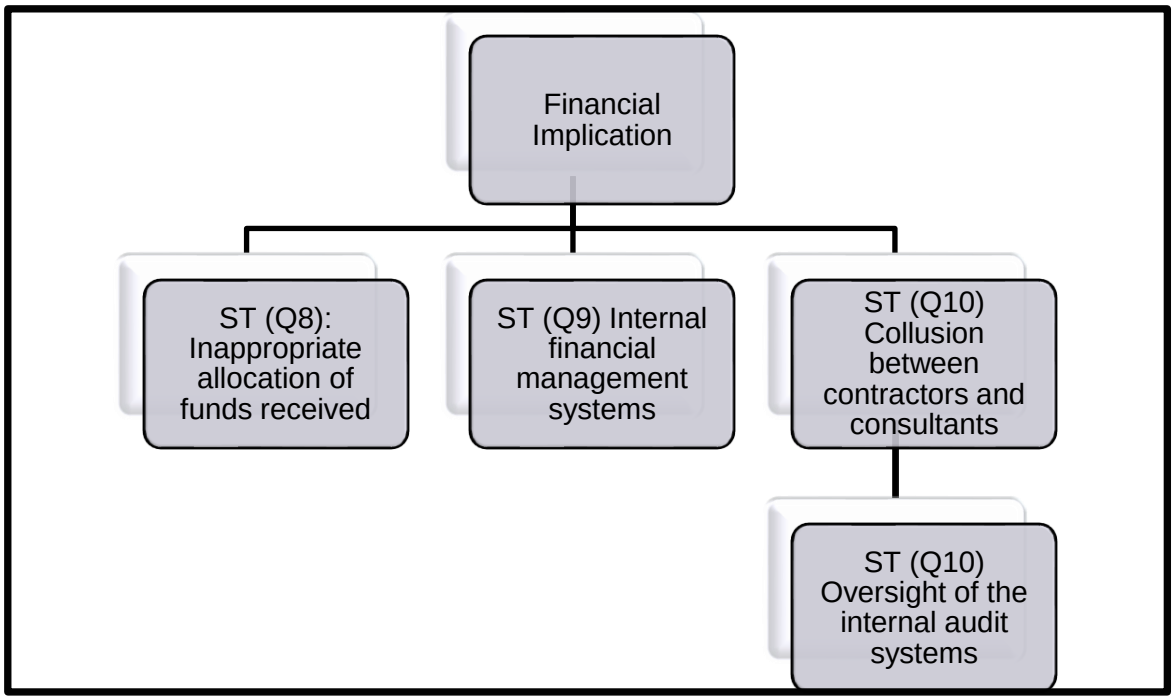

Figure 3-2: Themes according to participants emerging from question (Q) 8 - 10

Different themes emerged from (**Q8-10**), which relates to financial implications. From figure 3-2, insufficient funds, internal financial management systems and collusion between contractors and consultants emerged as the main themes.

Theme 3.6.1: Financial implication

In the context of municipal infrastructure projects the theme financial implications refers to the influence that municipal project management processes have on the finances or grants received for specific projects.

Theme 3.6.2: Inappropriate allocation of funds received

The theme *inappropriate allocation of funds received* emerged from (**Q8**), in which participants were asked to explain whether the funds were allocated accordingly to complete the specific projects for the selected purposes. It emerged from the analysis of interviews (**Q8**) that sometimes due to the demands from the communities the municipalities sometimes end up splitting the funds they receive in an effort to try and meet the needs of the communities.

