

**THE EFFECT OF FREQUENT OPERATIONAL CHANGES IN ENERGY AND
ELECTRICITY DIVISION DUE TO MANAGEMENT DECISIONS**

by

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DECLARATION AND COPYRIGHT

I hereby declare that the dissertation submitted for the degree of Masters in Business Administration at University of South Africa is my own original work and has not previously been submitted to any other institution of higher education. I further declare that all sources cited or quoted are indicated and acknowledged by means of a comprehensive list of references.

MF Manganye

DEDICATION

This study is dedicated to my wife Phumzile Manganye, our baby boy Katlego Manganye and everyone that have supported me throughout since I started studying, your tremendous support and contribution have been remarkable. I must emphasise though that it has not been easy at all, there have been numerous sacrifices, dedication and hard work, however thanks for your understanding and supporting of my vision. To my family, you will always have a special place in my heart and continue with your excellence.

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My greatest gratitude is expressed to my wife Phumzile Manganye and our son Katlego Manganye for their sacrifices, understanding and support shown throughout. Much appreciated.

Thanks to God, The Almighty for His abundant love and mercy shown unto me and for providing me with wisdom and knowledge that enabled me to complete this research and receive a master's degree. Glory to God.

SUMMARY

The aim of this study was to investigate the effect of frequent operational changes on the repairs and maintenance of public lighting in the Energy and Electricity Division of the City of Tshwane Metropolitan Municipality as a result of management decisions. The data was collected through survey questionnaires that were distributed to different participants per emails and printed copies, reviewing of documentations and conduction of interviews. The collected data was captured into Epi-Info database and Microsoft Excel, transferred to Stata V11 by StatTransfer, and then analysed by Stata V11 statistical package software and Microsoft Excel.

The results of the study showed contrasting opinions and perceptions amongst all participants on the repairs and maintenance activities of public lighting. Both employees working in the maintenance operations and public lighting sections agreed that their sections were performing the repairs and maintenance of public lighting satisfactory. Customers and community leaders on the other hand agreed that the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory as compared to public lighting section. All employees were in favour and support of decisions taken respectively since these decisions were beneficial to their respective sections, but however they were concerned on the frequency of decisions taken by top management and changes implemented within their respective sections as these decisions and changes created confusion and conflict amongst employees.

All sections involved in the repairs and maintenance of public lighting were faced with numerous similar challenges that created deficiencies and ineffectiveness on the maintenance activities of public lighting and that contributed to enormous complaints from customers and community leaders on the service rendered by the division.

CONTENTS

	PAGE
DECLARATION AND COPYRIGHT.....	i
DEDICATION.....	ii
ACKNOWLEDGEMENT.....	iii
SUMMARY.....	iv
LIST OF FIGURES.....	xi
LIST OF TABLES.....	xi

CHAPTER 1

1. INTRODUCTION AND PROBLEM IN CONTEXT.....	1
1.1 Introduction.....	1
1.2 Background.....	1
1.3 Problem statement.....	6
1.4 Research objectives.....	7
1.5 Importance and benefits of the study.....	7
1.6 Limitations of the study.....	8
1.6.1 Time allocated for the study.....	8
1.6.2 Generalisation of the findings.....	9
1.6.3 Accessibility of employees.....	9
1.6.4 Accessing of information.....	9
1.7 Delimitations of the study.....	9
1.7.1 Topic of the research.....	9
1.7.2 The research objectives.....	10
1.7.3 Data collection methodologies.....	10
1.8 Summary.....	10

CHAPTER 2

2	PROBLEM ANALYSIS.....	11
2.1	Introduction.....	11
2.2	Management decisions.....	12
2.3	Maintenance operations.....	14
2.4	Change of maintenance operations.....	16
2.5	Stages of a team development.....	20
2.6	A model of small group interaction.....	21
2.7	Maslow's hierarchy of needs.....	23
2.7.1	The needs of every employees in the organisation.....	24
2.8	Resources of the organisation.....	26
2.9	Summary.....	27

CHAPTER 3

3	LITERATURE REVIEW.....	28
3.1	Introduction.....	28
3.2	Management decisions and strategic objectives.....	28
3.3	Maintenance operations.....	33
3.4	The process of organisational change and implementation.....	37
3.4.1	Categories of organisational change.....	39
3.4.2	Employee's perceptions on organisational change.....	41
3.5	Summary.....	41

CHAPTER 4

4	RESEARCH DESIGN.....	42
4.1	Introduction.....	42
4.2	Research approach and methodology.....	42
4.2.1	Survey.....	43

4.2.2	Sampling.....	44
4.2.3	Document review.....	45
4.2.4	Interviews.....	45
4.2.5	Focus groups.....	46
4.3	Evaluation and analysis of data.....	46
4.4	Ethical issues.....	47
4.5	Validity.....	47
4.6	Reliability.....	47
4.7	Summary.....	48

CHAPTER 5

5	RESULTS AND DISCUSSION.....	49
5.1	Introduction.....	49
5.2	The demographics of the respondents, interviews and document reviewed.....	49
5.3	The impact of management decisions in the maintenance operations.....	50
5.3.1	All employee's responses.....	50
5.3.2	Middle managers responses.....	53
5.4	Maintenance operations activities on the repairs and maintenance of public lighting.....	55
5.4.1	Responses of employees from public lighting section.....	55
5.4.2	Responses of employees from maintenance operations sections.....	56
5.4.3	Responses from customers and community leaders.....	57
5.5	The effect of change in the maintenance operations.....	60
5.5.1	Responses of employees with regard to the change implemented.....	60
5.5.2	Responses of middle managers with regard to the change implemented.....	61
5.6	Overall survey responses.....	62
5.6.1	Overall responses on the decisions taken.....	63
5.6.2	Overall responses on the maintenance activities.....	64

5.6.3	Overall responses on the change implemented.....	65
5.7	Reviewing of related documents on public lighting repairs and maintenance.....	65
5.7.1	Decentralisation of public lighting maintenance.....	66
5.7.2	Customer complaints and concerns.....	66
5.7.3	Challenges experienced on public lighting repairs and maintenance.....	67
5.8	Interviews conducted.....	69
5.9	Summary.....	69

CHAPTER 6

6	CONCLUSION AND RECOMMENDATIONS.....	70
6.1	Introduction.....	70
6.2	Synopsis of the findings.....	70
6.3	Conclusion.....	70
6.3.1	The effect of management decisions.....	70
6.3.2	Maintenance activities of public lighting.....	71
6.3.3	Frequent implementation of operational changes.....	72
6.4	Recommendations.....	73
	REFERENCES.....	75

ANNEXURE A: ENERGY AND ELECTRICITY ORGANISATIONAL
STRUCTURES

ANNEXURE B: RESEARCH SURVEY QUESTIONAIRES

ANNEXURE C: OVERALL SUMMARY OF THE QUESTIONNAIRES
RESPONSES

ANNEXURE D: EMAIL SEND TO PARTICIPATING EMPLOYEES

ANNEXURE E: REMINDER EMAIL SEND TO PARTICIPATING EMPLOYEES

- ANNEXURE F:** DECENTRALISATION AND CENTRALISATION INTERACTIONS
- ANNEXURE G:** ESTABLISHMENT OF PUBLIC LIGHTING SECTION
- ANNEXURE H:** ARTICLE ON CUSTOMER'S DISSATISFACTION
- ANNEXURE I:** CUSTOMER COMPLAINTS ON STREETLIGHTS
- ANNEXURE J:** TURNAROUND STRATEGY ON STREETLIGHTS
- ANNEXURE K:** CONTIGENCY PLANS FOR STREETLIGHTS
- ANNEXURE L:** STREETLIGHTS MATERIALS SHORTAGE

LIST OF FIGURES

	PAGE
FIGURE 1.1 Organisational architecture.....	8
FIGURE 2.1 The process of management.....	12
FIGURE 2.2 Types of management decisions instance.....	13
FIGURE 2.3 Maintenance policies.....	15
FIGURE 2.4 Maintenance management pyramid.....	16
FIGURE 2.5 Six-step model of change.....	17
FIGURE 2.6 The change kaleidoscope.....	18
FIGURE 2.7 Model of organisational change depicting the hypothesised relationship.	19
FIGURE 2.8 Stages of a team development.....	21
FIGURE 2.9 Maslow's hierarchy of needs.....	25
FIGURE 2.10 Link among resources, capabilities and competitive advantage.....	26
FIGURE 3.1 When and how to change.....	38
FIGURE 5.1 Responses of employees on issue 20.....	52
FIGURE 5.2 Responses of employees on issue 7.....	52
FIGURE 5.3 Responses of employees on issue 13.....	53
FIGURE 5.4 Customers and community leader's responses on issue 5.....	59
FIGURE 5.5 Customers and community leader's responses on issue 13.....	60
FIGURE 5.6 Middle Managers responses on issue 17 and 18.....	62
FIGURE 5.7 Summary of overall responses.....	63
FIGURE 5.8 Overall responses on issue 19 and 20.....	64
FIGURE 5.9 Overall responses on issue 1 and 2.....	64
FIGURE 5.10 Overall responses on issue 17 and 18.....	65

LIST OF TABLES

	PAGE
TABLE 2.1 Model of small group interaction.....	22
TABLE 5.1 Results on issue 19.....	51
TABLE 5.2 Middle managers responses on issue 1,2,19 and 20.....	54
TABLE 5.3 Results on issue 4 and 8.....	55
TABLE 5.4 Responses of employees at public lighting section on issues 1, 2 and 22.....	56
TABLE 5.5 Responses of employees at maintenance operations sections on issues 1, 2 and 22.....	57
TABLE 5.6 Responses from customers and community leaders on issue 1 and 2....	58
TABLE 5.7 Responses from employees on issue 17 and 18.....	61

CHAPTER 1

1 INTRODUCTION AND PROBLEM IN CONTEXT

1.1 Introduction

Energy and Electricity Division is one of the divisions within the Department of Public Works and Infrastructure within the City of Tshwane Metropolitan Municipality. This division is responsible for the repairs and maintenance of the electrical network, construction and management of the electrical projects, and the application engineering and business principles in generating electricity in order to ensure conformance to prescribed legislations and create an environment for growth and development within the city. This division has undergone four maintenance operational changes during the period of 2008 to 2011 in the maintenance of public lighting which entails the repairs and maintenance of streetlights and highmast lights within the jurisdiction of City of Tshwane Metropolitan Municipality.

1.2 Background

This division is under the leadership of the executive director who has got a team of six directors playing a significant role of assisting him in managing the division, and this team is regarded as the top management of the division accountable and responsible for taking informed administrative and operational decisions of the division as shown in Annexure A. The term of office of the executive director in most instances starts from three to five years and this becomes proportional to the divisional strategic objectives since every executive director prescribes new strategic objectives aligned to his performance contract conditions. The division has been led by three executive directors since 2008 to 2011 including those in acting capacity, and therefore changes on the strategic objectives were implemented every time when the new executive director assumes office and thus some

of the changes improved the efficiency and effectiveness of the division whereas some brought deficiencies and affected the division negatively.

Some of the management strategic decisions taken impacted on the organisation's maintenance operational activities to such an extent that temporary sectional structures needed to be put in place in enabling the implementation of the taken decisions, transferring of some of the resources, equipment and tools, and the redistribution and allocation of the budget in ensuring progression on the maintenance operational activities.

One of the dramatic and amazing decisions taken by top management was the centralisation of the maintenance operations of the repairs and maintenance of streetlights and highmast lights to public lighting section in October 2008. Public lighting section was officially relocated to its dedicated facility or workplace after the 23 March 2009 as shown in Annexure G, and it was not capacitated with all necessary resources such as vehicles, tools, personnel and specialities to enable it to execute its intended duties and responsibilities effectively and efficiently in line with the decision taken in October 2008.

Prior the decision of top management to centralise the repairs and maintenance of public lighting, this service was decentralised in nine different maintenance operations sections according to their geographic locations and their maintenance area of jurisdiction. Whereas public lighting section was only responsible for the repairs and maintenance of streetlights and highmast lights in Eskom Areas (areas falling within the City of Tshwane Metropolitan Municipality's area of jurisdiction, but the licence of electricity belongs to Eskom not the municipality). However, the only thing that was centralised was the call centre for reporting of complaints and handling of queries.

Decentralised operations arrangement was operating exceptionally well, very economical, effective and efficient, the maintenance operations sections were able to conduct their respective maintenance on streetlights and highmast lights without any hassles, and the

service rendered was satisfactory and acceptable. The response time of attending to public lighting complaints was between one day to a maximum of seven days depending on the significance and criticality of the complaint, customers were satisfied and content about the service rendered, and furthermore the service was in compliance to the applicable prescribed procedures and legislations. Every maintenance operations section was in control of its resources, equipment and budget for conducting the repairs and maintenance. Roles and responsibilities were explicitly clear without any confusion and ambiguity, and employees were determined, motivated, dedicated and delighted in discharging their respective duties to the best of their abilities.

The management decision taken to change the maintenance operations on the repairs and maintenance of streetlights and highmast lights by centralising the maintenance activities to one maintenance operational section (public lighting section) created enormous challenges to the division. Public lighting section was overwhelmed with a huge number of streetlights and highmast lights that needed to be repaired and maintained, the section was understaffed and did not have enough experienced, skilled and knowledgeable employees to render the required service, there was a shortage of the required ordinary and specialised vehicles, equipment and tools to do the work, and the budget was not sufficient enough to deal with all the outstanding backlog on the repairs and maintenance of streetlights and highmast lights within the municipality. Concerns were raised and highlighted to top management by middle managers specifically on the decision taken to centralise the maintenance operations of streetlights and highmast lights, and the shortcomings were clearly explained and the impact that this decision will bring to the division, but unfortunately their (middle managers) efforts was in vain since the decision could not be revoked.

Some of the challenges and difficulties experienced by the division as a result of the decision taken of centralising the repairs and maintenance of streetlights and highmast lights include the following:

- The lack of experience in some of the appointed repairs and maintenance contractors compromised the quality and workmanship on the repairs and maintenance of streetlights and highmast lights and that affected the aesthetic of the electrical network including streetlights.
- The response time in addressing some of the public lighting complaints in some instances were extended to several months instead of one day to a maximum of seven days and that irritated customers to such an extent that they wrote negative remarks about the division to the printing media.
- Some of the employees and middle managers were demotivated and discouraged since they were not consulted to present their views on centralising of streetlights and highmast lights and that destroyed their morale and trust in top management.
- The cooperation and assistance between public lighting section and maintenance operations sections was not up to scratch and there was nonexistence teamwork which led to unpleasant working relationship and unhealthy working environment.
- Public lighting section was not capacitated with all the required resources needed to enable the section to be effective and efficient enough in order to match the new responsibilities and that was a recipe which led to poor performance of the section.
- Energy and Electricity Division employees were having divergent views and perceptions on the best approach that should have been undertaken in the handling of the centralisation function.

All the above mentioned factors constituted to deficiencies and inefficiencies on the repairs and maintenance of streetlights and highmast lights within the Energy and Electricity Division.

Public lighting section could not cope with the repairs and maintenance of streetlights and highmast lights due to immense challenges the section encountered and the ultimate was poor performance and enormous complains across all spectrum. The absolute poor service rendered by public lighting section on the maintenance and repairs of streetlights forced top management to take a decision to decentralised the repairs and maintenance of streetlights and highmast lights back to maintenance operations section in May 2010 as part of the preparation for 2010 soccer world cup. The service and performance on the repairs and maintenance of streetlights and highmast lights after the decentralisation due 2010 soccer world cup improved, and then the repairs and maintenance was centralised back again to public lighting section in October 2010. The poor performance, enormous complaints and political pressure led the division to take a decision of decentralising the repairs and maintenance of streetlights and highmast back to maintenance operations sections in preparation for 2011 municipal elections.

1.3 Problem statement

The deficiencies, ineffectiveness and operational bottlenecks experienced by the maintenance operations sections and public lighting section reflected negatively on the division, and it was becoming explicitly clear that there were problems that needed urgent attention in addressing the situation.

The purpose of this research is therefore to investigate the effect of frequent implementation of operational changes in the repairs and maintenance activities of public

lighting in Energy and Electricity Division of the City of Tshwane Metropolitan Municipality due to management decisions.

1.4 Research objectives

The research objectives of this study are as follows:

- To evaluate the impact of management decisions in the maintenance operations;
- To investigate the maintenance operations activities on the repairs and maintenance of public lighting;
- To assess the process that has been followed in implementing change in the maintenance operations.

1.5 Importance and benefits of the study

The study will illustrate factors that should be considered by organisations while implementing operational changes as a result of the new strategic objectives, and highlight the importance of the behaviour of employees and the reactions of customers.

Every organisation should therefore satisfy the interrelationship of all key pillars of the organisation as shown in figure 1.1 in order to be successful and achieve its strategic objectives, and thus the satisfaction of all these key pillars will eliminate the unnecessary conflict that might arise and be experienced by the organisation.

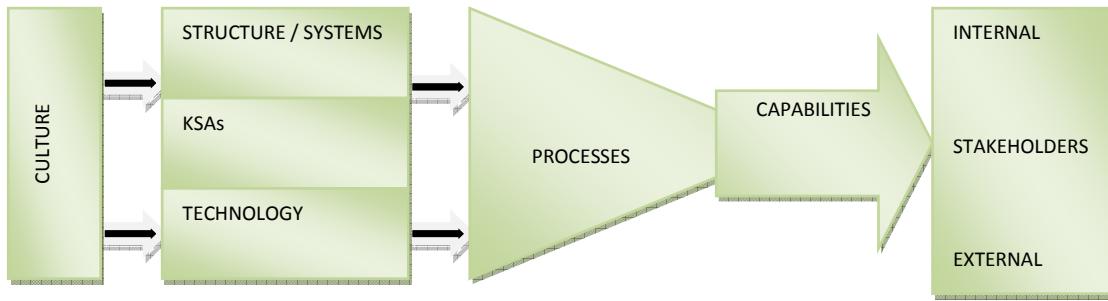


Figure 1.1: organisational architecture (Louw and Venter, 2006: 401)

This study will present organisational key success factors such as improved quality, increased effectiveness, increased productivity, increased profitability, improved efficiency and rendering of the best customer satisfaction service.

And finally this study will indicate the disadvantages and risks of frequent implementation of organisational changes, and further indicate the advantages and strengths of considering the integration of the organisational structure, systems and culture during the strategy formulation and implementation process.

1.6 Limitations of the study

1.6.1 Time allocated for the study

The time period allocated to conduct the investigation is insufficient and does not afford the researcher reasonable enough time to interrogate and investigate all factors contributing to the research. Secondly this study will evaluate and assess events that took place within a period of three years, and a question can be asked to say what if those events were meant to benefit the organisation in a long run (period exceeding three years), therefore this is one of the limitation factors of the this study.

1.6.2 Generalisation of the findings

One cannot draw a crystal-clear conclusion that the consequences and challenges experienced by Energy and Electricity Division as a result of implementing frequent changes on the maintenance operational activities will be similar in other divisions or organisations when undergoing the similar process of change.

1.6.3 Accessibility of employees

The researcher will experience challenges in reaching and accessing some of the employees for conducting interviews and the distribution of questionnaires since some of the employees does not have email addresses and some are not office bound and they work in the field.

1.6.4 Accessing of information

Management and other employees might be uncomfortable and difficult in releasing and sharing of some of the information due to its confidentiality and disclosure, and commitment can be made to management that only less sensitive information will be published in the report.

