

**ENTERPRISE RISK MANAGEMENT (ERM) PERFORMANCE STRATEGIES OF
NATIONAL WATER AND SANITATION COUNCIL OF ZAMBIA (2010 – 2022)**

BY

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**A Dissertation submitted to the University of Zambia in partial fulfilment of the
requirements for the award of Degree of Master of Business Administration in Finance.**

THE UNIVERSITY OF ZAMBIA

LUSAKA

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DECLARATION

I, **Angela Mayaba**, do hereby declare that this work is my original work achieved through personal reading and research. This work has never been submitted to the University of Zambia or any other Universities. All sources of data used and literature on related works previously done other, used in the production of this Dissertation have been dully acknowledged. If any omission has been made, it is not by choice but by error.

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APPROVAL

This Dissertation of Angela Mayaba has been approved as a partial fulfilment of the requirement for the award of Degree of Master of Business Administration in Finance.

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ABSTRACT

Scholars have argued that although Enterprise Risk Management (ERM) is a necessity to organizations or companies, the rate of implementation is still low (Mc Neil, 2015). The problem however, remains that most authors have not specifically looked at the effects of Enterprise Risk management processes on the performance of public regulatory bodies such as NWASCO. Therefore, this study sought to evaluate the effects of Enterprise Risk Management Strategies on the problems that affect the performance of the National Water Supply and Sanitation Council in Zambia. To pursue the study objectives, the study adopted a mixed research approach in which both qualitative and quantitative research designs were used. It also used a scientific survey design for the target population of 200 people were the sample size was selected from. The sample consisted of 20 managers and 44 officers who were purposively selected from the National water and sanitation company body and the three (3) utility companies' Finance, Audit and Risk management departments. The data collected was analysed using the content analysis for qualitative data and Advanced Microsoft excel data analysis for quantitative data. From the study findings, most of the information given by the respondents indicated that there is no specific ERM framework being used by NWASCO after analysis and interviews with management as well as other respondents. Findings also revealed lack of knowledge on Risk Management being used by NWASCO in their operations. The organisation has not employed a qualified risk officer and it does not have a Risk department which looks into the company risks independently. However, NWASCO has not adequately put in place measures that would lead to a reduction in its exposure to risk to achieve the objectives, these measures included but not limited to; the Provision of incentives for service providers who comply with regulations set by NWASCO, Penalties For non-compliance to regulations, Community involvement and Audit-based regulation approach. The study recommended that NWASCO should develop and implement an appropriate ERM framework at strategic and operational level, which can offer exceptional value if it is soundly applied. This can help in identifying, categorizing, analysing and prioritising and treatment of risks at operational and strategic levels. Effective ERM risk framework adoption and implementation at Board level and operational levels should be based on a strong risk culture and risk profiling which requires the sponsorship of the executives in the company. In addition, the aggregation of risk information needs to be performed according to clear rules that everyone would understand and abide by.

Key words: *Enterprise, Enterprise Risk Management, Performance Risk and NWASCO.*

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DEDICATION

I dedicate this work to my Parents, husband Steward Ngweza, my daughter Aless Ngweza and my son Steward Ngweza Jnr. You have been supporting me in every way you could. It would be naive of me if I forgot to mention my God, the sovereign Lord Jehovah who has given me the precious gift of life and made all provisions available for me during the time I was in school.

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LIST OF ABBREVIATIONS

CP	-	Cooperating partners
CU	-	Commercial Utilities
ERM	-	Enterprise Risk Management
GRZ	-	Government of the Republic Of Zambia
KPI	-	Key Performance Indicators
MoF	-	Ministry Of Finance
NDP	-	National Development Plan
NRWSSP	-	National Rural Water Supply and Sanitation Program
NUWSSP	-	National Urban Water Supply and Sanitation Program
NWASCO	-	National Water Supply and Sanitation Council
PUA	-	Peri-Urban Areas
WASH	-	Water, Sanitation and hygiene
WSS	-	Water Supply and Sanitation

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter discusses the background to the study, statement of the problem, purpose of the study, research objectives and research questions. In addition, it establishes the significance of the study, delimitation, scope of the study, limitations and operational definitions of terms.

1.2 Background to the Study

All organizations and businesses whether public or private, large or small generally have to manage risks in order to stay afloat (Beasley, 2016). According to the World Bank (2018), a risk refers to the possibility that an adverse development will occur that negatively may affect the performance of an institution or may hinder the achievement of the set objectives. Worldwide, risk management in organizations has been done for decades. Traditionally, organizations would manage risks by placing responsibilities on business unit managers to manage risks within their areas of responsibility(Beasley, 2016).Generally it was a norm that the Chief Technology Officer should be responsible for managing risks related to the organization's information technology operations, the Treasurer may be responsible for managing risks related to financing and cash flow, the Chief Operating Officer may be responsible for managing production and distribution and the Chief Marketing Officer may be responsible for sales and customer relationships and so on (Beasley, 2016).

Enterprise Risk Management (ERM) researchers are of the view that there may be benefits from thinking differently about how the enterprise or organization manages risks affecting the business (Beasley, 2016). Enterprise Risk Management (ERM) is a process effected by an entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (Committee of Sponsoring Organisations, 2009).The goal of an ERM process is to generate an understanding of the top risks that management collectively believes are the current most critical risks to the strategic success of the enterprise(Committee of Sponsoring Organisations, 2009). The goal of an ERM process is to generate an understanding

of the top risks that management collectively believes are the current most critical risks to the strategic success of the enterprise (Liebenberg, 2003).

According to Hoyt and Liebenberg (2011), they estimated the effect of ERM on the value of an organisation and they found a positive relation between the company value and the use of ERM. They also discovered that the ERM premium of about 20 percent was statistically and economically significant. It is in this vein that Enterprise risk management is becoming a widely embraced business approach for accomplishing more effective risk oversight (Hoyt and Liebenberg, 2011). Enterprise Risk management is a crucial factor in all organizations especially in today's ever changing environment (Abkowitz and Camp, 2017). In particular, water regulatory and utility organizations or companies need to put in place proper enterprise risk management systems to enhance growth, sustainability and continuity. Due to changes in the climate and environment as well as the growth in demand of fresh water because of demographic changes, the water sector has experienced high-risk exposure as concerning water volumes, demand requirements and supply of the fresh water (NIC, 2012).

A research by Kachikoti (2018) shows that there is strong evidence suggesting that Enterprise Risk Management does have an effect on performance of not only in financial institutions but also in water regulatory or utility companies such as NWASCO. Many of the services provided are related to conditions of uncertainty (Prapawadee Na Ranong and Wariya Phuenngam, 2009). A study done in Kenya by Wambua(2017)revealed that Enterprise Risk Management has a significant positive effect on performance of water service providers, in the sense that increased operational risk management helped to improve on water company's financial performance, operational efficiency and service delivery. However, where ERM is not applied providing water services to the customers by water companies has been marred with a number of problems such as poor coverage, high unaccounted for water, poor bill collection, poor record-keeping and low tariffs (NIC, 2012).