> "*You can't go and implement one project in one ward otherwise you will be creating a problem for yourself of you split now you will have small projects that are not completed and there is no benefit after a phase is completed,*" (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

Theme 3.6.4: Internal financial management systems

Participants were then asked to describe the financial management and control tools that the municipalities have to manage over and under expenditure of the budget. Most of the participants indicated that they have the municipalities have their internal financial management systems in place. This is evidenced by the following statement by one of the project managers:

> *"Obviously our finance has a budget system which they use and our budgeting system I think they call it M-score, you need to put the line item and the maximum amount so you can't process any invoice if the allocated amount has been exhausted. But before it even goes to the finance system as project managers we do the process of ensuring that we check those things"* (Mr K. Dikgwatlhe, PMU Manager: City of Matlosana)

> *"On a monthly basis we receive invoices and based on those invoices we check what has been allocated or what has been budgeted, and we make sure that we don't exceed the allocated funds as when we approve payments for the work done we make sure that it is in line we work performed on site. We just don't certify payments without looking at the budget." We submit that and we also expect the consultants on a monthly basis to submit reports pertaining to financial management and controls, including making sure that the contingencies are used effectively and variation orders are well managed, they don't exceed what the policies are regulating."* (Mr P. Mputela, Director: TKQ Trading Consulting Engineers).

Theme 3.6.3: Oversight of the internal audit processes

Participants were asked to describe what they perceived as the causes of under expenditure and over expenditure and oversight of the internal audit processes emerged as the main theme under question (**Q**10).This refers to the process of ensuring the integrity of the municipal accounting and financial reporting systems and that proper controls are in place, especially, methods for risk management, financial and operational control, and compliance with the guidelines and policies (Abbott *et al*., 2016:3).

> *"Over expenditure, I think there is one case that we were discussing this morning, I think we were given a variation order and we passed it through but we didn't check in terms of the figures, the VAT was applied twice so at the end of the day we had an over payment of R79 000, but at least we still have some money for the contractors on that project so we can easily recover.,"* ((Mr R. Madimutsa, Director Technical Services: City of Matlosana).

From the quotes, it is clear that oversight during the accounting processes can actually cause under expenditure or over expenditure in municipalities.

Mr T. Tshukudu, the Director Infrastructure Service of Dr Kenneth Kaunda District had this to say:

> "*Sometimes during our planning, we under estimate the actually cost of the project, then we realise maybe when the project is half way that we don't have sufficient funds to complete the project*." (Mr T. Tshukudu, Director Infrastructure Service: Dr Kenneth Kaunda District Council).

Theme 3.6.5: Collusion between contractors and consultants

Another theme that emanated from (**Q**10) is *collusion between contractors and consultants*. This refers to the conspiracy between contractors and project consultants to deceive or dupe municipalities especially in the area of finances. This is evidenced in the following quote:

> *"I have noted that collusion can be a problem between contractors and consulting Engineers, whereby if the people that are doing project management or checking the invoice are not careful, things can pass without you noticing. I have noted I some cases where the items in the bill of quantities are changed and they can say without checking. In the normal when checking the certificates, you must start with the bill of quantities, second certificate you must bring in certificate number one and so on and so on…so that you keep track of what is happening. But you realize that along certificate number 4 bill of quantities that was 20 is now 40 and at the end of the day you realize that you are now paying more and you would still think that you are still within the budget. So the real problem that I have seen previously is the collusion that has been done is between consultants and contractors as in how the put in quantities on the certificates. So if you don't have internal people who are able to check it properly you end up having problems of over expenditure."* (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

3.7 Discussion

Findings show that most municipalities receive conditional grants however, these grants are not sufficient to cater for the service delivery demands. This normally leads to a situation where the funds are inappropriately allocated. Some municipalities end up splitting the funds to cater for different smaller projects in different areas. Eventually the municipality will have several incomplete projects in different places. According to Kanyame (2014:90), municipalities in South Africa have hitherto had serious problems regarding management of finances and corruption was also cited as one of the underlying factors. The findings of this study reveal that oversight of internal financial audit systems and collusion between contractors and project consultants are the main causes of under expenditure and over expenditure within municipalities. Municipalities mainly rely on their internal financial audit systems to control over expenditures or under expenditure. Despite having the internal audit systems, municipalities do not have capacity to

identify some of the fraudulent actives when the contractors collude with the project consultants for example when checking certificates of bill of quantities.

