

**THE CHALLENGES THAT ARE FACING THE ASSET MANAGEMENT UNIT IN
THE LIMPOPO DEPARTMENT OF ECONOMIC DEVELOPMENT, ENVIRONMENT
& TOURISM (LEDET), SOUTH AFRICA**

by

RAMOSEBUDI SEWELA MAGRETH

MINI-DISSERTATION

Submitted in fulfilment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

in the

FACULTY OF MANAGEMENT AND LAW

(Turfloop Graduate School of Leadership)

at the

UNIVERSITY OF LIMPOPO

SUPERVISOR: Dr. M. Kanjere

2015

**THE CHALLENGES THAT ARE FACING THE ASSET MANAGEMENT UNIT IN
THE LIMPOPO DEPARTMENT OF ECONOMIC DEVELOPMENT, ENVIRONMENT
& TOURISM (LEDET), SOUTH AFRICA**

by

RAMOSEBUDI SEWELA MAGRETH



MINI-DISSERTATION

Submitted in fulfilment of the requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

in the

FACULTY OF MANAGEMENT AND LAW

(Turfloop Graduate School of Leadership)

at the

UNIVERSITY OF LIMPOPO

SUPERVISOR: Dr. M. Kanjere

2015

DEDICATION

I dedicate this study to all my family, my parents and my brothers and sisters for the support they always gave me. To my husband and my children for their compromised time spent, thank you so much. My supervisor, Dr. M Kanjere for all the dedication through my studies. To my colleagues under Supply Chain Management and Asset Management in LEDET for being there for me. To my supervisor under Supply Chain Management for supporting my studies. To my church members for their prayer, motivation and support.

DECLARATION

I, Sewela Magreth Ramosebudi hereby declare that the work contained in this mini-dissertation: **THE CHALLENGES THAT ARE FACING THE ASSET MANAGEMENT UNIT IN THE LIMPOPO DEPARTMENT OF ECONOMIC DEVELOPMENT, ENVIRONMENT & TOURISM (LEDET)** hereby submitted to the University of Limpopo, for the fulfilment of Master of Business Administration has not previously been submitted by me for a degree at this or any other institution, that it is my work in design and in execution and that all material contained herein has been duly acknowledged.

Ramosebudi S.M

Date:

AKNOWLEDGEMENTS

I would like to express my sincere gratitude to the Almighty God and the following people for their professional support and their invaluable contribution during my current research study:

- To my supervisor, Dr. Matshidiso Kanjere for your unlimited supervision, guidance, motivation and for patiently influencing me towards a successful completion of this project. Your humanity is much appreciated.
- To LEDET, for financing my studies, allowing me to conduct the study in your institution and all the support you provided me.
- To all TGSL lectures for the effort in making me realise my inner strength.
- To my husband, my children, parents, brothers and sisters for continually motivating me.

ABSTRACT

The Department of Economic Development, Environment and Tourism is mandated to focus on growing the provincial economy, empowering women and youth, on supporting small businesses and co-operatives and improving the lives of the people of the province for the better as indicated in the Limpopo Economic Development, Environment and Tourism Province Budget Vote (2015/16). Economic growth and social wellbeing are closely tied to the ability to protect the natural environment. Mining, electricity generation and agriculture are among the economic activities that have a direct impact on the environment and need to be carried out in a sustainable and responsible manner.

Towards this vision, the assets which are furniture, transport, computer hardware and other machinery and equipment need to be managed efficiently and effectively in order to fulfil the needs of society and the departments. These assets represent an enormous value for the owner which is LEDET and for society at large. To grasp the full potential of these assets, a deep and thorough understanding of an asset's complete lifetime is needed. However, the assets especially physical assets, public buildings and infrastructures are not managed properly and that results in numerous challenges and audit queries that are raised by the Auditor General.

The purpose of this study was to investigate the challenges that are facing the asset management unit of Limpopo Department of Economic Development & Tourism (LEDET). Asset Management has been hailed as important in order to enable government to deliver proper services to the citizens of the country. This has encouraged the researcher to undertake the study in order to add more knowledge on the asset management process of the government, looking at the challenges and possible solutions.

The need for this study was considered relevant and necessary as government departments and other private sectors face numerous challenges in implementing the asset management. Limpopo Department of Economic Development, Environment and Tourism, as a case study, faces challenges in fulfilling some of its

mandate due to lack of support from asset management activities. In terms of its strategic plan, the department seeks to address issues relating to economic growth, the promotion and development of tourism and using environmental management to guide and monitor sustainable development in the province. These challenges have negative implications on the delivery of services to the communities it serves.

In this study, the researcher investigated the following: demographic profile of respondents, challenges facing asset management, the impact of asset management on service delivery and lastly the best practice on the implementation of asset management. Data were analysed into themes and revealed communication, training, interpretation of relevant prescripts, limited resources, proper allocation of resources and effective participation of relevant stakeholders as, amongst others, challenges to the process.

The study concluded by providing recommendations to management of the Limpopo Department of Economic Development, Environment and Tourism on how to improve the asset management activities to achieve the strategic goals of the department. The recommendations proposed are improved communications with stakeholders, development of asset plan, skills capacity of asset management officials and sourcing the asset information system that integrates with the financial system to provide a reliable asset register.

TABLE OF CONTENTS

TITLE PAGE	I
DEDICATION	II
DECLARATION	III
ACKNOWLEDGEMENTS.....	IV
ABSTRACT	V- VI
TABLE OF CONTENTS	VII
LIST OF FIGURES.....	VIII
LIST OF TABLES.....	VIII
ANNEXURES.....	X
REFERENCES	X

LIST OF FIGURES

Figure 2.1	Asset Life Cycle (a)	24
Figure 2.2	Asset Life Cycle (b)	25
Figure 2.3	Asset Management Framework	28
Figure 2.4	Asset Life Cycle (c)	30
Figure 2.5	Integrated Life Cycle Management	43
Figure 3.1	Asset Management Unit Organogram	51

LIST OF TABLES

Table 4.1	Gender of respondents	60
Table 4.2	Age group of respondents	62
Table 4.3	Highest qualification of respondents	63
Table 4.4	Post Level of respondents	65
Table 4.5	Job experience of the respondents	66
Table 4.6	Training and Experience of the respondents	67
Table 4.7	Summary of challenges that are facing asset management	78

TABLE OF CONTENTS

1. OVERVIEW OF THE STUDY

1.1. Introduction	1
1.2. Historical Background	2- 3
1.3. Rationale / Motivation of the study.....	4
1.4. Significance of the Study	4
1.5. Statement of the Problem	5
1.6. Research Questions	5
1.7. Aim of the Study	5
1.8. Objective of the Study	6
1.9. Ethical Considerations	6
1.10. Definition of Concepts	6- 8
1.11. Outline of the Research Report	8- 9
1.12. Conclusion	9

2. LITERATURE REVIEW

2.1. Introduction	10
2.2. Legislative Framework governing Asset Management.....	11- 16
2.3. GRAP 17	16 - 18
2.3.1. Accounting Standards	18- 19
2.4. Global Perspective on Asset Management	20- 22
2.5. Asset Management Approach	22- 26
2.5.1. Asset Planning.....	26- 30
2.5.2. Asset Acquisition	30- 31
2.5.3. Operation and Maintenance.....	32- 37
2.5.4. Asset Disposal.....	37- 40
2.6. Asset Management in LEDET	40- 42
2.7. ASSET MANAGEMENT BEST PRACTICE MODELS.....	42- 44
2.8. Conclusion	44- 47

3. RESEARCH METHODOLOGY	
3.1. Introduction	47
3.2. Research Methodology	47- 48
3.3. Research Design	48- 49
3.3.1. Sampling.....	49- 52
3.3.2. Data Collection	52- 55
3.3.3. Data Analysis	55- 56
3.4. Conclusion	56- 57
4. DATA PRESENTATION, DISCUSSION AND INTERPRETATION OF THE RESULTS	
4.1. Introduction.....	58- 59
4.2. Data Management and Analysis of Research Results.....	59
4.3. Research Results	59- 74
4.4. Overview of the research Findings	74- 84
4.5. Conclusion	84
5. SUMMARY, RECOMMENDATION AND CONCLUSION	
5.1. Introduction	85- 86
5.2. Research Design and method	87
5.3. Summary and interpretation of the Research Findings.....	87- 90
5.4. Conclusion	90- 91
5.5. Recommendation	91- 95
5.6. Contribution of the study	95
5.7. Limitation of the Study	96
5.8. Concluding Remarks	96
5.9. Future Research	97
6. LIST OF REFERENCES	98- 104
7. ANNEXURES	
7.1. Annexure A	Letter to request to conduct a research study
7.2. Annexure B	Approval to request to conduct a research study

- 7.3. Annexure C Letter to respondents
- 7.4. Annexure D Interview Schedule
- 7.5. Annexure E Certificate from the Editor

CHAPTER 1

OVERVIEW OF THE STUDY

1.1 INTRODUCTION

The general view, advanced by Schoeman & Vlok (2014), is that assets in any form play a strategic role in driving the business strategy and service delivery agenda of government departments. The viewpoint of Chakraborty & Garratt (2014) is that organisations with sound asset management systems tend to experience high levels of sustainability and service delivery performance. This view is corroborated by Myburg, Dreyer and Van (2011) who iterate that effective asset management practices have the potential to significantly insulate an organisation against unmitigated risk or loss.

The agreed fact is that at government level, if assets are not properly maintained service delivery is often negatively affected. Rustenburg, Braaksma & Van Dongen (2014) argue that failure to maintain existing assets is increasingly becoming the greatest threat to service delivery, more than the lack of assets themselves. Problems always arise when government assets worth millions of Rand suffer neglect. Rustenburg *et al.* (2014) further warn that the cost of replacing an asset is four times higher than the cost of maintaining it. Hence a system that maximises the life of the asset is essential for efficient use and economic development. Maintenance, however, costs money, although the costs decrease when the maintenance is planned rather than with unplanned maintenance or breakdowns. This study draws attention to the challenges facing Limpopo Department of Economic Development & Environment & Tourism (LEDET)'s asset management unit within its environmental context.

The auditor general highlighted weaknesses in Asset Management, controls over information technology, human resource management and capital assets and performance reported during a briefing to Parliament's Standing Committee on Public Account (Smart Procurement, 2011). Hence, there is an urgent need to rethink innovative ways of curbing administrative malpractices within the South African spheres of government. To fight the scourge of maladministration,

mismanagement of finances, fraud and corruption, government needs to strengthen and review existing internal control systems to detect deficiencies.

1.2 HISTORICAL BACKGROUND

In the pursuit towards the attainment of service delivery objectives, resources that are tangible and intangible assets must be acquired. Asset management in LEDET was established as a decision making process to guide the department on acquisition, usage, safeguarding and disposal of assets to make the most of their service delivery potential and manage the related risks and costs over their entire life.

Historically, the public sector, including LEDET, did not place much emphasis on the principle of Asset Management, largely due to the system for recording income and expenditure which accounted only for the movement of cash which in turn resulted in a wrong understanding that the use of assets, once paid, was free or without cost. (Treasury, L.P. 2012, "Transversal Financial Policies",.)

The Public sector, including LEDET, was then geared to encompass greater transparency and accountability towards the public at large in the utilisation of public funds. Responsibility for the management of the financial affairs of the state was put under the spotlight and questions were raised regarding the effectiveness and appropriateness of systems and procedures to be used to manage state assets.

Limpopo Provincial Treasury then placed a strong emphasis on the physical and financial management of departmental assets across all provincial departments including (LEDET) as well as Government entities within the province. Great emphasis was placed on improving accounting practices and procedures to ensure that state assets are managed and utilised in the most effective way to achieve the required results.

Proper asset management involves knowing and understanding one's assets and knowing what, when and how to manage those assets in the most cost effective and efficient way (Woodhouse, 2007). If done properly, asset management can increase the lifespan of an asset thereby giving the organisation greater cost savings. Schoeman *et al.*, (2014) warn that despite the valuable contribution of proper asset management systems, few organisations pay attention or invest in initiatives to enhance the effectiveness of their asset management systems. However, knowing what to do and when in a cost effective way is not easy. This often requires the implementation of asset management systems which involve processes activities that are interrelated and interdependent. This study attempts to highlight the challenges facing LEDET's asset management with the view of recommending realistic strategies to improve its functionality and effectiveness.

The organisation introduced asset management as they started from maintenance to applying systems, to asset conditioning monitoring and to asset condition management. Looking at it in another way it also started from a fix it mentality to planned and predictable maintenance, to reliability-centred maintenance (RCM) and finally ending up as today's Asset Management where it has brought the whole organisation to focus on Asset Management (Chakrabort & Garratt, 2014).

Various international standards have been developed and adopted by the organisations as benchmarks of good Asset Management. Notable ones are the Publicly Available Specification (PAS 55, 2008) and the recent ISO 55000. In order to achieve the maximum benefits from an asset point of view, an integrated Asset Management system which represents the sustained best mix of Asset care that is maintenance, risk management and asset exploitation needs to be introduced. The best mix of asset care is used to achieve some corporate objectives or performance benefits which must be optimised over the whole life cycle (Woodhouse, 2007).

The minimum criteria of what constitutes a good Asset Management plan continued to be refined as new issues emerged. Hastings (2015) observed that

a sound asset management plan needs to be realigned with the organisation's structure, procedures and culture. Implementation of an asset management system leads to real improvement in the profits and enables business deliverables to be achieved more efficiently and effectively with fewer resources. Sometimes companies can adopt the asset management for one reason and they can find themselves accruing additional benefits. An example in Schoeman *et al.* (2014) of an asset-intensive organisation that found that an 11 per cent decrease in asset down time could result in savings of millions of dollars each month and another for a manufacturing company improving compliance of their products by 14 % and saving a lot of money. Their efforts to reduce the risk of downtime and compliance resulted in cost savings for their organisations.

1.3 RATIONALE/MOTIVATION OF THE STUDY

This study has been motivated by the need to investigate the root causes of why LEDET's asset management unit is experiencing a number of challenges. The study envisages to contribute to the body of knowledge in organisations that pin their survival on good asset management systems that will find this study very insightful and informative.

1.4 SIGNIFICANCE OF THE STUDY

This study will be helpful to LEDET, other government departments and private organisations in the sense that results, interpretations and recommendations, if known, will address the challenges that are facing asset management. The best practice can be formulated through sourcing the information from this study. The study will also add knowledge which will assist future researchers in pursuing a similar research area as they will use it as their source of reference. The departments and other organisations can use the study when reviewing asset management policies to meet their needs.

Organisations adopt asset management systems for a variety of reasons. As cited by Schoeman *et al.* (2014), some of the benefits organisations can gain from an optimised management of assets include reduction of asset-related

risks and optimised whole life costing which is acquisition, operational and maintenance costs. The more reliable equipment resulting in more reliable product service delivery, the longer equipment life resulting in delayed capital investment and optimal utilisation of resources.

1.5. STATEMENT OF THE PROBLEM

Proper asset management involves knowing and understanding one's assets and knowing what, when and how to manage those assets in the most cost effective and efficient way (Woodhouse, 2007). If done properly, asset management can increase the lifespan of an asset thereby giving the organisation greater cost savings. Schoeman *et al.* (2014) warn that despite the valuable contribution of proper asset management systems, few organisations pay attention or invest in initiatives to enhance the effectiveness of their asset management systems. However, knowing what to do and when in a cost effective way is not easy. This often requires the implementation of asset management systems in a holistic way which involves processes and activities that are interrelated and interdependent usually crossing organisational boundaries that cover operations, engineering, human resources and finance. This study attempts highlighting the challenges facing LEDET's asset management with the view to recommend realistic strategies to improve its functionality and effectiveness.

1.6. RESEARCH QUESTIONS

1.6.1. What are the challenges faced by the Asset Management Unit at LEDET?

1.6.2. How do these challenges affect the delivery of services?

1.6.3. What is the ideal way of managing assets in an organisation?

1.7. AIM OF THE STUDY

The study aims to investigate the challenges facing LEDET's asset management unit with the view of recommending appropriate measures to improve the department's current asset management regime.

1.8. OBJECTIVE OF THE STUDY

The following are the objectives of the research:

1.8.1. To investigate challenges that are facing asset management at LEDET.

1.8.2. To determine how the identified challenges affect the delivery of services.

1.8.3. To find an ideal way of managing assets in an organisation.

1.9. ETHICAL CONSIDERATIONS

According to Neuman (2005), the important purpose of the research ethics is to protect the welfare of research participants. However, research ethics involves more than a focus on the welfare of the research participants and extends into areas such as scientific misconducts and plagiarism.

The researcher will make sure that the information provided by respondents is used for the purpose of the study and the researcher will ensure that the anonymity of the respondents are protected before the data collection process starts and will encourage them to be honest and will tell them the truth. If the study is to be published, the respondent's names and anything that may make the public identify the respondents will not be published. The researcher will avoid at all costs any situations that may harm the respondents in any way.

1.10. DEFINITION OF CONCEPTS

1.10.1. Asset

An asset is defined by Amadi-Echendu (2004) as an item, entity or a thing that has potential or actual value to the organisation. It is owned for continued use, long-term and short term, in earning economic benefits for the organisation. An assets can be either intangible or tangible. Assets provide a means for entities to achieve their objectives. Assets that are used to deliver goods and services in accordance with a department's objectives. According to Hastings (2015), plants, machinery, property, buildings, vehicles and other items that have a distinct value to the organisation are regarded as assets.

1.10.2. Asset management

Mitchell (2007) defines asset management as the coordinated activity by an organisation to realise value from its assets. A broader definition of asset management involves the balancing of costs, opportunities and risks against the desired performance of assets to achieve organisational objectives (Institute of Asset Management, 2011).

1.10.3. Asset management plans

Asset management plans are documents specifying activities and resources, responsibilities and timeframes for implementing the assets management strategy and delivering the asset management objectives (PAS, 2008).

1.10.4. Asset management policy

The Asset management policy is the principles and mandated requirements derived from, and consistent with, the organisational strategic plan which provides a framework for the development and implementation of the asset management strategy and setting of the asset management objectives (Council, 2012).

1.10.5. Asset management strategy

Asset management strategy is a long-term optimised approach to management of the assets, derived from, and consistent with, the organisational strategic plan and the asset management policy. The asset management strategy

converts the objectives of the organisational strategic plan and the asset management policy into a high-level, long-term action plan for the assets and/or asset systems, the asset portfolios and/or the asset management system. The high-level, long-term action plans for the assets and the asset management objectives are normally the outputs of the asset management strategy. These elements together form the basis for developing more specific and detailed asset management plans (BSI PAS 55:2008).

1.10.6. Asset Management Systems

An Asset Management System is defined by PAS 55 as the organisation's asset management policy, asset management strategy, asset management objectives, asset management plans and the activities, processes and organisational structures necessary for their development, implementation and continual improvement. (PAS 55, 2008).

1.10.7. Asset Register

Brownless & Turner (2005) defines an Asset register as an accounting method used for major resources of a business or it can be defined as a statement of an organisation which shows the assets that it owns. An asset register allows the company to keep track of its assets and provides a fair estimate of their worth.

1.10.8. Asset management unit

In this study, an asset management unit refers to the asset management division of the Limpopo Economic Development, Tourism and Environment that is charged with the overall management and maintenance of all the department's assets.

1.11. OUTLINE OF THE RESEARCH REPORT

The report is structured as follows:

Chapter 1: Introduction of the study

This chapter covers the contextual and objective framework of the study. It also details the rationale behind the study, aims and objectives of the study, research methodology and data analysis methods.

Chapter 2: Literature Review and Study Area

This chapter unveils the thrust of literature review to benchmark the study with the scholarly views of other researchers. It will be the expansion of the literature review from the proposal. Chapter two will contain amongst other things;

- Literature review from other authors on the asset management challenges.
- Management of asset management life cycle as done by other authors,
- Best practice in asset management as researched by other authors.

Chapter 3: Research method and design

This chapter highlights specific steps to be taken in collecting, editing, analysing and presenting findings of the study. The researcher explains the population, sampling procedure, data collection and analyses methods as well as the reason for choosing the methods used.

Chapter 4: Data presentation, Analyses and Interpretation

This chapter presents the key results of the study in the form of tables and gives interpretations of the different data and research findings thereof. The researcher will analyse and interpret data linking them to the findings in order to ascertain whether or not the main aims and objectives have been achieved and the research questions are duly answered.

Chapter 5: Conclusions and Recommendations

This chapter focuses on elaborate discussions of findings, conclusions and recommendations.

1.12. CONCLUSION

Chapter one is the introduction of the research study and a brief background of the study. The researcher covered the problem statement, aims, objectives and the significance of the study in this chapter. The research questions were also discussed to give guidance to the research process. Definitions of some key concepts that are relevant to the study were also defined in order to give more understanding to the study. Chapter 2 will focus on the review of literature.

CHAPTER 2

LITERATURE REVIEW

2.1. INTRODUCTION

This chapter provides a brief review of the existing literature that represents the most authoritative scholarship on the research problem that the researcher identified and is relevant to the research topic. The researcher highlights the issues relating to the management of assets in the Limpopo Department of Economic Development and Tourism (LEDET) which are part of financial management and to introduce asset management best practice.

The main purpose for this chapter is to review literature on the subject matter. The chapter outlines amongst others, the legislative framework informing the management of assets, the international context on asset management, the discussion on the asset life cycle approach, the constraints to effective asset management implementation and finally, the solution to address some of the challenges identified.