1.7 Delimitations of the study

1.7.1 Topic of the research

The scope of the research is demarcated on elements and consequences that could manifest in the organisation as a result of implementation of change.

1.7.2 The research objectives

The research objectives channels the researcher to focus only in certain specific elements that will contribute towards the research such management decisions, maintenance operations, the change process, performance, motivation, resources, and customers complaints.

1.7.3 Data collection methodologies

The nature of the research does not allow certain data collection methodologies such as experimental, case studies, observation, etc to be used during the data collection process, but only specific data collection methods such questionnaires, interviews and documentation reviews will be feasible, and enables the researcher to collect the data that will have remarkable contribution to the research.

1.8 Summary

The maintenance condition of public lighting, enormous customer's complaints and challenges experienced respective Maintenance operations sections including employees is a clear indication of the existence of problems on the repairs and maintenance of public lighting that need urgent attention.

The next chapter will present the problem analysis of the study through the critical reflection of the identified emergent themes from the background of the problem.

CHAPTER 2

2 PROBLEM ANALYSIS

2.1 Introduction

The repairs and maintenance of public lighting usually used to be a smooth process that involves the interaction and cooperation of internal (maintenance operations sections) and external stakeholders (customers, suppliers and service providers) working collectively together in pursuing their respective responsibilities. The frequent taking of decisions by top management in implementing operational changes on the repairs and maintenance of public lighting was a clear indication of the existence of problems and challenges within the scope of the repairs and maintenance of public lighting which needed urgent attention. Numerous complaints were received from customers expressing their dissatisfaction (complaints) on the condition of streetlights and highmast lights and that reflected bad on the division. Employees working in both maintenance operations sections and public lighting section were demotivated and discouraged and their attitudes towards their employment duties and responsibilities produced poor performance and workmanship being the ultimate results. Furthermore, there was a shortage of critical resources required to enable the sections to perform their duties and responsibilities diligently. Therefore, on reflection of a number of themes emanating from the background to the problem, the following have been identified as emerging themes of the problem:

- Management decisions
- Maintenance operations
- The change in maintenance operations

2.2 Management decisions

Kroon (1997:181) defines decision making as an element that forms the basis for all other functions of management, and further indicates that top management is responsible for the strategic management of the organisation in ensuring that principles of management such as planning, organising, leading and control are executed diligently and rationally; and also indicates that taking of decisions is part of the fundamental responsibility of management as well.

- **The process of management**

Nel (2000:21) illustrates the process of management as a systematic and rational process that directs all the efforts within an organisation, that support the process of converting inputs into outputs and influence upon the organisation to produce valuable outcomes as shown in figure 2.1.

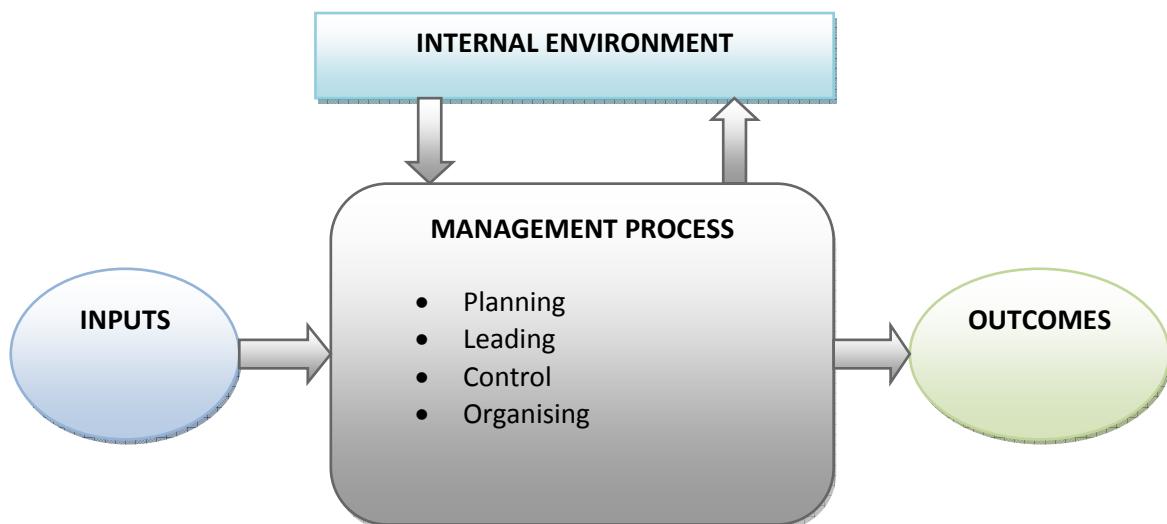


Figure 2.1: The process of management (Nel, 2000:21)

As much as it is the responsibility of the top management to take decision for the organisation, it is also their responsibility to take informed decisions that will add value to the organisation towards its success; and that does not necessarily mean that they must

just take decisions without conducting feasibility study on their decisions prior implementing them as some of the decisions can be catastrophic to the organisation and can really disorganise and destabilise the organisation to a greater extent. And of course the consequence of those decisions will further impose certain changes on the processes, systems and procedures of the organisation which might have an impact on the entire performance of the organisation either positively or negatively. Therefore, taking of rational decisions through the consideration of the process of management as highlighted by both Kroon (1997:181) and Nel (2000:21) has been a challenge for energy and Electricity Division.

Heizer and Render (2007:524) describe a good decision as a decision that is based on logic and considers all available data and possible alternatives. It is therefore important for all possible avenues to be scrutinised before a decision can be pronounced and this further assist in eliminating any possible regrets that might be encountered at the later stage.

- **Types of management decisions**

Types of management decisions is a theory that gives a concise explanation on the relationship between kinds of problems and decisions to be considered during that particular instance (Nieuwenhuizen and Rossouw, 2008: 45) as shown in figure 2.2.

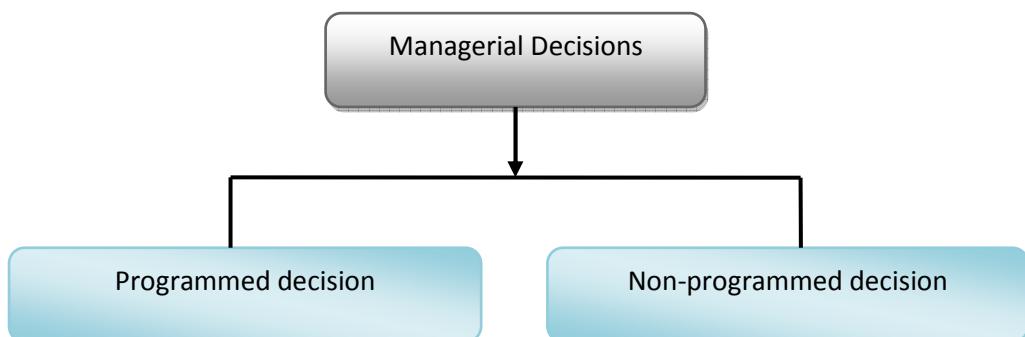


Figure 2.2: Types of management decisions instance (Nieuwenhuizen and Rossouw, 2008: 45)

Nieuwenhuizen and Rossouw (2008: 45) refers programmed decisions as decisions that form part of manager's daily tasks, routine, repetitive and insignificant; and these are decision taken in reference to the policies, rules and regulations, and standard operating procedures of the organisation. Whereas non-programmed decisions are referred to as decisions that are significant, unique, non-recurring and non-routine; and these are decisions taken by managers without no application of policies, rules and regulations, and standard operating procedures of the organisation.

Programmed decisions are frequently applied by managers in resolving structured problems (problems occur on regular basis and known to decision-makers), whereas non-programmed decisions are frequently applied in resolving unstructured problems (unusual problems that are often complex in nature and unknown to decision-makers (Kroon, 1997:182).

Even-handed application of the types of management decisions and the problem resolving philosophies as pointed out by Nieuwenhuizen and Rossouw (2008: 45) and (Kroon, 1997:182) will enable management to take rational decisions throughout in all cases and scenarios encountered in the business environment, and that will improve efficiency and effectiveness of the business. Energy and Electricity management should have considered and practiced this theory in resolving challenging faced by the organisation on the repairs and maintenance of streetlights and highmast lights in improving service delivery and restoring confidence from customers.

2.3 Maintenance operations

- **Maintenance policies**

Nel (2000: 242) explains the main objective of maintenance as to maximise the availability of the equipment and achieve an acceptable quality of products or services, and further points out the maintenance policies as illustrated in figure 2.3.

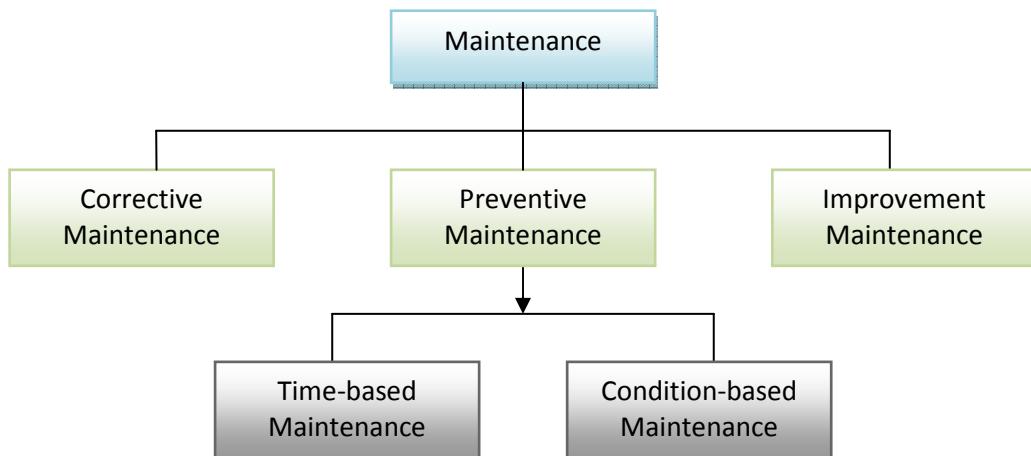


Figure 2.3: Maintenance policies (Nel, 2000: 242)

Figure 2.3 shows that an organisation must conduct proper maintenance to its infrastructure and formulate maintenance policies aligned to its strategic objectives in meeting the needs of its customers. And that proper maintenance reduces equipment failure, customers complaints and losses suffered by the organisation during the down time periods.

Enormous customer's complaints received and frequent changes of maintenance operations are the indicative flags that proper, planned and scheduled maintenance on public lighting infrastructure is a serious challenge.

- **Maintenance management pyramid**

Maintenance management pyramid is a theory that describes the integration of maintenance process in achieving preventive maintenance strategies in order to reduce

the amount of reactive maintenance to a level that allows other practices in the maintenance process to be effective as shown in figure 2.4 (Wireman, 2004:39).

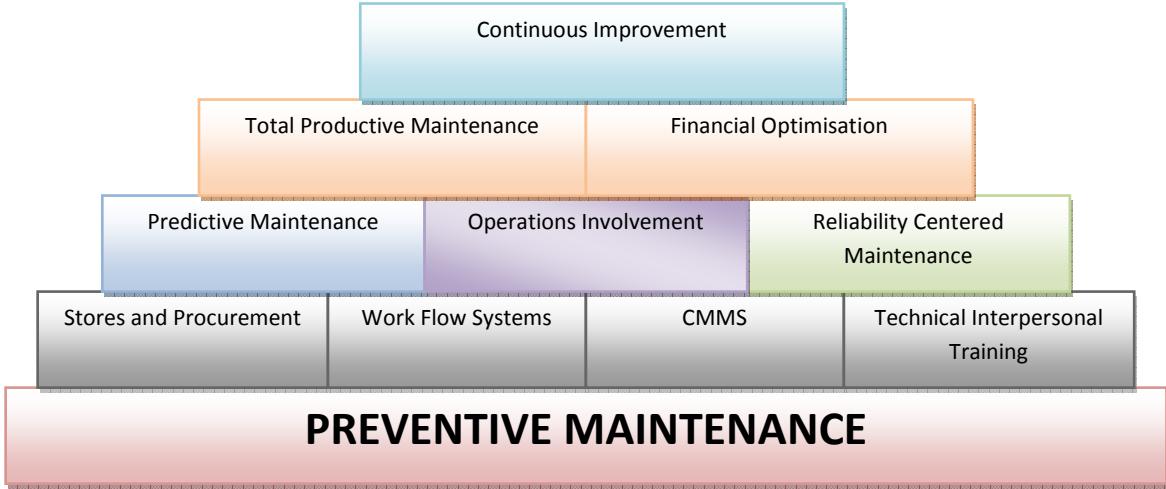


Figure 2.4: maintenance management pyramid (Wireman, 2004:39).

Roles and responsibilities must be explicit during the implementation of change so that all affected stakeholders can take full ownership of their duties in meeting the maintenance objectives of the organisation and fulfilling the principles of preventive maintenance, and this will further ensure that the equipment life is improved and avoid any unplanned outages and maintenance activities.

2.4 Change of maintenance operations

There are various factors that can compel organisations to plan and implement change such formulation of new strategies, restructuring, business process re-engineering, changing of processes and procedures so on and so forth in order to position itself, responding to the external environment, improving the performance and gaining a competitive advantage. Formulation of organisation's new strategic objectives led management to take a decision of implementing change on the maintenance operations of public lighting. Grant (2010:122) indicate the organisation's resources, capabilities, values

and structure as the principal basis of the organisation's strategy, and this is what should have been considered by top management prior taking a decision of changing the maintenance operations of public lighting, but unfortunately that was not thoroughly considered.

- **Six-step model of change**

Mabey (2008a:15) six-step model of change represents key components of successful change management and suggests a sequence of activities that should be contemplated during a change process as shown in figure 2.5 (2008a:15); and further describes the development of a vision and strategy and organisation's cultural issues as some of the stages for consideration during the implementation of change, and these are the same factors indicated by Grant (2010:122) in choosing the best strategy of the organisation.

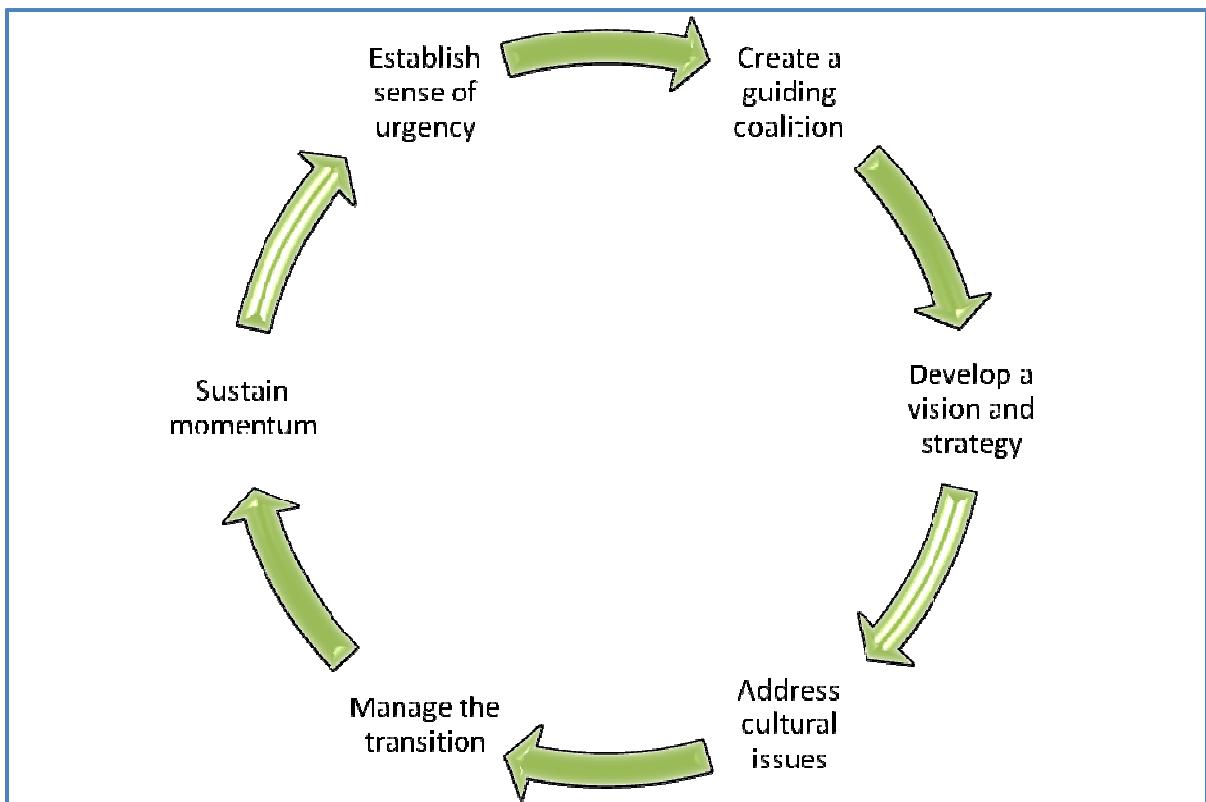


Figure 2.5: Six-step model of change (Mabey, 2008a:15)

- **The change kaleidoscope**

The change kaleidoscope highlights the combination of varying elements that have an impact in different stages of the change process in the organisations as shown in figure 2.6 (2008b:110). All these elements shown in figure 2.6 are regarded by Mabey (2008b:110) as key elements for consideration during the implementation of change, and that has been highlighted by Grant (2010: 122) as well. It therefore means that management should have considered factors such as capacity, capability, resources, values and structure prior taking a decision to change the maintenance operations of public lighting.