To cater for the water needs of Zambians, the country has a number of commercial water utility companies that are basically found in all provinces (Water and sanitation association of Zambia, 2012). They look into all sanitation matters and provide safe drinking water to the population of each province (Water and sanitation association of Zambia, 2012). According to Demographic and Health Survey (2018), 64 percent of the population use basic drinking water services in Zambia and this includes: 87 percent in urban areas and 49 percent in rural areas.

Since independence, there have been a number of water sector reforms meant to improve the provision of quality services. In 1993, a national collaborative process between Zambia's Water and Sanitation Service Sector stakeholders was started as part of the country's effort to improve services in this sector. This process culminated in the adoption of a National Water Policy in 1994 and the Water Supply and Sanitation Act in 1997 (chola Kasoma Mbilima). Under the policy and Act, implementation strategies were prepared for improving services in both the urban and rural WSS sub-sectors. During the commercialization process, new institutions were put in place with the purpose of making direct water and sanitation service provision a responsibility. These institutions were independent of government and then the Ministry of Local Government and Housing acted as the lead ministry in the sector, to play the role of policy development, coordination and facilitation for better service coverage (Kagaya and Franceys, 2008).

As part of the reform process, the National Water Supply and Sanitation Council (NWASCO) was established and charged with the responsibility of regulating service providers in the urban water and sanitation sector (Water supply and sanitation Act No. 28 of 1997). It was through this reform process in the sector that a number of Water and Sewerage Utilities were born. Among these were the Lusaka Water and Sewerage Company, Nkana Water and Sewerage, Mulonga Water and Sewerage, Southern Water and Sewerage, Chambeshi Water and Sewerage, Eastern Water and Sewerage, Western Water and Sewerage, North Western Water and Sewerage, Lukanga Water and Sewerage and Kafubu Water and Sewerage (NWASCO, 2010). Challenges such as frequent droughts and floods, hydrological variability and seasonal water shortages in the water sector currently expose the country to significant risks that have the potential to undermine the short term and long term gains (NIC, 2012). According to the World Bank (2013), it shows that recurrent floods and droughts over the past three decades may have cost Zambia US\$13.8 billion, a 0.4 percent annual loss of economic growth that disproportionately impacts the poor.

In Zambia, following the devolution of water and sanitation services from Council authorities saw the establishment of quasi-government institutions known as commercial utility companies. This has been necessitated with the aim of increasing efficiency and sustainability in operations. In Lusaka, the Lusaka Water and Sanitation Company is the sole commercial utility providing water and sanitation services to Lusaka residents in both urban and peri-urban areas. The utility is regulated by the National Water Supply and Sanitation Council (NWASCO) in terms of performance and tariffs among others (Nkonkomalimba and Mumba,

2014:8). However, certain water regulatory bodies in which NWASCO is not exception do not have a risk management framework in place thereby making it difficult for such bodies to plan and monitor risks in the water supply and sanitation provision, hence leading to a number of problems such as poor coverage, high unaccounted for water, poor bill collection, poor record-keeping and low tariffs (GRZ, 2013:48).

Zambia's water sector has made some crucial headway resulting from the implementation of water services reforms. Chitonge (2011) reports that prior to the reforms, provision of water services was in disorder, clouded in uncertainty and lack of direction. The establishment of commercial utilities has facilitated the clarification of roles and functions among the many actors in the water services sector. At the moment it is clear that commercial utilities are responsible for the provision of water services, NWASCO is responsible for ensuring that the service providers meet the stipulated standards and regulations, while the Ministry of Local Government and Housing is responsible for the policy issues and resource mobilisation for the sector. However, it must be noted that recently commercial utilities have been faced with numerous challenges with regards their water service provision for the masses (World Vision, 2018).

Despite the devolution of roles and functions in the water supply and sanitation services from the Lusaka City Council to NWASCO and commercial utility companies, the water sector in Lusaka particularly has faced a number of problems such as poor water connectivity, high level of leakage, poor customer service, losses to the company as well as decrease in their capitalization and poor financial performance (GRZ, 2013:49). In addition, poor sanitation in Lusaka has claimed a number of lives through annual outbreaks of cholera, typhoid and dysentery and this may be due to most of unplanned settlements in Lusaka which are largely comprised of poor residents. Poor management of solid waste and storm water drainage, and the generally flat terrain further compound these problems (Ibid).

A review of Lusaka Water and Sanitation company's internal reports from 2011-2013 revealed that the company had 44%, 45% and 42% of non-billed, non-accounted for and wasted water which were above the minimum allowed of 25%. In this regard, the water sector lost 128.1 million cubic metric tonnes of water translating into K436, 229, 472 revenue. A significant portion of this operation and maintenance costs is on water that does not bring revenue to the government thereby reducing its profits (Auditor's General Report, 2013).

Although there is strong evidence suggesting that Enterprise Risk Management does have a significant positive effect on performance of the water sector, with regards to improved financial performance, operational efficiency and service delivery, there is scanty research in Zambia's water sector on how ERM affects the performance of water supply and sanitation regulatory bodies. Hence, the nature of this study will be conducted to establish the Enterprise Risk Management Strategies and their effects on the performance of the National Water Supply and Sanitation Council (NWASCO).

It is as a result of the above highlighted uncertainties (risk) in the water sector that prompted this nature of the research study to try to establish whether NWASCO does have an Enterprise Risk Management or not, and if it has such a system in place then how does the risk management Strategies adopted impact on its performance (i.e. achieving its objectives and standards with regards to water supply and sanitation).

1.3 Statement of the problem

Most Scholars have argued that although Enterprise Risk Management (ERM) is a necessity to organizations or companies, the rate of implementation is still low (Mc Neil, 2015). In addition, most studies on Enterprise risk management argue that only companies with greater financial leverage are more likely to appoint qualified Chief Risk Officers to be in-charge of implementing risk programs that promote values and improves the performance of the company (Liebenberg, 2003). The problem however, remains that most authors have not specifically looked at the effects of Enterprise Risk management strategies on the performance of public regulatory bodies such as NWASCO which is mandated to regulate and oversee the operations of water utility companies in their water supply and sanitation services.

The effect of ERM Strategies on the performance of the National Water Supply and Sanitation Council (NWASCO) is not yet established in Zambia. The persistent problem therefore has been the failure by NWASCO to fully implement the ERM in assessing the risks associated with the organisation and its entrepreneurial activities. In addition, studies reviewed looked at ERM as an isolated departmental obligation for each firm. Therefore, this shows that, the knowledge of ERM in most companies NWASCO is scarce or there is knowledge gap in this area hence this research. It is based on this knowledge gap that this study intends to assess the effect of the ERM Strategies on the performance of NWASCO.

1.4 Purpose of the study

The purpose of this study was to evaluate the impact of Enterprise Risk Management Strategies on the problems that affect the performance of the National Water Supply and Sanitation Council in Zambia.

1.5 Research Objectives

1.5.1 General Objective

The General objective of this study is;

- i. To assess the Enterprise Risk Management Strategies used and their effects on the performance of NWASCO.