3.8 Findings from research questions (Q) 11-13 (Managerial implications)

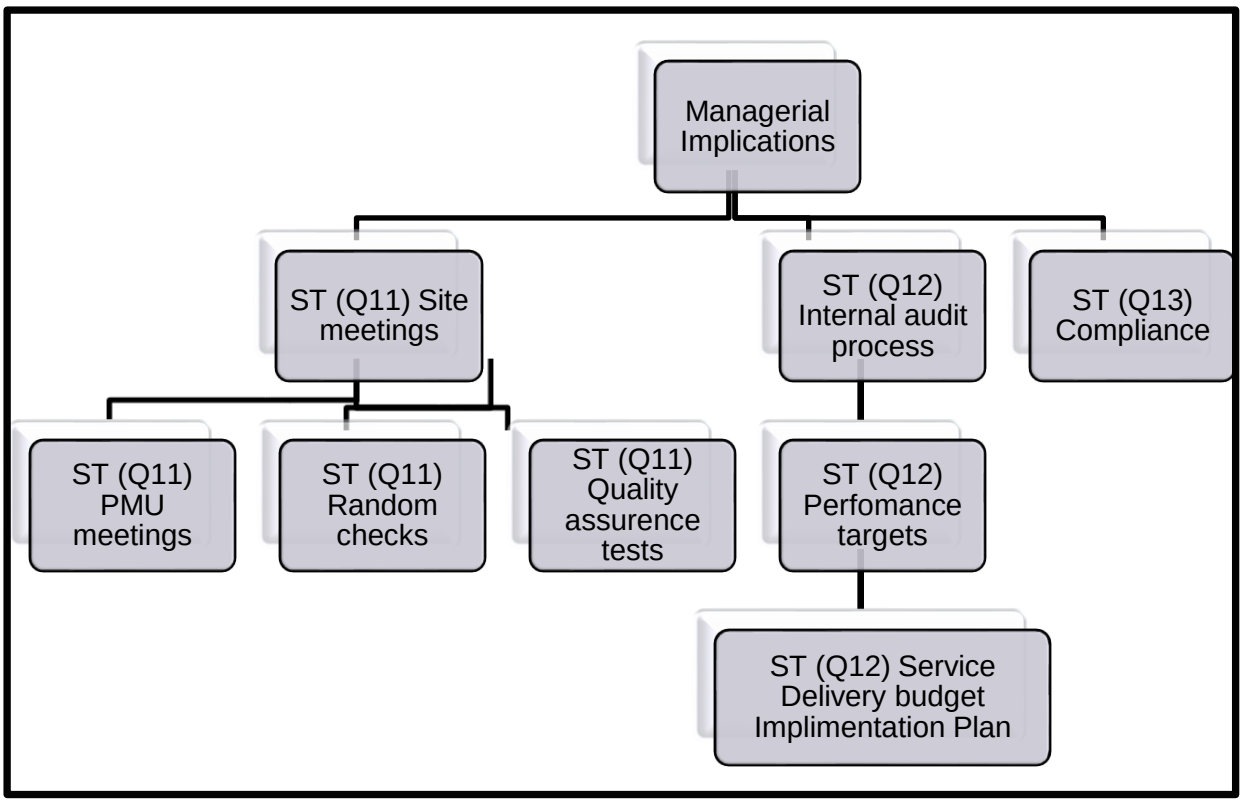

Figure 3-3: Themes according to different participants emerging from Q11-13

Theme 3.8.1: Managerial Implications

Question (**Q11**) relates to managerial implications. Participants were asked to describe how they supervise and control the projects in order to ensure that they produce good quality within the stipulated time, cost and resources. Four themes emerged from this question which are: PMU meetings, site meetings, random checks and quality assurance tests.

Theme 3.8.2: Site meetings

According to one of the Director Technical Services:

> "*We have site meetings…we also have PMU meetings where I seat and try to listen to the reports and try to unplug some of the problems that affect the projects and it's important for me, to visit the projects and do some random checks in terms of quality of work so that at the end of the day you get some assurance that the work that is done is in order. We also have to do some quality assurance tests, it important that these quality assurance tests are*

part of the invoices that are submitted to us so that at least we have got that record.," (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

Theme 3.8.3: PMU Meetings

The PMU managers indicated that they do conduct meetings where they evaluate whether the municipal infrastructure projects are being implemented according to plan.