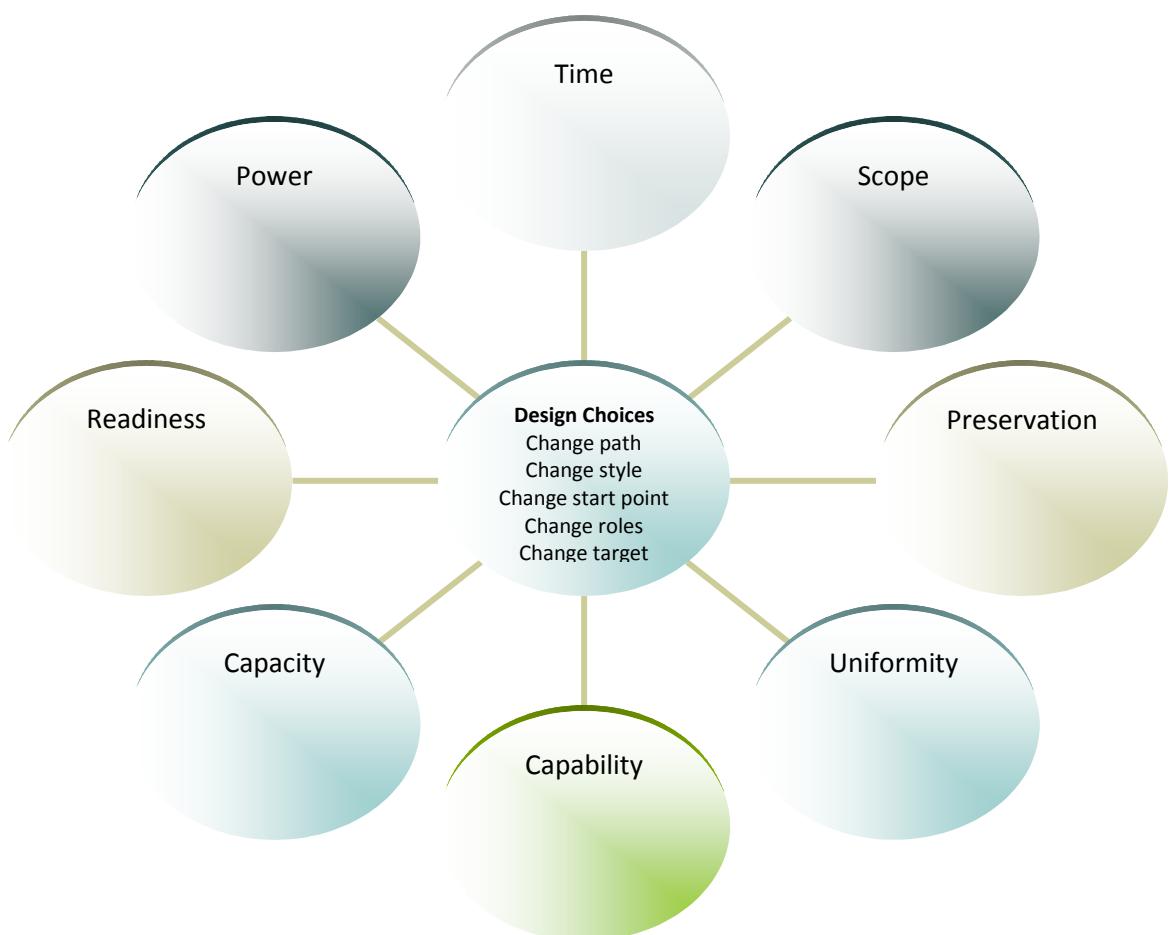


Figure 2.6: The change kaleidoscope (Mabey, 2008b:110)

- **Model of organisational change depicting the hypothesised relationship**

Model of organisational change depicting the hypothesised relationship illustrate that the amount of organisational change within a job role, work relationships, job context, facility and career will collectively result to uncertainties and challenge appraisal; and that will ultimately yield to perceived stress and impact the coping of employees on their responsibilities as shown in figure 2.7 (Kohler, Munz & Grawitch, 2006:170). Management decisions can affect employees either negatively or positively whiles executing their respective duties.

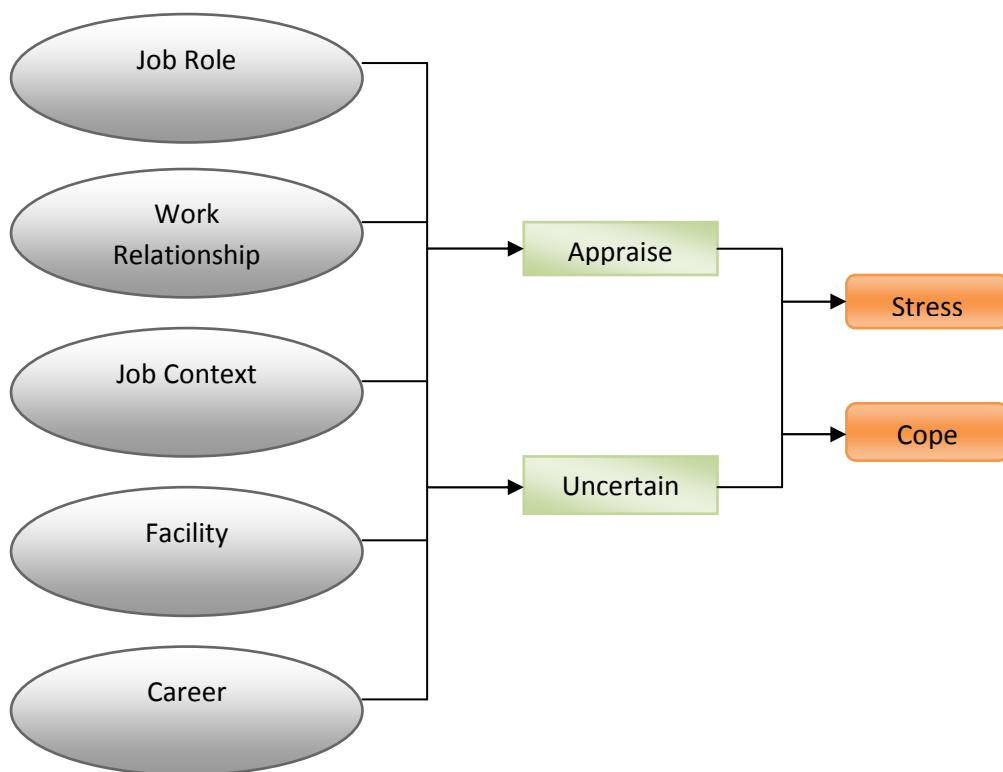


Figure 2.7: Model of organisational change depicting the hypothesised relationship
(Kohler, Munz & Grawitch, 2006:170)

But the reality of the matter is that employees are threatened by organisational changes due to their uncertainties because change in some instances change roles and responsibilities of certain employees, some found themselves in different facilities,

responsibilities, with different colleagues and reporting to different supervisors and that affect their overall relationships at work.

Organisational change sometimes brings health and safe working environment and experience within the organisation which creates opportunities, better career path and improved working conditions to employees, and therefore it does not always bring uncertainties amongst employees.

2.5 Stages of a team development

Stages of a team development present four key stages that should be considered in establishing a team that will yield to greater performance of the organisation. And thus performance is a very critical aspect in every organisation as it is an element that indicates whether the team or group is able or unable to accomplish the allocated tasks successfully in line with the applicable processes, systems and standards, and it can have serious consequences to the organisation and its customers. Figure 2.8 shows four stages of a team development of which performing is regarded as the last stage whereby a team or group is functioning as a highly effective unit, sharing common values, and applying member's skills, expertise and knowledge towards eliminating the elements of poor performance. At this stage, all team members are familiar and conversant with their roles and responsibilities, individual's efforts are integrated to specific group functions and that contributes to the organisation's effectiveness, and thus assists in diminishing the elements of poor performance.

Different organisations have got different performance management systems that evaluate the performance of employees and the outcomes will determine whether those employees are eligible to receive performance rewards and increments or not, and the application of this system also assist in managing the poor performance that might manifest in the organisation or within the team. Performance is a fundamental aspect in

the organisation that management and supervisors should manage and monitor and put some corrective measures where necessary for the success of the organisation.

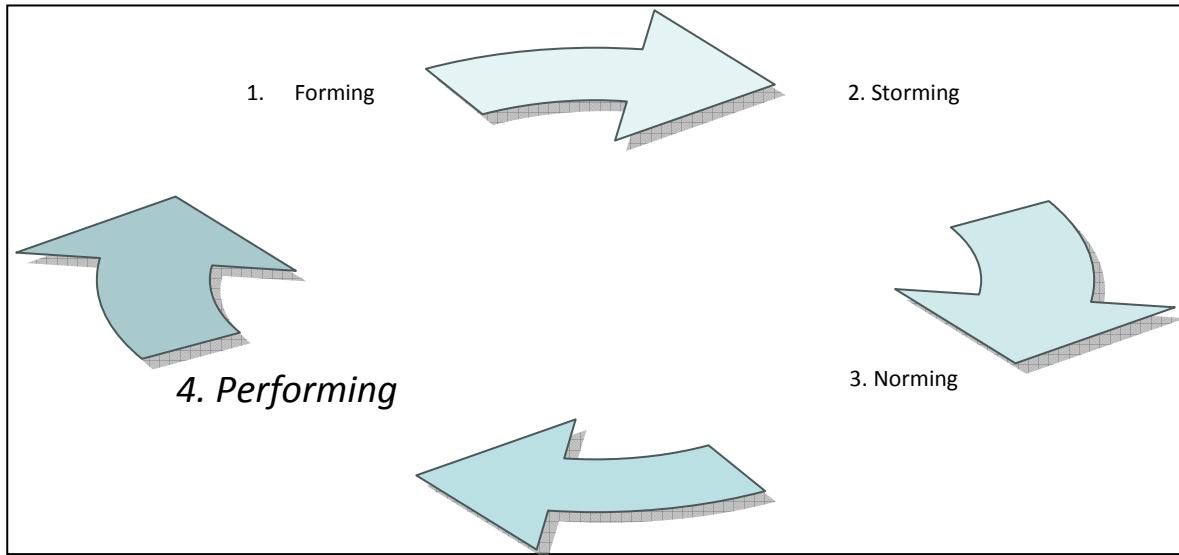


Figure 2.8: Stages of a team development (Ivancevich, Lorenzi, Skinner, & Crosby, 1994)

Frequent implementation of changes and taking of certain management decisions in the organisation intended in improving the performance and responding to external environmental factors can somehow have momentous impact affecting employees negatively and ultimately declines the performance of the organisation. And poor performance will surely yield to enormous complaints from customer in demonstrating their dissatisfaction on the level of service received.

2.6 A model of small group interaction

Some of the strategic decisions taken can contributes towards the organisational poor performance as they will form part of the new inputs, and inputs can either be of positive or negative in nature. Negative inputs will be processed through the necessary channels to employees, affect them negatively, which will of course result to poor outcome as poor performance (Ivancevich, et al., 1994).

It is sometimes not an easy thing to transform employees from their negative mentality to positive mentality as this process can be costly for the organisation in terms of bad reputation, loosing of customers and repairing of the damage created by poor performance.

It is therefore critical for the organisation to continuously monitor the performance of its employees as stated by (Ivancevich, et al., 1994).

Table 2.1: Model of small group interaction (Ivancevich, et al., 1994)

A model of Small group Interaction	Inputs →	Processes →	Outcomes
	<ul style="list-style-type: none"> • Group structure Group strategies • Leadership 	<ul style="list-style-type: none"> • Influence • Development • Decision making 	<ul style="list-style-type: none"> Group Performance • Quality • Quantity • Quality of group life • Integrity of the group in the future

This frequent implementation of operational changes between the maintenance operations sections and public lighting section by top management did not benefited the organisation positively in addressing the maintenance of streetlights and highmast lights backlog, accelerating service delivery and improving the efficiency and effectiveness of the organisation, but they conversely increased the elements of poor performance within the organisation on the maintenance of streetlights and highmast lights that led to enormous customer complaints and bad reputation of the organisation.

The organisational process on the maintenance of streetlights clearly stipulates that all calls logged for streetlights repairs and maintenance should be attended and resolved within three to the maximum seven working days depending on the nature of the problem or complain, but this was not the case as the division found itself in the predicament whereby there were outstanding calls in the excess of thirty days to nine months without being attended or repaired.

The public lighting section could not cope with the outstanding faults to be repaired and that resulted to a bleak performance which led top management exposed, furious and bamboozled about the situation.

Although the division experienced poor performance on the maintenance of streetlights and highmast lights, this dilemma made some of top management managers to admit and acknowledge that they have indeed taken mischievous decisions in centralising the maintenance of streetlights and highmast lights.

2.7 Maslow's hierarchy of needs

High level of motivation amongst employees is directly proportional to their outcome produced in terms of the performance, and Maslow's hierarchy of needs is a one of the theories that stipulates five fundamental needs that must be fulfilled in triggering motivation levels of employees and ultimately improves the overall performance of the organisational as shown in figure 2.9 (Ivancevich, Lorenzi, Skinner, & Crosby, 1994).

There are various factors that contribute towards demoralising employees in the organisation, and the lack of motivational factors within the organisation plays a significant part in most instances. In some organisations there are intrinsic and extrinsic rewards that can serve as motivational factors to its employees in order to keep them motivated and

going an extra mile in performing their duties. Every organisation must consider all employees needs and ensures that are met in order to avoid a working environment that is full of demoralised employees, since that might lead to poor performance, quality workmanship and further failing to meet customer expectations.

2.7.1 The needs of every employees in the organisation

Employees in every organisation have got different kind of needs that keeps them inspired at the workplace and these needs serve as motivational factors and makes employees to maintain particular level of performance whiles executing their duties. (Ivancevich, *et al.*, 1994) describe Maslow's hierarchy of needs which shows factors that can demoralise and motivates employees in various forms as shown in figure 2.9. These are the principal needs that people need in their respective daily life's and these needs are intended to satisfy and motivates every person intrinsically and extrinsically and not only the employees. Maslow's hierarchy of needs indicated by (Ivancevich, *et al.*, 1994) are not the only needs that employees requires in the organisation in order to perform their duties successfully, but there are other essential needs such as organisational resources as indicated by Grant (2010: 127) that organisation must be equipped of in order to can be capacitated enough in dealing with every aspect within the working environment. The combination of Maslow's hierarchy of needs and organisational resources is therefore fundamental for the success of the organisation and every organisation must be in possession of all of them in order to achieve performance aligned to its strategic objectives and receive accolades from all sectors of the society.

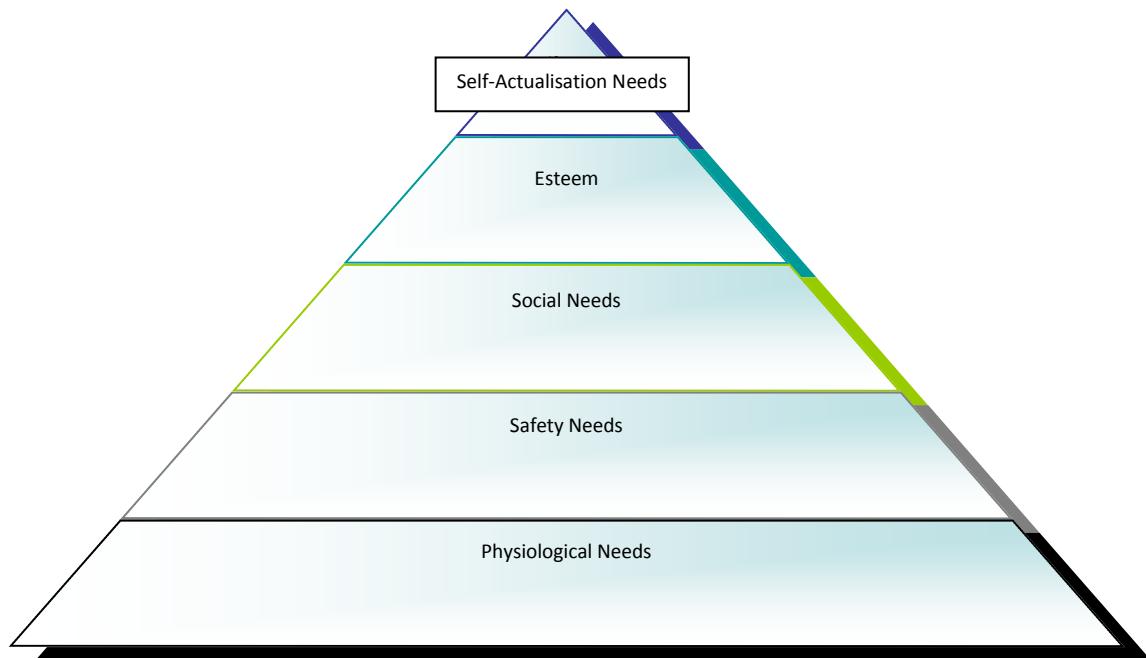


Figure 2.9: Maslow's hierarchy of needs (Ivancevich, Lorenzi, Skinner, & Crosby, 1994)

Employees need to be engaged and consulted in certain decisions that directly affect them as that makes them to participate in the organisation's problem solving, they become creative, and they present their proposals for consideration. The lack of consultation process in most instances make employees to feel prejudiced and unfairly treated, and can result to demoralisation. Whereas consultation in the contrary can delay the progress as employees can keep management at ransom without making any progress.

If employees are feeling safe at work with regards to their employment contract conditions, job security, medical aids, increments, working environment, bonuses, rewards et cetera, they become motivated and perform to the best of their ability, whereas the feeling of unsafe at work can constitute demoralisation and demotivate them.

Employees need to be valued, recognised, and appreciated on the services they are rendering to the organisation by their supervisors and management. The frequent changing of operational activities was sometimes sending a wrong signal to employees

and indicates that perhaps top management is not valuing and recognising them when taking decisions, and this is one of the factors that make employees to be demoralised at the workplace.

2.8 Resources of the organisation

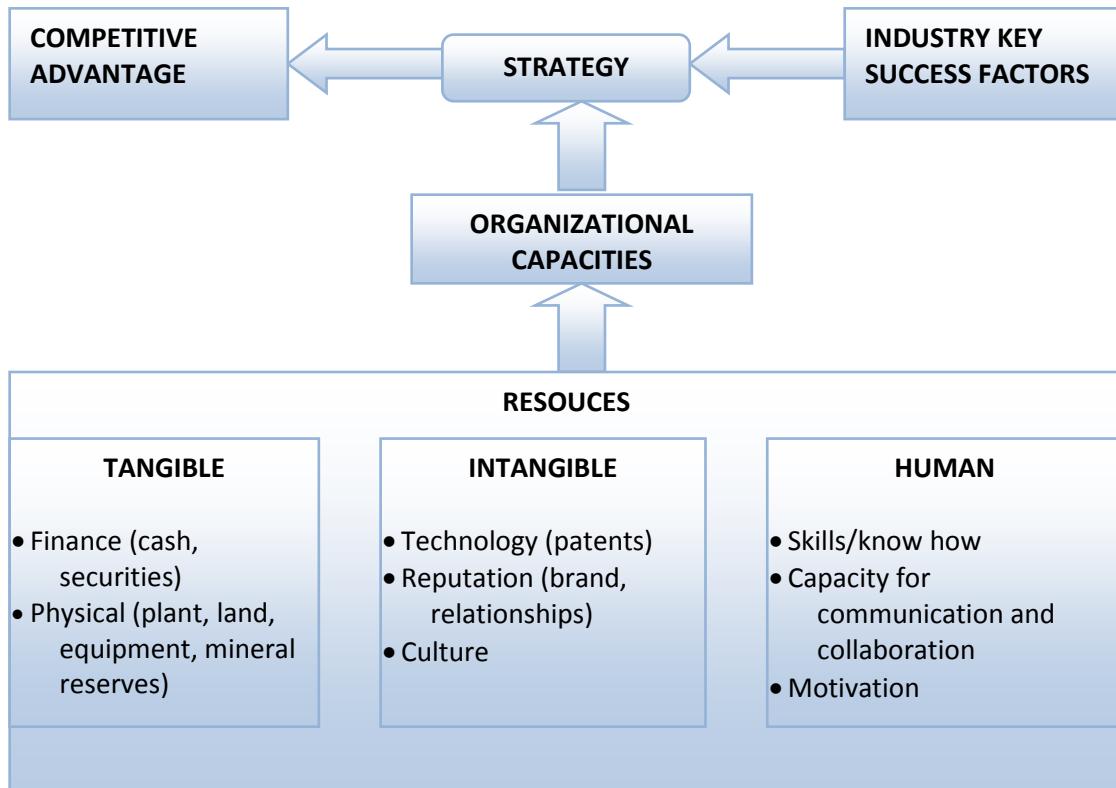


Figure 2.10: Link among resources, capabilities and competitive advantage (Grant, 2010: 127)

Figure 2.10 shows the fundamental organisational resources highlighted by Grant (2010: 127) that every organisation should possess in order to perform effectively and efficiently in discharging its responsibilities towards meeting the strategic objectives. Tangible resources such as capital and equipment are crucial to any maintenance operations in order to meet its preventive and proactive maintenance activities, and management should have considered that prior deciding on the implementation of change.