1.5.2 Specific objectives

The specific objectives of this study are as follows;

- i. To establish the extent to which the existing ERM Strategies are applied in the regulation of water supply and sanitation services.
- ii. To establish the risk exposures associated with the water and sanitation services.
- iii. To determine the challenges NWASCO faces in implementing their Enterprise Risk Management Strategies.

1.6 Research questions

1.6.1 General Research questions

The general research Question of this study is;

- i. What are the Enterprise Risk Management Strategies used and their effects on the performance of NWASCO?

1.6.2 Specific Research Questions

The specific research questions are as follows;

- i. To what extent do the existing ERM Strategies are applied in the regulation of water supply and sanitation services?

- ii. What risk exposures are associated with the water and sanitation services?
- iii. What challenges does NWASCO face in implementing its Enterprise Risk Management Strategies?

1.7 Significance of the study

The findings of this study may contribute to the body of knowledge on Enterprise Risk Management by examining the ERM Strategies used and their effects on the performance of NWASCO. It may also enhance the efficiency in all the operations of NWASCO. The findings of the study may also help NWASCO and other institutions be able to properly implement ERM strategies with the knowledge or understanding on the effects of the ERM strategies.

This study was significant to water companies, public, students and the water management authorities, as it offers valuable contributions from both a theoretical and practical perspective. Theoretically, it contributes to the general understanding of Enterprise Risk Management practices and their effect on performance. The study enables water companies in Zambia to improve their enterprise risk management strategies and to adopt efficient strategies to improve firm performance through the risk management processes. This enables the water companies to perform better and to grow their businesses and maintain a competitive advantage.

Apart from benefiting the water companies, the public also benefits from the study through improved water services and better management of risks. This can result to affordable water services and reduction in levels of non-payment and fraud.

The study may also contribute to existing literature on the extent to which existing ERM Strategies are applied in the regulation of water supply and sanitation services as well as challenges NWASCO faces in implementing its Enterprise Risk Management Strategies. Further, the findings of the study may be of great benefit to key stakeholders in the water sector such as the Ministry of Local Government and Housing, water regulatory bodies and water management authorities as well as commercial water utility companies by suggesting the adoption and use of ERM as a best approach to identify, assess, control and monitor water supply and sanitation service provision related risks.

1.8 Scope of the study

This research study was confined only to the National Water Supply and Sanitation Council (NWASCO) a public water supply and sanitation regulatory body in Lusaka, Zambia and the

three water Utility Companies (namely Lusaka Water and sewerage Company, Lusaka water and Sewerage Company and Lukanga water and Sewerage Company). Thus, respondents (i.e. Managers and Assistant Officers) were drawn only from the regulatory body and the three water utility companies in Risk Management departments, Finance departments and Audit departments. However, though the research was focused on the water and sanitation sector, the application of the results may equally be applied to other organizations outside the water sector, since the Enterprise Risk Management Strategies may appear to be similar and general.

1.9 Delimitation of the Study

This study was carried out at four (4) different points. In Lusaka it was conducted at the National Water Supply and Sanitation head offices and Lusaka Water and Sewerage Company (LWSC) offices, Southern Water and Sewerage Company (SWASCO) offices in Choma Southern province, and in Kabwe Central province at Lukanga Water and Sewerage Company (LWSC) offices. The selected commercial water utility companies are charged with the responsibilities of water delivery services to communities in Lusaka, Choma and Kabwe respectively.

1.10 Limitations of the study

The major limiting factor to this study was that of generalizing of findings due to a limited study sample which will only involve respondents from the water supply and sanitation regulatory body in Lusaka, Zambia and the three water Utility companies. As such the findings may not be generalized to all organizations and water sector firms in Zambia. Another limitation was the reluctance of most of the respondent's especially top managers to give out information as some were finding it to be infringing on their firm's private policy as well as fear to expose their risk management strategies. It is a common factor for most top managers to withhold information related to management. However, the researcher will by all means endeavour to be objective and politically neutral. The concentration will be to gather data for academic purposes.

1.11 Operational definitions of terms

Enterprise: An organization, especially a business whose aim is to earn profit (Cambridge Advanced Learner's Dictionary, 3rd Edition).

Enterprise Risk Management: A process effected by an entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives (Committee of Sponsoring Organisations, 2009).

Performance: Performance means reaching the strategic objectives. It is about achieving the goals that have been given in convergence with the company guidelines and that performance is not simply finding a product but rather of comparison to the results and objectives (Wambua, 2017).

Risk: Refers to the possibility that an adverse development will occur that negatively affects the performance of an organization or water sector (World Bank, 2018).

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter presents relevant literature review in line with Enterprise Risk Management Strategies on the performance of organizations or enterprises. The review focused on the Enterprise Risk Management, performance of commercial Water Utility Companies in Zambia and review of related studies on enterprise risk management Strategies and their effect on performance of organizations. This was dealt by the focus on the worldwide, African and Zambian perspectives. In the final part, it highlighted the research gaps from the reviewed studies. Lastly, the chapter concludes with a summary.

2.2 Theoretical Literature Review

2.2.1 Jorion theory on operational risk management

The importance of operational risk for financial institutions is well recognized and discussed in detail in leading risk management textbooks (Jorion, 2007). However, the difficulties in quantifying operational risk have led most of the recent literature to focus almost exclusively on measurement and estimation issues. Several studies estimate the distribution of operational risk losses using techniques from extreme value theory and data on large and infrequent operational losses (Jordan, 2006; Antolinez-Fehr, 2001; Moscadelli, 2004). These estimates combined with VaR models, determine regulatory capital against operational losses, as required by the Basel Capital Accord. Rosengren (2006) show that, the amount of capital held for operational risk may exceed capital for market risk. This theory provides a micro foundation of operational losses by considering the endogenous response of financial institutions to operational risk.

Following the intensity-based framework developed in the reduced credit risk literature (Saita, 2009), Jarrow (2008) and Chernobai, Jorion and Yu (2011) treat the arrival of operational losses as a conditional Poisson process. Jarrow suggests that both data internal to the firm and market are important to estimate the parameters of the operational loss processes. Using a large database of operational losses among U.S. financial institutions, Chernobai, Jorion and Yu find that young and more complex institutions tend to have a higher operational risk exposure, and identify a positive correlation between operational risk and credit risk.

Franks and Mayer (2001) provide a survey of the European asset industry, and identify misdealing, settlement problems, and errors in the computation of the asset value as the major sources of operational risk. These findings are confirmed by Biais, Casamatta and Rochet (2003) using a different sample of European fund management companies. Biais, Casamatta and Rochet also propose a theoretical model based on agency frictions in which investors cannot observe the effort that investment companies exert to reduce operational risk. They show that the level of funds' capital can be useful to provide incentives and hence to reduce operational losses.

The importance of this theory to the study is to help measure and estimate operational challenges in water sector. In the reporting period 2014/2015, overall performance in terms of operational cost coverage declined by 1% from 100% to 99%. Decrease performance in this indicator is because of operational cost increasing at a higher proportion 7% compared to revenues 5.4%. This increase in operational costs compared to the revenues results from lack of justified tariffs or failure to adhere to the approved budget ceilings. The continued decline in cost coverage is contrary to the sector aspiration towards self-financing (Wa SREB, 2016).