According to Schuman & Brent (2007), in today's competitive business environment, it is essential to manage assets effectively and efficiently in order to get a maximum return on investment. This can only be achieved by considering and managing the entire life cycle of the asset. Although departments have always managed their assets, asset management is becoming increasingly important.

The review of literature will be approached by discussing the asset life cycle and provide highlights on challenges that face asset management units in the government departments and other organisations. The concept of life cycle is basic to the new thinking regarding management of assets. It involves the following phases:

- *Identification of need*: the requirement for a new asset is planned for and established.
- *The acquisition phase*: the asset is purchased, constructed or otherwise created.
- *The operation and maintenance phase*: the asset is used for its intended purpose. This phase may be punctuated by periodic refurbishment or major repairs, requiring the asset to be taken out of service for periods of time.
- *The disposal phase*: initiated when the economic life of the asset has expired, or when the need for the service provided by the asset has disappeared. (Haffejee *et al.*, 2008).

2.2. LEGISLATIVE FRAMEWORK GOVERNING ASSET MANAGEMENT IN SOUTH AFRICA

There are, therefore, numerous legislative frameworks that guide Asset Management practices. These include the following:

- Constitution of the Republic of South Africa (Act 108 of 1996)
- Public Finance Management Act 1 of 1999
- Municipal Finance Management Act No 56 of 2003
- Treasury Regulation 10.1 (Issued in terms of section 76).
- Promotion of Administrative Justice Act No 3 of 2000,
- and so on. (Migiro & Ambe, 2008).

2.2.1. Constitution of the Republic of South Africa (Act 108 of 1996)

The constitution is the supreme law of the country and guides all the Departments when developing strategies. The constitution encourages the public sectors such as the Limpopo Department of Economic Development Environment and Tourism to promote public participation, accountability, transparency, financial management and efficient use of scarce resources. However, Departments are mandated by law to plan and implement strategies that focus on the principle of, *inter alia*, the promotion of the efficiency, economic and effective use of resources. This will help in rendering basic services and performing the functions assigned to them. In terms of Section 195 (1) the Constitution Section 41 calls for each sphere of the Government to comply with national legislations, to investigate, monitor and evaluate organisation to improve the performance within public services.

The public sector in South Africa is guided by the Constitution of the Republic of South Africa of 1996 which has a direct impact. This objective is achieved by allocating resources for productive investment and its redirection to areas of greatest need. This means that government institutions should re-orientate and optimise access to services by all citizens. This must be within the context of fiscal constraints and the fulfilment of competing needs (Wiseman, 2006).

Section 216 of the Constitution of the Republic of South Africa (Act 108 of 1996) provides for the establishment of a National Treasury which must prescribe measures to ensure that there are both transparency and expenditure control in each sphere of government through the introduction of Generally Recognised Accounting Practices (GRAP), uniform expenditure classification and uniform Treasury Norms and Standards.

2.2.2. Public Finance Management Act 1 of 1999

According to Laue, Brown & Keast (2014), the introduction of the Public Finance Management Act, Act No 1 of 1999 (PFMA) and enactment of the Public Act Finance Management Act (PFMA) of 2009 has made public sector managers increasingly accountable for the proper management of assets. Section 38

specifies the tasks of the accounting officer with the management, including the safeguarding and maintenance of assets. Furthermore Section 40 of the (PFMA) of 2009 requires that the accounting officer keeps full and proper records of the financial affairs of the institution and places the responsibility for producing annual financial statements which will be fairly reflecting the financial position of the institution as well as the performance.

In terms of the Public Finance Management Act (No.1 of 1999) as amended by Act 29 of 1999, asset management has become an important facet of financial management in departments, public entities and constitutional institutions and local government. It is therefore essential that specific attention must be given to asset management by all officials who are responsible for assets. However, it would be foolish not to follow a holistic approach to asset management as its monetary value is of such a nature that it ought to be included in the planning, budgeting, monitoring and revision processes of departments, public entities and constitutional institutions; and local government and municipalities.

In terms of section 76 and 77 of the Public Finance Management Act (PFMA, 1999), the accounting officer (AO) of departments, public entities and constitutional institutions and local government carries the primary responsibility for asset management. This responsibility can and should be delegated to a member of the municipality's top management team, as described in section 77 of the Act, or to any other official as the AO sees fit, provided that such delegation is in writing (Visser, 2006).

This means, by implication, that the duly delegated official has to attend to the planning of assets as part of asset management, since planning is one of the functions of management. The Accounting Officer and the delegated officials should consult with other public institutions (national, provincial and municipal) in order to coordinate capital investment in the public sector. Such an action relates directly to the whole notion of intergovernmental (fiscal) relations and the quest for the coordination and optimal utilisation of resources between different

government institutions, as is required by the Intergovernmental Fiscal Relations Act 97 of 1997 and the Intergovernmental Relations Framework Act 13 of 2005. It is, however, still necessary that the senior managers and other officials of departments, public entities and constitutional institutions and local government take all reasonable steps to ensure that its assets are managed effectively in terms of section 76 and 77 of the PFMA. In a sense, these provisions in the Act make every government and public entity officials who are in possession of assets and has to utilise them on a daily basis, responsible for asset management and not only the so called Asset Manager (Braaksma, 2012).

The National Treasury has been leading this process and, subsequently, issued asset management guidelines in April 2002. In the modernised public service, the role of an asset manager is becoming a daunting one, as transparency of information makes the misuse of assets front page headlines. Thus, managers need to develop a fresh approach to asset management and should start being creative. Government must explore new ways of funding and managing capital assets to ensure effective and efficient public services and to achieve sustainable, balanced budgets. This is also crucial to maintaining essential infrastructure assets (Daya, 2004).

The emphasis was given that effective and efficient asset management should be the core business of any organisation with significant assets. As such, it is not surprising that an overabundance of models have been developed to support organisations in managing their assets and providing a gauge of how well they are so doing (Laue *et al.*, 2014). In recent years, an increased focus on monitoring and evaluation and benchmarking has further contributed to the development of maturity models, in attempts to encourage organisations to continually review and improve their management of assets (Laue *et al.*, 2014).

According to Watermeyer (2011), the PFMA 1 of 1999 permits the National Treasury to make regulations or issue instructions applicable to all institutions to

which the Act applies concerning the determination of a framework for providing a system which is fair, equitable, transparent, competitive and cost effective . Section 112 of the PFMA Act No 1 of 1999 permits the Minister of Finance to issue a prescribed regulatory framework for SCM that covers a number of specific issues. Each organ of state has to determine its own procedures and policies, which are consistent with the legislative framework (Watermeyer, 2011).

2.2.3. Treasury Regulation 10.1 (Issued in terms of section 76).

Treasury Regulation 10.1 (issued in terms of Section 76) requires of the accounting officer to ensure that processes which can be applied manually or electronically and procedures are in place for the effective, efficient, economical and transparent use of the entity's assets. The regulation further places the full responsibility on the accounting officer for ensuring that control systems are in place to ensure the prevention of theft, losses, wastage and misuse of assets and the keeping of stock levels at an optimum and economical level.

According to Treasury regulation, it is clear that the proper management of and accounting for assets have been set as an important responsibility of the accounting officer. To give effect to this it is necessary to firstly identify all assets under the control of an entity through reference to original documentation and physical counts and secondly to create a system that will ensure continued monitoring of these assets as well as accounting for additional assets procured on an ongoing basis. It is very important to note therefore that the need to have effective Asset Management and to compile a complete Asset Register is not as a result of a change to "Accrual Accounting" but as a result of legislation enacted as far back as 1999 and based on good financial management practices. It must be understood that there is no interdependence between the need for keeping asset registers and good asset management practices and the change in accounting basis if and when decided.

Mkhize (2004) argues that effective and efficient financial management in government was continuously questioned. Similarly, the logistics system as a tool for asset management raised concerns because of a lack of proper handling of movable assets in the governmental environment. The principle behind the policy guide is that managers should be given flexibility to manage and ensure the constitutional requirements of transparency and accountability (National Treasury, 2005).

The argument was that In South Africa, departments, municipalities and other public entities, must maintain asset registers that comply with GRAP (Generally Recognised Accounting Practice), which also calls for a common language between engineering, financial managers and functionaries (Annie, 2007). A similar situation prevail in LEDET, whereby the asset management unit is guided by PFMA Act of 1999, Treasury regulations and the Treasury, L.P. 2012, "Transversal Financial Policies", .

2.3. GENERALLY RECOGNISED ACCOUNTING PRINCIPLES (GRAP) 17

Scott (2008) defines Generally Recognised Accounting Practice (GRAP) accounting standards by referring to them as GAMAP/GRAP which was originated from section 216(1)(a) of the Constitution of South Africa (Act No. 108 of 1996). This section requires national legislation to prescribe measures to ensure both transparency and expenditure control in each sphere of government by introducing generally recognised accounting practice, uniform expenditure classifications and uniform Treasury norms and standards.

According to Campher & Vlok (2014), the board approved the standard of GRAP on Property, Plant and Equipment (GRAP 17) in November 2004. GRAP 17 deals with the accounting principles on the recognition and measurement of items of property, plant and equipment. GRAP 17 which broadly describes and provides guidance of what should be included as heritage assets. These standards do not require an entity to recognise heritage assets in terms of the

standard. The entity must decide to recognise heritage assets in terms of GRAP 17 and needs to comply with certain disclosure requirements set out in GRAP 17. However, the entity is not required to apply the measurement requirements of GRAP 17. (Campher *et al.*, 2014).

The main focus across the country during the past years has been the preparation of a GRAP 17 Compliant Register of property, plant and equipment. There has been considerable efforts and financial resources channelled towards the compilation of the asset register and all this will be in vain if asset registers are not continuously updated and maintained. There is too much focus on preparing the asset register and too little focus on the post preparation process. The question has to be asked on how the asset register is tabled, it passes the audit process and what will happen next? (Welgemoed, 2010).

GRAP17 provides information to gain an understanding of the accounting treatment and disclosure information relating to property, plant and equipment. GRAP requires that a comprehensive Fixed Assets Register be prepared by the organisation and departments. The financial reporting by departments and municipalities in South Africa in terms of GRAP 17 must be prepared once the fixed assets register has been prepared (Scott, 2008).

GRAP 17 also requires that from a disclosure perspective, all items of property, plant and equipment must be categorised into infrastructure, community, heritage and other assets (National Treasury, 2005). There is no change in the classifications of non-current assets, except where a municipality or department has previously used a suspense account. The cost of unsold developments must be determined and classified as inventory. Infrastructure costs previously included in the suspense account must be transferred to Property, Plant and Equipment (PPE) (National Treasury, 2005).

However, according to Welgemoed (2010), organisations are claiming to have GRAP 17 compliant asset registers which are not always what they are claimed

to be. This claim is overstated and highlights some recommendations for municipalities to consider. It can be said that the implementation of a GRAP compliant asset register is a costly exercise, but the cost does not stop there. In reality, it is only the beginning and the financial implications of subsequent compliance and asset management is often overlooked. The questions are therefore asked. Does the budget address the subsequent costs? Are we prepared for what this process entails?

In order to comply with the GRAP 17, the organisation must opt to introduce an internal asset management committee and the Asset Audit Committee in order to address the issue of a GRAP 17 compliant asset register. The asset manager needs to be capacitated and skilled in all areas of asset management. Relevant officials need to be skilled to ensure that the asset management process is carefully managed. During the capacitation and skilling of asset managers the following should be taken into consideration:

- Understanding the requirements of the relevant accounting standards relating to property, plant and equipment ,
- Ensuring that the required skills are transferred by the service provider once an unbundling process is completed. This may not be possible upon completion of the unbundling process and the municipality can request the service provider to project manage the process for a period of one year.

The organisation must put systems into place to ensure that the componentisation process starts as early as the procurement phase. This will ensure that Supply Chain Management will be able to determine the components of an asset during the construction thereof and once the asset is completed, the Technical Department or contractor should provide information relating to the value and lifespan of each component. This will then ensure that the unbundled asset register is well maintained.

2.3.1. Accounting Standards

The Public Finance Management Act 1999 (Act of 1999) PFMA has introduced accrual accounting to replace the cash basis of accounting in the public sector. Government entities are faced with many practical problems. Their accounting systems are to be updated or even replaced. Staff should be trained and assets previously written off as expenses should be recorded as assets.

Van Wyk (2006) emphasizes that the implementation of accrual accounting requires sophisticated accounting information systems and high level skills from the financial officials. This transformation process from cash basis to accrual basis of accounting will be a major challenge and the implementation of accrual accounting in the public sector will be challenging.

The Office of the Accountant General (OAG) has developed and issued the Modified Cash Standard (hereafter 'the Standard') which sets out the principles for the recognition, recording, measurement, presentation and disclosure of information required in terms of the prescribed formats. Departments and any other entity that claim compliance with the modified cash basis of accounting must adhere fully with the principles, presentation and disclosure requirements contained in this Standard in order to achieve fair presentation and compliance with the PFMA and its regulations.

Van Wyk (2006) states that the implementation of accrual based accounting and management information will be a challenge. The implementation of accruals based accounting and GRAP require new skills and competencies such as a general knowledge of Generally Accepted Accounting Practice and how to deal with the recognition of assets and liabilities. Financial officials and line managers require these skills in order to make meaningful decisions. The public sector is currently experiencing a large shortage of highly qualified financial officers.

The current accounting and information systems that are being used in government departments are not user-friendly towards accruals based accounting. From the interviews with external auditors and the Auditor- General it became clear that the current information systems should not only be upgraded, but that a totally new integrated accruals-based system should be introduced. These systems should not only accommodate accounting information, but also an accruals-based budgeting and performance measurement system (Hendriks, 2012).

Training staff and implementing new work practices for managers will address the problem. These will also succeed if the information system is overhauled and upgraded. As mentioned above, government is in the process of introducing a fully integrated Barcoding Auditing System (BAUD) in Limpopo Provincial Departments including LEDET.

2.4. GLOBAL PERSPECTIVES ON ASSET MANAGEMENT.

In this section, the case study of Britain is analysed. According to Burnett and Vlok (2014), physical assets are managed by a standard introduced by the Institute of Asset Management (IAM). IAM in Britain serves as a professional body involved in acquisition, operation and care of physical assets. This was done in collaboration with the British Standards Institution (BSI) and various other organisations. The standard, Publicly Available Specification 55 (PAS 55), provides a holistic view on what needs to be done to manage physical assets for business objectives at any point in its life cycle (Burnett *et al.*, 2014).

PAS 55 was divided into two different sections. The first, PAS 55-1 which is the Specification for the optimised management of physical assets. The second, PAS 55-2, which is the Guidelines for the application of PAS 55-1. The scope of PAS 55 considers the most important features in an organisation with the aim of improving PAM. It also focusses on the interdependency of different asset

categories by aligning an organisation's strategic plan with its asset management goals (Myburg *et al.*, 2011).

The first publicly available specification for optimised management of physical assets developed by the Institute of Asset Management with the British Standards Institution (BSI) was PAS 55 (International Organization for Standardization, 2004). This has become an international bestseller, with widespread adoption in utilities, transport, mining, process and manufacturing industries worldwide. The PAS 55 was updated in 2008 (PAS 55:2008) and was developed by 50 organisations from 15 industry sectors in 10 countries. The International Standards Organisation (ISO) then accepted PAS 55 as the basis for development of the new ISO 55000 series of international standards. British PAS 55 - the British Standard's requirements specifications for the optimal management of physical assets is being used as the basis by the International Standards Organization (ISO) for the first ever International Standard for Asset Management in the world. The ISO 55000 series comprises three standards (International Organisation for Standardization, 2014) namely:

- *ISO 55000*

Which provides an overview of PAM together with the standard terms and necessary definitions.

- *ISO 55001*

Which is the requirements' specification for an integrated and effective PAM system.

- *ISO 55002*

Which provides guidance for the implementation of such a system.

PAS 55 ensures consistency with other related organisational standards such as ISO 9001 and 14001. ISO 9001 specifies the requirements for a quality management system, whereas ISO 14001 addresses various aspects of environmental management. (International Organisation for Standardization, 2014). This standard shows the importance of an asset management system

that goes beyond departmental boundaries and provides full visibility from strategic service delivery direction down to maintenance task execution. Legal and regulatory requirements must be met in full, and the asset management organisation must demonstrably meet the expectations of all stakeholders (International Organisation for Standardization, 2014).

Burnett (2013) clearly indicated that the scope of the PAS 55 primarily focusses on how to achieve successful Physical Asset Management (PAM). It highlights the fact that effective implementation of PAM enables an organisation to maximise value and achieve its strategic objectives. The primary requirements for optimisation of asset management activities within PAS 55 and a physical asset management framework.

Globally, there is a challenge in application of fair value. Fair value reporting has faced a number of challenges and controversies and it has been widely criticised for taking away the verifiability of financial statements and replacing this verifiability with the so-called “market voice” (Elad, 2007). This may explain the reason why, despite the proclaimed simplicity of fair value reporting, most farmers if given the choice between fair value and historical cost would prefer either historical cost or a modest blend of the two. According to the World Bank Group (WBG, 2007), the debate on fair value has focused mainly on the financial instruments that are traded in well-established financial markets. However, the agriculture commodity markets in many developing countries remain largely underdeveloped and non-transparent and this poses the most significant challenge in the application of fair value to biological assets (Elad, 2007).

2.5. ASSET MANAGEMENT APPROACH

The life cycle of an asset can be defined as that period that an entity can foresee itself utilising an asset on an economically effective and efficient basis for the furtherance of the entity’s trade or service deliverance (National Treasury, 2004). The National Treasury Guideline (2004) further states that the

period covers all the phases in the life of an asset, namely the procurement, the use and maintenance and eventual disposal thereof. This period is described as the useful life of the asset to the entity and it may be different to the physical life of the asset. The National Treasury Guideline is applicable to all state-owned entities such as water utilities and therefore has relevance (National Treasury, 2004).

Life Cycle Management (LCM) is the application of life-cycle thinking to modern business practice, with the aim of managing the total life cycle of an organisation's products and services towards more sustainable consumption and production. LCM is not a single tool or methodology, but a flexible integrated management framework of concepts, techniques and procedures incorporating environmental, economic and social aspects of products, processes and organisations (Jensen and Remmen, 2005).

According to Schuman & Brent (2005), Asset Life Cycle Management (ALCM) is described as a sub discipline of Asset Management which focuses more on the whole life cycle of the asset. ALCM refers to the management of assets over their complete life cycle starting from before acquisition to disposal, taking into consideration economic, environmental, social and technical factors and performances and thus also stresses the importance of a multidisciplinary approach to Asset Management (Schuman *et al.*, 2005).

Amandi-Echendu (2004) further argues that an asset or property is expected to be usable for the purpose for which it was acquired. When assets are interpreted in financial or broader terms this means that an asset to the organisation must produce value to the organisation. Then an asset could be exploited until this exact moment without any increased failures or costs it would create optimal value for its owner. Knowing the processes or incidents that cause the end of the asset's useful life would allow the owner to take preventive measures to extend the asset's life (Amandi-Echendu, 2004).

Asset life cycle is shown on the following figure 2.1 and each cycle is discussed in full. Basic philosophy is cross-functional collaborative management of all

kinds of assets covering their entire lifecycles starting from idea of project, purchase, finance, human resource, investment, maintenance, operate, disposal and etc. The key to success is good communication, supported by a quality information system and excellently educated asset manager. A business model depends on the collection and screening of data in order to make decisions related to the asset at various stages in its lifecycle (Campbell, Jardine and McGlynn, 2010).

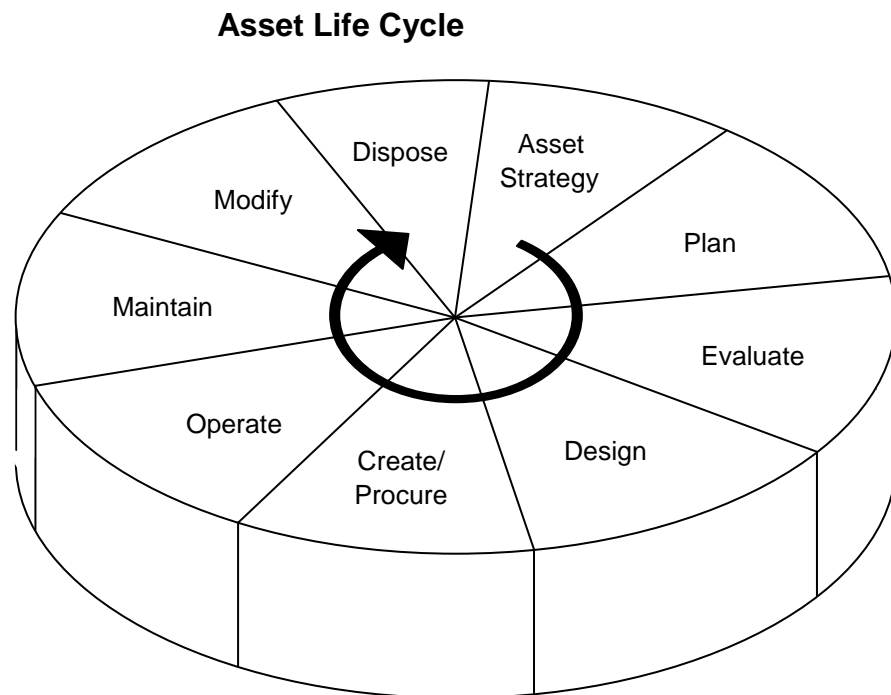


Figure 2.1: Asset Life Cycle (Campbell, 2010)

The life cycle of an asset consists of the acquisition, operation, maintenance and disposal phases. Asset Management is the science of making the right decisions and optimising these processes with common objective to minimise

the whole life cost of physical assets. It represents a cross disciplinary collaboration to achieve best net, sustained value for money in the selection, design, acquisition, operations, maintenance and renewal, disposal of physical infrastructure and equipment (Council, 2012).