Every organisation is identified by its culture (values, norms and standards) that it has been practicing over the years, and organisational culture cannot just be changed because it is something that employee are attached to. The Maintenance operations sections were also familiar with their maintenance philosophies and approaches of attending to the repairs and maintenance of streetlights and highmast lights as part of their culture, and management should have taken that into consideration as well.

A healthy and safe working environment keeps employees motivated, encouraged and excited in executing their respective duties and that enable them to apply their skills, knowledge and expertise in the working environment. But when employees are demotivated and discouraged at the workplace, service deliver suffers, and customers receive a dissatisfactory service, and the reputation of the organisation is challenged.

2.9 Summary

The decision making process of Energy and Electricity Division is questionable, and the same applies to manner in which maintenance operations is performed. The implementation of change that is becomes easier if it conforms to models of change such as six-step model of change. It is very vital for organisation employees to be motivated throughout as that will maximise the performance, and that can be possible through sufficient organisational resources needed to fulfil the strategic objectives of the organisation.

The next chapter will present the literature review conducted by previous researchers and authors on the main interest areas of the research.

CHAPTER 3

3 LITERATURE REVIEW

3.1 Introduction

Bryman and Bell (2003:95) describe the literature review as the demonstration by the researcher in engaging scholarly review based on the reading and understanding of the work done by previous authors and researchers in the same field as the researcher's, and the researcher should further develop arguments about the significance of the research by using the existing literature on the topic. Literature review explore numerous issues such as what is already known about the topic, the concepts and theories relevant to the topic, emphasise the importance of the research and the indication of the new knowledge that will be unravelled by the research.

This chapter will therefore present an account of what has been published on the topic by previous accredited scholars and researchers.

3.2 Management decisions and strategic objectives

Steinhouse (2010:3) highlights that one of the good decision making is the realisation that the current reality never contains all the information required to predict the future, and that strategic decisions making have got enormous implications on the future, and some decisions might turn around and bite you at some time in the future. Circumstances can lead to some of the decisions having to be reversed completely in the future, and that is the art applicable only to good decision makers and as they will be doing this to accept their wrongs and that is regarded as a great strategic wisdom (Steinhouse (2010:3).

Mojzisch and Schultz-Hardt (2011:236) illustrate hidden profiles as a group of decision task in which one best choice alternative exist but it cannot be identified by the group members prior the discussions can take place because they each have only a subset of the information supporting the superior alternative; and further indicate that members of the organisation should exchange and integrate their unshared information as this is essential in taking informed decisions. It is of course very much assistive and advantageous for those responsible for taking decisions within the organisation to consult and be informative so that they can have all key factors and facts at their disposal in order to take rational and logical decisions. Whereas in contrary it might not be advisable to consider or rely on opinions of a group whiles taking decisions especially if you are dealing with a group of people who are not on your side or supportive to your visions as a leader because possibilities of providing you with misleading information are high so that they can watch and celebrate your downfall. Wong, Ormiston & Tetlock (2011:1210) describe the organisation's decisions making in two ways, namely centralisation (decisions making powers resides in the hands of a selected few at the upper levels of an organisation) with the advantages of integrating diverse information obtained from various organisational levels and less time consuming and less conflict, but with a disadvantages of demotivating employees, ignoring issues of multiple stakeholders and distortion of information whiles it reaches the upper level of management, and decentralisation (decision making power involves individuals at various levels of the organisation) with the advantages of having employees motivated and making of informed decisions, but with a disadvantage of more time consuming especially during accessing of the information. It is very much appropriate to consider opinions and inputs from other organisation's stakeholders especially in cases of taking decisions that will bring change or affect most of the employees, interest groups, teams, sections, divisions and departments of the organisation.

Hess and Bacigalupo (2011:710) point out that the practical application of emotional intelligence skills can enhance individual and group decisions and outcomes. The notion of a group decision is supported by both Mojzisch and Schultz-Hardt (2011:236) and Hess and Bacigalupo (2011:710). Hess and Bacigalupo (2011:710) have further introduced a new concept of emotional intelligence as key in decision making process; whereas Hess and Bacigalupo (2011:714) emphasise the individual's emotions as critical in taking decisions especially in considering the impact that those decisions can have on others (members of the organisations).

This means that decision makers should have the ability to identify, assess and control the emotions of oneself, of others, and of groups while in the process of taking decisions; and this will enable decision makers to contemplate, evaluate and implement quality decisions that are dependent upon the multitude of intrinsic and extrinsic factors. Better decisions are taken when decision makers have shifted their focus from intuitive and emotional thinking to logical and rational thinking (Hess and Bacigalupo, (2011:711), and this is the best acceptable practice that organisations can recommend for their decision makers in achieving strategic organisational objectives.

Hess and Bacigalupo (2011:714) further indicate that decision makers are often faced with problems that cannot be easily solved and in some cases have negative impacts on some constituency even when they have been declared solved; whereas Kunc and Morecroft (2010:1164) point out that managers must draw conclusions and make commitments based on insufficient, unclear, or conflicting information about the results obtained from their investments. Chatha and Weston (2006:1969) illustrate that individuals in the organisation are bound to take decisions at any given time either being strategic, engineering or operational and should choose the best alternative decisions, and further express that decision making in the organisation involve activities such as identifying the problem, searching for alternatives, evaluating alternatives and choosing an alternative.

This clearly indicates that taking of decisions is part of the daily activities of everyone within the organisation but more especially for those in management and leadership positions of the organisation and therefore various factors such as emotional intelligence, information, logic, rationality and consultation should be variously explored prior taking a decision, and consequently that will assist in taking well-versed decisions that will ultimately advance the organisation to higher limits.

Managers need to be pre-informed of how their decisions would affect different parts of the organisation within their area of responsibilities, and Chatha and Weston (2006:1970) suggest that there is a need to develop systematic methods and tools that would support managers in taking complex decisions since the implications of critical management decisions could affect the performance of the entire organisation. This statement made by Chatha and Weston (2006:1970) concur with the one made by Steinhause (2010:3) that in overall, any decision taken could have enormous implications on the future of the organisation and that is something that those involved in decisions taking should always bear in mind whiles executing their duties.

Zhang and Rajagopalan (2009:334) mention that the appointment of organisation's top management such as chief executive officers (that can include executive directors, general managers, etc.) has got an impact on the strategic change of the organisation. Employees appointed in top positions of the organisation are mostly responsible for formulating strategic objectives of the organisation that are aligned to the vision and mission of the organisation, and in some instance they are also responsible for developing the vision and mission of the organisation. And in contrary, Wong, *et al.*, (2011:1207) highlight that CEO's are typically not the sole decision makers for the firm's strategy. But it is typically apparent that any change in the strategic leadership position of the organisation will likely institute the implementation change, and that change can either improve or decline the performance of the organisation.

The origin (internal or external appointment) of top management incumbent in terms of the appointment has got an impact of the strategic change of the organisation as well (Zhang and Rajagopalan, 2009:335). Top management incumbents appointed from outside (hired outside the organisation) will implement more strategic changes due to different experiences, expectations and working environments than top management managers appointed inside (hired within the organisation) who will be familiar with the processes, procedures, systems, experience, and culture of the organisation. The organisation's performance is directly proportional to the number of changes implemented within the organisation; as the level of change increases from moderate to great in the organisation, then the organisational performance declines. This simply denotes that the organisational leadership should be conscious on the manner and frequency in which change is implemented, since frequent implementation of change and also the approach followed in implementing that particular change, might create frustrations amongst employees and that will affect the organisation's performance negatively.

Goll and Rasheed (2005:999) point out that the demography (education level, age, length of service, residence, race, sex, et cetera) of top management of the organisation is very critical in determining the organisational processes which include the strategic decision making which ultimately have a huge impact on the entire performance of the organisation; and on the other hand Wong, *et al.*, (2011:1208) point out factors such as executive orientation, psychological factors (personality, cognitive styles and values), and experience (tenure and functional background) as having influence on the strategic decision making and the outcomes of the organisation. The characteristics of the decision processes such as rationality and comprehensiveness, the amount of political activity, individual involvement, and the extent of conflict or consensus amongst decision makers have got a significant effect on the outcomes of the organisation (Goll and Rasheed, 2005:1005).

Wong, et at., (2011:1208) explain the low-integrative-complexity individuals (make decisions quickly and trust their instinct) and high-integrative-complexity individuals (more open-minded and seek out wide variety of information and perspectives) as individuals who differ in terms of evaluative differentiation and conceptual integration whilst taking organisational strategic decisions. Goll and Rasheed (2005:1005) further indicate that the level of education of top management team will be directly proportional to their strategic decisions taken, emphasis the fact that educated management will most likely take rational decisions that encompasses analytical techniques and will in most instances conduct themselves in a more professional manner.

Management decision making process should focus on the organisation's resource configuration and resource development since both factors will ultimately affect performance of the organisation Kunc and Morecroft (2010:1170).

Therefore change needs to be implemented only when necessary, not for the change or in fulfilling certain personal aspirations and ambitions. The appointment of the top management or organisation's leadership should therefore be dependent on the organisation's needs at that time whereas the issue of whether inside or outside appointment should not be a problem since the performance will be monitored through the performance contract. And the term of office of top management should be aligned to the organisational business plan which is usually three to five years in order to avoid frequent strategic changes.

3.3 Maintenance operations

Operations maintenance is a combination of two key words being operations and maintenance and it is often difficult to separate these two words as they are tightly integrated together. Maintenance operations involves the repairs and maintenance of an

apparatus, equipment, system and infrastructure to improve its condition, keeping it in a good working condition and extent its life span in meeting the customer's expectations.

Venkataraman (2009:1) defines maintenance as all actions which have an objective to retain an item in, or restore it to, a state in which it can perform the required function and further distinguishes various types of maintenance as breakdown, preventive, predictive and proactive.

Moayed (2009:1104) mention four different main maintenance systems as unplanned maintenance, planned maintenance, preventive maintenance and total productive maintenance, and that maintenance is responsible for machine tool and equipment repair, in-plant construction; and repair of other mechanical, hydraulic, or electrical problems that may or may not be directly related to production. Every task of maintenance operations will fall within any one of these four identified maintenance systems and organisations should document and develop their maintenance plans and practices aligned to these maintenance systems. However factors such as personnel (maintenance teams), activity rate (such as distance travelled by vehicles), type of usage of equipment, age of the equipment and the loss of the purchasing power have got a significant influence on the operations and maintenance expenditure of the organisation (Fetterly, 2008:199).

Hill (2005: 5) highlights that operations is responsible for efficiency managing the tasks and seeking ways to make improvements throughout, in order to better meet the objectives and targets set by the business itself and the needs for its customers.

In considering both definitions provided by Venkataraman (2009:1) and Hill (2005: 5), one can summarise maintenance operations as a process of keeping an asset in a good working to the satisfactory of the customer in meeting the objectives of the organisation.

Lee and Scott (2009:26) indicate that it is important to have a well-developed maintenance practice to support the business operations, and that top management will always want to know more about the effectiveness of maintenance performance since there is a link between improving the maintenance effectiveness and the management approaches. It is therefore important for an organisation to have a well-documented maintenance policy that is compiled along the confinement of the strategic objectives of the organisation since this will represent the interest of top management, and that will enable top management will avail all necessary resources such as budget, equipment's and tools to support the maintenance team. And in contrary maintenance policy cannot operate effectively and efficiently without sufficient maintenance resources (Lee and Scott, 2009:30), and Simoes, Gomes & Yasin (2011: 122) illustrate that developing a maintenance planning programme is an iterative process that involves different decision-makers, who may have conflicting objective. This denote that it does indeed happen to have completely obscure strategic decisions taken by top management especially if those decisions were motivated by ulterior motives of different individuals, and in most instances this can lead the organisation to catastrophic circumstances.

Maintenance services are sometimes unnoticeable and are therefore overlooked by management (Lee and Scott, 2009:26), and it is therefore crucial for organisations to have maintenance policies and strategies documented as this will guide maintenance personnel and management whiles compiling the maintenance plans. And thus properly documented maintenance plans will reduce the possibilities of having deficiencies (more time and resources employed in performing corrective maintenance work instead of preventive maintenance work) on the maintenance activities of the organisation and focus on the planned maintenance activities.

Lee and Scott (2009:28) explain that some of the operational functions include getting the work done, controlling progress work, monitoring budget expenditure and monitoring the

programmes; and further indicate that the budget constraints and the problems between the strategic and operational levels are the common causes of deficiencies and chaos in the field of maintenance. Performing of maintenance is a comprehensive activity, and this simply means that it will be difficult for the maintenance team to execute its duties effectively and efficiently will limited operational functionalities.

Marquez, de Leon, Fernandez, Marquez & Campos (2009:168) point out that the maintenance strategy requires the definition of the maintenance objectives as an input which will be derived directly from the business plan. Simoes, Gomes & Yasin (2011: 117) point out that maintenance managers are being called on to integrate and direct the maintenance efforts to meet organisational strategic goals efficiently and effectively, and that they must receive appropriate formal education training which incorporates the different facets of their increasing organisational roles. Marquez, *et al.*, (2009:168) indicate that effectiveness shows how well a department or function meets its goals or company needs, and is often discussed in terms of the quality of the service provided, viewed from the customer's perspective. The concept of customer's satisfaction is very important in the maintenance operations environment and it strengthens the relationship and cooperation between the customer and the company and both Hill (2005: 5) and Marquez, *et al.*, (2009:168) attest to it. The maintenance operations are somehow linked to the organisational strategies of the organisation, and that top management should then consult the operational managers in order to be briefed and be informative in order to understand some of the dynamics in the maintenance operations environment prior taking decisions that will impose changes on maintenance operations. Therefore, it is very fundamental for the maintenance strategies to be linked to the strategic objectives of the business

Simoes, Gomes & Yasin (2011: 126) indicate that qualified and well-trained machine operators and maintenance technicians are the driving force behind any effective

maintenance measurement system; and Anderle and McClellan (2009: 15) highlights that organisations should develop maintenance support systems that will assist maintenance decision makers and further emphasise that training of all users of the maintenance support system should prioritised, especially the operators, as this is the best investment to gain understanding of the system, how to use it and how to get maximum benefit from it. Simoes, Gomes & Yasin (2011: 120) further indicate that organisations should formulate maintenance performance measures such as training and learning, skills and competencies, work incentives, process performance, resource utilisation, maintenance capacity, customer satisfaction and employee satisfaction that will evaluate and assess the performance of the organisation. And consequently the effectiveness of different facets of the performance system is very much dependant on the competency, training, and motivation of the overall human factor in charge of the maintenance system (Simoes, Gomes & Yasin, 2011: 117). Therefore education and training are very key for the success of maintenance operations in order to empower the maintenance teams with relevant required level of skills, knowledge, expertise and abilities to perform their maintenance duties successfully.

3.4 The process of organisational change and implementation

Starke, Mauws, Dyck & Dass (2011:29) describe an organisation as an entity that is comprised of an interpretive scheme (set of ideas, beliefs and values that determine what an organisation should be doing, how it should be doing it and how it should be judged), a supporting structure (horizontal and vertical differentiation, integration of tasks and roles and authority-responsibility relationship), and systems (organisational processes that reinforce the structure, including management information systems, decision process and controls that activates structural elements). These three elements are extremely important for the success of every organisation and it is upon the organisational leadership to ensure that they are indeed respected, valued and considered throughout by the all

members of the organisation; they form the pillars of strength for the organisation, and a compromise to any of them will lead to serious organisational conflict and destabilise the organisation. And that the roles of leaders and managers in transformational change is to take into account these elements during any change process and should further emphasise the social, emotional and relational aspects of change, and technical, instrumental and task aspects of change (Starke, et al., 2011:30).

Vermeulen, Puranam and Gulati (2010:72) describe the process of organisational change as shown in figure 3.1 as a process of making the organisation to be creative and disintegrate the existence of the power structure in the organisation; and further indicate that change can expose the organisation and its employees to new opportunities and can also affect the allocation of resources. Change initiatives in some instances are indeed intended for creativity and new opportunities, but however it does happen in some instances, that change is misdirected and its initiatives and implementation is subjected to fulfil certain top management ambitious.

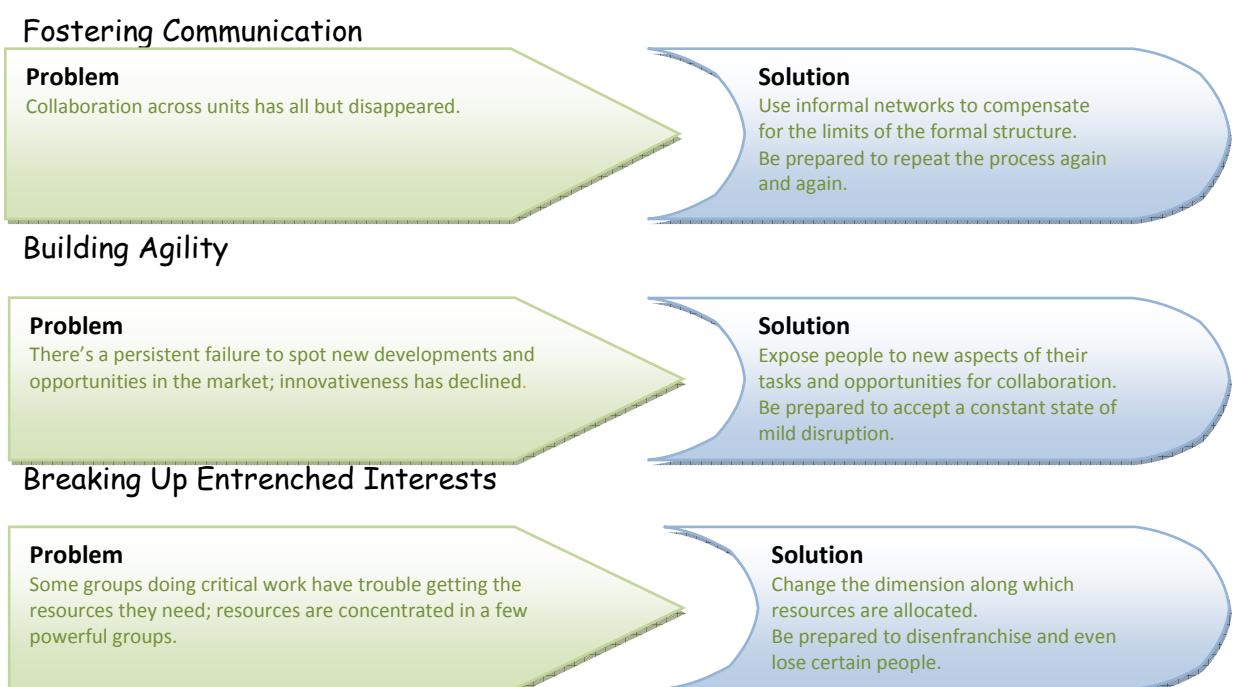


Figure 3.1: When and how to change (Vermeulen, Puranam & Gulati, 2010:72)

The organisation must implement change depending on the reaction and demand of the business and external environment and its stakeholders, and the internal environment will dictate the level of change needed in most instances. The lack of organisational change develops silos mentalities, but change make employees to create new networks, improves creativity, encourages innovation and breaks up outdated power structures; and the organisational change should further focus on the structure, rewards, processes and resources of the organisation.