2.2.2 Liquidity Risk Theory

Halling and Hayden (2006) explains that a bank should define and identify the liquidity risk to which it is exposed for all legal entities, branches and subsidiaries in the jurisdictions in which it is active. A bank's liquidity needs and the sources of liquidity available to meet those needs depend significantly on the bank's business and product mix, balance sheet structure and cash flow profiles of its on- and off-balance sheet obligations. As a result, a bank should evaluate each major on and off balance sheet position, including the effect of embedded options and other contingent exposures that may affect the bank's sources and uses of funds, and determine how it can affect liquidity risk. A bank should consider the interactions between exposures to funding liquidity risk and market liquidity risk (Jeanne & Svensson, 2007).

A bank that obtains liquidity from capital markets should recognize that these sources are more volatile than traditional retail deposits. For example, under conditions of stress, investors in money market instruments may demand higher compensation for risk, require roll over at considerably shorter maturities, or refuse to extend financing at all. Moreover, reliance on the full functioning and liquidity of financial markets may not be realistic as asset and funding markets may dry up in times of stress (Perera et al., 2006).

Market illiquidity may make it difficult for a bank to raise funds by selling assets and thus increase the need for funding liquidity. A bank should ensure that assets are prudently valued according to relevant financial reporting and supervisory standards. A bank should fully factor into its risk management the consideration that valuations may deteriorate under market stress, and consider this in assessing the feasibility and impact of asset sales during stress on its liquidity position (Jenkinson, 2008). For example, a bank's sale of assets under duress to raise liquidity could put pressure on earnings and capital and further reduce counterparties' confidence in the bank, further constraining its access to funding markets. In addition, a large asset sale by one bank may prompt further price declines for that type of asset due to the market's difficulty in absorbing the sale. Finally, the interaction of funding liquidity risk and market liquidity risk may lead to illiquidity spirals, with banks stockpiling liquidity and not on lending in term interbank markets because of pessimistic assumptions about future market conditions and their own ability to raise additional funds quickly in the event of an adverse shock (Guglielmo, 2008).

This theory helps in identifying the risks and come up with measures to increase sector efficiency, maximizing consumer contributions through tariffs, and encouraging private sector funding. The option of tapping into private sector funding presents two challenges. First commercial lenders view the sector, as a high risk and secondly commercial interest are high. This means there is need for the sector to strategize liquidity management to enhance self-financing to ensure financial sustainability.

2.2.3 Agency Theory

Agency theory extends the analysis of the firm to include separation of ownership and control, and managerial motivation. In the field of corporate risk management, agency issues influence managerial attitudes toward risk taking and hedging (Smith & Stulz, 1985). Theory also explains a possible mismatch of interest between shareholders, management and debt holders due to asymmetries in earning distribution, which can result in the firm taking too much risk or not engaging in positive net value projects (Mayers & Smith, 1987). Consequently, agency theory implies that defined hedging policies can have important influence on firm value (Fite & P fleiderer, 1995).

Stulz (1984) first suggested a reason for the interest in risk management by managers of a firm. He asserts that managers work on behalf of firm owners and therefore, concern themselves with both expected profit and the distribution of firm returns around their expected value. They have an inclination to avoid risk in order to minimize the variability of firm returns and hence achieve. For firm owners, risk management saves on agency costs since, by reducing the variability of returns of their firms, managers are working in line with the shareholders wealth maximization goal.

Managerial motivation factors in implementation of corporate risk management investigated in a few studies had negative effect (Faff and Nguyen, 2002; Mac Crimmon and Wehrung, 1990; Geczy et al., 1997). Notably, Tufano (1996) found positive evidence in his analysis of the gold mining industry in the US. Financial policy hypotheses tested in studies of the financial theory, since both theories give similar predictions in this respect. However, the bulk of empirical evidence seems to be against agency theory hypotheses.

Agency theory provides strong support for risk management as a response to mismatch between managerial incentives and shareholder interests. Shareholders and managers have different interests to the firm and risk management objectives vary for the different stakeholders. While shareholders may require high risk – high return investments, management prefer low risk and return investments. The agency theory emphasizes the need for enterprise risk management to align the interests of managers and shareholders and to contribute to the financial performance of the firm.

Therefore, these theories may be the best theories to explain how paramount Enterprise Risk Management is in the performance of NWASCO in Zambia. This is so because the theory of Constraints and Resource base view offers a robust set of tools for helping to achieve the water supply and sanitation service goals in a regulatory body because it emphasizes on the need to identify such risks and find a way to manage them. These needed tools are ERM Strategies that would help manage a number of risk elements as constraints to attaining the goals and objectives of NWASCO.

2.3 Empirical evidence

2.3.1 Operational Risk Management and Performance

Operational risks are all operational activities that cause uncertainty in an organization hindering it to operate effectively and efficiently; this eventually might affect its performance in meeting the intended objectives. Pourquery and Mulder (2009) found that operational risk management practices are gaining acknowledgment as an essential component of the business. They reviewed secured 60 banks from around the world and the participant included retail, discount and all-inclusive banks. About 70 percent of organization CEOs viewed operational risk as imperative contrasted to 30 percent of business heads.

Business units have primarily obligation to oversee operational risks on a day-to-day basis. Their support is essential to establishing a risk culture that pervades the bank and is effective at identifying, assessing and managing operational risk. John Mark (2012) in his study of modelling operational risk in Sweden indicates that operational risks appear to be handled easily at first. Fit example information into a recurrence circulation and seriousness dispersion will begin mimicking losses and a few cells with numerous data focuses will be anything but difficult to distinguish. Operational risk management being such a wide concept to build up a model that incorporates numerous kinds is exceptionally troublesome particularly when you have a less information in a cell.

2.3.2 Financial Risk Management on Performance

Liquidity risk refers to an entity's inability to meet short-term obligations (Fabio, 2014). Also known as working capital management risk, it is determined by the levels of current assets and current liabilities maintained in the company. Exposure of organizations to risk is because of the market risks and funding risks (Joint Forum, 2006). Donald Pagach and Richard Warr (2010) undertook a research on the effect of adoption of Enterprise Risk Management principles on a firm's long-term performance by studying the change in market characteristics and financial assets when Enterprise Risk Management is implemented adoption. Martin F. Grace (2010) also studied the effect of risk management practices on the financial performance of insurance companies in the United States.

Both studies observed that adoption of Enterprise Risk Management practice in an organization leads to creation of value and better performance. Daniel Zeghal and Meriem El Aoun (2016) carried out a study of the 2007/2009 financial crisis through by studying the quality and volume of Enterprise Risk Management disclosure in the annual reports of a sample of 59 of the largest banks in the United States of America. Using the content analysis approach and descriptive statistics, of the annual reports they observed that ERM disclosure has a significant positive relationship bank size, independence, duality and crisis and a significant negative relationship with the board size and profitability. They therefore concluded that the 2007/2009 financial crisis had a significant effect on the volume and the quality of ERM disclosure of the largest US banks.