"*Oh Yes we do conduct our PMU meetings on a regular basis and this is where we discuss and check if the projects are implemented against the set objectives. Apart from meetings we also go to the project site to see what is happening*" (Ms K. Batlhaodi, Assistant PMU Manager: JB Marks).

Theme 3.8.4: Random checks

As indicted by the Director Technical Services, random checks are part of the processes of ensuring that projects are implemented according to time, budget and resources. These random checks are basically unspecified visits to the project site, done without informing the contractors of the visit.

Theme 3.8.5: Quality assurance tests

This refers to the process of preventing mistakes and faults in municipal infrastructure projects and avoiding problems when delivering municipal services to communities.

"We also have to do some quality assurance tests, it important that these quality assurance tests are part of the invoices that are submitted to us so that at least we have got that record.," (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

Question (**Q**12), participants were further asked to explain the steps they follow to ensure compliance in case of deviations and non-compliance in regard to the norms and standards stipulated in the policy framework governing the projects. Three themes emerged from this question which are: internal audit process, performance targets and Service Delivery Budget Implementation Plan (SDBIP).

Theme 3.8.6: Internal audit system

This as mentioned earlier refers to the process of ensuring that projects undertaken are of good quality and are done within the stipulated time, cost and resources.

Theme 3.8.7: Performance targets

This refers to the desired level of performance which the municipalities want to realize, as measured by indicators, that shows whether they are achieving their desired outcomes in the area of municipal infrastructure projects.

> *"On each project we have to put targets and every quarter, there is an internal process audit that is done. So those are some of the processes that we have to ensure compliance"* (Mr T. Tshukudu, Director Infrastructure Service: Dr Kenneth Kaunda District Council).

Theme 3.8.6: Service Delivery Budget Implementation Plan (SDBIP)

The Service Delivery Budget Implementation Plan (SDBIP) is a strategy which specifies how service delivery ought to be implemented according the budget for that financial year in compliance with the Municipal Finance Management Act (Vatala, 2005:225). Ms. C, the assistant PMU manager had the following to say:

> *"In terms of also trying to govern projects the Service Delivery budget Implementation Plan that we have also assist assists us."* (Ms K. Batlhaodi, Assistant PMU Manager: JB Marks).

Question (**Q**13), participants were asked to describe in their opinion the usefulness of the reporting mechanisms during such infrastructure project reports and again compliance emerged as the main theme. This is evidenced by the following quote:

> *"It quite important because that is where you pick those projects are not running according to plan because obviously reporting should be based on what the initial plan is. So in our case we report to department of water and sanitation, portfolio committees, COGTA, department of energy and also national treasury and in that they want to check in terms of progress. They want to check if we are spending and when we spend they want to see the asset"* (Mr T. Tshukudu, Director Infrastructure Service: Dr Kenneth Kaunda District Council).

Theme 3.8.7: General remarks

> *"In terms of the municipal environment. It's a very difficult environment because the communities around, they see the municipality as government and expect the municipality to create jobs and create opportunities for them and those processes of looking for opportunities there is intense competition and that is sometimes unbearable. It is thus important a s a person managing these project to be as fare as possible as well as to be transparent as you are able to explain any question that comes. It is also be committed as a municipality to meet the objectives of the municipality as we are at the base of service*

delivery and whatever programs central government has are implemented here. We also need to have capacity to ensure that we meet the objectives of central government." (Mr R. Madimutsa, Director Technical Services: City of Matlosana).