The management of physical assets which are their selection, maintenance, inspection and renewal plays a key role in determining the operational performance and profitability of any organisation that operate with physical assets and take them as part of their core business. Being good at the whole lifecycle process assures the right delivery of the right design solution to the right question as reflected in a technical specification derived from the organisational business plan focused on stakeholders (Kennedy, 2010). Figure 2.2 indicate the concept of life cycle which is core to the new thinking regarding management of fixed assets and it involves the following phases:

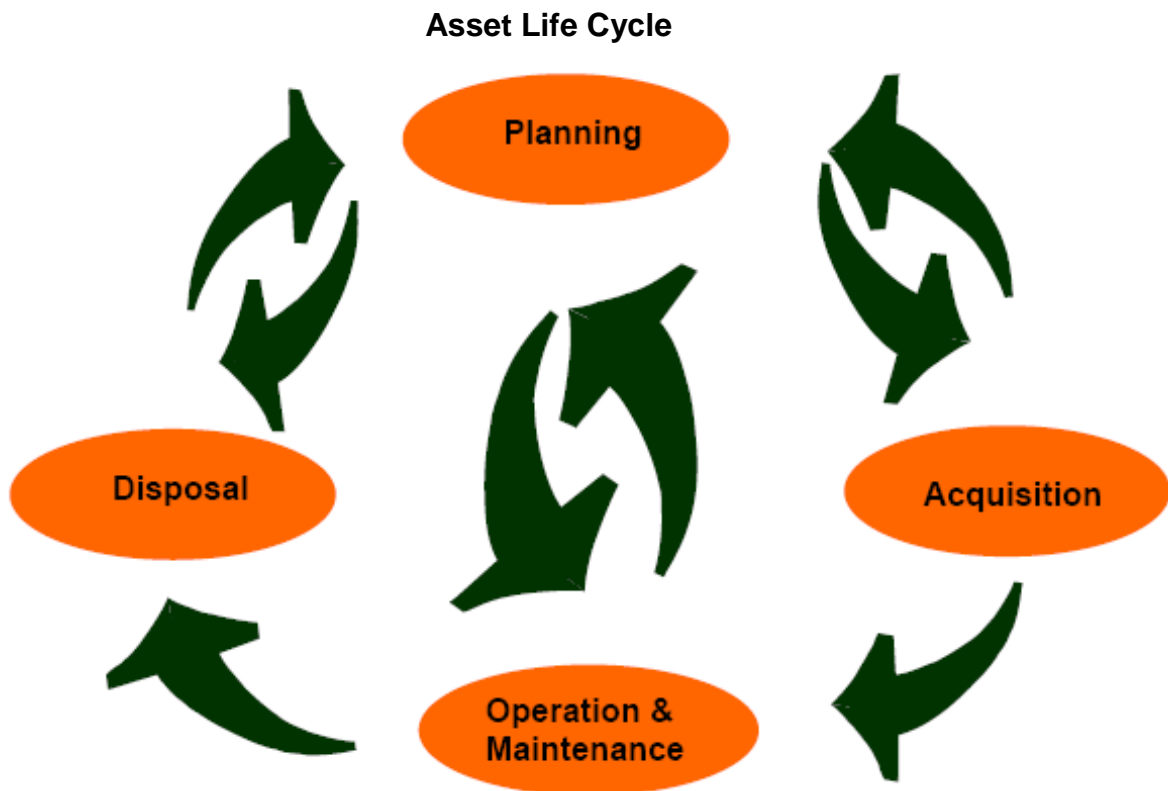


Figure 2.2: Adapted and derived from (National Treasury, 2010)

The costs involved in the purchasing, maintenance, replacement and disposal of assets can have a significant impact on the departments' and municipalities' financial plans or Medium Term Expenditure Framework (MTEF) as it is necessary to plan properly for the management thereof, not only in the medium term but also in the long term. Failure to do this may have a negative impact on the achievement of key governmental objectives (Braaksma, 2012).

Gerlenderbloem (2012) further emphasised that in strategic approach it is important to understand that each phase within the asset life cycle is as important as the next and that this projects into the role of each Branch within the Property Management Department. The success of the Department is the sum of the contributions of each of the Branches. The strategic arm of the Department is regarded as the key facilitator of the drive towards alignment with international best practice in Asset Management. The life cycle management of assets is Important as the key element of asset management operates within a life cycle framework (Structilia, 2007).

Life Cycle Management (LCM) is the application of life-cycle thinking to modern business practice, with the aim of managing the total life cycle of an organisation's products and services towards more sustainable consumption and production. LCM is not a single tool or methodology, but a flexible integrated management framework of concepts, techniques and procedures incorporating environmental, economic and social aspects of products, processes and organisations (Jensen and Remmen, 2005).

The life cycle of an asset can be defined as that period that an entity can foresee itself utilising an asset on an economically effective and efficient basis for the furtherance of the entity's trade or service deliverance. The period covers all the phases in the life of an asset namely the procurement, the use and maintenance and eventual disposal thereof. This period is described as the useful life of the asset to the entity and may be different from the physical life of the asset.

2.5.1. Asset planning phase

Brownless *et al.* (2005) agree that the effective management of assets depends on the development of an Asset Management Plan, accuracy and completeness of an asset register and management of the asset register throughout its whole life cycle. The life cycle management of assets is important as the key element of asset management operates within a life cycle framework.

According to Visser (2006), an asset is categorised in the form of land, buildings, vehicles, equipment and machinery. The public institutions and government in general spend a lot of money annually. The assets expenditure should therefore be planned for in order to decide on non-asset solutions through the leasing of assets or the outsourcing of the delivery of certain services. It is therefore necessary to ensure that the best mix of assets and other resources are available for the purpose of service delivery. In terms of the public institution's objectives as well as planned projects and other activities, this cannot be managed in an ad hoc manner without catastrophic consequences.

According to Burnett *et al.* (2014), assets must be aligned with programmes. It is important that assets be aligned with an entity's programmes as far as possible to allow the full cost of programme delivery to be determined more readily. The process will also provide an opportunity to compare programme delivery needs and outcomes with the assets currently used in delivery of that programme. However, there are difficulties encountered when undertaking the process of alignment. These generally result from:

The public institution's objectives as well as planned projects and activities: It is necessary to ensure that the best mix of assets and other resources are available for the purpose of service delivery. This cannot be managed in an ad hoc manner (Myburg *et al.*, 2011). A physical asset strategic plan: This should be developed to ensure that assets receive the necessary attention during the

strategic planning of the institution and budgeting processes of government departments and municipalities. The physical asset strategic plan is in essence a subset of the primary strategic plan since it serves a similar purpose.

Daya (2004) insisted that the process of alignment of assets with programmes may be undertaken concurrently with the allocation of capital and recurrent budgets for assets to programme areas, and/or the allocation or attribution of corporate costs to programmes. Cost attribution is an effective means of retaining central control or responsibility for assets and, at the same time, aligning these assets with programmes. This is particularly effective for assets employed by a number of programmes, for example, a headquarters building.

According to Daya (2004), asset planning must be considered equally and concurrently with the other resources requirements used in achieving programme objectives. It requires entities to convert programme delivery strategies into specific asset strategies. The requirements for a new asset is planned for and established. This is also in the planning phase of an asset. Asset management decisions should not be made in isolation but should rather form part of the overall guideline for decision-making in an organisation (Gelderbloem, 2012).

According to Daya (2004), the final component deals with alignment of asset management with strategic objectives of the organisation as embodied in the centralised custodianship for assets which is asset life cycle planning. This is illustrated in fig 2.3. The development of these themes is an on-going exercise.

Asset Management Framework



Figure 2.3: Source: Adapted from Daya, A. (2004): Managing public assets: management

Structilia (2007) agrees that the effective management of assets depends on the development of an asset management plan, accuracy and completeness of an asset register and management of the asset register throughout its whole life cycle (*Brownless et al.*, 2005). Effective policy-making requires information on whether governments are doing things right and whether they achieve the results intended (Boshoff, 2004).

Strong monitoring and evaluation systems provide the means to compile and integrate this valuable information into the policy cycle, thus providing the basis for sound governance and accountable public policies (Acevedo et al., 2010). Inadequate monitoring and evaluation is linked to the absence or the poor presence of a control environment and the government entities are placed in a difficult position to give effect to, or implement Asset Management as required by the policy. Hence, deviations or non-compliance goes undetected or is identified after the fact. The national and provincial governments and their entities have notched irregular, unauthorised, fruitless and wasteful expenditures that contravene laws and regulations. There is lack of proper monitoring and evaluation as required (Stemele, 2009).

From a South African perspective, Fig. 2.4 illustrates the basic asset life-cycle management model depicted in the National Treasury Guideline (2004). The life cycle of an asset can be defined as that period that an entity can foresee itself utilising an asset on an economically effective and efficient basis for the furtherance of the entity's trade or service deliverance (National Treasury,

2004). The National Treasury Guideline (2004) further states that the period covers all the phases in the life of an asset, namely the procurement, the use and maintenance, and eventual disposal thereof. This period is described as the useful life of the asset to the entity and it may be different to the physical life of the asset.

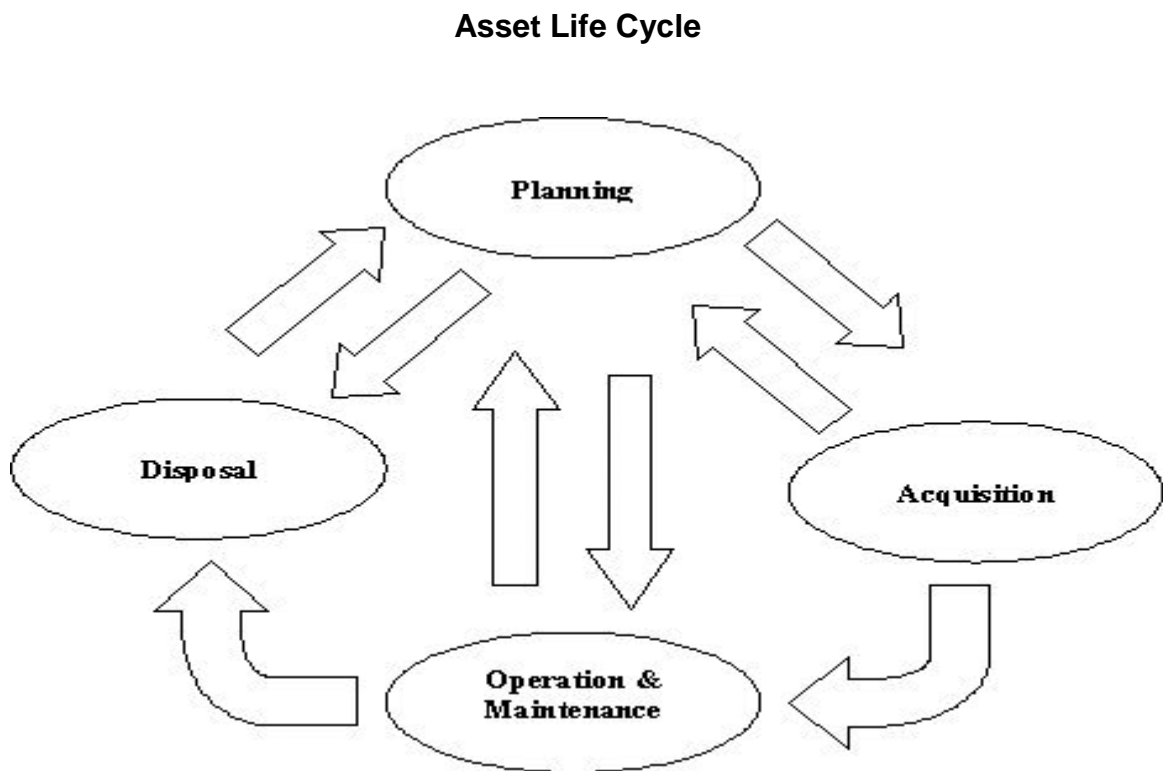


Figure 2.4: Asset life-cycle management (Source: National Treasury, 2004)

2.5.2. Asset acquisition phase

An Asset can be acquired through design and manufacture. This forms the starting point for the life cycle management of physical assets. Asset managers must have the confidence that they have maximally contributed to the design stage in order to ensure maximum maintainability and lowest possible life cycle cost. (Myburg et al., 2011). However, after the asset has been acquired, it needs to be installed and commissioned.

In this phase the assets are purchased, constructed or otherwise created. When the acquisition does not involve design and manufacturing as well, then the functions of purchasing involve much more than simply obtaining maximum production capacity for the lowest cost. Design capacity and purchase price are far less important than ongoing operability, reliability, availability and operating cost over a period of many years. One of the major inputs into the purchasing and decision-making should therefore be a comparison of expected life cycle behaviour and requirements for the alternatives (Campbell et al., 2010).

The construction phase can be seen as preparing a production or service delivery facility for performing its intended function. However, the moment the facility starts producing, deterioration and depreciation also starts. After the asset had been constructed, there is the aspect of asset installation. This does not only deal with getting it ready to perform its intended function, but rather to ensure that it will keep on performing its intended function. The pressure on the installation team is without exception to meet deadlines so that output can be produced. (Jooste & Vlok , 2015).

Reality is that many the supplier who has designed, constructed and supervised the installation and commissioning of the assets on the organisational sites is often not involved in the on-going operation and maintenance of the assets. The reasons for these are many but can include:

- Concern from some suppliers about the implications of on-going liabilities and hence a desire to exit the scene as soon as a contractual handover is completed, particularly those suppliers with narrow organisational bases and limited resources,
- Concern by some customers that the continued involvement of suppliers is a risk because their specific asset knowledge may be passed on to others.

Successful implementation of a preventative maintenance strategy together with a performance-based contract can deliver significantly improved results, even more can be achieved if this includes the unique knowledge and capabilities of a global equipment supplier who also has competence in the provision of reliability-based maintenance and service. (Henderson, Pahlenkenper and Kraska, 2014).

2.5.3. The operation and maintenance phase

Mungani and Visser (2013) define maintenance as a collection of actions executed on an asset with the aim of retaining an asset in, or restoring it to, a specified condition. Maintenance managers need to understand that the maintenance function cannot operate on its own. The maintenance function is an essential part of any asset intensive organisation and needs to support the organisation's business objectives. For maintenance to contribute positively to the bottom line of the business enterprise, maintenance personnel need to realise that they are part of an overall production strategy (Mungani *et al.*, 2013).

The objectives of maintenance is to maximise the availability of equipment's operational condition to utilise it at its full capability. Maintenance is thus understood as the care or upkeep of assets to ensure that it is in an operational condition to carry out its required functionality. Furthermore, maintenance aims

to restore deteriorated assets to a condition that is acceptable to accomplish required performance. In brief, maintenance can be summarised as the action that enables assets to continue through repair in order to carry out required functionality (Wheelhouse, 2009).

Maintenance is essential to ensuring that physical assets are reliable and available to deliver products or services. In order to use an asset to its full capacity it should be kept in good working condition at all times. Thus, assets need to be maintained to ensure availability when needed (Marque, 2007). Recently, organisations are becoming more dependent on technologies for productivity and these technologies are often embodied in physical assets that need to be maintained in order for the organisation to remain productive.

Schuman *et al.* (2005) require organisations to improve and maintain processes that manage all phases of an asset life cycle system. Wheelhouse (2009) explained that an ACP allows a business to plan, repair and replace equipment and facilities so that it can suit requirements. It also helps to obtain an optimum balance of cost, safety, performance and availability while taking the short-term constraints and long-term needs into consideration (Burnett *et al.*, 2014).

According to von Petersdorff & Vlok, (2014), maintenance is defined as a dynamic service activity that causes an asset to continue functioning thereby seeking to maximise the availability of that asset. Maintenance has undergone a paradigm shift in recent decades, from a more reactive mind-set where interventions are only called for when a component has failed, to a proactive mind-set where advanced modelling and condition monitoring tools attempt to calculate the optimum maintenance interval or threshold. This mind-set shift means that maintenance is viewed as a function that is integral to production and engineering, rather than a satellite department that only receives attention when things goes wrong. Thus, maintenance culture has been recognised as an important aspect to increase the quality of maintenance work to extend the life capacity of the assets and facilities (von Petersdorff *et al.*, 2014).

According to Annie (2007), assets are essential resources to an organisation, thus improving the working environment and well-being of their maintenance is an important aspect that should be given serious attention. This is where the need for the roles of each member of the organisation involved in maintenance tasks with a clear understanding in regard to maintenance work are clearly understood. However, the present maintenance problem has become an important agenda for the country and pressure on the government aspect of managing its assets and facilities (Annie, 2007).

Maintenance and management of assets take up to 95 % of the whole life of the fixed asset. The maintenance and rehabilitation of the assets take the largest portion of the life of fixed asset. Therefore, it results in up to 70 % of the total cost of the life-cycle of infrastructure assets to deal with the facility and represent a present worth of cost which will usually be larger than the initial construction cost. (Horak, and Van der Westhuizen,. 2005).

Many public assets and government-owned facilities are in poor condition because they are not well maintained. In addition, each year the management and maintenance costs have increased for the repair process assets and facilities that have been damaged. This situation has brought criticism from the public for services provided by the government. This is because the failure of maintenance at present due to the attitude of the individual. The maintenance culture is necessary to improve the skills, stubbornness and diligence in maintenance work (Mungani *et al.*, 2013).

In this phase the asset is used for its intended purpose. This phase may be punctuated by periodic refurbishment or major repairs, requiring the asset to be taken out of service for periods of time. An integrated approach to physical asset management ensures that the following system elements are all amicably contributing to sustainable quality output:

- The organisational model, if function centred, culminates in the right focus on operation, supported by the right maintenance.
- The way in which assets are operated influences wear and deterioration dramatically. From this perspective, operations and maintenance should be considered as two highly inter-dependent functions, both at ground level and higher levels in the organisational structure.
- Continuous sharing of knowledge between operators and maintainers should be stimulated by the right team structure.
- The clear allocation of responsibility and accountability makes it simple to ensure that the right training and certification would be provided.
- The measurement of performance and condition, as determined during a formal, on-going strategy development and improvement effort, means that the right information is available to the relevant roles, at the right time.
- Management information is certainly not something that is reserved for supervisory and management staff. On the contrary – the operators and artisans are the generators of the bulk of operating expenses. They need management information even more so than senior staff do.

Maintenance of the physical assets is normally based on proven maintenance approaches, philosophies, theories and strategies as Mitchell (2007) further emphasises. It is very important for the organisation to decide on a suitable approach or strategy. Mungani *et al.* (2013) further emphasise that Maintenance managers need to select a suitable maintenance approach for their operation and production method because organisations dependent on physical assets for their productivity.

It is therefore desirable to have a guideline to select or derive a suitable maintenance philosophy, approach or strategy for an organisation based on its business needs, operational needs and production methods. All maintenance approaches or strategies use a number of basic types or tactics for each asset of the total system. The four tactics that are most often used are highlighted below (Mitchell, 2007).

2.4.3.1. Operate to failure (OTF)

Equipment is run until a failure occurs, when a replacement is usually performed. This tactic is often the cheapest, since the full design life of the component is utilised. But it is not good practice when the consequence of failure is severe, such as loss of life or a major release of harmful substances.

2.4.3.2. Time-based maintenance (TBM)

Replacement or cleaning is performed at predetermined time or usage intervals. This tactic is often used for simple components that exhibit a definite wear-out failure mode with a narrow failure distribution. A drawback is that only a part of the useful life of components is actually utilised.

2.4.3.3. Condition-based maintenance (CBM)

Some parameters that indicate the condition of the equipment is measured continuously or periodically and replacement is performed when the condition is no longer acceptable.

2.4.3.4. Fault-finding maintenance (FFM)

Periodic checks are performed to determine whether the back-up equipment, redundant equipment or protective equipment is still fully functional. If not, a repair or replacement is performed.

Maintenance has a very negative meaning especially for many people involved in managing organisational operations. The traditional view of maintenance is one of “fixing things when they are broken”. It means cost, downtime, non-value-adding activities, unpredictability, environmental issues, safety issues, unhappy customers etc. In terms of sustainability, if one defines this as producing products with the minimum impact on resources, the environment and society, then traditional maintenance is not seen as a positive contributor (Horak & Van der Westhuizen, 2005)

In the mining & industrial sector, the direct costs of maintenance can vary from 10-30% of the cost of production and over the life cycle of the equipment can be significantly more than the capital value of the equipment.

Enlightened companies now recognise that this traditional approach to maintenance has an even far greater impact on their business than just its direct cost. However, they also understand that maintenance, when properly managed, can be a significant value-adder, improving both profitability and sustainability. This can only be achieved by embracing a proactive, rather than a reactive approach to the management and execution of the maintenance.

Assets tend to worsen due to wear and tear as they are used over time. This causes failure rates to increase and results in a decrease in reliability of assets. With maintenance and repairs the reliability and availability of the assets are improved, but in most cases it will still not be restored to be Good-As-New (GAN). Therefore, when planning maintenance activities, replacement should always be considered. The purpose is to find the point in an asset's life cycle where replacement is a better option than maintenance. To determine this the most important aspect that should be taken account is: Which option is more economically feasible at the time? (Burnett *et al.*, 2014)

An asset's condition deteriorates as it ages and it causes more frequent failures thus resulting in more frequent maintenance. A replacement might not seem to be a good idea at the given time because maintenance is a more economical option for the short-term. However, if a more long-term assessment is completed for the current maintenance frequency versus the maintenance frequency once it has been replaced, the decision might be different (Burnett, 2013).