2.3.3 Corporate Governance Risk Management on Performance

Corporate governance defines how organization are controlled and directed. This function is mostly lead and guided by the board of directors; they are expected to play a key role inculcating risk culture in an organization. Corporate governance practices affects performance of any organization. Empirical evidence on the relationship between corporate governance and performance is mixed. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002) find evidence of higher firm performance in countries with better protection of minority shareholders. Klapper and Love (2003) report that better corporate governance is highly correlated with better operating performance. Further, they documented that firm-level corporate governance provision matter happens four more in countries with weak legal environments. Black, Jang, and Kim (2003) provide empirical evidence that there is a positive correlation between corporate governance and performance, but they have no explanation about the causal relationship. Quaresma (2014) analyzed the relationship between the quality of corporate governance practices and the financial performance of internationally listed banks. This research concluded that there is a significant relationship between the best corporate governance practices and the financial performance of the studied banks.

Macey and O'Hara (2001) argued that a broader view of corporate governance is to adapt in banking institutions. Further, argued that because of the unusual contractual form of banking and corporate governance, mechanisms for banks should capture depositors as well as shareholders. Managers and owners of banks showing efforts and intention to implement good corporate governance will increase market credibility. Subsequently they will collect funds at

lower cost and lower risk. Further, arguments states that better corporate governance leads to higher performance.

Black, Jang, and Kim (2003), investigated the relationship between corporate performance and good corporate governance in Korea and found positive relationship between performance and corporate governance. Claessen and Fan (2003) studied corporate governance in Asia and found that a combination of weak corporate governance and government interference are not only leading to poor performance and risky financing patterns but also favourable to macroeconomic crises.

The review suggests that corporate governance in Asia, including Indonesia, remains unresolved problems both in conceptual and empirical matters of corporate governance in banking sector. The research also covers the unresolved problem by examining the relationship sensitivity between corporate governance and performance for domestic-owned banks versus foreign owned banks.

The exercise of managing risks has been carried out for decades by business leaders. Traditionally, organizations have tended to manage risks by placing responsibilities on business unit leaders to manage risks within their areas of responsibility. This traditional approach to risk management is often referred to as silo or stove-pipe risk management whereby each silo leader is responsible for managing or elevating risks within their silo. While assigning functional experts responsibility for managing risks related to their business unit makes good sense, this traditional approach to risk management has had limitations, which may mean there are significant risks on the horizon that may go undetected by management and that might affect the organization. Thus, a number of business leaders have recognized these potential risk management shortcomings and have begun to embrace the concept of enterprise risk management as a way to strengthen their organization's risk oversight. Enterprise Risk Management is the process by which board of directors, management and other personnel apply strategy across the enterprise, design and identify potential events that may affect the enterprise and manage risk to be within its risk appetite for it to achieve the enterprise objectives (Beasley, 2016).

Business leaders/ managers have realized that waiting until the risk event occurs is too late for effectively addressing significant risks and they have proactively embraced ERM as a business process to enhance how they manage risks to the enterprise. The objective of enterprise risk management is to develop a holistic, portfolio view of the most significant risks to the

achievement of the entity's most important objectives. In other words, ERM attempts to create a basket of all types of risks that might have an impact both positively and negatively on the viability of the business. This is an enterprise-wide approach to risk management which enables an organisation to consider the potential impact of all types of risks on all Strategies, activities, stakeholders, products and services (Ibid).

According to Beasley (2016), Enterprise Risk Management aligns risk appetite and strategy to operational losses by identifying and managing enterprise risks, seizing opportunities and improving deployment of capital. ERM is a function of the Board of Directors (BOD) and the element of operational risks are important to evaluate them according to different business units, seize available opportunities and deploy the capital effectively to address the identified needs. The board's focuses on effective risk oversight to set the tone and culture, towards effective risk management through strategy setting, formulating high level objectives and approving broad based resource allocations (COSO, 2009).

2.4 Conceptual Framework

Conceptual framework is a hypothesized model used to identify the concepts of variables understudy and showing their relationships. It is the diagrammatic presentation of variables, showing the relationship between the independent variable and dependent variables. Its purpose in this study was to help the reader to quickly see the relationship of Enterprise Risk Management Strategies (i.e. operational risk management, reputational risk management, financial risk management, technology risk management and corporate governance risk management) on performance of NWASCO in Zambia.