3.9 Discussion

Managerial Implications in this study refers to the comparison of what is on the ground regarding project management processes in Dr Kenneth Kaunda District with what is enshrined within the operating frameworks. Managerial Implications also point to what action should be taken regarding management of municipal infrastructure projects in the Local Municipalities (Abrahamse, 2002:4). Findings indicate that municipalities have internal processes they follow to supervise and control infrastructure projects which include: PMU meetings, site meetings, random checks and quality assurance tests. In addition to this, municipalities also have processes to ensure compliance in case of deviations and non-compliance in regard to the norms and standards stipulated in the policy framework governing the projects which include: an internal audit system, setting performance targets, they refer to the Service Delivery Budget Implementation Plan (SDBIP) for guidance and they also have to report to funding organizations. Despite all these internally audit processes lately, the MIG expenditure has been escalating due to inter alia ineptitude of project managers to meet planned expenditure targets (Pillay *et al*., 2013:109). According to a previous study conducted in Dr Kenneth Kaunda District, co-operation is lacking between the District Municipality and the Local Municipality; they do not work in harmony (Van der Waldt, 2014:858). It was reported that the District Municipality plans, finances and implements some of the infrastructure projects, and then transfers the project to a Local Municipalities. This results in poor management as the local municipalities would have not budgeted for the operation of that particular project.

Another huge problem identified in Dr Kenneth Kaunda District, is municipalities are struggling to recruit and retain skilled employees. The Local Municipalities are facing huge responsibilities for services delivery with low capacity and resources (Van der Waldt, 2014:858). The implementation of professional project management in municipal projects can significantly improve the management abilities of the municipalities and consequently deliver the incredible value of project management to the communities (Vrecko *et al*., 2015:321).

CHAPTER 4

EVALUATION, CONCLUSION AND RECOMMENDATIONS

This chapter presents an overview of the study's findings, managerial implications of municipal infrastructure projects and the relationship of the study's findings to other studies on municipal infrastructure projects, both from a South African and international perspective. The chapter also presents the possible reasons for the findings obtained, limitations of the study, the implication of the research findings and recommendations for future studies.

4.1 Purpose

The purpose of this study was to investigate the managerial implications for implementing municipal infrastructure projects in Dr Kenneth Kaunda District according to the Integrated Development Plans (IDP). This is because there is paucity in literature of how this particular district manages its municipal infrastructure projects in terms of the prescribed norms and standards i.e. the IDP; to fulfil the predetermined objectives of improving the socio-economic conditions and quality of life of its residents. A dire need existed for qualitative research to reveal the managerial implications of municipal infrastructure projects in Dr Kenneth Kaunda District. The following research questions were asked in this study:

- How are project managers implicated by municipal infrastructure projects in various units of Dr Kenneth Kaunda District municipalities?
- What are the challenges faced by project managers in managing infrastructure projects?
- Are there any solutions to the challenges faced by project managers in various units of Dr Kenneth Kaunda District municipalities?

4.2 Summary of findings in relation to the research questions and objectives

Managerial Implications in this study refers to the comparison of what is on the ground regarding project management processes in Dr Kenneth Kaunda District with what is enshrined within the operating frameworks. Managerial Implications also point to what action should be taken regarding management of municipal infrastructure projects in the Local Municipalities. From the finding, it appears all municipalities have policy guidelines which govern the management of specific infrastructure projects. The number of projects differ across municipalities and have specific grants allocated per project. Each grant comes with specific conditions. For example, the MIG is allocated to specific municipalities using the allocation formula. Apart from the guidelines the municipalities also have their own internal management processes that are followed in identifying, planning and executing the infrastructure projects. The key process followed as

enshrined in the 1996 constitution is public participation. Municipalities are required to determine and compile the needs of the communities through public participation and they come up with a 5 year plan which is referred to as the Integrated Development Plan (IDP). Despite having good policy guidelines, successful completion of municipal infrastructure projects has been among other factors affected by internal administrative processes, poor planning, community unrests, ineptitude of project consultants and budget allocations.

Municipalities also have internal processes which they follow when it comes to supervision and controlling of projects so as to ensure that they are of good quality and are done within the stipulated time, cost and resources. According to the findings these processes include: PMU meetings, site meetings, random checks and quality assurance tests. Despite all these internal processes; it has been reported that project managers are failing to meet planned expenditure targets (Pillay *et al*., 2013:109). According to a previous study conducted in Dr Kenneth Kaunda District, co-operation is lacking between the District Municipality and the Local Municipality; they do not work in harmony (Van der Waldt, 2014:858). It was reported that the District Municipality plans, finances and implements some of the infrastructure projects, and then transfers the project to a Local Municipalities. This results in poor management as the local municipalities would have not budgeted for the operation of that particular project.