The whole life cycle considers the acquisition, the usage and maintenance, finally the disposal of the asset (Woodhouse, 2012). The combination of exploitation and care has to include original investments, maintenance and ultimate disposals, renewals or modifications as well. A process of continuous

improvement of the assets can be applied by following the Deming Cycle. The Deming cycle is a structure of plan, do, check and act to get the best mix (Schoeman et al., 2014).

2.5.4. Asset disposal phase

The role of assets is to support the delivery of a government service to the public. Assets should only exist to support programme delivery. The key starting point is to establish a link between programme delivery and assets. Corporate objectives are translated into programme objectives, delivery strategies, outputs and outcomes. Assets within a programme are one of the inputs utilised to enable programme outputs. If an asset does not contribute effectively to such a government service it should not be held or used and must be disposed of.

Campbell et al. (2010) indicate that disposal is the final stage in which the public institution needs to do away with those unserviceable, redundant or obsolete movable assets. The disposal phase is initiated when the economic life of the asset has expired or when the need for the service provided by the asset has disappeared. The accounting officer is assigned with the power to appoint a specific committee to deal with disposals. The chief financial officer will always appoint the committee responsible for disposal. The department has to develop a disposal policy that governs the disposal of items.

In the disposal management is the process of decision making in respect of the doing away with redundant, obsolete and unserviceable goods and does not merely entail, as many people think, the sale thereof. The disposal could include donation, auction, transfer to other state institutions, burn and bury or destroy. According to Annies (2007), the main function of disposal management is obsolescence planning, maintaining a database of redundant material, inspecting material for re-use, determining a disposal strategy and executing the physical disposal process.

2.5.4.1. Disposal Process

All the assets that are no longer in use should be identified each year for replacement or to be sold by auction. The identification of the redundant or obsolete items is the responsibility of each department. Within Asset Management, one of the main questions is when a particular asset will cease to be of value to the organisation, for example because of degradation, irreparable failure or because spare parts are no longer available. Hence, the estimation of when this moment will come is crucial, as at this moment the function of the asset should be taken over by another asset if the need to have that asset still exists (Visser, 2006).

Renewal or disposal is an essential activity in Asset Life Cycle Management (ALCM). The challenge in executing one of these is to determine when it is most appropriate to renew or dispose. According to Visser & Botha (2015), disposal or replacement of assets, departments, public entities and constitutional institutions and local government should develop a well-structured disposal plan to guide for the disposal and replacement of assets. Such a disposal plan can only be prepared if there is an updated asset register in place from which the asset management practitioners can obtain information such as the accumulated depreciation of assets, the condition and the purchased date will be used (Visser *et al.*, 2015).

According to Braaksma (2012), in order to have an updated asset register available, it is necessary that an asset verification or audit be undertaken at least every six months and supplemented with regular spot checks on an ad hoc basis in order to verify the condition of the assets. Asset disposal decisions must be taken by a disposal committee after assessing the assets identified and referred to by the assets verification team.

This will ensure that assets that are still useful are not disposed of unnecessarily but rather distributed to other divisions within departments, public entities and constitutional institutions, and local government where they are needed. If assets do have to be disposed of, a decision should also be taken about the disposal method and the cost implications. It would not make financial

sense to suffer a loss when disposing of assets. In fact, one should try at least to cover the costs of the disposal of assets, or even better to generate a surplus (Council, 2012).

A trustworthy estimation of the remaining useful lifetime of an asset is necessary for interventions such as modernisation, life extension or disposal. However, such an estimation is delicate as well as difficult because a premature disposal of the asset is a direct destruction of capital, whereas an overly extensive prolongation of the use of the asset may go hand in hand with an undesirable increase in failures with the probable consequences of financial, health and environmental damage. Again such an estimation is difficult because oftentimes it can only be based on imperfect asset information, as information is scattered, data availability is low, data quality is doubtful and knowledge of the future is incomplete by definition (Rustenburg *et al.*, 2014).

According to PFMA Section 76(1) (k), disposal of movable assets must be at book or market value or by tender or auction, whichever is most advantageous to the state, unless determined otherwise by the relevant treasury. Any sale of immovable state property must be at market value, unless the relevant treasury approves otherwise. If the proper life cycle management process has been followed, then the data associated with the asset (meaning maintenance strategies, condition data, numbering, configuration details, etc.) have commercial value as well. Disposal of the asset often means that there are a number of stock material items that will now become obsolete. Disposal of the asset could also mean that there might be maintenance tools and equipment that would become obsolete (Public Finance Management Act, 1999).

For example the Accounting Officer may transfer the moveable assets free of charge to other departments. The accounting officer must, when disposing of computer equipment, firstly approach state institutions involved in education or training whether an institution would require such equipment or not. (Burnett *et al.*, 2014).

According to Welgemoed (2010), the Asset Management Unit is placed or structured where the success or failure of an organisation to maintain its asset register lies. Gone are the days of the Asset Register being the responsibility of one official within the finance section. Asset Management can no longer be seen as a function of Finance. An Asset Management Unit/Committee must include at least one representative from each department or sub-section within a department and will establish responsibility within these departments for those assets which fall under their control.

2.6. ASSET MANAGEMENT IN LEDET

The asset management unit in LEDET is structured under Supply Chain Management managed by the director who is in turn reporting to the Chief Financial Officer. One of the important aspects that must be considered in the development of asset management is the organisational structure. The organisational structure is a framework of rules and power relations that exists formally to control and coordinate human action and to motivate individuals to achieve the organisation's goals. It is typically hierarchical in which an organisation arranges its lines of authority and communications and allocates rights and duties. Organisational structure is vital as a guideline to clarify the sense of duty and activities for everyone in the organisation. The comprehensive organisational asset management structure represents the practice of the asset management that should be executed by each member in the asset management unit.

A department usually employs its assets to provide goods or services capable of satisfying the wants or needs of beneficiaries. Furthermore, in many cases, assets are used to provide goods or services to beneficiaries or customers free or subsidised. An item can meet the definition of an asset if it is used either directly or indirectly to provide goods and/or services that are used in furtherance of a department's objectives.

The Office of the Accountant General (OAG) has developed and issued the

Modified Cash Standard which sets out the principles for the recognition, recording, measurement, presentation and disclosure of information required in terms of the prescribed formats. Departments and any other entities that claim compliance with the modified cash basis of accounting must adhere fully to the principles, presentation and disclosure requirements contained in this Standard in order to achieve fair presentation and compliance with the PFMA and its regulations.

In assessing whether an item meets the definition of an asset, liability or net asset, attention needs to be given to its underlying substance and economic reality and not merely its legal form. Assets provide a means for entities to achieve their objectives. Assets that are used to deliver goods and services in accordance with a department's objectives but which do not directly generate net cash inflows are often described as embodying "service potential". Assets that are used to generate net cash inflows are often described as embodying "future economic benefits".

The future economic benefit or service potential embodied in an asset is the potential to contribute directly or indirectly to the flow of cash and cash equivalents to the department or the rendering of services by the department. The potential may be a productive one that is part of the operating activities of the department. It may also take the form of convertibility into cash or cash equivalents. Asset Management in LEDET is regulated by the Asset Management Policy developed by Provincial Treasury. The Policy system, strategy and work planning as part of the determinant factor that influences the asset management culture development. The role of this factor as a policy system to comply with all regulations due to work is a programme of policies, standards and the belief that the rules must be followed by an individual in an organisation to achieve goals. The system policy consists of the simple statement and gives a clear and distinct explanation on the core values and beliefs about common goals that want to be achieved.

2.7. ASSET MANAGEMENT BEST PRACTICE MODELS

Jooste and Page (2004) argue that a current problem in the asset management environment is the result of the lack of structured performance management which is required to effectively control the performance dynamics of the asset and its life cycle. Consequently these shortcomings lead to ineffective and under-performing assets with high life cycle costs, which have a negative influence on the financial performance and return on capital investment.

2.7.1. Integrated Asset Life Cycle Model

The proposed integrated ALCM model (see Fig.2.5) is derived from an amalgamation of Life Cycle Management (LCM) and asset management theories; at present these theories and models are not captured on a common platform (Haffejee, 2006). For the purposes of this study, the integrated Asset Life Cycle Model (ALCM) refers to the management of assets over their complete life cycle, from before acquisition to disposal, taking into account economic, environmental, social and technical factors and performances. Furthermore, assets refer to strategic assets. It is noted that strategic assets may include non-physical assets such as intellectual capital, but in terms of the proposed ALCM model strategic assets, refer to physical assets only (Haffejee, 2006).

Integrated Asset Life Cycle Management

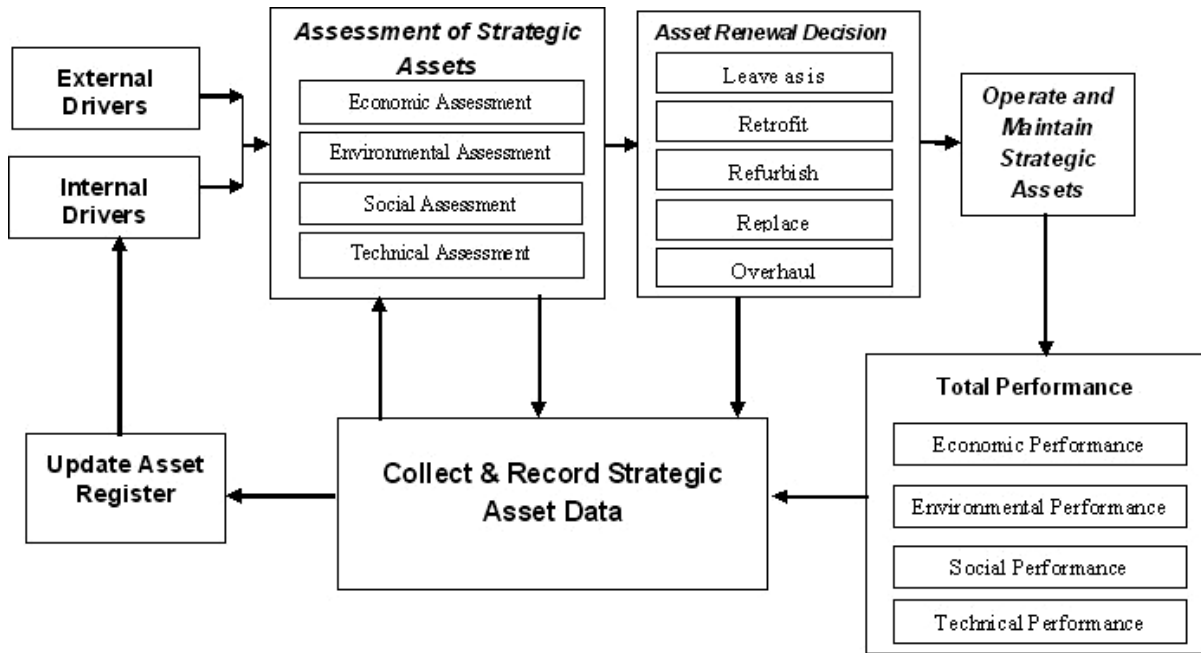


Figure 2.5: Integrated ALCM model (Haffejee, 2006)

2.7.2. Asset Performance Management Model (AMP2)

The Asset Performance Management Model (APM2) was developed to address asset management needs. The model is characterised by the following four features and importances (Jooste *et al.*, 2004):

- It gives a balanced (financial- and non-financial) view of asset performance,
- It links asset performance to strategic business objectives,
- It facilitates decision-making and problem solving at different managerial levels, and
- It enhances asset control and continuous improvement.

The development of the APM2 contributes to the knowledge of Asset Management by assisting companies with improvement of asset performance management and thereby improving effectiveness and productivity. The model is a tool that can be applied to overcome issues that industry experiences in

asset performance management, such as the lack of balanced performance measures.

The model is characterised by a systematic and structured approach that:

- Is applicable to the asset management and life cycle cost context, that
- Gives a balanced view on performance measurement, that
- Integrates strategic and operational aspects of the business, and that
- Facilitates proactive management and continuous improvement.

Each of these characteristics contributes to improvement of a company's asset management. APM2 also exposes industry to the latest developments in asset performance management.

2.8. CONCLUSION

After analysing all Asset Management approaches, it should be evident by now that an integrated approach towards asset management has to be followed by the government department, public entity and municipality to ensure that assets receive due attention as part of the overall management process. It is therefore necessary that the senior managers of the institutions acknowledge that physical asset strategic planning is a prerequisite for sound asset management. Asset management is impossible without such planning even with the most competent asset managers and asset management practitioners.

It is important that assets be aligned with an entity's programmes as far as possible. This allows the full cost of programme delivery to be determined more readily. The process also provides an opportunity to compare programme delivery needs and outcomes with the assets currently used in delivery of that programme. The process of alignment of assets with programmes may be undertaken concurrently with the allocation of capital and recurrent budgets for assets to programme areas, and/or the allocation or attribution of 'corporate' costs to programmes.

Effective and proactive asset management is very important for ensuring that government departments get clean audits. The first step for government is to ensure that they have a relevant, up-to-date and accurate register of all their assets, in order to plan for better asset maintenance management. Government, other public entities and organisations for that matter can view their assets from the asset register and plan for maintenance and management in a sustainable and strategic manner.

It must be noted that asset management is not a concern isolated only to government but it is also a concern to private organisations as well though arguably to a lesser degree. The organisation needs work towards increased asset performance, decreased risk and optimised expenditure over the complete life cycles of assets and asset systems. LEDET asset management is regulated by the numerous acts, standards, guidelines and regulations impacting on the management of physical assets.

This chapter provided a brief review of the existing literature that represents the most authoritative scholarship on the research problem that the researcher identified with, and is relevant to the research topic. The main purpose of a literature review is to review literature on the subject matter. The chapter outlined amongst others, the legislative framework informing the asset management, asset management life cycles, the debate on the different approaches to asset management, the asset management within international context, the constraints to effective asset management implementation, finally the solution to address some of the challenges identified.

The researcher highlighted issues relating to the management of assets in the Limpopo Department of Economic Development and Tourism (LEDET) which are part of financial management and intended to introduce Asset Management best practice. The following chapter explores the appropriate methodology that will be used to collect data necessary to answer the research questions raised in the problem statement.

CHAPTER 3
RESEACH METHODOLOGY

3.1. INTRODUCTION

This chapter focused on research methodology used which is research design, the study sample, the methodologies and the procedures used to collect and analyse the data in order to investigate the challenges that the asset management unit faces, how those challenges affect the delivery of service and how best asset management can be improved in LEDET. The researcher further focused on the validity and reliability and the limitations of the study.

3.2 RESEARCH METHODOLOGY

According to Babbie and Mouton (2001), research methodology refers to the methods, techniques and procedures that are employed in the process of implementing the research design or research plan. Research methodology is also defined as the study of the logic underlying implementation of the scientific approach to the study of reality.

Peffer, Tuunanen, Rothenberger and Chatterjee (2007) further defines research methodology as a system of principles, practices and procedures applied by a researcher to a research study. The methodology applied might help researchers to produce and present high quality design science research in a manner that is accepted as valuable, rigorous and publishable. The research methodology includes three elements which are conceptual principles to define what is meant by design, science research, practice rules, and a process for carrying out and presenting the research.

Since the aim of this study is to identify and understand the challenges facing LEDET's asset management unit, the researcher preferred a qualitative study. Neuman (2005) defines a qualitative design as an inquiry process of understanding based on distinct methodological traditions of inquiry that explore a social or human problem. In this case, the challenges crippling the unit's viability stand as the social problem of concern to the study. By using the qualitative design, the researcher managed to identify unique challenges facing the asset management unit. A qualitative design had given the researcher an in-

depth understanding of the lived experiences of the unit's management and employees using qualifying words and descriptions (Burns and Grove, 2009).

After analysing all the definitions given, the researcher came to the conclusion that research methodology is the way in which the research study is conducted. According to Kumar and Phrommathed (2005), research methodology is a way to systematically solve the research problems. It may be understood as a science of studying how research study is done scientifically. There are various steps that were generally adopted in studying the research problem as the researcher was dealing with the logic behind them.

A study was conducted at the LEDET in Polokwane with the intention to identify the challenges that the asset management unit is facing and to come to the best practise in asset management.

3.3. RESEARCH DESIGN

Hosftree (2013) defined research design as the arrangement of conditions for collection and analysis of data in a manner that aims at combined relevance to the research purpose with economy in procedure. Research design is the conceptual structures within which research is conducted. It constitutes the blue print for the collection, measurement and analysis of data. Babbie and Mouton (2001) define research design as a plan or structured framework on how one intends to conduct the research process in order to solve the research problem.

The views of Leedy and Ormrod (2014) on qualitative research inspired this study. They propose that a qualitative approach enables a researcher to build a complex and holistic picture, analyse words, report detailed views of informants, and conduct the study in its natural setting. Specifically, a qualitative research makes it easier to employ tactics such as in-depth interviews to understand and explain a social phenomenon (Yin, 2001). Using the qualitative design, the normal context of the unit's employees was easily taken into consideration. A qualitative research study design where LEDET is a case site, were employed.

The qualitative research study design was preferred because it provided a deep insight into the specific challenges facing the department. It also helped the researcher to open the curtains to the real issues at stake in the department's asset management unit.

The researcher considered using a qualitative research design as it is relevant to this kind of study. The Qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour. The researcher generated results either in non-quantitative form or in the form which is not subjected to rigorous quantitative analysis. However, the researcher conducted interviews because instruments that are mainly based on the qualitative approach have been prepared and administered by a researcher in order to obtain important information about the assets and public officials' views on the impact of service delivery on asset management. When collecting data, the researcher focused on the views of the asset management and the public officials in asset management (Priest, Roberts & Woods, 2002)

3.3.1. Sampling

Trochim (2006) defined sampling as a process of selecting particular entities or objects of study. It is the process of selecting units, for example people or organisations from a population of interest so that by studying the sample it will be possible to fairly generalise results back to the population from which they were chosen.

Sample size refers to the number of the respondents from which the researcher collected data. If the sample size was too small, one could have missed an important research finding. If it was too large, one could waste valuable time and resources. The sample size was drawn from a small number of respondents or population which was regarded as more reliable and accurate in drawing conclusions than that of larger populations. If the population itself was relatively small, the sample should comprise a reasonably large percentage of the population (De Vos, Delpont, Fouché and Strydom, 2011). The researcher

interviewed all ten (10) people in the Asset Management because the number was small.

3.3.1.1. Population

Welman, Kruger and Mitchell (2005) define a population as a collection of all observations of a random variable under study about which one is trying to draw conclusions in practice. According to Babbie and Mouton (2001), population refers to the instrumental tools which the researcher uses in collecting the individuals, groups, organisations and institutions, social interacts, cultural objects and social actions or interventions. Population refers to a collection of objects, events or individuals having some common characteristics that the researcher is interested in studying. Babbie & Mouton (2001) also consider population as a unit of analysis.

The LEDET's Asset Management Unit was targeted as a potential organisation to participate in this study. All 10 employees of LEDET's asset management unit will constitute the study's population. Population in this study comprised of the Deputy Director: Asset Management and nine (9) subordinates. Director: Supply Chain Management is the supervisor of the Deputy Director: Asset management.

According to Babbie and Mouton (2001), population refers to a collection of objects, events or individuals having some common characteristics that the researcher is interested in studying. The population of interest was the LEDET provincial government departments with respect to their asset management functions. Asset Management has the following officials in its structure: Deputy Director: Asset management, two (2) Deputy Managers, and seven (7) Asset administrative officers. The Deputy Director reports to the Director: Supply Chain management who is reporting to the Chief Financial officers. The population size in this research is 10.

The Asset management Unit organogram

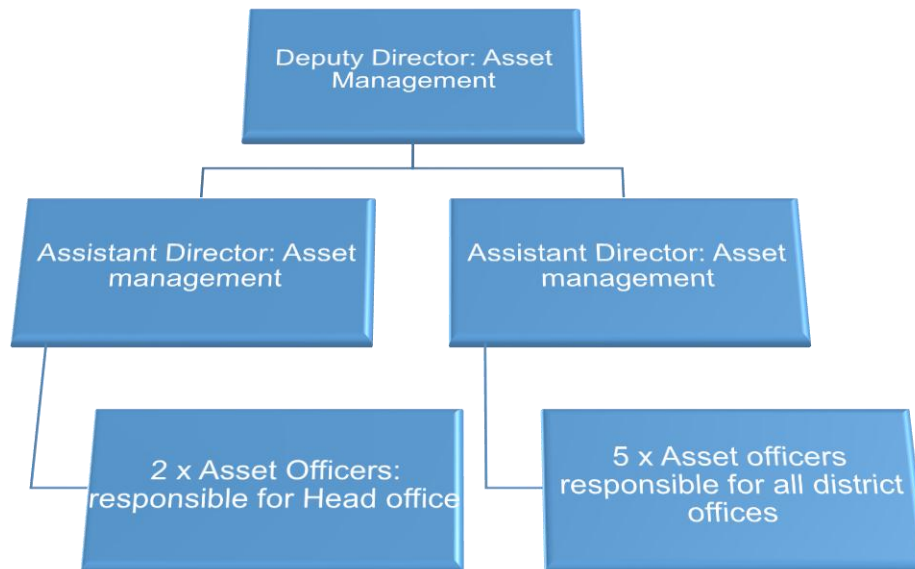


Figure 3.1: Asset Management Organogram

3.3.1.2. Sample size and Selection Method

According to Welman and Kruger (2002), a sample is a subset of a population from which key information of the study will be drawn. Since the study will be conducted to all 10 asset management officials, therefore no sampling techniques were necessary. The whole population size was comprised of 10 employees of the asset management unit. Since the employees were known to the researcher, the sampling procedure were informed by non-probability methods. Specifically sampling techniques were not applied.