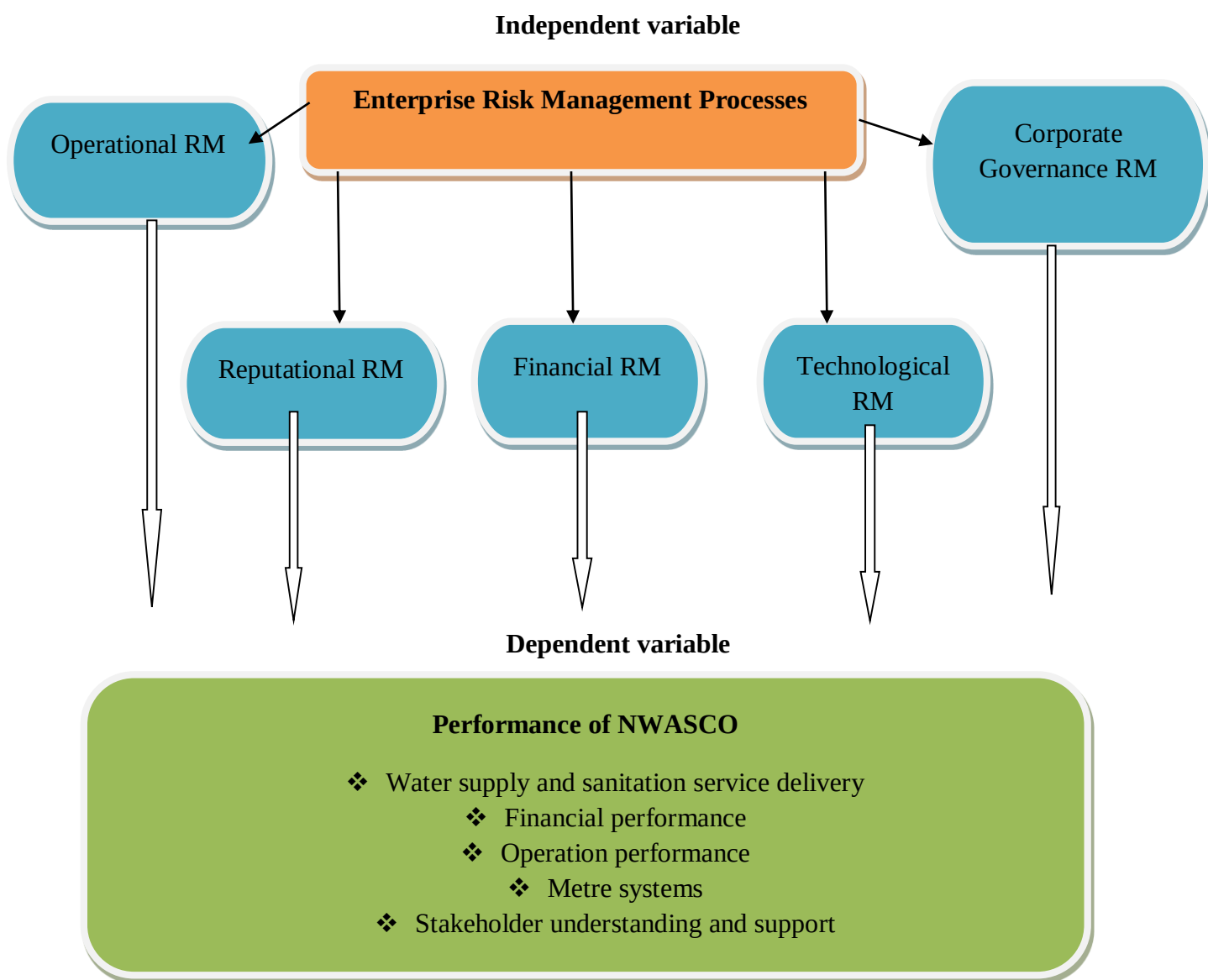


Figure 2.1: Conceptual Framework

Dependent Variables

The performance of National Water Supply and Sanitation Council (NWASCO) in terms of water supply and sanitation service delivery, financial performance, operational performance, metre systems and stakeholder understanding and support is dependent on variables as indicated in the figure above, these variables include; operational risk management, reputational risk management, financial risk management, technological risk management.

Independent Variables

Operational Risk Management

Operational risk is the risk of loss resulting from ineffective or failed internal Strategies, people, systems, or external events that can disrupt the flow of business operations. The losses can be directly or indirectly financial.

Pourquery and Mulder (2009) found that operational risk management practices is an essential component of the business, while Martin F. Grace (2010) stated that risk management practices have effect on the financial performance, and Klapper and Love (2003) reported that better corporate governance is highly correlated with better operating performance, which have effect on ERM.

Reputational risk management

Reputational risk management is thus concerned with minimizing all risks and dangers to one's own reputation as far as possible and preparing oneself as well as possible for potential reputational crises in order to prevent negative economic effects caused by damage to reputation.

Financial Risk Management

Financial Risk Management is the process of identifying risks, analysing them and making investment decisions based on either accepting, or mitigating them. These can be quantitative or qualitative risks, and it is the job of a Finance manager to use the available financial instruments to hedge a business against them.

Technology risk

Technology risk is any potential for technology failures to disrupt your business such as information security incidents or service outages.

The conceptual framework shows the flow of arrows indicating the relationship between dependent and independent variables. The implication is that Enterprise Risk Management Strategies (i.e. dependent variable) do have an impact on the performance of NWASCO (independent variable) in terms of identifying, measuring, monitoring and controlling risks related to water supply and sanitation service delivery, metre system, finances, operations and stakeholder understanding and support.

2.5 Theoretical Framework

This research was guided by the Constraint and Resource base view approach. Goldratt (1990) assumed that constraints theory is a methodology for identifying the primary limiting factor (i.e. risk) that deters firms from achieving a set goal. He further maintained that an organization would have to systematically continue improving the identified constraint or risk until it ceases to be a limiting factor. This is to say that anything that limits an organization's performance in achieving its goal is a risk or constraint. According to Water Research Foundation (2014) the following parameters or benchmarks are used to measure performance in the water sector: product quality, customer satisfaction, employee and leadership development, operational optimization, financial viability, infrastructure stability, operational resiliency, community sustainability, water resource adequacy, stakeholder understanding and support.

AIRMIC (2011) identified several key factors at board of director level that can nurture risk management failure. These include inadequate board leadership in establishing a risk awareness culture, the inability of non-executive directors to exercise control and inadequate skills by the Board to understand the risks associated with the business. Bharathy and McShane (2014), found out that many firms are attempting to implement ERM as a new holistic organizing principle to deal with the full set of risks resulting from a dynamic risk environment characterized by complex issues such as rapid changes in information technologies, the explosion of globalization, outsourcing and increased competition. The main reason for a complex environment is that companies face volatility, uncertainty, complexity and ambiguity.

2.6 Performance of Commercial Water Utility Companies in Zambia

Commercialisation of the water services in Zambia has been under way for a number of years now. Altogether, there are currently 11 Commercial water Utility companies (CU's), one in each of the ten (10) provinces of Zambia except the Copperbelt Province which has three Commercial utilities (Nkana, Mulonga and Kafubu Water and Sewerage Companies). Out of the 11 Commercial Utilities, eight (8) are located along the line of rail from Livingstone (Southern Province) to Chingola (Copperbelt Province). According to NWASCO (2010), the creation of at least one water utility in each province marks the completion of the commercialisation process, with the 11 water utility firms providing water services to 99% of the total urban population. Of the 11 commercial utilities, 8 started operating before 2000. The oldest water utility firm is the Lusaka Water and Sewerage Company which was established in

1989, though it started operating in 1992. The most recent is the Luapula Water and Sewerage Company which has only been in existence for few years.

Chitonge (2011) shows that in terms of water production capacity, there has been an improvement in most of the commercial utilities since 2001, although the production capacity growth does not match the growth in population for most CUs. For example, in two of the water utility firms (Southern and North-Western WSC) the production capacity declined over the same period resulting in a drop of water supply per capita per day. The change in the amount of water produced in relation to the population dynamics in service areas is a crucial indicator of a utilities' capacity to extend services to the un-served population. However, given the high levels of unaccounted for water, it is difficult to confirm whether the increased water production resulted in extending services to un-served households. Overall, the decline of daily per capita water production in four out of the eight CUs with data for 2001 and 2010 is a worrying development. A balanced production capacity-to-population ratio is critical to realising the objective of expanding service coverage. Declining production capacity-to-population ratio ultimately reflects investment deficits, making it difficult to meet demand for services in the medium to long term.

Evidence by the World Bank (2013) shows that the concentration of water production capacities is more in the urban centres, on the Copperbelt and Lusaka. The utility firms in these two provinces represent more than 67% of the urban population and account for 72% of the water production capacity of all CUs. This implies that commercialisation has largely been an urban affair, concentrated along the line of rail (the narrow corridor from Chingola to Livingstone), suggesting that households along the line of rail have more chances of accessing clean water. The Fifth National Development Plan acknowledges this unevenness in the provision of services and states that the 'rehabilitation of urban water supply systems has concentrated on the line of rail from Chililabombwe to Livingstone' (GRZ, 2006).

Going by the number of connections for each of the 11 commercial utility firms, Chitonge (2011) argues that six of the CUs had a small network with less than 15,000 connections in 2010. This is way below the minimum size for efficient operation of water utilities in other developing countries, estimated at 100,000 connections (Foster, 2005). The small network makes it difficult for CUs to realise scale economies in their operations. Nonetheless, the research suggests that there have been significant increases in the number of connections between 2001 and 2010 for most commercial utilities, with LWSC, MWSC and EWSC more

than doubling their number of connections. However, the number of people per connection reflects very a modest result over the 10-year period, suggesting that population pressure is outstripping the rate of water infrastructural development. The number of persons per connection offers an indirect indication of the extent of coverage levels in the service area as well as the spread of the water network.