4.2.1 How the current study aligns with other studies on municipal infrastructure projects in South Africa

Findings from this study can be linked to other studies that focused on municipal infrastructure projects in South Africa. Table 4-1 gives a summary of findings and other studies that obtained similar findings within the South African context.

Table 4-1: How the study aligns with other studies on municipal infrastructure projects

Findings of this study	Other studies on municipal infrastructure projects	Focus or scope
Policy guidelines and compliance with project objectives	Koma (2014)	To examine LED policy implementation and the bottlenecks facing the achievement of LED objectives within the local sphere of government
Internal management processes are followed in identifying, planning and executing the infrastructure projects Public participation*	Bob (2018)	Explored the challenges of public participation in municipal infrastructure projects in South Africa
Challenges affecting successful completion of projects Internal administrative processes* Planning* Community unrests* Incompetence*	Kanyane (2014)	Explored the challenges of municipal service delivery in South Africa.
Financial implications of municipal infrastructure projects Causes of under expenditure or over expenditure Internal financial management processes* Oversight of internal audit processes* Collusion/corruption*	Maake (2017).	Explored the causes of unspent MIG in the Capricorn District Municipality: a case of two selected local municipalities
Managerial implications of municipal infrastructure projects. Supervision and control of projects in order to ensure that they produce good quality within the stipulate time, cost and resources. PMU meetings* Random checks* Site visits* Quality assurance tests* Site visits*	Van der Waldt (2014)	Explored practices and challenges associated with the design and execution of infrastructure (capital) projects and to uncover best practice for innovative project governance.

4.3 Limitations of the study

The qualitative study design was contextual, and findings cannot be generalised to other districts in South Africa. Participation had to be restricted to those who were managing municipal infrastructure projects.

Managerial implications during project management cover a vast field of studies. For the purpose of this study only certain aspects which influence infrastructure projects at local municipality level, formed part of this study. The interpretation of the results and outcomes of this study were dealt with in the context of the limitations highlighted in the previous chapters.

4.5 Conclusion

Findings show that municipalities in Dr Kenneth Kaunda District are inundated by institutional capacity constraints, which create major risks for the implementation of municipal infrastructure projects. Challenges exist in the municipal infrastructure delivery process, especially in planning, budgeting and management of finances. Incompetency amongst project consultants is also a serious issue affecting the successful completion of municipal infrastructure projects. All this inevitably causes delays as poorly planned projects cannot be budgeted for; budgets are regularly miscalculated; funds are not availed in time; and procurement processes are inappropriately done. It can therefore be concluded that implementation of professional project management in municipal projects could significantly improve the management abilities of the municipalities and consequently deliver the incredible value of project management to the communities.

4.6 Implications of the study findings

Most municipalities are dependent on the MIG and lately there has been an increase in expenditure of the MIG. One of the major reasons for the increased expenditure is poor project management skills. Therefore there is dire need for the implementation of professional project management to reduce the problem of over-expenditure.

4.7 Summary

All projects consist of processes that fall under the ten areas of the project management reported in literature. These ten areas relate to integration, scope, time, cost, quality, human resource, communications, risk, stakeholder management and procurement. These nine areas can only be started by five processes which include: initiating, planning, execution, monitoring and controlling, and closing. Regardless of the availability of good strategies, without clear execution plan the goodness of the strategy means nothing. Also well formulated IDPs that are not effectively executed will still make communities dissatisfied.

4.8 Recommendations for future research and practical applications

- There is need to assign relevant people to positions of responsibilities. These people should have the fundamental skills and knowledge on how to deliver quality services through projects.
- There is a need to continuously do capacity building workshops with the employees.
- There must be performance measurement systems put in place to ensure that all projects have personnel to account.
- There has to be an enabling organizational design to enable effective project management in municipalities. Preferably a flat organizational structure not a bureaucratic one.