When the study employ purposive sampling methods, the researcher use experience, knowledge and judgement in targeting only the area that will bring value-added information to the study. Qualitative researchers normally select the participants purposively and integrate a small number of cases according to their relevance. Again data collection is designed more openly with the aim of a

comprehensive picture (Flick, 2015). Hence the researcher used the purposive sampling to collect the data from the participants.

3.5.2.1. Purposive

A purposive sampling method was adopted in order to target only those respondents who were most likely to provide relevant information for the purpose of the study (Babbie and Mouton, 2001). The researcher used purposive or judgmental sampling to select public officials who have the knowledge of how asset management impacts on service delivery in the LEDET department.

3.3.2. Data Collections

3.3.2.1. Data collection approach and method

According to Neuman (2005), data collection method is distinguished from data collection technique. Data collection method refers to the systematic approach to data collection. Technique refers to the art of asking, listening and interpreting. Data collection is the way in which the researcher gets information from the respondents.

Leedy *et al.* (2014) state that research is a viable approach to a problem only when there are data to support it. Interviews were conducted to reveal the strengths and weaknesses of the current theories and models within the LEDET. Data pertaining to the real challenges facing the asset management unit were collected through semi-structured/in-depth interviews aided by an interview schedule. The interviews were conducted in English which was the language preferred by the participants. The interviews were conducted by the researcher, with excellent communication skills. In the meanwhile, the researcher took field notes. Individual interviews were conducted until data were saturated. Data saturation was reached when no new information emerged.

3.3.2.2. *Data collection process and collection instrument*

The researcher also collected data through field observation in order to have first hand information about the impact of Asset Management on service delivery. Field observation was important when looking at the strategies that can be devised in order to improve service delivery on asset management (Neuman, 2005).

The researcher used the semi-structured, (please refer to annexure D for interview schedule) rather than the structured interview because the semi-structured interview offers sufficient flexibility to approach different respondents differently while still covering the same areas of data collection (Noor, 2008). Semi-structured interviews are defined as those interviews organised around areas of particular interest, while still allowing considerable flexibility in scope and depth (De Vos *et al.*, 2011). The researcher collected data using semi-structured interviews which enabled the researcher to make follow ups in interesting avenues that emerged from the interview and participants were able to give a fuller picture through probing respondents for more information.

In this study, the interview schedule was constituted of open ended questions to enable the researcher to get more information regarding the impact of asset management on service delivery. The instrument was also used as a way to create the flexibility and conducive environment for the researcher and participants.

The researcher used one type of instrument when collecting data, one-on-one semi-structured interviews. The researcher assisted the respondents in answering the questions from the interview schedule by giving verbal clarity on some concepts.

The research instrument used was an interview schedule with open - ended questions. The questionnaires were administered to each respondent identified

personally. The interview schedule was grouped into four sections. Each section was grouped with a different objective.

The first section (please refer to annexure A) of the interview section was asked to obtain the demographic background or the personal information of the respondents.

The second section was linked to the first objective of the study. All the questions asked under this section were aimed at obtaining information to answer the objective which was to identify the challenges which were faced by asset management.

The third section was questions that was able to investigate challenges faced by LEDET asset management unit and how these challenges were affecting service delivery of the department.

Lastly, the questions asked were investigating the best practice that can be applied in the asset management. The questions addressed how asset management can be improved in order deliver services to the department.

3.3.2.3. Ethical considerations related to data collection

According to Horak, and Van der Westhuizen (2005), the important purpose of the research ethics was to protect the welfare of research participants. However, research ethics involved more than a focus on the welfare of the research participants and extends into areas such as scientific misconducts and plagiarism.

The researcher ensured that the information provided by respondents are used only for the purpose of the study and the researcher will assure the respondents before the data collection process starts and encourage them to be honest and will tell them the truth. If the study is to be published, the respondents' names and anything that may make the public identify the respondents will not be published. The researcher will avoid any situations that may hurt or harm the respondents at all costs.

The letter requesting authority to conduct the study was sent to the Head of Security and Investigation who is responsible for information of the department. The approval was granted by the Head of the department. (see annexure A and B). The information collected from respondents will be treated with high confidentiality as stipulated in the information policy. The subjects were briefed on the purpose of the study and the participation was voluntary. Annexure C of non-disclosure clause (privacy to confidentiality to information) was included on the first page of the interview schedule. The results were reported in an honest and unbiased manner. The report will be made available to all relevant stakeholders on request upon completion of the study.

3.3.3. Data Analysis

According to De Vos (2011), data analysis is the process of bringing order, structure and meaning to the mass of collected data. In this study, collected data were analysed inductively and textually. The Thematic analysis as cited by Creswell (2009) was used to analyse the gathered data. Phase one involved organising and preparing the data for analysis. In this phase interviews were transcribed, field notes typed and data sorted and arranged in a systematic pattern.

The qualitative data were summarised based on the researcher's subjective interpretation, data were summarised into themes and sub-themes and finally, all data were analysed using a thematic approach. Braun & Clarke (2006) defines thematic analysis as a method for identifying, analysing and reporting patterns (themes) within data. It minimally organises and describes data collected to detail. However, it also interprets various aspects of the research topic. Thematic analysis is widely used, but there was no clear agreement about what thematic analysis is and how you go about doing it. Though it can be seen as a very poorly branded method, it is in actuality argued that a lot of analyses are essentially thematic (Braun, 2006).

The central task that is undertaken during data analysis is to identify common themes in people's descriptions of their experiences and responses. These can be done after the interview. However, the researcher followed the steps suggested by Kurma & Phrommethed (2005) which are as follows:

- Identify what relates to the topic. That is the researcher must separate relevant from irrelevant information gathered during data collection and then break the relevant information into smaller segments. Each segment should reflect a single, specific thought.
- The researcher should then group the segment into categories that reflect various aspects and meanings of the phenomenon as is experienced.
- The researcher must then look and consider the various ways in which respondents experienced the phenomenon.
- The researcher will use the various meanings identified to develop an overall description of the phenomenon as people typically experienced it.
- The final result will be a general description of the phenomenon as seen through the eyes of people who have experienced it first-hand. The focus is on common themes in the experience but also with consideration that individuals are different in terms of studies and other aspects of diversity.

The collected data were analysed to obtain a general sense of the information. This was when the information collected was organised into a more logical structural meaning. This entailed bringing textual meaning to the data collected. According to Leedy et al. (2014), the researcher aimed for balance, fairness, completeness and sensitivity in the final analysis and interpretation of the data.

The final phase was interpretation of data and the researcher came up with appropriate findings and conclusions. Interpretation of data was done manually and the computerised table and columns were used. (please refer to chapter 4 of the study).

3.4. CONCLUSION

This chapter looked at the data collection methods and ensured that the research questions would be answered properly. Participants responded to all the questions that were asked. The study design was qualitative and appropriate methods were used to analyse the data of which findings constitute Chapter 4.

This section detailed the data collection, presented the research methodology or the way in which the researcher attempted to answer the main and sub-questions. The section comprised of the study area, population of study, sampling procedure, research questions (or hypothesis), data collection methods, data analysis, limitations of the study and ethical considerations.

CHAPTER 4

DATA PRESENTATION, DISCUSSION AND INTERPRETATION OF THE RESULTS

4.1. INTRODUCTION

This chapter sought to present, analyse and also interpret data collected. In this chapter, the information obtained through interviews and field observations will be analysed and interpreted. Data were collected from Limpopo Department of Economic Development, Environment and Tourism (LEDET). The study investigated the challenges that are faced by asset management and the implementation of asset management by organisations. The study utilised a qualitative structured interview schedule which was applied on a one- to- one interview with the asset management. The researcher interviewed all 10 respondents in the asset management unit. The researcher targeted all 10 respondents, which is the entire population of the study because of the number officials in the unit. All 10 respondents participated in the interview.

Data will be interpreted through several aspects:

- Relating the findings to the original research problem and to the specific research questions and hypothesis.
- Relating the findings to pre-existing literature, concepts, theories and research studies.
- Determining whether the findings have practical significance as well as statistical significance.

- Identifying limitations of the study

Interviews were conducted with asset management unit officials in LEDET. The other information was collected when attending the Provincial Asset Management Forum which is attended by all provincial departments on a monthly basis. The Asset Management Forum is formed by Provincial Treasury and the members are appointed to represent each department in order to address the challenges which faces the asset management unit to achieve the expected results as set by the department.

4.2. DATA MANAGEMENT AND ANALYSES OF RESEARCH RESULTS

The findings are discussed in the order of the sections in the interview schedule. The findings as informed by the research questions in Chapter One, data and analysis of the results of the study. The findings were divided into five themes, namely, theme one: demographic profile of respondents, theme two: the challenges in the asset management unit, theme three: the impact of asset management on service delivery and the last theme on how asset management can be improved in the organisation.

4.3. RESEARCH RESULTS

The aim of this section was to obtain personal information regarding the respondents. During the current study, 12 officials from asset management unit were identified. Out of twelve (12), ten (10) officials responded to the interview whereas two (2) were declared non- responses after an effort was made to follow up.

Demographic data of respondents are important to this study because it helps the researcher to understand the background information on the respondents. In probing the demographic profile of respondents, the researcher focused on the following aspects: gender of the respondents, age group, marital status, highest qualification, occupation and which programme they belong to. These aspects are significant in any research in order to have a clear picture of the respondents as subjects of the inquiry.

4.3.1. Gender of the respondents

The researcher probed this variable in order to avoid gender biasness in the findings of this study. Gender inequality is still a critical issue of discussion in both development and public administration literature today. The following table indicates the results obtained from respondents according to their gender during the data collection process of the study.

Table 4.1: Gender of the respondents

Gender	Frequency	Percentage
Male	8	80 %
Female	2	20 %
Total	10	100%

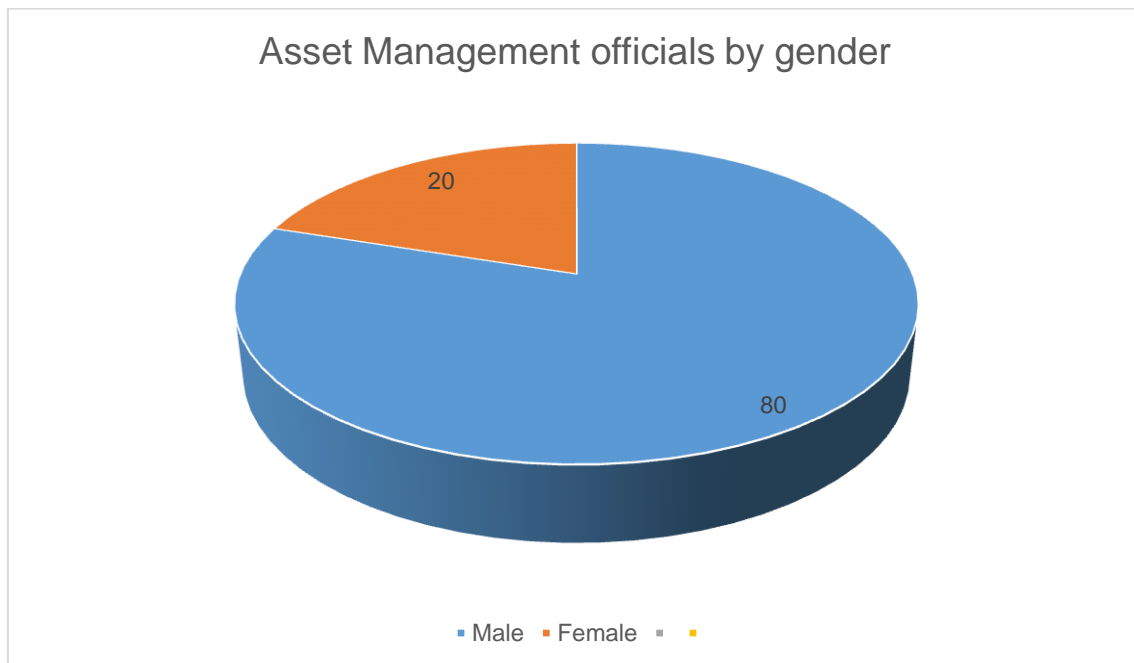


Figure 4.1: Analysis of Asset Management Officials according to gender

Table 4.1 indicates that 80% of the respondents are male while 20 % of them are female. This is an indication that there might have been an element of

gender inequality. These findings tell that there is a lack of compliance by the department in respect of the Employment Equity Act and gender mainstreaming or that there are no competent females. The females in the department are not interested in asset management due to the nature of work.

Fotaki (2013) indicates that feminist sociologists were the first to identify institutional factors in universities as an extension of social structures of patriarchy and the root cause of women's unequal treatment in higher education. His work focused on historical patterns governing academic careers, and their intersections with women's family and caring obligations. For example, Flick's (2015) regression models for categorical dependent variables using Stata have demonstrated that about one half of gender differences in academic promotions can be attributed to women producing fewer publications than men. This affects negatively their promotion prospects despite the quality of women's papers being comparable to those produced by men.

A recent study noted an upward shift in publication records for full-time academics in Australian universities, but women remained significantly less likely than men to report international research collaborations and this continued to have a negative impact on their academic standing. Other authors indicate how 'feminine' roles from outside professional life seem to continue to disadvantage women's careers and how their careers limit their personal life choices (Long & Freese, 2006). For instance, marriage was found to have a negative impact on women's productivity while it had a mildly positive effect on men. Women were also more likely to have fewer children and be unmarried when compared to men. Complex considerations affecting women's positions extend beyond marital status and the presence or absence of children. This resulted in institutional policies aiming to promote gender diversity (Probert, 2005).

Munsch (2016) explain that although flexible work arrangements have the potential to reduce gender inequality and work-family conflicts, the implications of requesting flexible work are poorly understood. In this study, the researcher

argue that because flexi work arrangements in the United States are ambiguous and uncertain, people draw on cultural beliefs about gender to define flexi work and evaluate flexi workers.

The researcher conducted a controlled online experiment to examine the consequences of making a flexible work request and to examine how these consequences vary by accommodation type and by gender and parental status of the requester. Participants evaluated employees who requested flexible work more negatively than employees who did not request flexible work and evaluated workers who requested telecommuting arrangements more negatively than workers who requested flexitime arrangements. Men and women who requested flexible work for reasons related to childcare were evaluated more positively than those who requested flexible work for reasons unrelated to childcare. The researcher also found evidence of a fatherhood bonus. Men who made flex place requests to care for a child were significantly advantaged compared to men who made flex place requests for reasons unrelated to childcare. They were also advantaged compared to women who made flex place requests to care for a child.

4.3.2. Age group of asset management officials

The researcher probed this variable to understand which age group is involved in the asset management of LEDET.

Table 4.2: Analysis of Asset Management officials according to age

	Age range	Number of respondents	Percentage
Youth(18-30)	18-30	1	10 %
Adults (31-40)	31-40	6	60 %
Adults (41-55)	41-55	3	30%
Pensioners (56-65)	56-65	0	0%
Total		10	100 %

Table 4.2 indicates that 10% of the officials were youth while 60% were adults between age 31-40 and 30 % were adults between 41-55. There was an indication that there is a balance in age of asset management officials in LEDET.

A smaller group is for employees facing retirement age. In general, the picture drawn is of economically productive employees in the department with age group ranging from 20-55. With the current political arguments of the generational mix, the department appears to be doing better in this regard.

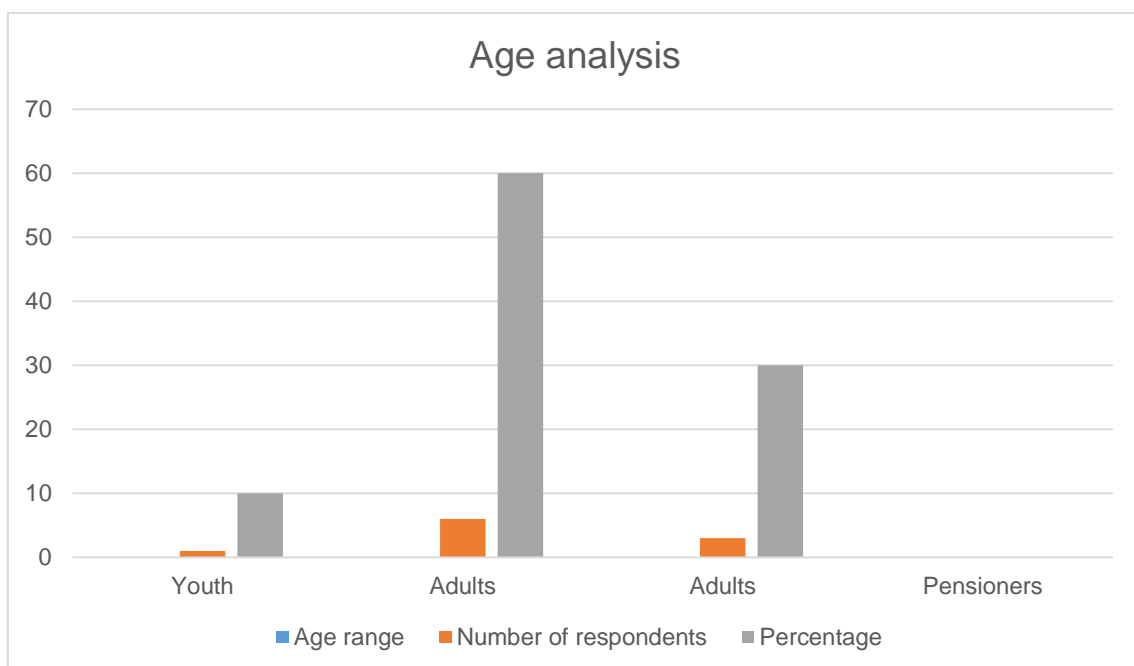


Figure 4.2: Analysis of Asset Management Officials according to age

4.3.3. Educational Background of Asset Management Officials

It is important to note that asset management is an integral part of financial management in the South African public sector. However, despite the employment of asset management in South Africa, the researcher probed this variable to determine the educational level of respondents. It is often argued that lack of professional qualifications is likely to impact negatively on the performance of the organisation. Table 4.3. Indicates the results obtained from the respondents concerning their level of education.

Table 4.3: Highest qualification of the respondents

	Frequency	percentage
Grade 8-12	3	30 %
Diploma/ Degree	5	50 %
Post Graduate	2	20 %
Total	10	100 %

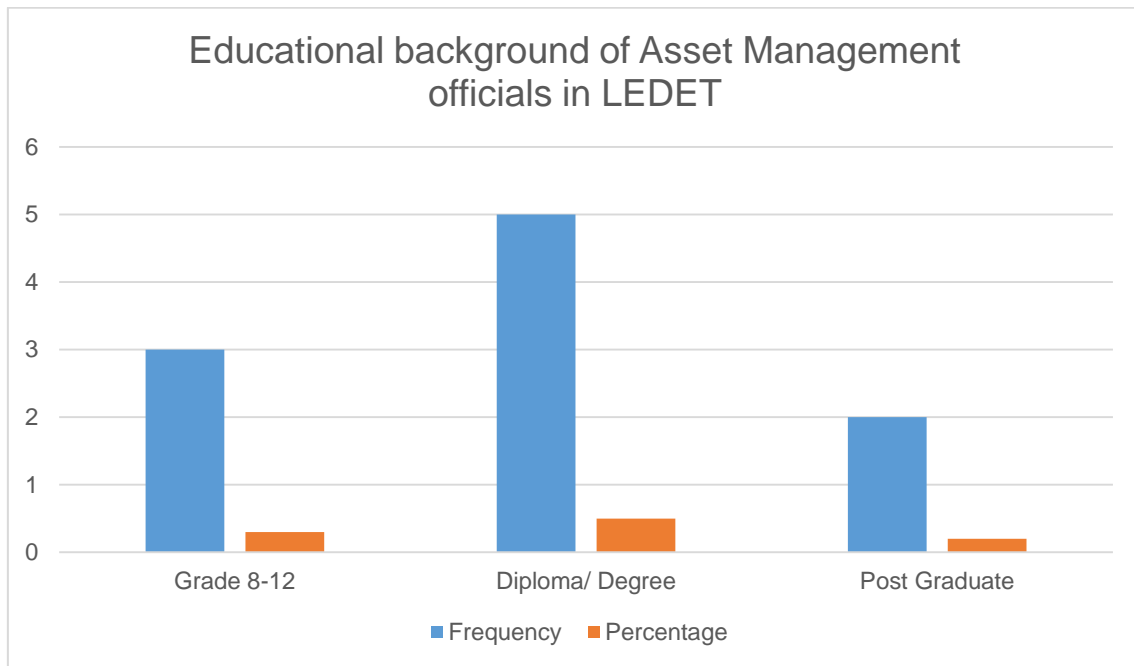


Figure 4.3: Analysis of Education background of the respondents

Table 4.3 indicates that a large percentage of respondents (50 %) have tertiary education, followed by the 20 % officials with post graduate qualifications. The respondents without a diploma or degree are 20 %. The higher the education could mean that the official will be able to understand the legislation, procedure manual and policies that are guiding the asset management unit in the

department. The study showed that the highest level of education is sufficient to understand any prescripts governing asset management.