In addition, research shows that metering ratio improved significantly for most commercial utilities over the past years. Metering is essential for monitoring and managing water services, and it contributes significantly to the reduction of unaccounted for water. Despite the doubling of metering ratio for most of the commercial utilities, the proportion of unaccounted for water remains very high, suggesting that there are other factors that contribute such as leaking pipes, illegal connections and uncollected bills. In five of the 11 areas, about half of the water produced is unaccounted for. High levels of such occurrences have serious implications for cost recovery and make it difficult to realise equity objectives and raise sustainability concerns (Chitonge, 2011).

In terms of service coverage and hours of supply, Chitonge (2011), reveals that there has been little progress with regard to the hours of service for most of the commercial utilities in the past years. It must be understood that availability of service is a critical performance indicator for water utilities. For three commercial utilities (i.e. NWSC, NWWSC and EWSC) the number of hours when water could be available to the public was lower in 2010 than in 2001. The service supply interruptions happen frequently in some areas, especially in low-income and peri-urban areas. Most of the commercial utilities have consistently failed to meet the minimum service level guarantees (i.e. Ministry of Local Government and Housing) set by the regulator. For example, in the 2009/10 reporting year, only one utility firm met the standard for service coverage, and only three met the hours of service. Although most commercial utilities met most other performance indicators such as billing ratio, collection efficiency, water quality, pressure in the network, unjustified disconnections, response to customer complaints, cost coverage, personnel and other production parameters, these indicators on their own do not tell us much about the services. It is in service coverage and hours of service where the real test for a utility's performance lies. When compared with the performance of several water utilities in Sub-Saharan African countries, the average Zambian water utility is below an average utility in the region on a number of performance indicators (NWASCO, 2010).

In terms of water and sanitation system, Zambia has a number of challenges of securing a water supply of acceptable quality to meet growing demands, while overcoming the current lack of sufficient planning and development of sanitation infrastructure. These challenges are compounded by climate change, which has the potential to increase the occurrence of both drought and floods. The water demand currently exceeds Lusaka's average yield of approximately 260,000 m³/day. No major water supply development has occurred in the past 30 years despite increasing demands, with old and poorly maintained infrastructure and poor administrative and management systems leading to 47% of water supply being unaccounted for. In most parts of Zambia, especially Lusaka groundwater supply is affected by contamination from pit latrines in informal settlement areas, failure of sanitation infrastructure with spills and leaks and the approval of septic tanks, soak-away and other developments near groundwater sources. Private boreholes are also drying up as a result of damage caused to aquifers in the Lusaka city region and over extraction of the resource (World Bank, 2013).

With respect to sanitation, inadequate and poorly maintained infrastructure leads to contamination of groundwater sources and significant health risks. Only 35% of the population in Lusaka had access to a flushing toilet in 2010 and the sewer system serviced only 65% of the population in 2012. The city, through the Lusaka Water and Sewerage Company (LWSC) operates two conventional treatment plants at Manchinchi and Chunga, both are near to capacity. The lack of sanitation infrastructure is particularly important in the informal settlement areas where contamination of ground and surface water results in serious disease outbreaks including cholera. Increased flooding events from climate change would exacerbate contamination and health concerns stemming from inadequate sanitation infrastructure and strong storm or flooding events could further damage existing infrastructure. Drainage is a significant problem during the wet season in Lusaka as many parts of the city are flat and prone to pooling water (Ibid).

2.7 Review of related studies on ERM Strategies and their effect on performance of organizations

2.7.1 Worldwide perspective

From the worldwide perspective, Tasminet *al* (2020) conducted a study 'the mediating effect of enterprise risk management implementation on operational excellence in the Malaysian oil and gas sector'. The article used a conceptual approach where journal articles, conference

papers, professional reports, thesis and term papers were reviewed. The study was necessitated due to the varying business conditions in the global oil industry and the continued emergence of new business risks, despite the cry for ERM in organizations. The findings of the study showed that many oil companies were most affected by the dwindling oil prices, the rise in the cost of oil exploration, distribution, refining and storage. Risks such as machinery breakdowns, employees' slips and fatalities, reservoir and pipeline explosions, environmental degradation and uprising from the host communities, hostilities with concerns to royalties being paid to them and the condition of their environments, were substantially affecting the performance of oil and gas companies.

At times, these problems lead to the temporary shutdown of operation home and abroad. PETRONAS Oil Company experienced a number of fatalities and emergency evacuation from some of its foreign production site in 2016. This development further shows the need for risk management (RM) to achieve operational excellence in the oil and industry. The study also showed that there was still a need to improve its risk management as new risks were emerging day by day due to new regulations, new technologies, stakeholder's pressure and above all, changed parameters (Ibid).

Another study by Setapa *et al* (2015) was conducted titled; "The impact of Enterprise Risk Management practices on Malaysian Public Higher Educational Institution performance". The study used questionnaires as data collection tools. It focused on only five institutions selected as respondents. The selection of these institutions was made based on top five ranking university in Malaysia. The potential respondents among higher and middle level management were identified and they answered a set of questionnaire and the data was analyzed using Statistical Package for Social Science (SPSS) and Structural Equation Modelling (SEM). The study revealed that Enterprise Risk Management (ERM) in Malaysia, was first implemented around ten years ago and the organizations are recommended to use it as a tool or basis to recover any potential risks. However, it was also shown that ERM has not been fully implemented in majority of the institutions.

As an internal factor, Chief Risk Officer was identified as the specialist expertise to identify, control and manage the risks within the organization. It was also shown that risk management is known as best corporate governance practices of the Malaysian Code on Corporate Governance. It was also shown that the Board of Directors (BOD) had roles of ensuring that the institution has put into place an effective risk management program with procedures for

identifying, assessing and managing all types of risk, such as operational risk, market risk, liquidity risk and credit risk. The board's role thus included making sure that all the appropriate policies, methodologies and infrastructure are in place. The presence of risk management committee as the risk expertise in each division and thus enabled a direct contact of board to ERM at the group management level (Ibid).

A recent study by Beasley *et al.* (2009) in Setapa *et al* (2015), conducted at North Carolina State University showed that current stage of ERM implementation in most organization is under developed and still relatively immature. In the study, only 28 percent of respondent described ERM adoption in their departments as systematic, robust and repeatable with regular reporting process, 60 percent of them indicated it as informal and unstructured with minimal and ad hoc reporting process, while the other 12 percent said that their institution has no structured process for identifying and reporting process. Another study by Jalal *et al.* () in Setapa *et al* (2015) found that financial sectors in Bahrain have awareness for the importance of ERM but did not implement it due to the lack of information and knowledge of ERM framework. On the other hand, Pagach and Warr (2010) under took a research on the effect of adoption of Enterprise Risk Management principles on a firm's long-term performance by studying the change in market characteristics and financial assets when Enterprise Risk Management is implemented adoption. Grace (2010) also studied the effect of risk management practices on the financial performance of insurance companies in the United States. Both studies observed that adoption of Enterprise Risk Management practice in an organization leads to creation of value and better performance.