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Annexure A: Data collection tool

Managerial Implications of Municipal Infrastructure Projects

in Dr Kenneth Kaunda District

INTRODUCTION

(*Establish Rapport*) [Shake hands] My name is Pule Ramasimong, a Master's in Business Administration student at the North West University. As a Masters student, I am conducting a research which has been approved by the Research Ethics Committee of the North-West University. The aim of my research is to explore how municipalities in Dr. Kenneth Kaunda District manage municipal infrastructure projects and describe the managerial implications for implementing municipal infrastructure projects in Dr. Kenneth Kaunda District according to the Integrated Development Plans (IDP) of local municipalities.

(*Purpose*) I would like to ask you a question regarding your experiences regarding the implementation of municipal infrastructure projects with your local municipality.

(*Motivation*) I hope to use this information to help the project managers and policy developers in future municipal infrastructure projects in terms of the prescribed norms and standards; fulfilling the predetermined objectives of improving the socio-economic conditions and quality of life of the people of South Africa.

(*Time, confidentiality, tape recorder*) The interview should take about 15 minutes. If you agree I would like to tape the interview in order not to lose any information. There are no right or wrong answers. Everything that you tell me will be handled confidential. Your participation is voluntary and you can withdraw at any given time. Are you available to respond to some questions at this time?

(Questions) Do you have any question before we begin the interview?

_____ _____ _____

Name of Participant **Signature** **Date**

CONDITIONAL INTERVIEW QUESTIONS

Biographical information

1. How many years' experience do you have in management with municipal infrastructure projects?
2. What is the average budget size of the projects you are involved with?
3. What is the average time-span associated with your project, which you manage?

Municipal guidelines

4. What are the policy guidelines which govern the management of your selected infrastructure project?
5. In what way are these guidelines saying and ensuring that projects are executed in a manner that ensures the realization of their objectives?
6. Can you explain what internal management processes are followed in identifying, planning and executing the infrastructure projects?
7. In your opinion, what hampers the successful completion of municipal infrastructure projects?

Financial implications

8. Are the funds efficient and allocated accordingly to complete the specific projects for the selected purposes?
9. What are the financial management and control tools to manage over and under expenditure of the budget?
10. In your experience, what causes under or over expenditure during a municipal infrastructure project?

Managerial implications

11. How do you supervise and control the projects in order to ensure that they produce good quality within the stipulate time, cost and resources?
12. In case of deviations and non-compliance in regard to the norms and standards stipulated in the policy framework governing the projects, what steps to you undertake to ensure compliance?
13. What is your opinion about the usefulness of the reporting mechanisms during such infrastructure project reports?
14. General remarks

CLOSING

(*Summary and clarification*) Well, it has been a pleasure finding out more about in your experiences in the implementation of municipal infrastructure projects in this local municipality. Let me briefly summarize the information that I have recorded during our interview.

(*Maintain rapport*) I appreciate the time you took for this interview. Is there anything else you think would like to add?

Annexure B: informed consent

Entrepreneurial intentions amongst women in an urban community, South Africa

I, the undersigned, confirm that (please tick box as appropriate):

1.	I have understood the information about the project, as provided by the researcher	☐
2.	I have been given the opportunity to ask questions about the project and my participation.	☐
3.	I voluntarily agree to participate in the project.	☐
4.	I understand I can withdraw at any time without giving reasons and that I will not be penalised for withdrawing nor will I be questioned on why I have withdrawn.	☐
5.	The procedures regarding confidentiality have been clearly explained (e.g. use of names, pseudonyms, anonymisation of data, etc.) to me.	☐
6.	If applicable, separate terms of consent for interviews, audio, video or other forms of data collection have been explained and provided to me.	☐
7.	The use of the data in research, publications, sharing and archiving has been explained to me.	☐
8.	I understand that other researchers will have access to this data only if they agree to preserve the confidentiality of the data and if they agree to the terms I have specified in this form.	☐
9.	Select only **one** of the following: • I would like my name used and understand what I have said or written as part of this study will be used in reports, publications and other research outputs so that anything I have contributed to this project can be recognised. • I do not want my name used in this project.	☐ ☐
10.	I, along with the Researcher, agree to sign and date this informed consent form.	☐

Participant:

_____ _____ _____

Name of Participant Signature Date

Researcher:

_____ _____ _____

Name of Researcher Signature Date