4.3.4. Post Level of the Respondents

The researcher probed this variable to determine the post level of the respondents and their involvement in LEDET asset management. The post level of respondents is significant in the sense that it is mostly the post level of the people that determines their participation in asset management. It is the seniority of participants in this kind of study that determines the reliability of information obtained by the researcher. The post level of respondents in this study indicated as follows:

Table 4.4. Post Level of Respondents

Salary levels	Frequency	Percentage
Level 1-4	0	0 %
Level 5-8	7	70 %
Level 9-12	3	30 %
Level 13 +	0	0 %
Total	10	100%

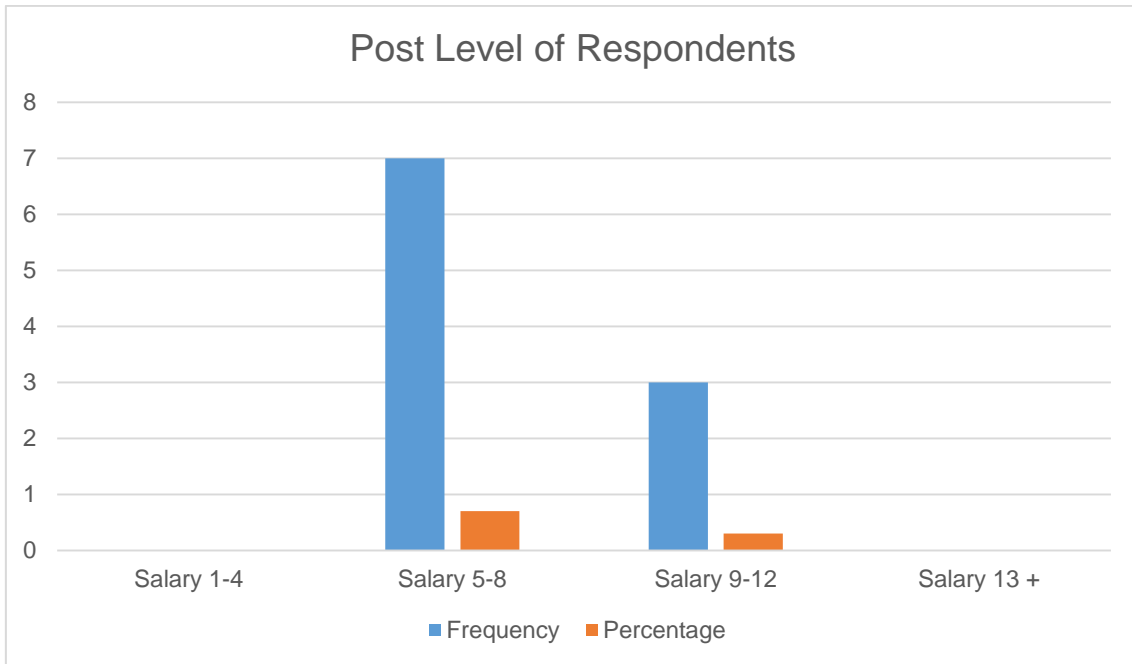


Figure 4.4: Analysis of respondents according to post level

Table 4.4 indicates that there are no respondents from levels 1-4. The 7 out of 10 respondents are on salary level 5-8 and the other three are on salary level 9-12.

4.3.5. Job experience of the respondents

The researcher probed this variable to determine the job experience of respondents in asset management. It is often argued that lack of job experience is likely to impact negatively on the performance of the organisation.

Table 4.5. Job experience of the respondents

No of years	Frequency	Percentage
1-5	3	30 %
6-10	3	30 %
11-30	4	40 %
31 +	0	0 %

Total	10	100 %
--------------	-----------	--------------

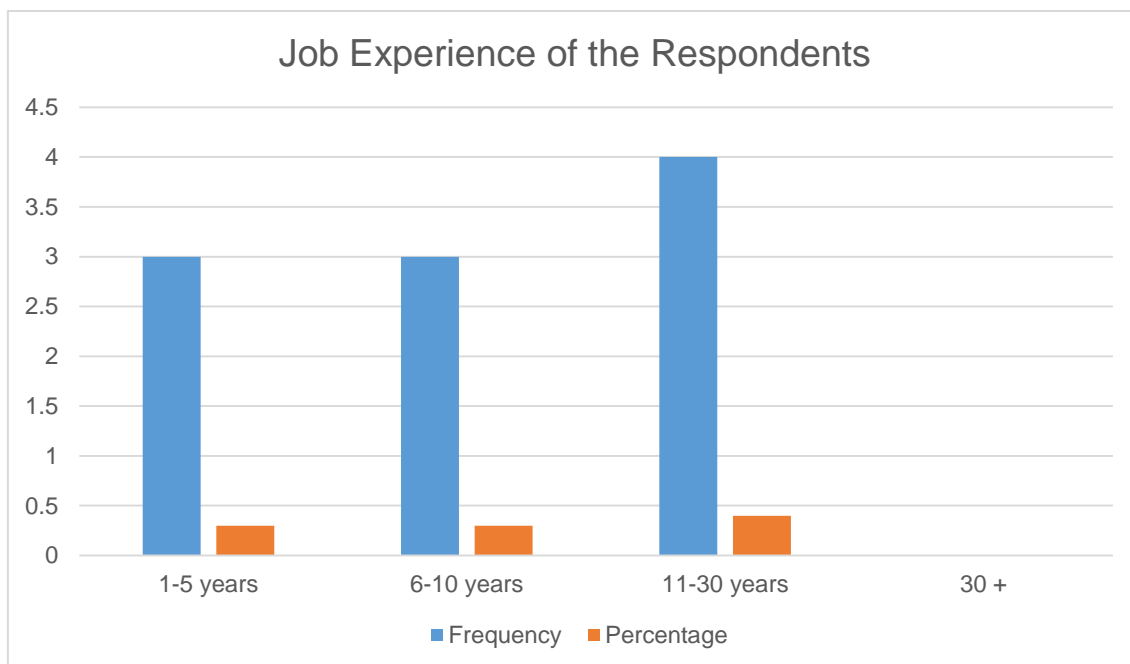


Figure 4.5: Analysis of respondents according to Job experience

Table 4.5. indicates that 30 % of the respondents have 1-5 years job experience, 30 % have 6-10 years and 40 % of the respondents have 11-30 years' experience.

4.3.6. Training and Experience of the respondents

Another factor that influences developing of asset management is education and training in asset management. However, it is an ongoing need to improve the skills and knowledge of workers that will increase productivity of the asset management.

Table 4.6. Training and Experience of the respondents in asset management

Responses	Frequency	Percentage
Yes	7	70 %

No	3	30 %
Total	10	100 %

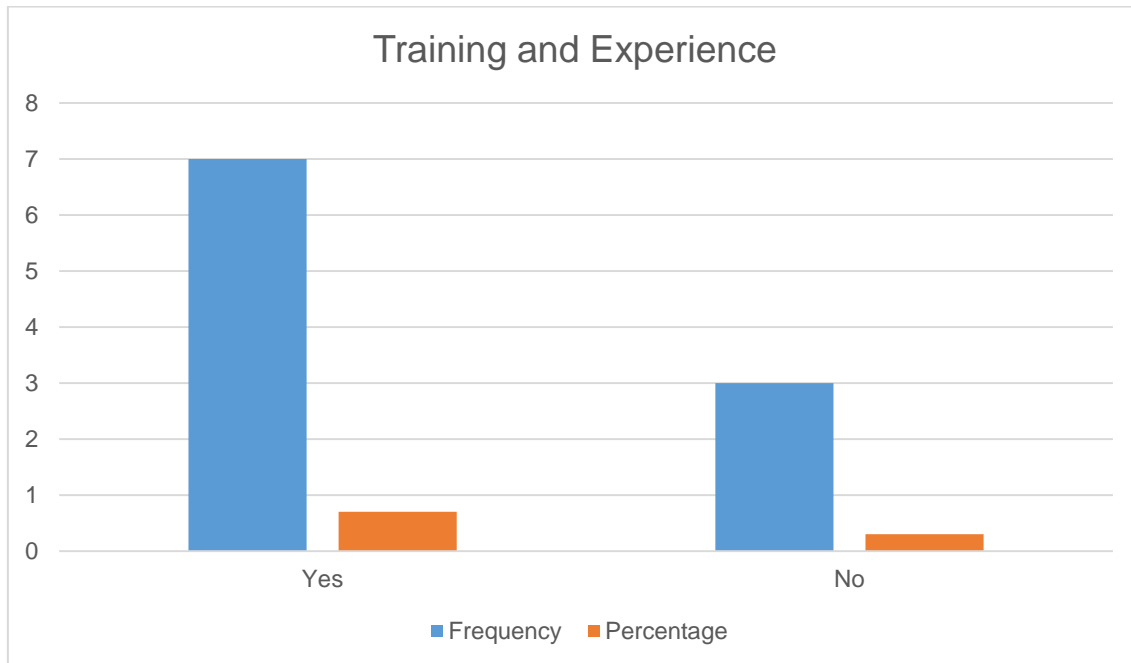


Figure 4.6: Analysis of respondents according to training and experience. According to table 4.6, 70 % of the respondents have been oriented and trained in asset management while 30 % have not been oriented and trained in asset management.

Training is the development of attitudes, knowledge and specialised skills required by the employees to perform their duties properly (Mahmood, 2005). Education was for the promotion of learning and as an added value to the generic knowledge to the development of individuals and organisations (Mohd Hizam and Zafir, 2002). Training should not be limited to the transfer of technical skills and knowledge necessary for optimum performance of the task. Rather it is an ongoing need to improve the skills and knowledge of workers that will increase productivity of the asset management. Through training and education, an individual will have the self-awareness to keep the assets and facilities, enhance the skills and knowledge of maintenance work and an individual is more motivated in doing the job well.

4.3.6. Objective 1: The Challenges that are facing Asset management Unit in LEDET

The researcher focused to establish the challenges facing the Asset Management Unit in the implementation of the asset management process. In probing that, the researcher required the respondents to indicate as to whether they understand what asset management is and explain the challenges in the implementation of asset management. The researcher interviewed the respondents in order to investigate what challenges are facing asset management and how those challenges can affect the delivery of services. Lastly, through interviews the researcher investigated the best practice that can be applied to improve asset management in the department. The results are as follows:

4.3.6.1. Understanding of asset management

The study confirmed that of the respondents understand what asset management is. Only one respondent did not attempt to respond to this question raised during the interview.

Respondents understand Asset Management as the unit that manages the planning of the assets, acquisitions, maintenance and disposal of the departmental assets. The respondents also understand it as monitoring movements of assets within the department.

Respondents said asset management is about ensuring that all assets are properly accounted for in the asset register in accordance with national treasury guidelines, that new additions, movement, transfers and disposals are updated in the asset register and that all losses and disposals are retired from the asset register after approval is granted.

Respondents understand asset management as a process of guiding public resources to ensure efficient usage and to achieve better service delivery objectives with a minimum available resources. Respondents understand asset management as a chain whereby the entire purchase of state assets management division should be informed, so that the unit should know when to expect items, and to come up with means of accepting them and register them.

Respondents, understand asset management as a unit which manages the assets of the department, starting from planning, acquisition, maintenance and disposal of assets. Respondents understand asset management as how assets are managed and maintained, the assets register managed and assets disposed. Respondents understand asset management as the safeguarding of assets, monitoring of movement of assets within the department, managing and updating of the assets register.

The literature review indicates asset management as a systematic process of deploying, operating, maintaining, upgrading and disposing of assets cost-effectively.

There was one respondent who responded by showing that asset management is about maximising life span and also produce more. This respondent is in the category of salary level 9-12. It can therefore give an indication that this asset management official understands what asset management is. The level of understanding what asset management is differs according to the salary level.

4.3.6.2. Objective 1: The challenges that are facing the asset management unit

The majority of respondents indicated that limited resources such as budget to finance travelling and accommodation are a constraint to asset management activities. As a rule of thumb, resources are scarce and should therefore be used effectively and efficiently to achieve the desired set of goals and objectives.

The respondents indicated that one of the challenges that the asset management unit faces is poor communication between the unit, asset user and management. The respondents indicated that management takes decisions on how assets must be managed without proper consultation with the asset management unit. That makes the asset management unit fail on achieving some of their targets. The end users sometimes move their assets to other locations without communicating with the asset management unit.

The major challenges that are facing asset management are unauthorised movement of assets and a network system to update the asset register. The other challenges are lack of an asset plan and a budget to fund travelling and accommodation for asset officials. The disposal management function is placed under stores and disposal management is thus affecting asset management. Unauthorised movement of assets can result in assets being lost because the asset management unit will not be able to update the register. If assets' information is not updated in the asset register, it means the asset register is not a reliable and accurate document.

The respondents indicated that the major challenges facing the asset management unit is a system to record assets in the assets register for the department. The department is using excel spreadsheets to capture all the assets for the department. The challenge with excel spreadsheets is that the asset register is not reliable and does not reflect a credible asset register.

The Excel Spreadsheet programme is a manual system that is used to capture and update the information about the assets. The outputs thereof will be called the asset register for the department.

Respondents indicated that the Excel Spreadsheet has a lot of weakness, for example, there are no security measure in place to protect the information captured in the excel spreadsheet. All the asset management officials have the

right to capture information in the systems and there is no audit trail to trace who does what in the asset register.

The respondents have also indicated that currently the department is introducing a Barcoded Asset BAUD system which is not addressing the challenges that were raised when using the Excel Spreadsheet system. The BAUD System is introduced by Limpopo Provincial Treasury to manage the asset register for the department. The BAUD system has only addressed the security issue of the excel spreadsheet.

One of the challenges the respondents indicated is that the Department does not have a comprehensive asset management plan. An asset management plan is a document that drives asset management to take action regarding planning and budgeting of assets, acquiring the assets, maintenance of assets, disposal of assets and replacement of assets. This is an important document that will give direction to how the asset management unit must manage the assets for the department.

According to Council (2012), asset management planning is a comprehensive process to ensure delivery of services from assets in a financially sustainable manner. An asset management plan details information about assets including actions required to provide an agreed level of service in the most cost effective manner. The plan defines the services to be provided, how the services are provided and what funds are required to provide the services.

Asset management users do not understand their responsibility of safeguarding the assets which are allocated to their area of responsibility. As indicated by all the respondents, that particular official is moving assets without reporting to asset management, this shows that end users are not aware of their responsibility in terms of ensuring that assets for the department are safeguarded.

4.3.7. Objective 2: How the identified challenges affect Delivery of Services

The researcher probed this variable to understand how the identified challenges affect the delivery of services. The respondents were asked how asset management and service delivery in the department relate. The respondents indicated that the objective of asset management is to meet the required level of service delivery in the most cost effective way through acquisition, maintenance and disposal of assets. They indicated that asset management provide support to service delivery of the department.

The respondents further indicated that asset management is important because any assets procured by the department will be aligned to a specific strategic objective and procurement plan. Assets like transport, furniture and computers are supporting the official to meet the service delivery target set by the department. Assets also enable the officials to perform their daily responsibilities.

As indicated by the respondents, if assets are not managed correctly, the department will not be able to meet its service delivery targets. The respondents indicated that the asset register is used to record all the assets for the department. The asset register is also used as a supporting tool to account for the assets in the annual financial reports. The register must be complete, accurate and reliable in order to assist the department in managing the assets.

The respondents further explained that, in order to support the department to achieve its objectives, mission and vision, the department needs to have a comprehensive asset management plan. The asset management plan is informed by a comprehensive asset register. The asset register is a an accounting method used for major resources of a business or it can be defined as a statement of an organisation showing the assets that it owns

The literature review shows that, immediately after taking office in 1994, the new South African government initiated a series of budgetary and financial reforms in the departments. The intention of the reforms was to modernise the management of the public sector in order to make it more people friendly and sensitive to meeting the needs of the communities it serves. This is confirmed by The Limpopo Economic Development, Environment and Tourism Department which is mandated to enable a competitive economy, sustainable environment and tourism development towards an improved quality of life for all.

The study shows how the identified challenges affects service delivery of the department. Limpopo Economic Development, Environment and Tourism planning is guided by the government planning cycle and informed by its mandates, which are those of economic development, environment and tourism. The plans are aligned to the priorities of government for example job creation, which is more relevant to the department. Plans clearly spell-out the goals and objectives to be implemented with specific projects, timeframes, budgets and responsible persons. Proper implementation of the strategy will lead to delivery of quality services. The proper implementation of the plan will need assets and other resources.

4.3.8. Objective 3: To find out an ideal way of managing assets in organisations.

The question was probed which asked the respondents to discuss how best the assets can be managed in an organisation. The respondents indicated that awareness on asset management will assist the organisation to have an accurate assets register and to safeguard the assets of the organisation.

The respondents further indicated that organisations need to train asset management staff in asset management. A good working relation between asset management, management and also other officials was indicated as a source of success in the organisations.

Regular spot checks were mentioned by respondents as a way to minimise an inaccurate asset register which is caused by unauthorised movement of assets. The respondents indicated availability of resources like budget and transport will assist the asset management unit to regularly conduct asset verification.

4.4. OVERVIEW OF THE RESEARCH FINDINGS

4.4.1. Demographic Information

There was an indication that there is a balance in age of asset management officials in LEDET. The study indicates that a few officials in asset management are youths while the majority are adults between ages 31-40 years.

The study revealed the high rate of education. A high rate of education could mean that officials will be able to understand the legislation, procedure manual and policies that are guiding the asset management unit in the department. The respondents understand the importance of education as it is beneficial for personal growth and understanding of the dynamic environment they operate in. When asset management officials have suitable knowledge in asset management, they will become more creative and innovative. The power of knowledge in asset management will enable them to formulate credible plans for the realisation of the mandate of the department. In general, the asset management unit is composed of semi-skilled personnel.

The results of the study show that Asset Management Officials have been oriented and trained in asset management while a few have not been oriented and trained in asset management.

The implementation of accruals based accounting and GRAP as indicated in chapter 2 of the review of literature requires new skills and competencies such as a general knowledge of the Generally Accepted Accounting Practice and how to deal with the recognition of assets and liabilities. Financial officials and line managers require these skills in order to make meaningful decisions. The

public sector is currently experiencing a large shortage of highly qualified financial officers.

To fully achieve asset management objectives, the National Treasury provides support by facilitating the development of appropriate training materials to government departments, municipalities and municipal entities. However, the shortage of skills has been a current theme in public discussion. The skills and adequate capacity in the form of appropriate structures with fully skilled and professional asset personnel is a key success factor for proper asset implementation. However, asset management still lacks the appropriate knowledge for proper implementation on asset management as required by the legislative framework indicated under chapter 2, even if they have attended a number of workshops.

4.4.2. Objectives 1: The Challenges That Are Facing the Asset Management Unit at LEDET.

The researcher probed this variable to identify the challenges which asset management faces. The researcher wanted to establish the challenges faced by the Asset Management Unit in the implementation of the asset management process. In probing that, the researcher required the respondents to respond as to whether they understand what asset management is.

Informed by the analysis of the data collected from the respondents and the results of the study, it can be concluded that Asset Management officials understand asset management. They understand Asset Management as an asset register which is used to record all the assets of the department. They further explained that the asset register is also used as a supporting tool to

account for the assets in the annual financial reports. They know that the asset register must be complete, accurate and reliable in order to assist the department in managing the assets.

The researcher probed a question which wanted the participants to explain the challenges in the implementation of asset management. The study indicated that major challenges that are facing asset management are unauthorised movement of assets and lack of a network system to update the asset register. The other challenges are lack of an asset management plan and budget shortages to fund travelling and accommodation for asset officials. The need to train officials in asset management is also a challenge. Training in asset management is not crucial because the study showed that a high level of education is sufficient to understand any prescripts governing asset management. The disposal management function placed under stores and disposal management is affecting the performance of the asset management.

Asset management users do not understand their responsibility of safeguarding the assets which are allocated to their area of responsibility. As indicated by all the respondents, officials are moving assets without reporting to asset management, these show that end users are not aware of their responsibility in terms of ensuring that assets of the department are safeguarded.

Unauthorised movement of assets can result in assets being lost because the asset management unit will not be able to update the register. If assets' information is not updated in the asset register, it means the asset register is not a reliable and accurate document.

The major challenge facing the asset management unit is a lack of a system to record assets in the asset register for the department. The department is using an excel spreadsheet to capture all the assets for the department. The challenge with the excel spreadsheet is that the asset register is not reliable and is not a credible assets register.

The Excel Spreadsheet is a manual system that is used to capture and update the information about the assets. The outputs thereof will be called the asset register for the department.

Respondents indicated that the Excel Spreadsheet has a lot of weaknesses, for example, there is no security measure in place to protect the information captured in the excel spreadsheet. All asset management officials have access rights to capture information in the system and there is no audit trail to trace who does what in the assets register.

The respondents have also indicated that, currently the department is introducing a Barcoded Asset BAUD system which does not address the challenges that were raised when using the Excel Spreadsheet. The BAUD System is introduced by Limpopo Provincial Treasury to manage the asset register for the department. The BAUD system has only addressed the security issue of the excel spreadsheet.

The current accounting and information systems that are being used in government departments are not user-friendly towards accruals based accounting.

The major challenge facing the asset management unit is the lack of a system to record assets in the asset register for the department. The department is using an excel spreadsheet to capture all the assets for the department. The challenge with the excel spreadsheet is that the asset register is not reliable and is not a credible asset register.

The Excel Spreadsheet is a manual system that is used to capture and update the information about the assets. The outputs thereof will be called the asset register for the department.