Indeed a change can be implemented in the event whereby the organisational units are not working effectively and efficiently towards benefiting the organisation in order to reduce the loss and regain confidence from its customers. Change can also be an alternative in situations where there is a reoccurring failure and shortage of resources.

But there should be fairness, transparency and consistency in the allocation and distribution of resources during the change process in order to avoid enormous complains and inefficiency from employee due to dissatisfaction.

3.4.1 Categories of organisational change

The organisational change can be structured into three categories such as the first-order of change (change involves the adoption of new practices), second-order of change (change of implementing organisational strategies and a vision) and a third-order change (change involving the alteration and replacement of existing processes and systems (Clark, Gioia, Ketchen & Thomas, 2010: 397)).

First-order of change is intended in changing the norms and values of the organisation which is something that is not easy and might consume considerable time since the organisation culture is something is rooted within the organisation and more efforts will be

needed to change it; and Evans (2011:4) highlights that changing an embedded culture is a monumental task for any management teams, and further indicates that changing the culture of a large institution during times of rapid change and fiscal downsizing seems to challenge even the best psychiatric leaders. This exhibit the amount of resistance and challenges that organisational leadership might encounter as a result of cultural change that can be imposed by strategic change of the organisation. But the involvement on employees in the process of initiating first-order of change can benefit the organisation in achieving cooperation and support from the employees including the employee's trade unions.

Second-order of change is mainly orchestrated by organisation's leadership (top management) by formulating the strategic objectives that in correlation to the vision of the organisation. It is appropriate and absolutely relevant for the strategic objectives to be formulated with reference to the organisation's vision but is not always the case. Canet-Giner, Fernandez-Guerrero & Peris-Ortiz (2010:436) point out that the change of the strategic process of the organisation will require more participation and involvement from organisational members, while at the same time becoming more rational and better planned, in order to be successful. Strategic objectives in some of the instances are formulated purely based on certain interests of the organisation's leadership, and that should avoided as it is unethical and does not express the level of professionalism.

The third-order of change is earmarked for introducing change on the processes and systems of the organisation, restructuring of the organisation, and merging and acquisition of the organisations. This method of change can destroy or expand the organisation and thorough research should be conducted in investigating the advantages and disadvantages prior a decision can be taken. All these three categories change the organisation's identity in such a manner that it receives different recognition from the external environment as compared to its previous state.

In considering Clark, et al. (2010:398) categories of change, it very acquiescent that adoption of new practices that will improve the organisation's performance will be the best thing to do as that will create revitalisation within the organisation, and changing of strategies is needed in cases where the existing strategies are not adding any value to the progression of the organisation, and the replacing of existing systems and processes is also necessary if those existing ones are/have been ineffective over a period of time.

Hence the challenges that might be encountered during the change process can be the ineffectiveness of the newly implemented practices, strategies, systems and processes, and therefore the organisation should thoroughly perform the evaluation and assessment of the new features prior the implementation stage.

3.4.2 Employee's perceptions on organisational change

Employees respond differently on the organisational change in which some appraise the change in hoping for the better things and improvement whereas some are becoming stressed because of the uncertainties that can be brought by change; but in contrary, Canet-Giner, et al., (2010: 439) highlight that highly dynamic, uncertain and complex environments, planned and rational but flexible processes could give the firm better performance; and Sonenshein (2009:236) points out that the large amount of resistance that often accompanies a change may be understood as self-interest that comes from how individuals personalise events in making the meaning

3.5 Summary

Various researchers and authors have conducted researches and investigations on the selected main areas of interest of the research such as management decisions,

maintenance operations and the process of implementation of change in various organisations.

The next chapter will focus on the research design of the research highlighting the approaches and methodologies to be considered in the collection of the data.

CHAPTER 4

4 RESEARCH DESIGN

4.1 Introduction

The research approach and methodologies explains the manner in which the research data will be collected, analysed and evaluated, and it is the important part of the research as it enables the researcher to consider the best strategies that will add more value to the investigation.

4.2 Research approach and methodology

The purpose of this study is to investigate factors that contribute to frequent implementation of operational changes in the repairs and maintenance activities of public lighting at the Energy and Electricity Division of the City of Tshwane Metropolitan Municipality.

The research will be conducted through the exploitation of both qualitative and quantitative approaches, but it will mainly be conducted based on qualitative approach due to the number of interviews that will be conducted, focus group, sampling, and reviewing of a number of documents.

The only weakness of qualitative approach is that it cannot be scientific since numbers cannot be analysed by mathematical techniques, hence it has got a cost effective advantage, and in-depth analysis of problems; and quantitative approach has got an advantage of solving problems using numbers and is scientific, but it has a disadvantage high cost (Coldwell and Herbst, 2004: 13).

Data will be captured into Epi-Info database and Microsoft Excel, and then transferred to Stata V11 by StatTransfer, and analysed by Stata V11 statistical package software and Microsoft Excel.

4.2.1 Survey

Surveys involve the carrying out of samples in different forms (sex, groups, age, ethnicity, employees, etc.) in order to observe and establish the relationship between given set of variable, and is mainly used for quantitative data collection method in management research (Charlesworth, Lawton, Lewis, Martin & Taylor, 2001:47). It can be used for exploration, description and explanation. It can be structured in a form of questionnaires whereby certain questions relating to a particular situation are precisely compiled for participants and they respond to those questions. The survey sample will be consisting of employees, customers and community leaders, and the research findings will be obtained through the survey questionnaires with twenty two (22) issues or questionnaires (multiple choice questions) rated from five (5) to one (1), where five is strongly agree, four is agree, three is undecided, two is disagree and one is strongly disagree as shown in Annexure B, and the individual interviews with open-ended questions.

Some of the questions raised in the questionnaires include which section between the maintenance operations sections and public lighting section is performing the repairs and maintenance of public lighting satisfactory, are customers satisfied with the service received, were changes initiated and implemented necessary and well received, and were decisions taken necessary and well received by employees and customers and community leaders.

104 survey questionnaires will be emailed to participating employees involved in the performance of the repairs and maintenance operations of public lighting. 29 printed

survey questionnaires will be issued to various customers from different areas of the municipality at Rosslyn Customer Care Centre while paying their respective accounts and enquiring about services. 11 printed survey questionnaires will be issued to community leaders (ward councillors and ward committee members) from different wards in Soshanguve area while attending meetings. A total of 144 survey questionnaires will be distributed to all potential participants (employees, customers and community leaders).

- **Advantages of survey**

- It is most flexible in obtaining data,
- The identity of the correspondent is known.
- Questionnaires are usually fully completed.

- **Disadvantage of survey**

- Non-respond rate, some of the participants may not respond to the questionnaires.
- Sampling frame, which entails the difficulties in assessing the valued sampling population.

4.2.2 Sampling

According to Coldwell and Herbst (2004:74), sampling is defined as the act, process or technique of selecting a representative part of a population for the purpose of determining parameters or characteristics of the whole population; and a population is a group of individual persons, objects or items from which samples are taken for measurement. The population will consist of employees in maintenance operations sections, employees in public lighting section, customers, middle managers and community leaders (ward councillors and ward committee members). Probability sampling approach will be

considered through simple random sampling, stratified sample and cluster sampling techniques.

- **Advantages of sampling**

- Information can be provided quickly and economically.
- A representative can be selected from large size of population.
- Sampling is more accurate and provides more reliable information.

- **Disadvantages of sampling**

- It has got a sampling bias, which is a favour in selecting units in a population.
- It has got a sampling error due to the less variability or range in the sampling distribution.

4.2.3 Documentation review

The researcher will be studying maintenance operations documents in analysing performance and costs, and email correspondences. The challenges of this method can be incompleteness of information, but it has got an advantage of getting comprehensive and historical information.

4.2.4 Interviews

Interview is a process of asking a sample of people (either individually or in a group) broadly the same set of questions or points of discussion in order to uncover their experiences, feelings, opinions and reflections (Charlesworth, Lawton, Lewis, Martin & Taylor, 2001:27). Interviews are particularly useful for getting the story behind a participant's experiences. Unstructured interviews will be conducted in asking open-ended

questions where the researcher will be considering the experiences, feelings and beliefs of the participants (employees, customers and community leaders).

4.2.5 Focus group

Bryman and Bell (2003:510) define focus group as a technique or method of interviewing that involves more than one, usually at least four interviewees. Focus group technique allows interviewees to stimulate each other and share their ideas and thoughts. Interviews will be conducted in a focus groups consisting of employees in different designations, employees from different sections and sub-sections, customers in different areas and classes in sharing ideas and thoughts. The disadvantage of the focus groups is that it is difficult sometimes to analyse certain responses, but it has got an advantage of being quick and reliable in getting common impressions amongst the participating group.

4.3 Evaluation and analysis of data

The collected data will be evaluated and analysed as follows as outlined by Coldwell and Herbst (2004:96):

- Triangulation
- Editing (editing of the raw data)
- Coding (numerical responses to survey questions)
- Special data problems (consider incorrect and incomplete answers)
- Tabulation
- Percentages
- Performance of calculations and graphical representation
- Comparison, statistical, interpretation and testing of the hypothesis

- Consideration of the mean, median, mode and peak during observation of figures
- Consider the range, variance and standard deviation

4.4 Ethical issues

Ethical issues revolve around concerns such as people involved in the research are treated and the level of engagement of relation in the activities, and is focused on whether there is a harm to participants, lack of informed consent, invasion of privacy and involvement of deception (Bryman and Bell, 2003:127).

The researcher will ensure that consent is obtained from all relevant stakeholders involved during the research, will avoid dishonesty and analyse all information as provided without tampering, will ensure that there is no violation of privacy and confidentiality, avoid plagiarism and declare the originality of other work included in the report.

4.5 Validity

Validity refers to the extent to which the findings accurately reflect what was being investigated (Charlesworth, Lawton, Lewis, Martin & Taylor, 2001:47). The findings of the research study will be referred and compared to previous findings of other researchers, and the extent in which the available evidence is supported by the hypothesis. The researcher will further ensure that the research focus and concentrate on its intentions in order to improve its validity.

4.6 Reliability

Reliability is referred to the extent to which the results obtained from the research would

be the same, in case the research was repeated (Charlesworth, Lawton, Lewis, Martin & Taylor, 2001:47). The researcher will try to eliminate as many errors as possible during the data collection stage, and ensure that the data is representative, and performs the evaluation and analysis of the data in order to improve its reliability.

4.7 Summary

The researcher presented various approaches for data collection and highlighted its strength and weaknesses respectively. These approaches have been recommended by different authors and will provide the researcher with complementary opportunities of gathering the data. The next chapter will focus on the discussions of results obtained through data collection approaches.

CHAPTER 5

5 RESULTS AND DISCUSSION

5.1 Introduction

This chapter report on the findings of the study obtained through the survey questionnaires, documentation reviews and interviews. The researcher restates the research objectives in order to maintain focus and consistency, and further presents and discusses the results through graphical representations, tables and figures.

The researcher has identified and developed the research objectives of this study in chapter one as follows:

- To evaluate the impact of management decisions in the maintenance operations;
- To investigate the maintenance operations activities on the repairs and maintenance of public lighting;
- To assess the process that has been followed in implementing change in the maintenance operations.

5.2 The demographics of the respondents, interviews and document reviewed

45 responses was received from participating employees in which 37 questionnaires was fully completed (no spaces left on the form) and 8 questionnaire were not fully completed (spaces left on the form), and the response rate based on these numbers was 43%. Annexure C and D show emails for survey questionnaires that was send to participating employees for completion. 29 responses were received from various customers residing in different areas of the municipality at Rosslyn Customer Care Centre being fully completed (no spaces left on the form), and the response rate based on these numbers was 100%.

11 responses was received from community leaders (ward councillors and ward committee members) from different wards in Soshanguve area whereby 6 questionnaires was fully completed (no spaces left) and 5 questionnaire were not fully completed (spaces left on the form), and the response rate based on these numbers was 100%. A total of 85 (59%) responses were received whereby 72 (50%) of them were fully completed without errors.

Three interviews have been conducted with employees performing the repairs and maintenance of public lighting, customers and community leaders. Several documents such as circulations, emails correspondences, policies and procedures, maintenance documents and reports correlated to decisions, changes and repairs and maintenance on public lighting have been reviewed.

5.3 The impact of management decisions in the maintenance operations

5.3.1 All employee's responses

Table 5.1 presents the responses, mean, standard deviations and correlations among the study variables based on whether the decisions taken on the repairs and maintenance of public lighting were necessary (**issue 19**). Most of the respondents ($n = 16$; 36.36%) agreed that decisions taken on the repairs and maintenance of public lighting were necessary, and 18.18% strongly agree especially in considering the fact that public lighting section was not coping with the backlog of outstanding complaints on faulty lights. That was also fully supported by the responses presented in figure 5.1 on whether the decisions taken on the repairs and maintenance of public lighting were well received (**issue 20**), whereby most of the respondents (23%) agree that the decisions taken on the repairs and maintenance of public lighting were well received, whereas only 21% disagree and 42% of employees which can be regarded as employees who were concerned on the

sequence of decisions taken by top management for frequent implementation of changes on the Maintenance operations sections was undecided.

Table 5.1: Results on issue 19**Error! Not a valid link.**

Even though the majority of the respondents have supported the decision of decentralising the repairs and maintenance of public lighting, the standard deviation is a clear exhibition of the degree in which employees have different perceptions and opinions on the basis of the decisions taken by top management, in regardless of supporting the decentralisation decision. Hence Steinhause (2010:3) made it clear that decisions could have enormous implications on the future of the organisation and that is something that those involved in decisions taking should always bear in mind while executing their duties; and Chatha and Weston (2006:1970) emphasised that managers need to be pre-informed of how their decisions within their area of responsibilities would affect different parts of the organisation.

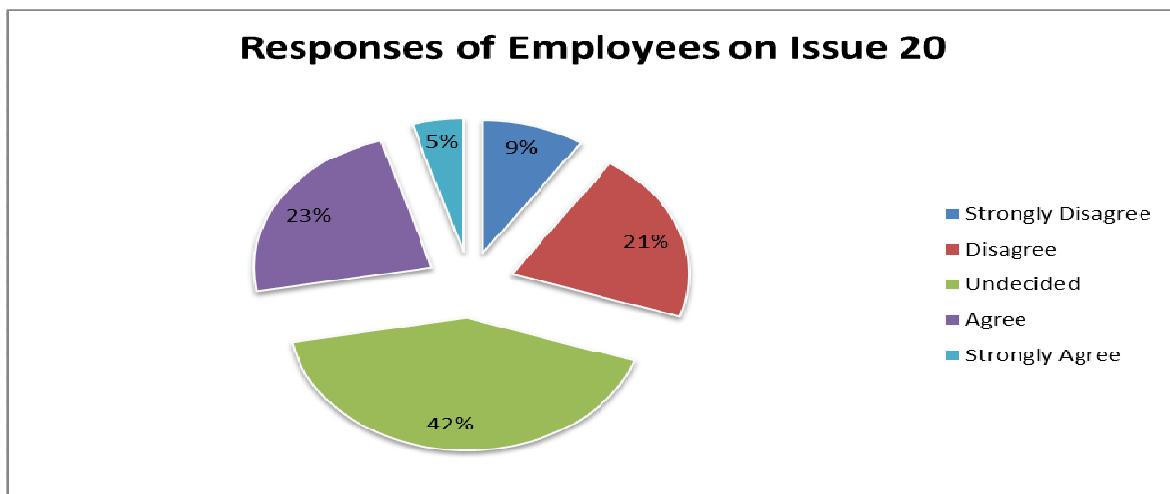


Figure 5.1: Responses of employees on issue 20

Most of the respondents ($n = 16$) disagreed that all sections performing the repairs and maintenance of public lighting are equipped with the necessary vehicles including specialised vehicles such as cherry pickers as shown in figure 5.2, and that could possibly be one of the contributing factors that hinders the repairs and maintenance of public lighting to be done within a reasonable accepted period after being reported as highlighted in figure 5.3.

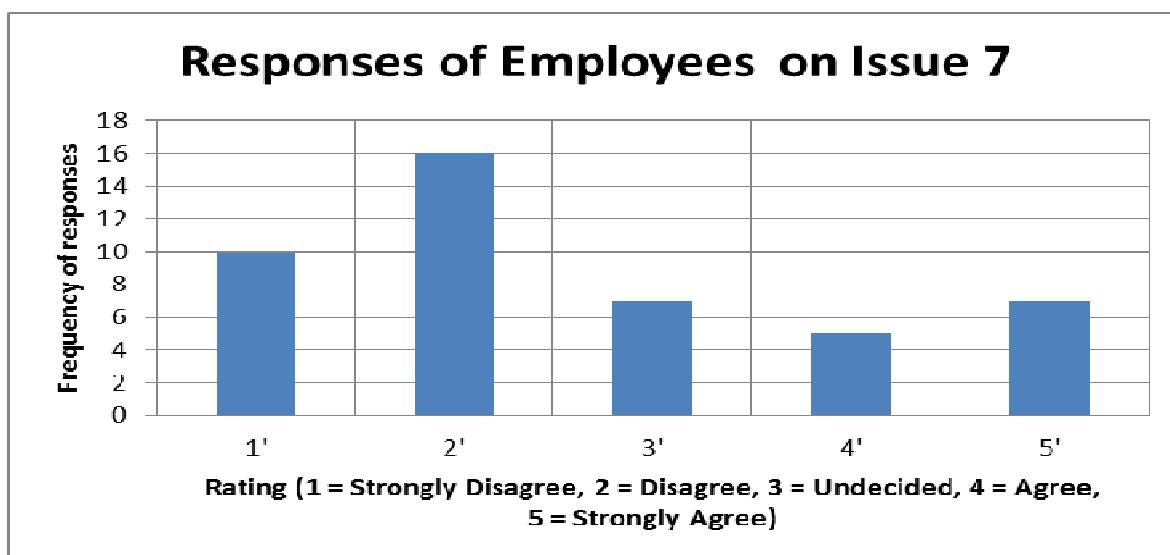


Figure 5.2: Responses of employees on issue 7 (all sections are equipped with necessary vehicles including specialised vehicles such as cherry pickers)

Most of the employees (36%) disagree that the repairs and maintenance of public lighting is done within a reasonable accepted period after being reported, whereas 23% was undecided and 18% of employees strongly disagree. The shortage of fundamental resources to do the work could be one of the contributing factors of employee's responses as shown on figure 3.