Respondents indicated that the Excel Spreadsheet has a lot of weaknesses, for example, there are no security measures in place to protect the information captured in the excel spreadsheet. All the asset management officials have access rights to capture information in the system and there is no audit trail to trace who does what in the asset register.

The respondents have also indicated that, currently the department is introducing a Barcoded Asset BAUD system which does not address the challenges that were raised when using the Excel Spreadsheet. The BAUD System is introduced by Limpopo Provincial Treasury to manage the asset register for the department. The BAUD system has only addressed the security issue of the excel spreadsheet.

The following table indicates a summary of the challenges that the participants raised.

Table 4.7: Challenges that face the asset management unit

Challenges	Frequency
Unauthorised movement of assets	10
Asset system used	4
Maintenance of assets are not planned.	2
Training	4
Asset user not aware of their responsibilities	1
Budget to finance the accommodation and travelling allowance	4
Asset management structure (disposal management)	1
Lack of Asset Plan	1
Template for assets report are not available	1
Network to update the asset register	2

4.4.3. OBJECTIVE 2: SERVICE DELIVERY

The Limpopo Economic Development, Environment and Tourism Department is mandated to enable a competitive economy, sustainable environment and tourism development towards an improved quality of life for all. The study shows how the identified challenges affect service delivery of the department. Limpopo Economic Development, Environment and Tourism Department planning is guided by the government planning cycle and informed by its mandates, which are those of economic development, environment and tourism. The plans are also aligned to the priorities of the government, for example, job creation which is more relevant to the department. Plans clearly spell out the goals and objectives to be implemented with specific projects, timeframes, budgets and responsible persons. Proper implementation of the strategy will lead to delivery of quality services.

The respondents indicated that the Department does not have a comprehensive asset management plan. An asset management plan is a document that drives asset management to take action regarding planning and budgeting of assets, acquiring the assets, maintenance of assets, disposal of assets and replacement of assets. This is an important document that will give direction to how the asset management unit must manage the assets of the department.

In order to support the department to achieve its objectives, mission and vision, the department needs to have a comprehensive asset management plan. The asset management plan is informed by a comprehensive assets register. The assets register is an accounting method used for major resources of a business or it can be defined as a statement of an organisation which shows the assets that it owns.

The respondents indicated that one of the challenges that the asset management unit faces is poor communication between the unit, asset users and management. The respondents indicated that management takes decisions on how assets must be managed without proper consultation with the asset management unit. That makes the asset management unit fail on achieving

some of its targets. The end users sometimes move their assets to other locations without communicating with the asset management unit.

Asset management best practices can be achieved through communication. Communication is the transfer of information from one person to another that involves the exchange of facts, ideas, suggestions and emotions with two or more people. Additionally, it also involves the interaction of stimulus meanings through giving and receiving messages. Communication is an essential part of human life when something needs to be done at work (Stephen, 2005). Communication plays an important role which involves delivering information on asset practices for all members of the organisation so that the importance of facility and asset maintenance is understood by every individual in the organisation.

4.4.4. OBJECTIVE 3: AN IDEAL WAY OF MANAGING ASSETS IN AN ORGANISATION

4.5.4.1. Proposed Conceptual Model

The proposed integrated ALCM model is derived from an amalgamation of Life Cycle Management (LCM) and asset management theories. At present these theories and models are not captured on a common platform (Haffejee, 2006). For the purposes of this study, integrated ALCM refers to the management of assets over their complete life cycle, from before acquisition to disposal, taking into account economic, environmental, social and technical factors and performances. Furthermore, 'assets' refer to strategic assets. It is noted that strategic assets may include non-physical assets such as intellectual capital, but in terms of the proposed ALCM model, strategic assets refer to physical assets only (Haffejee, 2006).

According to Chakrabort & Garrat (2014), “We work towards increased asset performance, decreased risk and optimised expenditure over the complete life cycles of assets and asset systems. Our asset management capability includes an intimate knowledge of the numerous acts, standards, guidelines and regulations impacting on the management of physical assets in the infrastructure environment.” It must be noted that asset management is not a concern isolated only to government, it is a concern for the private sectors as well, though arguably to a lesser degree.

The Asset Management Unit is placed or structured where the success or failure of an organisation to maintain its asset register lies. Gone are the days of the Asset Register being the responsibility of one official within the finance section. Asset Management can no longer be seen as a function of Finance. An Asset Management Unit/Committee must include at least one representative from each department or sub-section within a department and will establish responsibility within these departments for those assets which fall under their control. (Welgemoed, 2010).

4.5.4.1. Accurate Asset Register

An asset register allows the department to keep track of the assets and provides a fair estimate of their worth. It meets the taxation, statutory and sale-of-business obligations. It is also an appropriate place to record serial numbers, makes, models, etc.

The organisation needs an asset register to process the purchase of fixed assets in accordance with the organisation's authorisation and record-keeping procedures.

It maintains an adequate accounting record of assets-cost and description, and where they are kept in the organisation and maintains accurate records for depreciation. It must also provide management with information to help plan future asset investments and record the retirement and disposal of assets.

The asset management unit can start the asset register by recording all physical assets, regardless of the funding source, the types of physical assets that need to be recorded include office equipment, motor vehicles, furniture, computers, communications systems and other machinery and equipment.

As a general rule, each asset must be recorded separately in the asset register. The replacement of assets must be treated as a maintenance cost. When the purchase cost is not known, record the asset at the cost of a comparable item at current prices. Record assets in the register in the month they are purchased. The cost should include installation costs, computer cabling, transportation and other associated costs incurred to make the asset usable. Use purchase orders, invoices and delivery dockets to provide the detail.

Leased assets need to be recorded on a separate register. There are two types of leasing arrangements: operating lease and finance lease. A finance lease finances the cost of a leased asset. These finance leases must be recorded in the assets register. An operating lease is when the leased item is 'given back' at the end of the lease period.

When the asset management is disposing of an asset, it is when it is sold, given away or thrown away. Updating of the asset register to include the date of disposal, the disposal amount and the method of disposal must be done. Treat trading in an asset as a disposal. When an asset is sold, proceeds must be recorded in the financial records as well as the assets register.

The Asset Management unit must not delete assets from the assets register until after the end of the financial year as the information needs to be incorporated into the annual statement of the financial position. At the beginning of the next financial year, record disposed-of assets separately.

4.5.4.2. Asset Verification

After that, verify each asset item at least twice a year as required by the Limpopo Asset Management Policy.

4.5.4.3. *Support by Management of the organisation*

The management needs not involve itself directly with the conduct of the assets register, but must be satisfied that a reliable system exists and is adhered to.

4.5.4.4. *Asset Management Plans*

For an organisation to achieve its strategic objectives, mission and vision, there must be a proper comprehensive asset management plan in place.

However, many government entities are still faced with the challenges of improper planning and linking demand to budget (Ambe & Badenhorst-Weiss, 2011a). The importance of drawing up accurate and realistic strategic plans cannot be overestimated. At times there is an absence of coherent plans. Some government entities cannot properly quantify the needs of those requiring their services or properly estimate costs, nor do they accurately track, control or report on expenditure (Luyt, 2008). There is a need to monitor the delivery of services properly to ensure that scarce resources are efficiently and effectively procured. Poor planning and budgeting have also affected the implementation of asset management. It is therefore vital that asset practitioners adequately link asset demand planning and strategic objectives of the department.

4.5.4.5. *Communication needs to be increased in the organisation.*

Asset management stakeholder involvement will also encourage public servants to be more deliberate about the decisions they take. It will improve the efficiency of government institutions, reduce waste of public finances, strengthen the management of assets and ensure better service delivery. Officials in asset management regards individualism as a lack of *botho* and as selfishness because it works against the basic principle that you are who you are because of other people. However, collectivism is preferred because the norm and issues are considered in the sense of “we” as against “I.” Again, cooperation and teamwork are therefore part of the accepted behaviour given the correct context. Team spirit is essential and collective decision making is

recommended, hence asset management participants recommend that public servants need to deliberate on the decision they make.

4.5. CONCLUSION

This chapter presented the findings as informed by the research on questions in Chapter One, the data collected and analyses of the results of the study. The findings were divided into four themes, namely, theme one: demographic information of respondents, theme two: challenges in the asset management, theme three: how the challenges affect the delivery of services, theme four: the asset management's best practices in organisations.

In the chapter that follows, the study focuses on conclusions and recommendations drawn from the research conducted.

CHAPTER 5

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

5.1. INTRODUCTION

The research provided an overview of the challenges in the asset management by Limpopo Department of Economic Development, Environment and Tourism (LEDET). The study briefly elaborated on the best practice of asset management. It referred to legislative frameworks guiding the process. This chapter presents the conclusions and recommendations drawn from the overall study objectives.

The purpose of the study has been motivated by the need to investigate the root causes of why LEDET's asset management unit is experiencing numerous

challenges. Organisations that pin their survival on good asset management systems will find this study very insightful and informative.

Chapter 1, presented the research problem from the aim of the study. The study aims to investigate the challenges facing LEDET's asset management unit with the view to recommend appropriate measures to improve the department's current asset management regime.

The objectives of the study were as follows:

- To investigate challenges facing the asset management unit at LEDET.
- To determine how the identified challenges affect the delivery of services.
- To find an ideal way of managing assets in an organisation.

In achieving the objectives of this study, the researcher designed the following chapters:

• **Chapter one:**

The chapter provided the introduction and background. It outlined the research problem, aim of the study, objectives, research questions, definitions of concepts pertinent to the study and the significance of the study.

• **Chapter two:**

The chapter reviewed literature on the challenges in the asset management by looking into the African and international context. The review revealed the life cycle of assets and interpretation of relevant prescripts,

• **Chapter three:**

This chapter outlined the research methodology. It explained the rationale behind the selection of the adopted research designs, methodology, population, sampling and data gathering techniques used in the study.

• **Chapter four:**

This chapter was aimed at data analysis. It presented the findings as informed by the research questions in chapter one, the data collected and analysis of the results of the study. The findings were divided into five themes, namely, theme one: demographic profile of respondents, theme two: challenges that are facing the asset management unit in the Department of Economic Development, Environment & Tourism, theme three: How the identified challenges affect the delivery of services and theme four is about improvement on asset management in the organisation.

• **Chapter five:**

This chapter provides the conclusions and recommendations of the study as informed by data collected.

5.2. RESEARCH DESIGN AND METHOD

The views of Leedy et al. (2014) on qualitative research inspired this study. They propose that a qualitative approach enables a researcher to build a complex and holistic picture, analyse words, report detailed views of informants, and conduct the study in its natural setting. Specifically, a qualitative research makes it easier to employ tactics such as in-depth interviews to understand and explain a social phenomenon (Yin, 2001). Using the qualitative design, the normal context of the unit's employees will be easily taken into consideration. A qualitative research study design where LEDET is a case site will be employed. The qualitative research study design is preferred because it provides deep insight into the specific challenges facing the department. It will also help the

researcher to open the curtains to the real issues at stake in the department's asset management unit.

The researcher decided to use a qualitative research design as it is relevant to this kind of study. A qualitative approach to research is concerned with subjective assessment of attitudes, opinions and behaviour. The researcher will generate results either in non-quantitative form or in the form which is not subjected to rigorous quantitative analysis. However, the researcher will use interviews because instruments that are mainly based on the qualitative approach have been prepared and administered by a researcher in order to obtain important information about the assets and public officials' views on the impact of service delivery on asset management. When collecting data, the researcher focussed on the views of the asset management and the public officials in asset management.

5.3. SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS

5.3.1. Demographic information

After analysis of the data collected from respondents which was informed by the objectives of the study, it therefore indicates that the LEDET department needs to address issues of gender inequality. Gender inequality can be addressed through empowering females and youths in the work place and can be done by implementing affirmative action.

It is important that the departments engage with the employment of qualified asset practitioners, training and employment of internship programmes, development of an effective monitoring and evaluation tool, creation of incentive programmes to motivate good performance, efficient tools (information communication technology) and also good leadership.

5.3.2. Objective 1: To identify the challenges that are facing asset management

Informed by the research findings, it is therefore recommended that establishing an internal asset management committee so that the Asset Audit Committee can add value to the department.

The department should put in place processes to ensure acquisitions at the component level to ensure that the componentisation process starts as early as the procurement phase. This will ensure that Supply Chain Management will be able to determine the components of an asset during the construction thereof and once the asset is completed, the technical department or contractor should provide information relating to the value and lifespan of each component. This will then ensure that the unbundled asset register is well maintained.

It is therefore recommended that transfer of knowledge and understanding needs to flow among the asset management officials. The transfer of knowledge can be transferred through encouraging communication by way of meetings and information sharing with asset management official.

The current accounting and information systems that are being used in government departments are not user-friendly towards asset management. Informed by the research findings, it became clear that the current information systems should not only be upgraded, but it was also recommended that a new integrated accruals-based system should be introduced. These systems should not only accommodate accounting information, but also be an accruals-based budgeting and performance measurement system. Training staff and implementing new work practices for managers are all very well, but without overhauling and upgrading the system the project will not be able to get off the ground.

As mentioned by the respondents, LEDET through the Limpopo Provincial Treasury is in the process of introducing a fully developed Asset Management System which will be an integrated Basic Accounting System (BAS). Training on

the BAUD system must be provided to all asset users in order to ensure that the asset register is correct. The security measure like logging-in using different passwords must be introduced to protect information on the asset register. The asset register must be password protected which must be valid for only few days. Rights to access certain function must only be given to the Head of asset management e.g. disposal of assets and monitoring of other users.

5.3.3. Objective 2: How the identified challenges affect the delivery of services.

A physical asset strategic plan should be developed to ensure that assets receive the necessary attention during the strategic planning of the institution and budgeting processes of government departments and municipalities. The physical asset strategic plan is in essence a subset of the primary strategic plan since it serves a similar purpose. The costs involved in the purchasing, maintenance, replacement and disposal of assets can have a significant impact on the departments' and municipalities' financial plan or Medium Term Expenditure Framework (MTEF) as it is necessary to plan properly for the management thereof, not only in the medium term but also the long term. Failure to do this may have a negative impact on the achievement of key government objectives.

5.3.4. Objective 3: Asset Management Best Practices

It is also important to understand that each phase within the asset life cycle is as important as the next and that this projects into the role of each Branch within LEDET asset management. The final component deals with alignment of asset management with strategic objectives of the organisation as embodied in the centralised custodianship for assets which is asset life cycle planning and capacity development, retention and disposal.

Assets must be aligned with programmes. It is important that assets be aligned with an entity's programmes as far as possible to allow the full cost of

programme delivery to be determined more readily. The process will also provide an opportunity to compare programme delivery needs and outcomes with the assets currently used in delivery of that programme.

Asset management stakeholder involvement will also encourage public servants to be more deliberate about decisions they make. It will improve the efficiency of government institutions, reduce waste of public finances, strengthen the management of assets and ensure better service delivery. Officials in asset management regards individualism as a lack of *botho* and as selfishness because it works against the basic principle that you are who you are because of other people. However, collectivism is preferred because the norm and issues are considered in the sense of “we” as against “I.” Again, cooperation and teamwork are therefore part of the accepted behaviour given the correct context. Team spirit is essential and collective decisions are recommended hence asset management participants recommend that public servants need to deliberate on the decisions they make.

5.4. CONCLUSIONS

After analysing all Asset Management approaches, it should be evident by now that an integrated approach towards asset management has to be followed by government departments, public entities and municipalities to ensure that assets receive due attention as part of the overall management process. It is therefore necessary that the senior managers of the institutions acknowledge that physical asset strategic planning is a prerequisite for sound asset management. Asset management is impossible without such planning even with the most competent asset managers and asset management practitioners.

Effective and proactive asset management is very important for ensuring that government departments get clean audits. The first step for government is to ensure that they have a relevant, up-to-date and accurate register of all their assets, in order to plan for better asset maintenance management. “We add

additional value by ensuring compliance with the Public Finance Management Act /Municipal Finance Management Act, GRAP, National Treasury regulations, Government Immovable Asset Management Act and other legislation impacting on asset management activities and practices.” (Treasury, L.P. 2012, "Transversal Financial Policies",).

5.5. RECOMMENDATIONS

5.5.1. Demographic information

After analysis of the data collected from respondents which was informed by the objectives of the study, it therefore indicates that the LEDET department needs to address issues of gender inequality. Gender inequality can be addressed through empowering females and youths in the work place and can be done by implementing affirmative action.

The culture of learning must be promoted in the asset management department in order to cope with the changing environment. The skills transfer and sharing of knowledge among asset officials will also improve performance. These can be done by offering officials with study leave, bursaries and long service awards. Training in asset management needs to be provided in order to enhance knowledge regarding the latest best practice in asset management.

Capacitation and skilling of asset managers and other relevant officials to ensure that the asset management process is carefully managed. The capacitation and skilling of asset managers should take the following into account:

- Fully understanding the requirements of the relevant accounting standards relating to property, plant and equipment
- Ensuring that the required skills are transferred by the service provider once an unbundling process is completed. This may not be possible upon completion of the unbundling process and the municipality can request the service provider to project manage the process for a period of one year

It is important that the departments engage with the employment of qualified asset practitioners, training and employment of internship programmes, development of an effective monitoring and evaluation tool, creation of incentive programmes to motivate good performance, tools (information communication technology) and also good leadership.

Empowerment through the authorisation can contribute to the development of asset management officials. Authorisation is the process of delegating decision-making authority to lower levels in the organisation, in this case from managerial level to lower levels. Through this process employees are encouraged to take the initiative and expand their scope. Empowering employees is essential because it creates commitment in the minds of the employees for this purpose and also states how to achieve the goals and targets which are set, ambitious but realistic. When an employee is authorised to carry a higher level authority, the employees will be committed to engage in solving the asset management problems that occur without waiting for instructions from the top management. This situation will cause an execution of asset management work to be easy, effective and fast.

5.5.2. Objective 1: To identify the challenges that are facing asset management

Informed by the research findings, it is therefore recommended that establishing an internal asset management committee and with the Asset Audit Committee will add value to the department.

The department should put in place processes to ensure acquisitions at the component level to ensure that the componentisation process starts as early as the procurement phase. This will ensure that Supply Chain Management will be able to determine the components of an asset during the construction thereof

and once the asset is completed, the Technical Department or contractor should provide information relating to the value and lifespan of each component. This will then ensure that the unbundled asset register is well maintained.

It is also recommended that transfer of knowledge and understanding needs to flow among the asset management officials. The transfer of knowledge can be transferred through encouraging communication by way of meetings and information sharing with asset management officials.

The current accounting and information systems that are being used in government departments are not user-friendly towards asset management. Informed by the research findings, it became clear that the current information systems should not only be upgraded, and it was also recommended that new integrated accruals-based systems should be introduced. These systems should not only accommodate accounting information, but should also be an accruals-based budgeting and performance measurement system. Training staff and implementing new work practices for managers are all very well, but without overhauling and upgrading the system the project will not be able to get off the ground.

As mentioned by the respondents, LEDET, through the Limpopo Provincial Treasury is in the process of introducing a fully developed Asset Management System which will integrate the Basic Accounting System (BAS). Training on the BAUD system must be provided to all asset users in order to ensure that the asset register is correct. The security measures like log-in using different passwords must be introduced to protect information on the asset register. The asset register must be password protected which must be valid for only a few days. Rights to access certain functions must only be given to the Head of asset management e.g. disposal of assets and monitoring of other users.

5.5.3. Objective 2: How the identified challenges affect the delivery of services.

A physical asset strategic plan should be developed to ensure that assets receive the necessary attention during the strategic planning of the institution and budgeting processes of government departments and municipalities. The physical asset strategic plan is in essence a subset of the primary strategic plan since it serves a similar purpose. The costs involved in the purchasing, maintenance, replacement and disposal of assets can have a significant impact on the departments' and municipalities' financial plan or Medium Term Expenditure Framework (MTEF) as it is necessary to plan properly for the management thereof, not only in the medium term but also the long term. Failure to do this may have a negative impact on the achievement of key government objectives.

5.5.4. Objective 3: Asset Management Best Practices

It is also important to understand that each phase within the asset life cycle is as important as the next and that this projects into the role of each Branch within LEDET asset management. The final component deals with alignment of asset management with strategic objectives of the organisation as embodied in the centralised custodianship for assets which is asset life cycle planning and capacity development, retention and disposal.

Assets must be aligned with programmes. It is important that assets be aligned with an entity's programmes as far as possible to allow the full cost of programme delivery to be determined more readily. The process will also provide an opportunity to compare programme delivery needs and outcomes with the assets currently used in delivery of that programme.

Asset Management stakeholder involvement will also encourage public servants to be more deliberate about decisions they make. It will improve the efficiency of government institutions, reduce waste of public finances, strengthen the

management of assets and ensure better service delivery. Officials in asset management regards individualism as a lack of *botho* and as selfishness because it works against the basic principle that you are who you are because of other people. However, collectivism is preferred because the norm and issues are considered in the sense of “we” as against “I.” Again, cooperation and teamwork are therefore part of the accepted behaviour given the correct context. Team spirit is essential and collective decisions are recommended hence asset management participants recommend that public servants need to deliberate on the decisions they make.

5.6. CONTRIBUTIONS OF THE STUDY

This study will be helpful to LEDET, other government departments and private organisations in the sense that results, interpretation and recommendations if known will address the challenges that are facing asset management. The best practice can be formulated through sourcing the information from this study. The study will also add knowledge which will assist future researchers pursuing the similar research area as they can use it as their source of reference. The departments and other organisations can use the study when reviewing asset management policies to meet their needs.

Organisations adopt asset management systems for a variety of reasons. Some of the benefits organisations can gain from this study will be an optimised management of assets include reduction of asset-related risks and optimised whole life costing which is acquisition and operational and maintenance costs. The more reliable equipment resulting in more reliable product service delivery resulting in longer equipment life, resulting in delayed capital investment and optimal utilisation of resources.

5.7. LIMITATIONS OF THE STUDY

The limitation of study involved certain challenges ranging from a small sample to a poor understanding on the part of the respondents. However, since this

study was conducted in LEDET only, the limitations were not expected to have a marked influence on the research findings and the inferences.

5.8. CONCLUDING REMARKS

Tangible movable assets are an important part of the Government Departments and any other corporate business entities, regardless of their size or forms of business. The study has answered the research questions as indicated below:

- What are the challenges faced by the Asset Management Unit at LEDET?
- How do these challenges affect the delivery of services?
- What is the ideal way of managing assets in an organisation?

From the above mentioned it can be confirmed that with the completion of this study the research objectives, as listed in Chapter 1 section 1.8 (pg. 5), have been met. The study can establish and assist in numerical decision making techniques on an operational and strategic level. The study can also be combined and used in a simplified and easily understandable manner in order to support Asset Management in organisations.

5.9. FUTURE RESEARCH

The researcher recommends that research needs to be conducted in future because a number of the challenges and controversies in the asset management unit. Therefore, it would be appropriate for further research to determine the future challenges in asset management.

REFERENCE LIST

Amadi-Echendu, J., 2004, "Managing physical assets is a paradigm shift from maintenance", *Engineering Management Conference, 2004. Proceedings. 2004 IEEE International*IEEE, , pp. 1156.

Ambe, I.M. and Badenhorst-Weiss, J.A., 2012. Procurement challenges in the South African public sector. *Journal of transport and supply chain management*, 6(1), pp.242-261.

Annies, A., 2007, August. Current issues and challenges in managing government's assets and facilities. In *Proceeding of the National Asset and*

Facilities Management (NAFAM) Convention, Kuala Lumpur, Malaysia (Vol. 13).

Asset Management Council., 2010, Asset management body of knowledge (AMBoK). Retrieved from <http://www.amcouncil.com.au/asset-management-body-of-knowledge.html> (Accessed on 6 March 2015).

Babbie, E. and Mouton, J., 2001, Qualitative data analysis. *The Practice of Social Research, South African Edition.*

Becker, T.E., 2005, "Potential problems in the statistical control of variables in organizational research: A qualitative analysis with recommendations", *Organizational Research Methods*, vol. 8, no. 3, pp. 274-289.

Boshoff, L., 2004, "Asset management planning for SA municipalities: news", IMIESA, [Online], vol. 29, no. 9, pp. p.20-21.

Braaksma J., 2012, Asset information for FMEA-based maintenance [Ph.D. thesis]. Groningen, the Netherlands: University of Groningen.

Braun, V. & Clarke, V., 2006, "Using thematic analysis in psychology", *Qualitative research in psychology*, vol. 3, no. 2, pp. 77-101.

British Standards Institute (BSI), PAS 55, 2008, Publicly available specification. Retrieved from <http://www.bsigroup.com>. (Accessed on 6 March 2015). [13]

British Standards Institute. BS OHSAS., 2000, 18000 – Occupational health and safety management systems specification. Retrieved from <http://www.bsigroup.com/en-GB/ohsas-18001-occupational-health-and-safety/> (Accessed on 23 March 2015).

Brownless, G. and Turner, S., 2005, *An asset management model for UK railway safety: Literature review and discussion document.* Health & Safety Laboratory.

Burnett, S. & Vlok, P.J., 2014, "A simplified numerical decision-making methodology for physical asset management decisions", *South African Journal of Industrial Engineering*, [Online], vol. 25, no. 1, pp. 162-175.

Burnett, S., 2013. *A Simplified Numerical Decision Making Toolbox for Physical Asset Management Decisions* (Doctoral dissertation, Stellenbosch University).

Campbell, J.D., Jardine, A.K. and McGlynn, J. eds., 2010, *Asset management excellence: optimizing equipment life-cycle decisions.* CRC Press.

- Campher, C.A. and Vlok, P.J., 2014. Building a scenario based active mapping investment tool within a physical asset management framework. *South African Journal of Economic and Management Sciences*, 17(2), pp.194-206.
- Chakrabort, D. and Garratt, R., 2014, Why does asset management need to be smarter. *Asset Management & Maintenance Journal*, 27(5), p.15.
- Council, B.C., 2012, Asset Management Policy. *Policy*, (1.35).
- Daya, A., 2004. Managing public assets: management. *IMIESA*, 29(4), pp.p-30.
- Deming, W.E. 1993. *The New Economics*. Massachusetts Institute of Technology Press. Cambridge, MA, pp 135.
- De Vos, A.S., Delport, C.S.L., Fouché, C.B. and Strydom, H., 2011, *Research at grass roots: A primer for the social science and human professions*. Van Schaik Publishers.
- Elad, C., 2007, Fair value accounting and fair trade: an analysis of the role of International Accounting Standard No. 41 in social conflict. *Socio-Economic Review* 5(4): 755–777.
- Flick, U., 2015, *Introducing research methodology: A beginner's guide to doing a research project*. Sage.
- Fotaki, M., 2013, "No woman is like a man (in academia): the masculine symbolic order and the unwanted female body", *Organization Studies*, , pp. 0170840613483658.
- Garetti, M. & Taisch, M., 2012, "Sustainable manufacturing: trends and research challenges", *Production Planning & Control*, vol. 23, no. 2-3, pp. 83-104.
- Gelderbloem, R., 2012. International best practice in local government. *IMFO: Official Journal of the Institute of Municipal Finance Officers*, 12(4), pp.9-11.
- Geraerds, W.M.J., 1992, The EUT maintenance model. *International Journal of Production Economics*, 24 (3), pp. 209–216.
- Global Forum on Maintenance and Asset Management (GFMAM). 2014. *The asset management landscape*. 2nd edition. Retrieved from <http://www.gfmam.org>. (Accessed on 8 March 2015.)
- Haffejee, M. and Brent, A.C., 2008. Evaluation of an integrated asset life-cycle management (ALCM) model and assessment of practices in the water utility sector. *Water SA*, 34(2), pp.285-290.

- Hastings, N.A.J., 2015, "Asset Management Information Systems" in *Physical Asset Management* Springer, pp. 223-235.
- Henderson, K., Pahlenkemper, G. & Kraska. O., 2014, 'Integrated Asset Management – An Investment in Sustainability', pp, Elsevier B.V.,
- Horak, E. and Van der Westhuizen, J., 2005. Railway asset maintenance and management education initiatives. *Civil Engineering= Siviele Ingenieurswese*, 13(5), pp.p-26.
- Institute for Asset Management (IAM), 2011, Asset management – An anatomy. Retrieved from <http://www.theIAM.org>. (Accessed on 6 March 2015).
- International Organization for Standardization, 2004, ISO 14001 – Environmental management systems. Retrieved from <http://www.iso.org/iso/iso14000> (Accessed on 23 March 2015).
- International Organization for Standardization., 2008, ISO 9001 - Quality management systems – Requirements. Retrived from http://www.iso.org/iso/iso_9000 (Accessed on 23 March 2015).
- International Organization for Standardization, 2009, ISO 31000 - Risk management – Principles and guidelines. Retrieved from <http://www.iso.org/iso/home/standards/iso31000.htm> (Accessed on 23 March 2015).
- International Organization for Standardization, 2014, ISO 55001 – Asset management - Management systems – Requirements. Retrieved from http://www.iso.org/iso/catalogue_detail?csnumber=55089 (Accessed on 23 March 2015).
- Jooste, J.L. and Page, D.C., 2004. A performance management model for physical asset management. *South African Journal of Industrial Engineering*, 15(2), p.45.
- Jooste, J.L. & Vlok, P.J., 2015, "A decision support model to determine the critical success factors of asset management services", *South African Journal of Industrial Engineering*.
- Kennedy, P., 2010, *The rise and fall of the great powers*. Vintage.
- Kumar, S. and Phrommathed, P., 2005, *Research methodology* (pp. 43-50). Springer US.
- Laue, M., Brown, K., Scherrer, P. and Keast, R., 2014, Integrated strategic asset management: frameworks and dimensions. In *Infranomics* (pp. 75-87). Springer International Publishing

- Leedy, P.D. & Ormrod, J.E., 2014, Practical research: planning and design, 10th ed. Boston, MA: Pearson
- Long, J.S. & Freese, J., 2006, *Regression models for categorical dependent variables using Stata*, Stata press.
- Luyt, D., 2008, Media and Advocacy Head of the Public Service Accountability Monitor (PSAM), at the Monitor (PSAM). Paper Presented at the United Nations Social Forum on 2 September 2008 in Geneva, Switzerland.
- Márques, A.C., 2007, The maintenance management framework: Models and methods for complex systems maintenance. London: Springer-Verlag.
- Migiro, S.O. and Ambe, I.M., 2008, Evaluation of the implementation of public sector supply chain management and challenges: A case study of the central district municipality, North West province, South Africa. *African Journal of Business Management*, 2(12), p.230.
- Mitchell, J.S., 2007, Physical Asset Management Handbook. Clarion. 2, 25, 42
- Mkhize, Z., 2004, Supply Chain Management Conference: Transforming Government Procurement System. *Durban, Republic of South Africa*, 22, p.23.
- Mohd Hizam, H., Dan Zahir, M.M., 2002, *Pengurusan Organisasi*, Kuala Lumpur. Mc-Graw Hill (Malaysia) Sdn. Bhd.
- Mungani, D.S. and Visser, J.K., 2013. Maintenance approaches for different production methods. *South African Journal of Industrial Engineering*, 24(3), pp.1-13.
- Munsch, C.L., 2016, "Flexible work, flexible penalties: the effect of gender, childcare, and type of request on the flexibility bias", *Social Forces*, pp. sov122.
- Myburg, J., Dreyer, D. and Van Der Westhuizen, J., 2011. Integrated Asset Life Cycle Management as a tool to ensure sustainable service delivery. *Civil Engineering= Siviele Ingenieurswese*, 19(9), pp.46-50.
- National Treasury, 2004, Asset Management Guide. Version 3.3, Republic of South Africa, <http://www.treasury.gov.za/content/org/pubs.htm#am> (Accessed on 19 March 2007).
- National Treasury, 2005, Guidelines on Implementation of Approved Standards of Generally Recognised Accounting Practice, June 2005. Pretoria: National Treasury.

- Neuman, W.L., 2005, *Social research methods: Quantitative and qualitative approaches* (Vol. 13, pp. 26-28). Boston, MA: Allyn and Bacon.
- New Zealand Asset Management Support (NAMS), 2011, International Infrastructure maintenance manual. Retrieved from <http://www.nams.org.nz/pages/273/internationalinfrastructure-management-manual-2011-edition.htm> (Accessed on 23 March 2015).
- Noor, K.B.M., 2008, "Case study: A strategic research methodology", *American journal of applied sciences*, vol. 5, no. 11, pp. 1602-1604.
- PAS, 2008, Publicly available specification 55. 4, 5, 6, 16, 25, 27, 30, 31, 32, 33, 38, 46
- Peffer, K., Tuunanen, T., Rothenberger, M.A. and Chatterjee, S., 2007, A design science research methodology for information systems research. *Journal of management information systems*, 24(3), pp.45-77.
- Priest, H., Roberts, P. & Woods, L., 2002, "An overview of three different approaches to the interpretation of qualitative data. Part 1: Theoretical issues", *Nurse researcher*, vol. 10, no. 1, pp. 30-42.
- Probert, B., 2005, 'Just couldn't fit it in': Gender and unequal outcomes in academic careers. *Gender, Work & Organization*, 12, 50-72.
- Republic of South Africa, 1996, *The Constitution of the Republic of South Africa*, 1996, Pretoria, Government Printer.
- Republic of South Africa. *Public Finance Management Act*, 1999, (Act 1 of 1999) as amended by Act 29 of 1999, Pretoria, Government Printer, 1999.
- Rustenburg, R.J., Braaksma, A.J.J., Van Dongen, L.A.M., 2014, 'A multidisciplinary, expert-based approach for the identification of lifetime impacts in Asset Life Cycle Management', pp. 205, Elsevier B.V
- Schoeman, J.S. and Vlok, P.J., 2014, The possible influence of risk management, forecasting, and personnel training in physical asset management. *South African Journal of Industrial Engineering*, 25(2), pp.96-104.
- Schuman, C.A. & Brent, A.C., 2005, "Asset life cycle management: towards improving physical asset performance in the process industry", *International Journal of Operations & Production Management*, vol. 25, no. 6, pp. 566-579.

- Scott, D., 2008, "Financial reporting by municipalities in South Africa in terms of GAMAP/GRAP versus the IMFO standard", *Southern African Business Review*, vol. 12, no. 3, pp. 1-23.
- Smart Procurement, 2011, SA public procurement: poor value for money. Available from: www.smartprocurementworld.com (accessed on 10 February 2012).
- Stemele, B.M., 2009, Assessing good governance in procurement at Lejweleputswa District Municipality. Master's dissertation. University of Stellenbosch.
- Stephen, J.T., 2005, *Improving Maintenance Reliability Through and Cultural Change*. Industrial Press Inc.
- Surrey, S.S., 1940. The Scope and Effect of Treasury Regulations Under the Income, Estate, and Gift Taxes. *University of Pennsylvania Law Review and American Law Register*, 88(5), pp.556-583.
- Treasury, L.P. 2012, "Transversal Financial Policies", .
- Jensen, A.A. and Remmen, A., 2005. UNEP guide to Life Cycle Management-a bridge to sustainable products. *Background report for a United Nations Environment Programme*.
- Van Wyk, H.A., 2006. Implementation of accrual accounting in the public sector: easier said than done. *Journal of Public Administration*, 41(1), pp.21-31.
- Visser, J.K. and Botha, T.A., 2015. Evaluation of the importance of the 39 subjects defined by the global forum for maintenance and asset management. *South African Journal of Industrial Engineering*, 26(1), pp.44-58.
- Visser, R., 2006. Integrating asset management into the strategic management process of a municipality. *IMFO: Official Journal of the Institute of Municipal Finance Officers*, 6(4), pp.p-14.
- von Petersdorff, H. and Vlok, P.J., 2014. Prioritising maintenance improvement opportunities in Physical Asset Management. *South African Journal of Industrial Engineering*, 25(3), pp.154-168.
- Watermeyer, R.B., 2011, Public procurement regulation in Africa conference: Regulating public procurement in Southern Africa through international and national standards.

Welgemoed, W., 2010, "The challenges of maintaining a GRAP 17 compliant asset register", *IMFO: Official Journal of the Institute of Municipal Finance Officers*, vol. 10, no. 3, pp. 10-11.

Wiseman, J., 2006, Local heroes. Learning from recent community strengthening initiatives in Victoria. *Australian Journal of Public Administration*, 65 (2)

Woodhouse, J., 2010. Asset management in the oil and gas process and manufacturing sectors. *Asset management-Whole-life management of physical assets*, Thomas Telford Limited, London, UK, pp.27-49.

World Bank Group (WBG), 2007, World Development Report 2008. *Agriculture for development*. Washington D.C. World Bank Group. Available at: http://siteresources.worldbank.org/INTWDR2008/Resources/WDR_00_book.pdf (accessed 15 July 2009).

ANNEXTURE A

Enquiry: Ramosebudi S.M
Contacts numbers: 015 293 8771 / 082 521 2235
Date: 14 January 2016

To: The Head of Department (LEDET)
cc: Head of Security and Investigations (LEDET)

SUBJECT: LETTER REQUEST TO CONDUCT A RESEARCH STUDY: THE CHALLENGES FACING ASSET MANAGEMENT UNITS IN (LEDET).

A mini dissertation is one of the requirement that must be fulfilled in order to complete a degree in Master of Business Administration. The research proposal on challenges faced by the asset management in the department has been approved by the school (University of Limpopo).

I therefore request to interview selected officials involved in asset management after receiving their consent. The information provided by the staff officials will be used to meet the following objectives.

The objectives of the study are as follows:

- **To investigate challenges facing asset management unit at LEDET.**
- **To determine how the identified challenges affect the delivery of services.**
- **To find out an ideal way of managing assets in organisations.**

Your cooperation in this regard will be highly appreciated.

Kind regards,

Ramosebudi S.M (Student: 9547952)

Recommended:

Head of Security & Investigations

Approved:

Head of Department (LEDET)

ANNEXURE C: LETTER TO THE RESPONDENTS

Enquiries: S.M Ramosebudi
Contact numbers: 015 293 8771/ 082 521 2235
Email: RampyapediSM@gmail.com

To: Participants
Department of Economic Development, Environment & Tourism
20 Hans van Rensburg
Polokwane, 0700

SUBJECT: REQUEST TO PARTICIPATE IN THE RESEARCH STUDY: THE CHALLENGES FACING ASSET MANAGEMENT UNITS: A CASE OF LIMPOPO DEPARTMENT OF ECONOMIC DEVELOPMENT, ENVIRONMENT AND TOURISM (LEDET)

Dear Sir / Madam

This is a request for your participation in a research project. Please be informed that this research interview is for study purposes. The information gathered will not be used to incriminate you in any way. You are liberty to withdraw in the exercise at any time.

Your unbiased and reliable responses during interview is of vital importance as it will assist the researcher to come up with recommendations.

Looking forward for your cooperation.

Kind regards,

Ramosebudi S.M (Student: 9547952)

ANNEXTURE D:

1. INTERVIEW SCHEDULE TO THE PARTICIPANTS

The interview schedule is linked to the objectives of this study which are stated as followed:

- **To investigate challenges facing asset management unit at LEDET.**
What are the challenges that asset management unit is facing?
- **To determine how the identified challenges affect the delivery of services.**
How is the strategic objectives being affected by asset management?
- **To find out an ideal way managing assets in an organisations.**
What are the options available in the organisations to overcome these challenges?

SECTION A

1. Personal Information/ Demographic information of the respondents

1.1. What is your gender?

Male		Female	
------	--	--------	--

1.2. In which age category do you fall?

18-30		31-40		41-55		56-65	
-------	--	-------	--	-------	--	-------	--

1.3. What is your highest qualification?

Grade 1-7		Grade 8-12		Diploma/Degree		Post Graduate		Other	
-----------	--	------------	--	----------------	--	---------------	--	-------	--

1.4. What is your post level?

1-4		5-8		9-12		13+	
-----	--	-----	--	------	--	-----	--

1.5. How many years have you been working in the department?

1-5		6-10		11-20		21-30		31+	
-----	--	------	--	-------	--	-------	--	-----	--

1.6. Have you ever been orientated or trained in asset management?

Yes		No	
-----	--	----	--

SECTION B

2. To investigate challenges faced by asset management unit at LEDET.

2.1. What is your understanding of asset management?

2.2. What are the challenges you are experiencing in this unit?

2.3. Is there any relationship between asset management and service delivery in the department?

Yes		No	
-----	--	----	--

If yes, state the reason

If no, state the reason,

2.4. How is Asset Management, roles and responsibilities linked to strategic objectives of department?

2.5. Do all role players understand the importance of Asset Management and the extent to which it influences daily operations?

Yes		No	
-----	--	----	--

SECTION C

3. To determine how the identified challenges affect the delivery of services.

4.1. What is the strategic goal and objectives of the Department?

4.2. How is the strategic objectives being affected by asset management?

4.3. Does the department have good monitoring and evaluation through the process of asset management to improve service delivery in asset management?

Yes		No	
-----	--	----	--

SECTION D

5. To find out an ideal way of managing assets at organisations.

5.1. How best can asset be managed in organisations?

5.2. According to you, what makes that institution succeed in managing its asset?

5.3. Do all the three spheres of government use the same policies, rules and regulation when managing assets?

Yes		No	
-----	--	----	--

5.4. Does the department have good monitoring and evaluation through the process of asset management to improve service delivery in asset management?

Yes		No	
-----	--	----	--

5.5. What other suggestions do you have to improve management of assets?

The findings of the study will be provided to you on request.

Thanking you in advance for your time participating in the study.

Yours sincerely,

Ramosebudi S.M

ANNEXURE B:



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

66/01

DEPARTMENT OF
ECONOMIC DEVELOPMENT, ENVIRONMENT & TOURISM

Enquiry: Ramosebudi S.M
Contacts numbers: 015 293 8771 / 082 521 2235
Date: 14 January 2016

To: The Head of Department (LEDET)
cc: Head of Security and Investigations (LEDET)

SUBJECT: LETTER TO REQUEST TO CONDUCT A RESEARCH STUDY: THE CHALLENGES FACING ASSET MANAGEMENT UNITS IN (LEDET).

A mini dissertation is one of the requirement that must be fulfilled in order to complete a degree in Master of Business Administration. The research proposal on challenges faced by the asset management in the department has been approved by the school (University of Limpopo).

I therefore request to interview selected officials involved in asset management after receiving their consent. The information provided by the staff officials will be used to meet the following objectives.

The objectives of the study are as follows:

- To investigate challenges facing asset management unit at LEDET.
- To determine how the identified challenges affect the delivery of services.
- To find out an ideal way managing assets in an organisations.

Your cooperation in this regard would be highly appreciated. I am looking forward to your positive response.

Kind regards,

Ramosebudi S.M (Student: 9547952)

Recommended:

Head of Security & Investigations

Approved:

Head of Department (LEDET)

HEAD OFFICE

*On condition the results to be shared & submitted to Ledet.
15/01/2016*