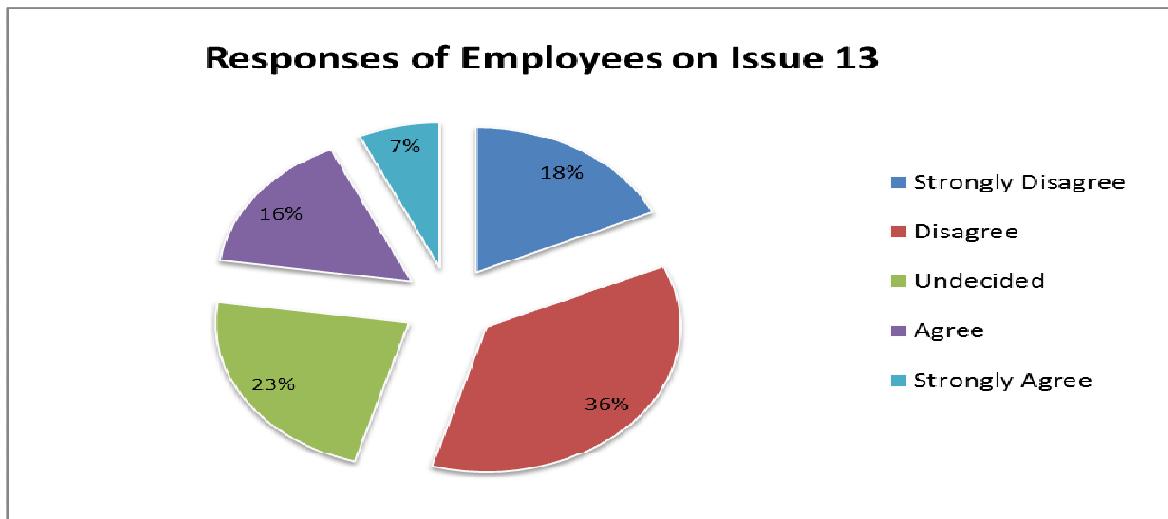


Figure 5.3: Responses of employees on issue 13 (the repairs and maintenance of public lighting is done within a reasonable accepted period after reported)

5.3.2 Middle managers responses

A combined total balance figure of 37.5% (12.5% plus 25%) of middle managers responses on whether the decisions taken on the repairs and maintenance of public lighting were necessary (**issue 19**), agreed and disagreed simultaneously that the decisions taken on the repairs and maintenance of public lighting were necessary, whereas 25% on whether the decisions taken on the repairs and maintenance of public lighting were well received (**issue 20**), disagreed that decisions taken on the repairs and maintenance of public lighting were well received.

Table 5.2: Middle managers responses on issue 1,2,19 and 20**Error! Not a valid link.**

62.5% of middle managers responses on whether the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory (*issue 1*), agreed that the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory, whereas in converse, 37.5% of managers responses on whether the public lighting section is performing the repairs and maintenance of public lighting satisfactory (*issue 2*), strongly disagreed that the public lighting section is performing the repairs and maintenance of public lighting satisfactory as shown in table 5.2.

A further cumulative of 25% of middle managers responses on whether the level of motivation amongst employees performing the repairs and maintenance of public lighting is high (*issue 4*), disagreed that the level of motivation amongst employees performing the repairs and maintenance of public lighting is high, whereas 75% were undecided as shown in table 5.3. When coming to whether the budget allocated for the repairs and maintenance of public lighting is sufficient enough (*issue 8*), 50% of middle managers strongly disagree that the budget allocated for the repairs and maintenance of public lighting is sufficient enough, whereas 25% disagree and that brings a budget issue to a cumulative of 75%; and Kunc and Morecroft (2010:1170) articulated that management decisions should focus on the organisation's resource configuration and resource development since both these factors will ultimately affect the overall performance of the organisation.

The shortage of sufficient resources needed to enable employees to execute their duties to the best of their abilities will of course generate unhappiness and dissatisfactions that will ultimately instil the level of demotivation amongst employees as exhibited by responses in table 5.3 and further create conflict amongst the employees.

Table 5.3: Results on issue 4 and 8

Description	Rating	Responses	Issue 4		Issue 8	
			Frequency	Percentage	Frequency	Percentage
Strongly Disagree	1'	8	0	0.00%	4	50.00%
Disagree	2'	8	2	25.00%	2	25.00%
Undecided	3'	8	6	75.00%	1	12.50%
Agree	4'	8	0	0.00%	1	12.50%
Strongly Agree	5'	8	0	0.00%	0	0.00%

5.4 Maintenance operations activities on the repairs and maintenance of public lighting

5.4.1 Responses of employees from public lighting section

Table 5.4 presents the responses, mean, standard deviations and correlations among the study variables based on whether the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory (**issue 1**), whether public lighting section is performing the repairs and maintenance public lighting satisfactory (**issue 2**), and whether the execution of maintenance work and construction of public lighting should be centralised (**issue 22**), from employees at public lighting section. Most of the respondents ($n = 6$; 54.55%) agree that public lighting section is performing the repairs and maintenance public lighting satisfactory, whereas few ($n = 2$; 18.18%) agree that maintenance operations sections are performing the repairs and maintenance public lighting satisfactory.

27.27% of employees from public lighting section strongly agree that the execution of maintenance work and construction of public lighting should be centralised. Hence the similarity of the standard deviation and the mean of 2.2 on whether public lighting section is performing the repairs and maintenance public lighting satisfactory (**issue 2**), is a clear indication of the perceptions (in same agreement) of employees at public lighting section,

in comparison to the standard deviations on whether the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory (**issue 1**), and whether the execution of maintenance work and construction of public lighting should be centralised (**issue 22**) respectively.

Table 5.4: Responses of employees at public lighting section on issue 1, 2 and 22

Description	Rating	Issue 1		Issue 2		Issue 22	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Strongly Disagree	1'	0	0.00%	0	0.00%	0	0.00%
Disagree	2'	2	18.18%	0	0.00%	3	27.27%
Undecided	3'	4	36.36%	3	27.27%	2	18.18%
Agree	4'	2	18.18%	6	54.55%	3	27.27%
Strongly Agree	5'	3	27.27%	2	18.18%	3	27.27%
Mean		2.2		2.2		2.2	
Std. Dev.		1.326649916		2.227105745		1.166190379	

5.4.2 Responses of employees from maintenance operations sections

Table 5.5 presents the responses, mean, standard deviations and correlations among the study variables based on whether the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory (**issue 1**), whether public lighting section is performing the repairs and maintenance public lighting satisfactory (**issue 2**), and whether the execution of maintenance work and construction of public lighting should be centralised (**issue 22**), from employees at maintenance operations sections. Most of the respondents ($n = 15$; 44.12%) agree that the maintenance operations sections are performing the repairs and maintenance public lighting satisfactory, whereas few ($n = 8$; 23.53%) agree that public lighting section is performing the repairs and maintenance public lighting satisfactory. 30.30% of employees from the maintenance operations sections strongly disagree that the execution of maintenance work and construction of public lighting should be centralised. However, the standard deviation of 2.6 on whether the execution of maintenance work and construction of public lighting should be

centralised (**issue 22**), from maintenance operations sections employees clearly indicates serious levels of the incongruity and that exhibits the degree of different opinions on this issue.

Table 5.5: Responses of employees at maintenance operations sections on issue 1, 2 and

22

Description	Rating	Issue 1		Issue 2		Issue 22	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Strongly Disagree	1'	1	2.94%	6	17.65%	10	30.30%
Disagree	2'	7	20.59%	14	41.18%	5	15.15%
Undecided	3'	2	5.88%	6	17.65%	3	9.09%
Agree	4'	15	44.12%	8	23.53%	6	18.18%
Strongly Agree	5'	9	26.47%	0	0.00%	9	27.27%
Mean		6.8		6.8		6.6	
Std. Dev.		5.075431016		4.489988864		2.576819745	

5.4.3 Responses from customers and community leaders

Table 5.6 shows responses from customers and community leaders on whether the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory (**issue 1**), and whether public lighting section is performing the repairs and maintenance public lighting satisfactory (**issue 2**) respectively. Most of the customers ($n = 12$; 41.38%) agree that maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory, whereas few customers ($n = 10$; 34.48%) agree that public lighting section is performing the repairs and maintenance of public lighting satisfactory.

Most of the respondents from the community leaders ($n = 3$; 27.27%) agree that maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory, whereas few ($n = 2$; 20%) agree that public lighting section is performing the repairs and maintenance of public lighting satisfactory. And both Venkataraman (2009:1) and Hill (2005:5) pointed out that maintenance operations is a

process of keeping an asset in a good working condition to the satisfaction of the customer in meeting the objectives of the organisation, so it is therefore necessary and important for the maintenance of the infrastructure to be performed as planned as that enables the organisation to fulfil its mandate and objectives.

Table 5.6: Responses from customers and community leaders on issue 1 and 2

Description	Rating	Customers				Community Leaders			
		Issue 1		Issue 2		Issue 1		Issue 2	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Strongly Disagree	1	2	6.90%	3	10.34%	4	36.36%	1	10.00%
Disagree	2	4	13.79%	3	10.34%	3	27.27%	5	50.00%
Undecided	3	4	13.79%	8	27.59%	1	9.09%	2	20.00%
Agree	4	12	41.38%	10	34.48%	3	27.27%	2	20.00%
Strongly Agree	5	7	24.14%	5	17.24%	0	0.00%	0	0.00%

The results shown on figure 5.4 illustrate the responses of customers and community leaders on the satisfaction of the service received with regard to the repairs and maintenance of public lighting. A total of 10 out of 29 customers (34.48%) strongly agree that they are satisfied with the repairs and maintenance of public lighting, whereas in contrary, 4 out of 11 community leaders (36.36%) strongly disagree that customers are satisfied with the repairs and maintenance of public lighting. This difference of opinions between customers and community leaders is a precise illustration that there are still some elements of dissatisfaction on the repairs and maintenance of public lighting that needs attention, and perhaps the key factor attributed to these different of opinions can be the difference in performance by public lighting section and maintenance operations sections in their respective responsibilities within their area of jurisdictions.

That seemingly means that there are still some areas of concern that need improvements and modifications on the existing arrangements of the repairs and maintenance of public lighting catered by these two sections (public lighting and maintenance operations) in order to render a satisfactory service on public lighting and keep customers and community leaders satisfied.

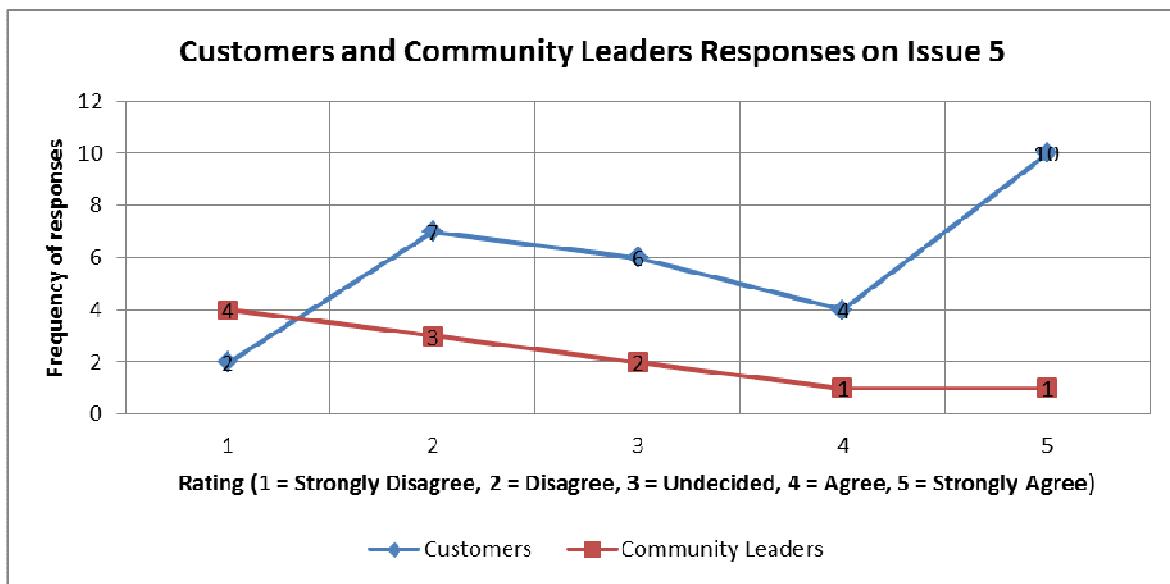


Figure 5.4: Customers and community leader's responses on issue 5

Figure 5.5 illustrates the responses of customers and community leaders as to whether the repairs and maintenance of public lighting is done within a reasonably accepted period after being reported. 50% of community leaders disagree that the repairs and maintenance of public lighting is done within a reasonably accepted period after being reported, whereas customer's response on the same issue have been 17.24%. However, on the contrary, 37.93% of customer's responses agree that the repairs and maintenance of public lighting is done within a reasonably accepted period after being reported as compared to 20% response from the community leaders.

The disproportion of different opinions and perceptions is clear indication that there are some elements of satisfaction on the repairs and maintenance of public lighting in the mist of elements of dissatisfaction, and that could be due to the lack of distinguishing the responsibilities between maintenance operations sections and public lighting section from customer's and community leader's perspectives.

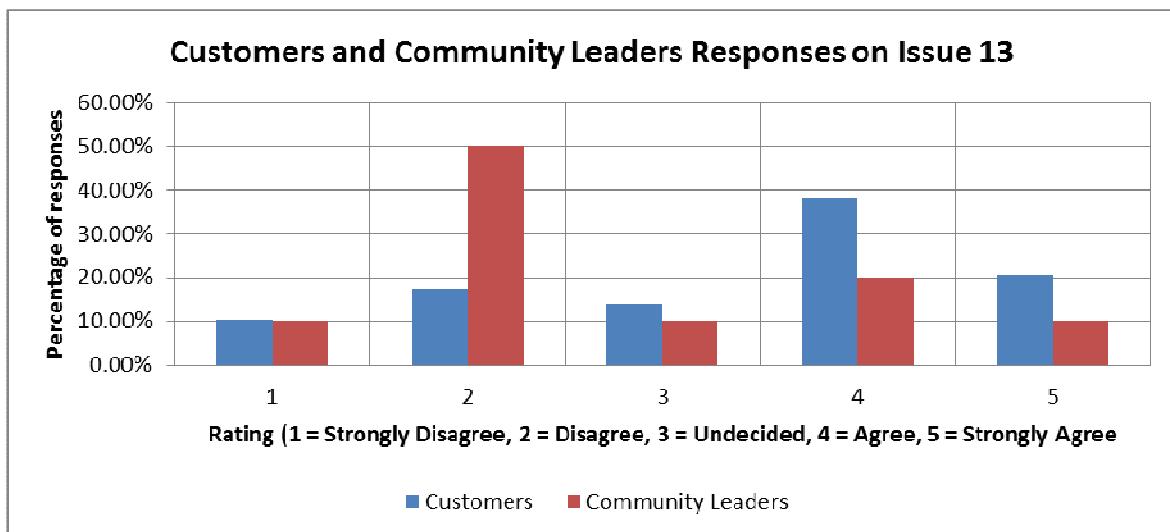


Figure 5.5: Customers and community leader's responses on issue 13

5.5 The effect of change in the maintenance operations

5.5.1 Responses of employees with regard to the change implemented

Table 5.7 shows responses from employees on whether changes initiated on the repairs and maintenance of public lighting was necessary (*issue 17*) and whether changes implemented on the repairs and maintenance of public lighting was well received (*issue 18*) respectively in reference to decisions taken by top management. A total of 13 out of 43 employees which constituted 30.23% agree that changes implemented on the repairs and maintenance of public lighting was necessary, whereas 5 out 43 employees which constituted 11.63% disagree. 37.21% of employees were undecided on whether changes implemented on the repairs and maintenance of public lighting was well received, 25.58% agree, and 13.95 disagree that changes implemented was well received.

These results clearly demonstrate that as much as there are differences of opinions and perceptions, the latter decision taken by top management on decentralising the function of the repairs and maintenance of public lighting is most favoured and welcomed by

employees as shown by 30.23% and 25.58% respectively on table 5.7. Hence one can associate the responses of employees on these two issues to the current improved conditions of public lighting within the municipality, and this is the third-order of change explained by Clark, Gioia, Ketchen & Thomas (2010:397) intended in introducing change on the processes and systems of the organisation, restructuring of the organisation, and merging and acquisition of the organisation.

Table 5.7: Responses from employees on issue 17 and 18

Description	Rating	Responses	Issue 17		Issue 18	
			Frequency	Percentage	Frequency	Percentage
Strongly Disagree	1'	43	4	9.30%	6	13.95%
Disagree	2'	43	5	11.63%	7	16.28%
Undecided	3'	43	13	30.23%	16	37.21%
Agree	4'	43	13	30.23%	11	25.58%
Strongly Agree	5'	43	8	18.60%	3	6.98%

5.5.2 Responses of middle managers with regard to the change implemented

Figure 5.6 illustrates the responses of middle managers on issues on whether changes initiated on the repairs and maintenance of public lighting was necessary (*issue 17*) and whether changes implemented on the repairs and maintenance of public lighting was well received (*issue 18*) respectively in reference to decisions taken by top management.

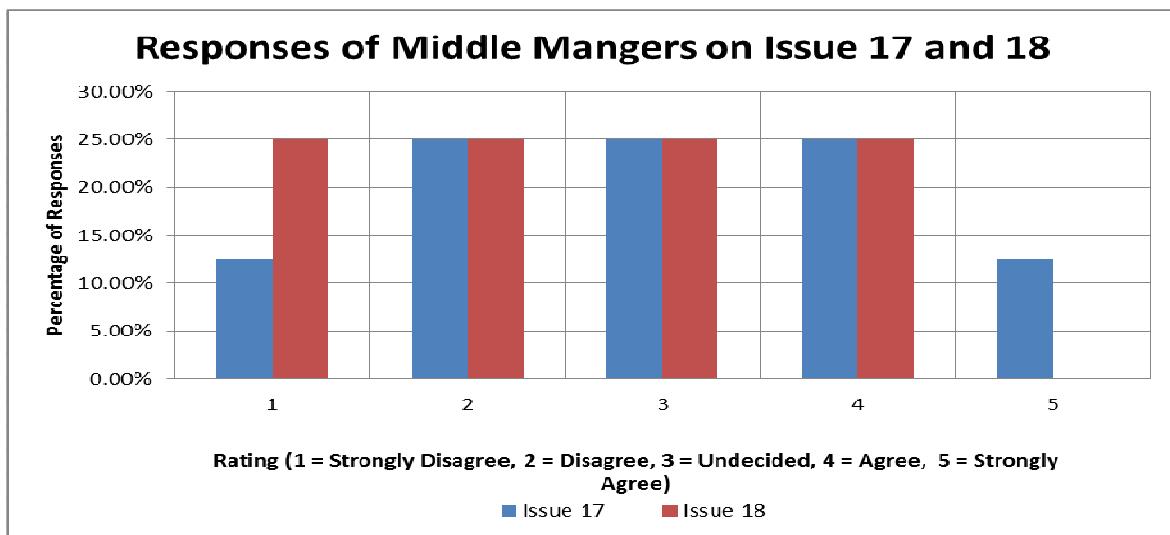


Figure 5.6: Middle Managers responses on issue 17 and 18

25% of middle managers disagree that the changes initiated on the repairs and maintenance of public lighting was necessary and well received, whereas on the contrary 25% agree that changes implemented was necessary and well received.

5.6 Overall survey responses

Figure 5.7 shows the overall responses from the employees, customers and community leaders on the issues under investigation. Collaboration of the reflections on figure 6 and Annexure C shows that issues that have received more responses was issue 21 (the research and development, standard of materials and handling of public lighting complaints should be centralised) with 34 responses on strongly agree, issue 15 (all dysfunctional streetlights and highmast lights are reported through the reporting channels) with 33 responses on agree, issue 18 (changes implemented on the repairs and maintenance of public lighting was well received) with 32 responses on undecided and issue 1 (the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory) with 32 responses on agree.

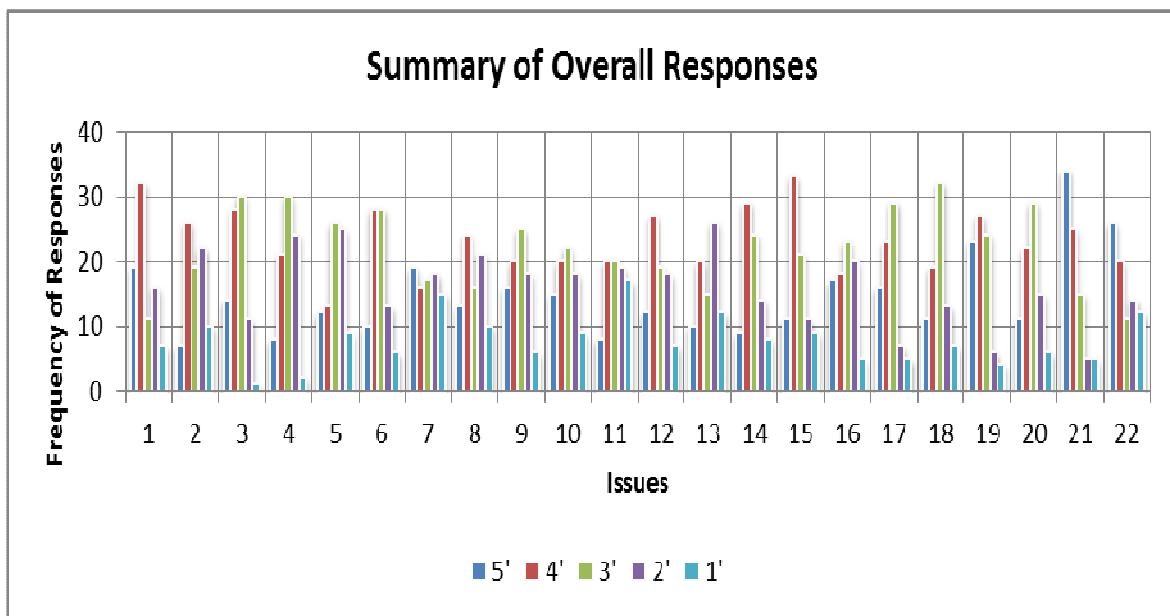


Figure 5.7: Summary of overall responses

These responses indicate that most respondents strongly agree that the research and development, standards of materials and handling of public lighting complaints should be centralised; most respondents agree that all dysfunctional streetlights and highmast lights are reported through the reporting channels; most respondents were undecided on whether changes implemented on the repairs and maintenance of public lighting was well received and finally most respondents agree that the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactorily.

5.6.1 Overall responses on the decisions taken

Figure 5.8 shows the overall responses from the employees, customers and community leaders on the issues under investigation. 32% of respondents agree that the decisions taken on the repairs and maintenance of public lighting were necessary (**issue 19**), and 35% were undecided on whether these decisions were well received (**issue 20**).

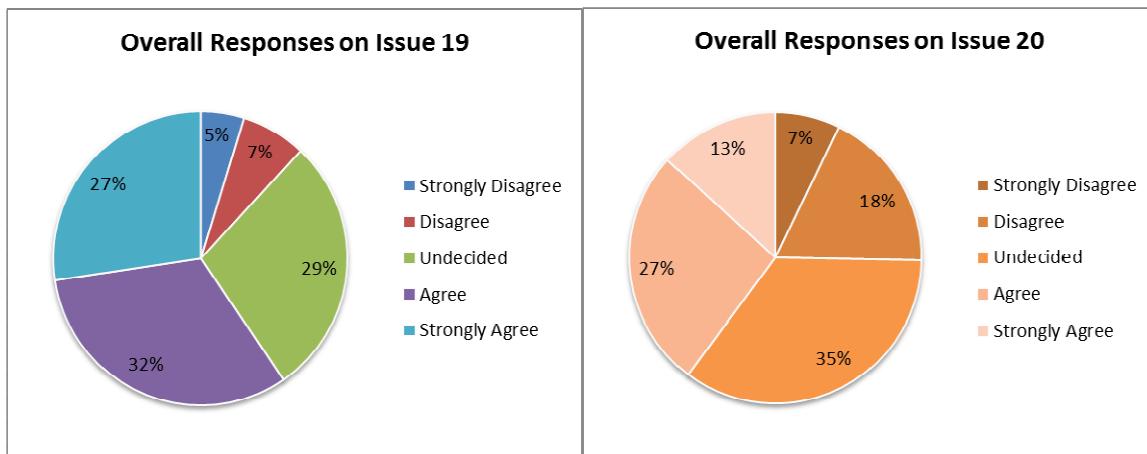


Figure 5.8: Overall responses on issue 19 and 20

5.6.2 Overall responses on the maintenance activities

Figure 5.9 shows the overall responses from the employees, customers and community leaders on the issues under investigation.

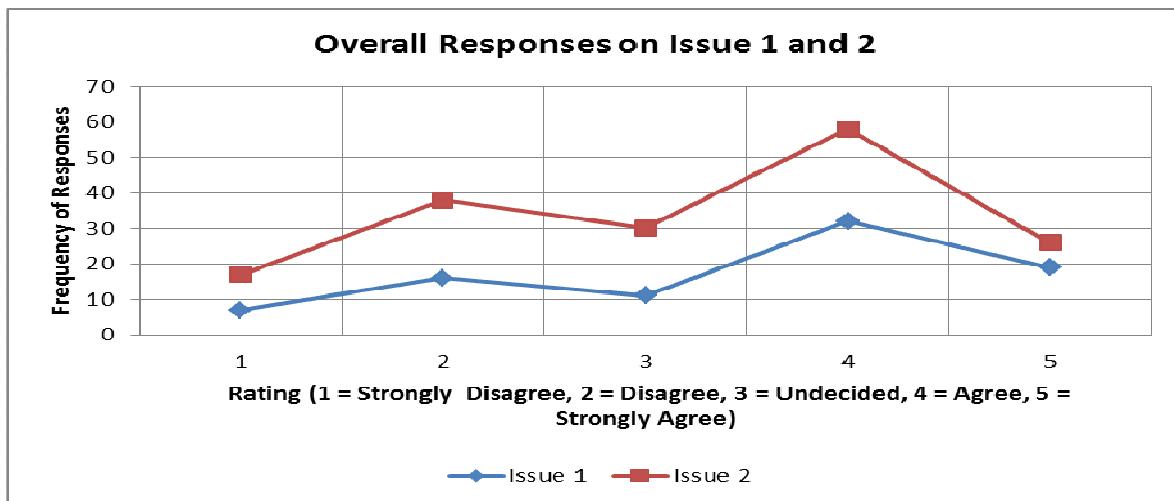


Figure 5.9: Overall responses on issue 1 and 2

32 respondents agree that the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory (**issue 1**), whereas 26 respondents agree that public lighting section is performing the repairs and maintenance of public lighting satisfactory (**issue 2**).

5.6.3 Overall responses on the change implemented

Figure 5.10 shows the overall responses from the employees, customers and community leaders on the issues under investigation.

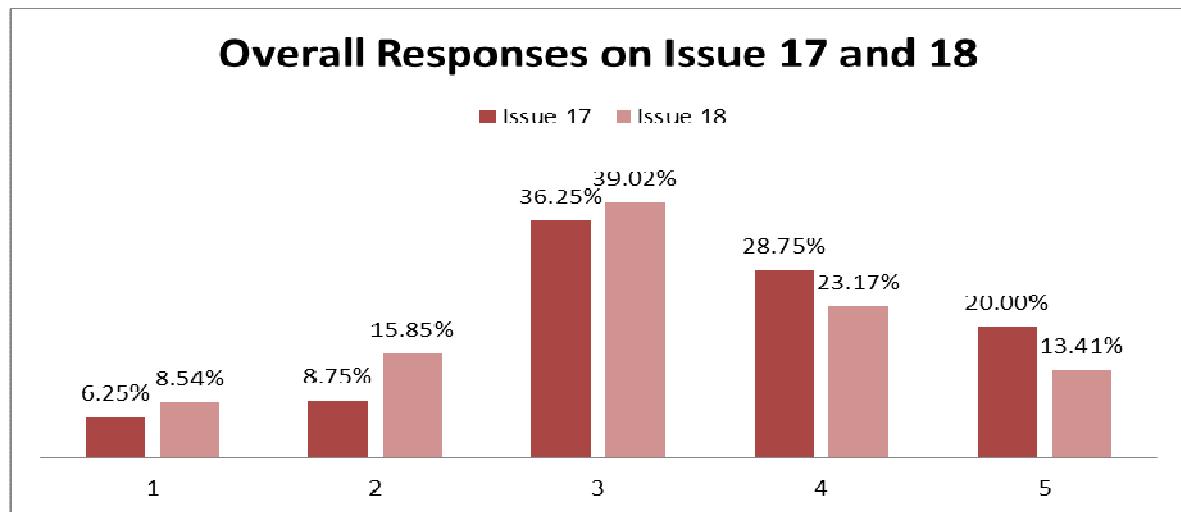


Figure 5.10: Overall responses on issue 17 and 18

36.25% and 39.02% of respondents were undecided on whether changes initiated and implemented on the repairs and maintenance of public lighting was necessary and well received respectively. However, 20% and 13.41% of respondents strongly agree that changes were necessary and well received respectively, whereas 6.25% and 8.54% disagree. And thus Vermeulen, Puranam and Gulati (2010:72) describe the process of organisational change as a process of making the organisation to be creative and disintegrate the existence of power structure within the organisation.

5.7 Reviewing of related documents on public lighting repairs and maintenance

The researcher had reviewed several documents such as circulations, emails correspondences, policies and procedures, maintenance documents and reports correlated to decisions, changes and repairs and maintenance on public lighting.

5.7.1 Decentralisation of public lighting maintenance

Annexure F presents some of the interactions and communications on the decentralisation and centralisation of public lighting maintenance, and further indicates that this notion of decentralising and centralising of public lighting originated a long way back, hence this study focused only on decisions and changes that took place in between 2008 to 2011. Most of the employees were noted as being in support of the decentralisation and were even prepared to restructure and complement their work dedicated for this function, and they supported the concept of centralising the reporting and handling of customer's complaints. These interactions further demonstrate that employees were having different opinions and perceptions on decentralisation and centralisation of public lighting, and also an indicative that frequent several decisions were taken in changing the maintenance activities of public lighting with the intention of improving the performance and regain confidence and satisfaction from customers.

5.7.2 Customer complaints and concerns

It is very evident from Annexure H and I that the service that was rendered by Energy and Electricity Division on the repairs and maintenance of public was a suspect since 2006 or even some years before that. These annexes illustrate some elements of inconsistency on the maintenance of public lighting in some other areas of the municipality and that led customers to gradually lose their patience and resort to report their frustrations to the printing media for intervention and assistance. Reported faulty streetlights were not attended or fixed within a reasonably accepted period and that is supported by a period of dysfunctional streetlights for over a period of eight months as mentioned in Annexure H. The volume of complaints from respective customers was a clear indication that the illuminations levels of some of the streetlights was not in compliance to the prescribed limits as stated by South African National Standards (SANS) 10098.

The maintenance plan clearly indicates that maintenance operations sections on public lighting should conduct weekly and monthly scouting, do the repairs and maintenance within a period of three to seven days depending on the nature of work to be performed and keep the public lighting burning in a satisfactory and acceptable manner. And thus public lighting is meant for the illumination of roads and areas for pedestrians, motorists and community members, and it has a significant impact on the public safety. Hence Lee and Scott (2009:26) indicated that it is important to have a well-developed maintenance practice to support the business operations.

And that compelled Energy and Electricity Division to initiate some efforts of redressing the poor maintenance performance and reducing of enormous complaints received from customers so that the maintenance activities can somehow comply with the maintenance plan philosophies so that rendering of a diligent service can be achieved and maintained as shown in Annexure J and K.

5.7.3 Challenges experienced on public lighting repairs and maintenance

From the deduction of the email correspondences, presentations and circulars read, there were numerous challenges encountered by all sections involved in the repairs and maintenance of public lighting that disrupted the scheduled maintenance so such an extent that these sections were resort to focus on the reactive maintenance instead of scheduled maintenance. For instance, some of the challenges encountered included the following:

- Theft**

The Maintenance operations sections was experiencing high volume of equipment's theft such copper cables, circuit breakers inside the streetlights and highmast lights,

streetlights poles and luminaires and control boxes. Some of the participants during the interviews did highlighted the issue of theft as a concern and further that these stolen equipment's are exchanged or sold at the scrap dealers for cash.

- **Vandalism or damage**

Vandalism or damage of public lighting infrastructure by unknown person and during vehicle accidents was also noted as a challenge; and some were not even reported and noticed by the maintenance team's whiles conducting inspections.

- **Budget**

The allocated budget for the repair and maintenance of public lighting had been noted as a thorny issue that is continuously bothering the middle managers as they always have to juggle around some of the figures, and that created some elements of instability; and Lee and Scott (2009:30) precisely pointed out that maintenance policy cannot operate effectively and efficiently without sufficient maintenance resources.

- **Personnel, materials and equipment**

The workforce responsible for the repairs and maintenance of public lighting has been noted as being insufficient enough to fully execute this function, there was a shortage of materials in some instances which took extensive period to be made available as shown in Annexure L, and the shortage and unavailability of some equipment's needed to perform maintenance work was just another headache to the maintenance teams.

5.8 Interviews conducted

The researcher conducted one unstructured interview per category of employees, customers and community leaders in order to allow participants to respond based on their experiences, feelings and beliefs. One open-ended question with regard to the repairs and maintenance of public lighting was asked in order to allow respondents to be free and formulate their own answers. All these three interviews took place during the day with an averaged of thirty minutes per interview and were recorded.

Employees were somehow satisfied with the condition of public lighting; hence they were concerned about insufficient resources, and the effect of changes on their working environment and condition due to some of the decisions taken. The general responses from customers was that they were happy with the service rendered on the maintenance of streetlights, but raised the reporting telephone lines and lights that are frequently dysfunctional as a concern. Community leaders were satisfied with the conditions of streetlights, but dissatisfied on the dysfunctional streetlights and highmast lights that have been reported and have not yet being repaired whereas some have been reported long time ago.

5.9 Summary

The analysis of the responses received from employees, customers and community leaders and information obtained from reviewing various documents confirms that there were challenges experienced on the repairs and maintenance of public lighting, various factors contributed to the manifestations of those particular challenges and that the responses from participants demonstrated contrasting opinions and perceptions on factors attributed to the repairs and maintenance of public lighting. The next chapter will therefore present the conclusion and recommendations based on the findings of the investigation.

CHAPTER 6

6 CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The researcher will present the conclusions specific to the research statement through the interpretation and analysis of the collected data, the recommendations based on the realistic and achievable strategies to address the problem and further highlight the possible future research considerations. All factors presented and discussed in the previous chapters will form an integral part to the conclusions and recommendations of this study. The aim of this study was to investigate the effect of frequent implementation of operational changes in the repairs and maintenance activities of public lighting in Energy and Electricity Division of the City of Tshwane Metropolitan Municipality due to management decisions.

6.2 Synopsis of the findings

The analysis of the responses from all respondents and documents reviewed exhibit a various degree of disparity on the opinions and perceptions of all factors associated with the maintenance activities of public lighting.

6.3 Conclusion

6.3.1 The effect of management decisions

Most of the employees including the middle managers had acknowledged the decisions taken by top management for decentralising the repairs and maintenance of public lighting as genuine and necessary especially in considering the fact that public lighting section

was not coping with all the work while this maintenance activity was centralised. Hence some doubted the frequency of decisions that top management was taking with regard to the repairs and maintenance of public lighting and have demonstrated their concerns with 42% of undecided responses on whether the decisions taken were well received. Most of the employees had the same opinions that the repairs and maintenance of public lighting was not performed within a reasonably accepted period after being reported.

Hence in the overall, the respondents agreed that the decisions taken on the repairs and maintenance of public lighting was necessary especially in considering the decentralisation of the maintenance activities.

6.3.2 Maintenance activities of public lighting

Middle managers and employees from maintenance operations sections shared the same sentiments that the maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory as compared to public lighting section, and further highlighted that the budget allocated is insufficient to perform all the maintenance activities cost on public lighting.

Public lighting section employees agreed that their section is performing the repairs and maintenance of public lighting very satisfactory as compared to maintenance operations sections, and that the execution of maintenance work and constructing of public lighting should be centralised.

Most of the customers and community leaders are in agreement that the Maintenance operations sections are performing the repairs and maintenance of public lighting satisfactory as compared to Public Lighting Services, and this can be regarded as a true

and neutral judgement since both sections are having contrasting ideas on the maintenance activities of public lighting.

The frequency rate of customer's complaints was an indicative element for the need of rational decisions to be taken in order to improve the performance and mitigate the existence of deficiencies and ineffectiveness on the maintenance activities of public lighting. The shortage of resources such as materials, specialised vehicles, tools and equipment's contributed significantly to the poor performance on the maintenance activities of public lighting. There were other challenges such as vandalism of the infrastructure and theft which made it difficult for Energy and Electricity Division in some instance to render a satisfactory service on the repairs and maintenance public lighting.

6.3.3 Frequent implementation of operational changes

Most of employees coincided that the changes implemented on the repairs and maintenance of public lighting was necessary. But 37% of employees could not decide as to whether those changes were well received or not, and this could due to uncertainties that employees found themselves on and the effects of those frequent changes on their working environment and conditions. Hence in overall, majority of participants was undecided on either the changes initiated was necessary or well received, even though the second highest figures of respondents agreed that changes initiated was necessary and well received.

The frequent implementation of changes on the maintenance activities of public lighting have yielded to defensive ideologies in protection of the territory, obstruction of focus, and the denial syndrome of the real situation on some of the employees and can be witnessed on the difference of opinions and perceptions between the public lighting section and

maintenance operations sections, of which this is mischievous and extremely dangerous to the organisation.

6.4 Recommendations

The following are therefore recommended based on the overall components of the study in order achieve strategies of addressing the frequent operational changes implemented in Energy and Electricity Division on the maintenance activities of public lighting:

- Management should strive to take better decisions that are dependent upon the multitude of intrinsic and extrinsic factors and furthermore the decisions should be taken with a shifted focus from intuitive and emotional thinking to logical and rational thinking.
- The repairs and maintenance policies of the infrastructure should be linked to the strategic objectives of an organisation and be properly conducted in such a manner that it maximises the availability of the equipment and achieve an acceptable quality of services in meeting the needs of the customer.
- The components of successful change management should be contemplated during any change process in conjunction with combination of varying elements that have got an impact in different stages of the change process in the organisation.
- An organisation should be in a possession of the fundamental organisational resources that will enables it to perform effectively and efficiently in discharging its responsibilities towards meeting the strategic objectives and keeping all stakeholders satisfied.
- Management should always strive to keep employees motivated at the workplace so that maximum performance could be realised in order to meet strategic objectives of the organisation.

- The organisation's output should be in such a manner that it meets customer's expectations in order to keep them satisfied throughout.
- The organisation should have improved performance management systems and processes that are able to monitor the performance of the organisation and put corrective measures in areas where deviations from the expected set targets are encountered.
- More efforts should be put in place in order to nullify uncertainties from customers and community leaders on the repairs and maintenance of public lighting since that will assist the division to regain confidence and satisfaction from its stakeholders and avoid the experience of "customer's syndrome", which is the intentional inability of customers for not acknowledging and appreciating a good service as a result of one fault in thousand faultless.

A future research that will investigate the application of technological performance management system that will evaluate decisions taken and integrate them to assess the predicted overall performance in consolidating all factors associated to the outcomes of the organisation could be considered, since this will assist organisational leadership for not reaping similar mistakes and further enables the organisation to be effective and efficient in meeting its strategic objectives and keeping all stakeholders satisfied.

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ANNEXURE A: ENERGY AND ELECTRICITY ORGANISATIONAL STRUCTURES



Updated 24.02.2010
Link to previous structure

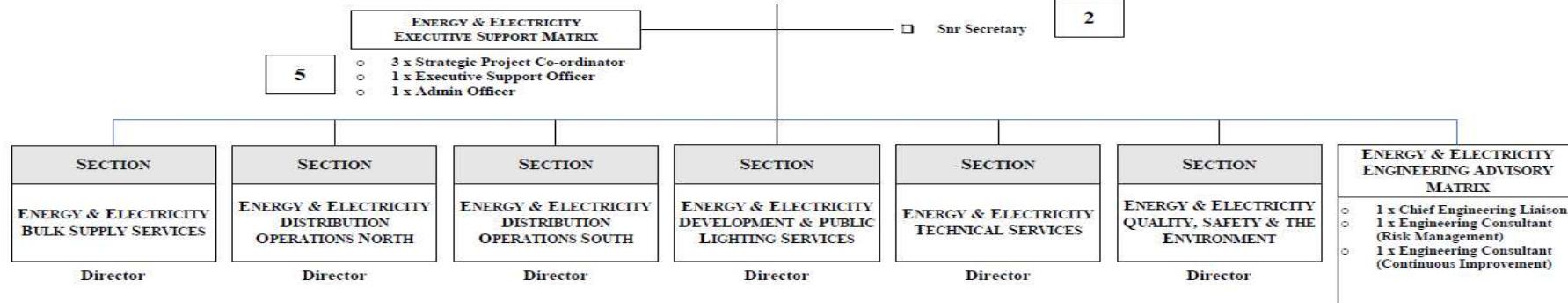
Report - Realignment on the macro organizational design in relation to the new Mayoral Committee Portfolio Clustering - Approved 08.02.2010

DIVISION
10.1
ENERGY & ELECTRICITY

2818



Executive Director



SEE PAGE 2 - 16

SEE PAGE 17 - 25

SEE PAGE 26 - 34

SEE PAGE 35 - 42

SEE PAGE 43 - 55

SEE PAGE 56

751

547

867

151

484

8

3

ANNEXURE B: RESEARCH SURVEY QUESTIONNAIRES

STUDY QUESTIONNAIRES

Please indicate your views by scoring them on a scale of 1 to 5 on each of the issues listed.
 (5 = Strongly Agree, 4 = Agree, 3 = Undecided, 2 = Disagree, 1 = Strongly Disagree)

ISSUES		SCORING				
		5	4	3	2	1
1	The Maintenance Sections (Depots) are performing the repairs and maintenance of public lighting satisfactory.	<input type="radio"/>				
2	The Public Lighting Section (Petroleum) is performing the repairs and maintenance of public lighting satisfactory.	<input type="radio"/>				
3	Employees performing public lighting repairs and maintenance are skilled and received training.	<input type="radio"/>				
4	The level of motivation amongst employees performing the repairs and maintenance of public lighting is high.	<input type="radio"/>				
5	Customers are satisfied with the repairs and maintenance of public lighting.	<input type="radio"/>				
6	Materials for repairs and maintenance of public lighting are reasonably adequate.	<input type="radio"/>				
7	All sections are equipped with necessary vehicles including specialised vehicles such as cherry pickers.	<input type="radio"/>				
8	The budget allocated for the repairs and maintenance of public lighting is sufficient enough.	<input type="radio"/>				
9	Public lighting maintenance contractors are much helpful and capacitated.	<input type="radio"/>				
10	Stores are keeping the minimum stock levels of public lighting materials.	<input type="radio"/>				
11	Service providers are meeting their delivery schedules on materials.	<input type="radio"/>				
12	The commitment on the repairs and maintenance of public lighting is acceptable and satisfactory.	<input type="radio"/>				
13	The repairs and maintenance of public lighting is done within a reasonable accepted period after reported.	<input type="radio"/>				
14	All sections are equipped with the necessary tools and equipments needed for performing maintenance.	<input type="radio"/>				
15	All dysfunctional streetlights and high mast lights are reported through the reporting channels.	<input type="radio"/>				
16	The repairs and maintenance of public lighting is given attention and priority it deserved throughout.	<input type="radio"/>				
17	Changes initiated on the repairs and maintenance of public lighting was necessary.	<input type="radio"/>				
18	Changes implemented on the repairs and maintenance of public lighting was well received.	<input type="radio"/>				
19	Decisions taken on the repairs and maintenance of public lighting were necessary.	<input type="radio"/>				
20	Decisions taken on the repairs and maintenance of public lighting were well received.	<input type="radio"/>				
21	The research and development, standard of materials and handling of public lighting complaints should be centralised.	<input type="radio"/>				
22	The execution of maintenance work and construction of public lighting should be centralised.	<input type="radio"/>				

ANNEXURE C: OVERALL SUMMARY OF THE QUESTIONNAIRES RESPONSES

Item	Issues	Overall Responded	Overall Total					Percentage				
			5'	4'	3'	2'	1'	5'	4'	3'	2'	1'
1	The Maintenance Sections (Depots) are performing the repairs and maintenance of public lighting satisfactory.	85	19	32	11	16	7	22%	38%	13%	19%	8%
2	The Public Lighting Section (Petroleum) is performing the repairs and maintenance of public lighting satisfactory.	84	7	26	19	22	10	8%	31%	23%	26%	12%
3	Employees performing public lighting repairs and maintenance are skilled and received training.	84	14	28	30	11	1	17%	33%	36%	13%	1%
4	The level of motivation amongst employees performing the repairs and maintenance of public lighting is high.	85	8	21	30	24	2	9%	25%	35%	28%	2%
5	Customers are satisfied with the repairs and maintenance of public lighting.	85	12	13	26	25	9	14%	15%	31%	29%	11%
6	Materials for repairs and maintenance of public lighting are reasonably adequate.	85	10	28	28	13	6	12%	33%	33%	15%	7%
7	All sections are equipped with necessary vehicles including specialised vehicles such as cherry pickers.	85	19	16	17	18	15	22%	19%	20%	21%	18%
8	The budget allocated for the repairs and maintenance of public lighting is sufficient enough.	84	13	24	16	21	10	15%	29%	19%	25%	12%
9	Public lighting maintenance contractors are much helpful and capacitated.	85	16	20	25	18	6	19%	24%	29%	21%	7%
10	Stores are keeping the minimum stock levels of public lighting materials.	84	15	20	22	18	9	18%	24%	26%	21%	11%
11	Service providers are meeting their delivery schedules on materials.	84	8	20	20	19	17	10%	24%	24%	23%	20%
12	The commitment on the repairs and maintenance of public lighting is acceptable and satisfactory.	83	12	27	19	18	7	14%	33%	23%	22%	8%
13	The repairs and maintenance of public lighting is done within a reasonable accepted period after reported.	83	10	20	15	26	12	12%	24%	18%	31%	14%
14	All sections are equipped with the necessary tools and equipments needed for performing maintenance.	84	9	29	24	14	8	11%	35%	29%	17%	10%
15	All dysfunctional streetlights and high mast lights are reported through the reporting channels.	85	11	33	21	11	9	13%	39%	25%	13%	11%
16	The repairs and maintenance of public lighting is given attention and priority it deserved throughout.	83	17	18	23	20	5	20%	22%	28%	24%	6%
17	Changes initiated on the repairs and maintenance of public lighting was necessary.	80	16	23	29	7	5	20%	29%	36%	9%	6%
18	Changes implemented on the repairs and maintenance of public lighting was well received.	82	11	19	32	13	7	13%	23%	39%	16%	9%
19	Decisions taken on the repairs and maintenance of public lighting were necessary.	84	23	27	24	6	4	27%	32%	29%	7%	5%
20	Decisions taken on the repairs and maintenance of public lighting were well received.	83	11	22	29	15	6	13%	27%	35%	18%	7%
21	The research and development, standard of materials and handling of public lighting complaints should be centralised.	84	34	25	15	5	5	40%	30%	18%	6%	6%
22	The execution of maintenance work and construction of public lighting should be centralised.	83	26	20	11	14	12	31%	24%	13%	17%	14%

ANNEXURE D: EMAIL SEND TO PARTICIPATING EMPLOYEES

Dear Participant

You have been selected to participate in the Repairs and Maintenance of Public Lighting Survey.

The results of the survey will be used by MF Manganye for study purposes.

The survey is anonymous and the data collected will not be shared with anyone.

Please complete and survey and respond by 25 March 2012.

You are welcome to discuss any aspect with me; my contact details are shown on my signature.

Instructions of the survey:

1. Open the attachment (Excel spreadsheet).
2. Read the issues mentioned.
3. Click your selection/choice on the options indicated.
4. Close the spreadsheet and click save changes.
5. Send it back to me.

Thank you for your support and contribution.

Enjoy your day.

Regards,

Frans Manganye

Deputy Director: Rosslyn Distribution Operations



Energy and Electricity | Room A1-63 | Rosslyn Electricity | Cnr Doreen and Van Niekerk Streets | Pretoria | PO Box 423 | Pretoria | 0001 | www.tshwane.gov.za

Tel: 012 358 4213 | Cell: 082 849 9798 | Fax: 012 359 6420 | Email: fransma@tshwane.gov.za

ANNEXURE E: REMINDER EMAIL SEND TO PARTICIPATING EMPLOYEES

JUST A FRIENDLY REMINDER.

From: Frans M. Manganye
Sent: 19 March 2012 05:07 PM
To: Frans M. Manganye
Cc: Frans M. Manganye
Subject: Public Lighting Survey: Study Purposes

Dear Participant

You have been selected to participate in the Repairs and Maintenance of Public Lighting Survey.

The results of the survey will be used by MF Manganye for study purposes.

The survey is anonymous and the data collected will not be shared with anyone.

Please complete and survey and respond by 25 March 2012.

You are welcome to discuss any aspect with me; my contact details are shown on my signature.

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Thank you for your support and contribution.

Enjoy your day.

Regards,

Frans Manganye

Deputy Director: Rosslyn Distribution Operations



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Tel: 012 358 4213 | Cell: 082 849 9798 | Fax: 012 359 6420 | Email: fransma@tshwane.gov.za

ANNEXURE G: ESTABLISHMENT OF PUBLIC LIGHTING SECTION

PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT (ENERGY AND ELECTRICITY DIVISION)

REQUEST TO USE THE PETROLEUM BUILDING.

1. PURPOSE

The purpose of this report is to obtain permission to use the Petroleum Building as the main Depot for the Public Lighting Services.

2. STRATEGIC OBJECTIVES

This report addresses the following City strategy objectives

Strategic Objective 1:

To provide basic services and infrastructure.

Strategic Objective 3:

To fight poverty

3. BACKGROUND

The Public Lighting Services is centralised in the new ASD structure hence it forms a critical function in the City and the Division is obligated to ring fence this sub-section. The establishment of the Depot for this section will be the first step towards capacitating this critical functional unit.

Currently this section is sharing the Eskom Depot with Wonderboom staff and Babelegi staff and the arrangement is counter productive and defeats the purpose of capacitating the function to effectively perform to its maximum potential.

ANNEXURE H: ARTICLE ON CUSTOMER'S DISSATISFACTION

Vote out the corrupt and lazy

We've recently seen violent protests in some areas over the lack of service delivery at a local government level. In Soshangue, north of Tshwane, residents took to the streets to vent their anger and a number of people were arrested for public violence.

It should be said loud and clear that violence as a form of protest is unacceptable and should be condemned by all. But one can understand the frustrations of people trapped in such conditions while more economically secure South Africans are enjoying boom times. These protesters are living in squalid conditions because the Metro Council has failed to deliver. People have reason to be angry.

The affected residents of Soshangue claim that they have been ignored for years. Why does it take violent protests to get the Executive Mayor of Tshwane and his mayoral committee members to the area?

We have become used to seeing politicians visiting townships and suburbs in the run-up to elections. Once elected though, most seem to simply ignore the plight of the people who may have voted for them. How many report back meetings did your councillor have in your area since he or she was elected? You keep on complaining about the lack of service delivery and you are ignored. Is this how ratepayers should be treated?

Over the past eight months, residents of a Tshwane suburb have approached me on numerous occasions about electrical cables which are being stolen and not replaced. Some live wires in the Laudium area are hanging down poles – this is extremely dangerous. Despite numerous calls, the council does nothing. Streetlights have not been working for months.

It is gripes like these that get people furious. We pay rates and taxes and we expect efficient service. There also appears to be a lack of maintenance at our parks and other municipal facilities. If Mayor Smangaliso Mkhathwana and his officials are not aware of this, I am prepared to take them on a tour to see for themselves.

PTA NEWS

PG. 9

17-01-2006

As a result of the many frustrations, some people have indicated to me they do not wish to vote on March 1. This is not the way to go. We must cast our ballots. Our voices need to be heard. Councillors on the gravy train and who have ignored us over the past five years should be voted out of office.

It is time for political parties to deliver on their promises. Any election manifesto looks good on paper; but the challenge is to make service delivery tangible. The ANC places considerable stress in its manifesto on the party's ability to enforce discipline on its officials in public office. "By supervising the work of all public representatives, we will ensure that these tasks are met. By fighting corruption and arrogance among some who work in government, the ANC is determined to respect the mandate of the people."

The party should be praised for asking its candidates to sign a document in an attempt to stop corruption. Policing it and taking stern action against the culprits is the challenge.

Local government is close to the heart of the people. The provision of electricity, water and sewerage is vital. We need to live in healthy and environmentally sound communities. Our safety needs to be ensured. We can only achieve this if we have the right people in office. We need public office bearers who are committed, efficient and hardworking. We need councillors who place the interests of the people first. We need councillors who can fight for us and who can ensure sustainable service delivery at all levels. These elections are going to be interesting and the outcome will be closely watched. It is democracy in action and we need to use our votes which many South Africans fought for over many years.

© Yusuf Abramjee is group head of News and Talk Programming for Primedia Broadcasting, owners of Talk Radio 702, 94.7 Highveld Stereo, 567 Cape Talk and 94.5 Kfm. He writes this column in his personal capacity.

ANNEXURE I: CUSTOMER COMPLAINTS ON STREETLIGHTS

Gentlemen,

Look like this person wants help from you!

Regards

Dries

From: Robert M. Baloyi
Sent: Monday, January 16, 2006 11:57 AM
To: Electricity Group Mail
Subject: Rooiwal township street lights

Hi!

To whom it may concern

I am Robert Baloyi (elect supt) from Rooiwal township, looking for someone who is responsible for Rooiwal township streetlights. At normal conditions we do maintenance our self but this time there is a broken line at street number 2 between pole number 6 ,7 & 8. I am trying to get hold of the guy called Adwin v/d walt or merwe, the lady from capital park who answered my call said this guy can help me.Tried to solve this streetlight thing since 14 Dec. 2005.

The streetlights call centre could not help me.

I can be found at 5450163 ext 223 or 0824707185

Regards,

Baloyi

ANNEXURE J: TURNAROUND STRATEGY ON STREETLIGHTS

TO : ALL DIRECTORS AND DEPUTY DIRECTORS
FROM : ACTING EXECUTIVE DIRECTOR: ENERGY AND ELECTRICITY
PHILLIP SIVHADA

MMC PILLAY TURNAROUND STRATEGY ON STREETLIGHTS IMPLEMENTATION

As a result of Top Management meeting held yesterday to discuss MMC Pillay turnaround strategy on Streetlight, the Energy and Electricity management has taken the following decision to enable service delivery in the areas of public lighting.

The Public lighting section has indicated that they lack equipment to deal with the backlog they have in maintaining the streetlights. After deliberation on the matter it was decided that the following Depots should deliver one of their Tower Trucks ("c pickers") to Public Lighting Services depot attention to John Josling by Monday, 02 February 2009 at 12h00.

DEPOT	EQUIPMENT	RESPONSIBLE OFFICIAL
Princes Park	Tower Truck	I.Rampedi
Pretorius Park	Tower Truck	J.Prinsloo
Centurion	Tower Truck	I Chauke
Roslyn	Tower Truck	Frans Manganye
Soshanguve	Tower Truck	Jannie Fourie
Eskom Area	Tower Truck	Jannie Fourie
Testing and Technical Audit	Cable fault Locater	G. Matsi/ K. Moraka

The MMC has given the Division two weeks to attend all the streetlights not working in the townships and Inner city areas, hence the capacitating of the Public Lighting Services section to enable them to implement MMC's strategy.

All streetlights burning operation ("Operation Khanyisa") will be task team oriented, where the task team will be comprised of the Area Depot, public lighting services section and the Area Depot contractor.

The planning for the operation will take place on Monday, 02 February 2009 at Sanlam Plaza East sixth floor at 10h00 to enable ("Operation Khanyisa") to start as early as 04 February 2009.

The Areas will be attended to in the following order:

1. Soshanguve
2. Atterdgeville
3. Mamelodi
4. Olievenbosch
5. Ga-Rankuwa/Mabopane
6. Hamanskraal/Babelegi
7. Inner City

Your cooperation and assistance to make "Operation Khanyisa" a success is of paramount importance.

NB: Failure to deliver vehicles or equipment to the public lighting Depot will be an act of Insubordination as this is Top Management arrangement and decision

ANNEXURE K: CONTINGENCY PLANS FOR STREETLIGHTS

Gentleman,

The contingency plan for streetlights has been set out by Top Management as follows:

For the next two months, streetlight maintenance will be done by the depots. I am fully aware of the financial constraints at the depots and can thus only commit to the following:

- Scouting of main routes from 17:30 to 19:30
 - Resetting of area outages
 - Repairing of cable faults
 - Repairing of lights on SWC routes (letter was send to you)

To ensure safety, advise the ALO control desk of any work being done on the streetlight system.

Also take note that highmasts remains the responsibility of PLS section.

Arrange for the scouting to start immediately.

ANNEXURE L: STREETLIGHTS MATERIALS SHORTAGE

Subject: FW: Streetlight Material

Gerdi,

We have fast tracked the streetlight maintenance. The function will be done from the depots for the next two months.

To enable the depots to make a difference the streetlight maintenance material must be increased.

Assist me with the below mentioned items as well as streetlight luminaires (250 W & 70W), 70 W and 250 W globes, 380V contactors.

I possible, can you assign a buyer to the function to streamline it.

Thanx

www.nature.com/scientificreports/

The Division has made a change in the operations. Streetlight maintenance has been transferred to the depots.

In line with this, I request you to increase, at TDK, Sohanqave and Fortsq the stocklevels of:

Description	Min level	Max level
70 W Polymer luminaires, 70 W HPS lamps	150 150	350 350
250W Polymer luminaires 250 HPs lamps	100 100	200 200
16 x 3 cable	3000	6000
16 x 4 cable	3000	6000
Cable joints	100	250
5 A circuitbreakers	300	500
Photocells	75	150
Streetlight control units	75	100
Streetlight poles and stubbies	50	150
Streetlight outreach arms	50	150

The streetlight poles, stubbies and outreach arms can be kept at Hercules.

Other needs will be directly communicated to the Storeman.

Thanks