Zeghal and El Aoun (2016) carried out a study of the 2007/2009 financial crisis through by studying the quality and volume of Enterprise Risk Management disclosure in the annual reports of a sample of 59 of the largest banks in the United States of America. Using the content analysis approach and descriptive statistics, of the annual reports they observed that ERM disclosure has a significant positive relationship on bank size, independence, duality and crisis and a significant negative relationship with the board size and profitability. They therefore concluded that the 2007/2009 financial crisis had a significant effect on the volume and the quality of ERM disclosure of the largest US banks.

2.7.2 African perspective

In Africa, Macha (2010) conducted a study in Tanzania and found that 56 financial intermediaries, only 20 of them had insurance against operational risk. According to Bank of Tanzania, it is very risk and possibility of the bank failure is very high if the bank will not secure its cash or properties by insuring them. The study showed that although there are a number of cash operation risks facing commercial banks, lack of integrity among the staff members and the nature of business that the banking organizations deal with are the major cash operation risks that face the commercial banks. The study further established that cash operation risk practices, are very critical business process, due to the nature of business that banks engage in. Kargi (2011) also undertook a research on the relationship between credit risk, and financial performance of banks in Nigerian. Data for the credit risk and financial rations collected from the financial reports of the sampled banks in the period 2004-2008. The level of non-performing loan portfolios as the measure of credit risk was observed to be a significant factor to the financial distress of the banking sector. The study concluded that credit risk management has a significant effect on the profitability of banks in Nigeria.

Wanjohi (2012) studied the effect of financial risk management on the financial performance of commercial banks in Kenya. The research concluded that there was a positive correlation between financial risk management practices and financial performance of commercial banks in Kenya. A large share of the Kenyan banks practiced proper risk management. Waweru and Kisaka (2013) carried out a study of the relationship between Enterprise risk management implementation and value of 20 companies listed on the Nairobi Securities Exchange. Using Tobin Q as a measure of the company value and ERM level of implementation the study found out that there was a positive relationship between level of ERM implementation and a firm's value. Another study in Kenya by Wambua (2017), on the effect of Enterprise Risk Management on performance of Water Service Providers in Kenya by use of closed ended questionnaires found that operational risk management has a significant positive effect on performance of water service providers in Kenya. This means that increased operational risk management help to improve on water company's financial performance, operational efficiency and service delivery.

In addition, the study found that financial risk management has a significant positive effect on performance of water service providers in Kenya. This means that increased financial risk management help to improve on water company's financial performance, operational

efficiency and service delivery. It was also established that corporate governance risk management has a significant positive effect on performance of water service providers in Kenya. This means that increased corporate governance risk management helped to improve on water company's financial performance, operational efficiency and service delivery (Ibid).

2.7.3 Zambian perspective

In Zambia, a study by Muchemwa, Karim and Phiri (2017), titled 'A critical literature review on safety and health hazards that pose huge potential of affecting operations at Konkola Copper Mine (KCM), Zambia revealed that operational risk management with a focus on safety and health was taken seriously within the mining operations. This was evidenced by the overwhelming information on risk management documented within the organization. It was further revealed that operational risks concerning safety and health at KCM were managed through Safety management programmes. However, the papers submitted that central to the successful ability of any mining company in order to achieve its mining, milling recoveries and produce a saleable mineral product, are the management of operational risks. Based on the findings, it was recommended that risk management should cover all the safety and health issues at the mine and that the operational risk system management should be embedded into the operations of the mine as part of its culture.

Lastly, a study by Chitonge (2011) on the outcomes of implementing water reforms. Interviews were used and the document review showed that, there have been positive developments in the implementation of reforms, but it had many serious challenges as well. Some of the positive effects of the reforms include the reorganisation of the sector, reduction of political interference, stability of services and improved capacity and management. These improvements have manifested themselves in terms of improved performance indicators such as regular and credible billing, improved response to customer complaints, predictable supply, accessible pay points, increased connection and metering ratios. However, most of these positive outcomes apply to high-income customers, and little improvements have been recorded in most low-income areas. Further, little progress has been recorded on core performance indicators particularly service coverage and hours of service.

In terms of the challenges occasioned by implementing the reforms over the past 10 years include; declining infrastructural investment, reluctance to provide services to low-income communities, growing affordability burden for poor household, increasing vulnerability of

many households, inability to cope with the growing demand due to increased population and the ageing infrastructure. Some of these challenges are manifested in the water utility firms' inability to expand the network to un-served areas, especially in low-income communities.

2.8 Matrix

Table 2.1: Matrix

Author(s)	Parameters	Gaps
Setapa et al, 2015	The impact of ERM practices on Malaysian Public Higher Educational Institution Performance.	Oversight on the ERM Strategies put in place
Wambua, 2017	The Effects of ERM on the performance of Water Service providers in Kenya.	Lacked detail on the risk management Strategies put in place by water service providers.
Muchemwa, Karim and Phiri, 2017	A critical literature review on safety and health hazards that pause huge potential of affecting operations at Konkola Copper Mine (KCM) in Zambia	Concentrated only on operational risks at the expense of other types of risk.
Alexander, 2015	The effective treatment of theoretical concepts and modelling techniques of quantitative risk management.	Limited on only the methods for the markets, credit and operational risk management.
Kerstin, 2014	Challenges in implementing ERM.	Focused on ERM Framework and did not tackle on the effectiveness of ERM on Companies.
P Bromiley, 2015	A critical review of Enterprise Risk Management	No scientific proof on how effective Enterprise Risk Management on companies.

2.9 Identified Research Gaps

The following are research gaps identified from the studies reviewed so far on Enterprise Risk Management Strategies on performance of organizations:

-most of the information reviewed focused on a traditional risk management as opposed to ERM, an indication that most of the firms or organizations haven't yet understood the concept of ERM and thus, they apply risk management as an isolated management function.

-Most of the information reviewed brought out aspects of ERM only such as operational risk management, corporate governance risk management, financial risk management and others. This justifies a point that organizations may be managing risks based on individual Strategies of risk management as opposed to using the entire ERM which places emphasis on whole risk management affair.

-In Africa and Zambia in particular, there has not been so much research on Enterprise Risk Management Strategies on the performance of organizations especially on water utility firms. Thus, this study will endeavour to fill this gap.

-The studies reviewed looked at ERM as an isolated departmental obligation for each firm. This scenario makes a researcher to conclude that the knowledge of ERM in most of the firms is scarce, thus the need to address this gap.

2.10 Summary of the Chapter

This chapter has reviewed relevant literature on the Enterprise Risk Management Strategies on the performance of organizations or enterprises. The specific areas covered included Enterprise Risk Management, performance of commercial Water Utility Companies in Zambia and review of related studies from the world wide, African and Zambia perspectives on enterprise risk management Strategies and their effect on performance of organizations. In addition, the chapter did equally identify the research gaps from the available literature reviewed.

The next chapter looks at the research methodology which details how the research study will be carried out.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the methodology that was used in this study. It discusses the research design, study area, study population, sample size and sampling techniques, research instruments, data collection procedure and data analysis techniques. In addition, the chapter discussed how the pre-test was conducted; determine reliability and validity and ethical considerations.

3.2 Research design

Orodho (2003) describes a research design as the scheme, outline or plan that is used to generate answers to research problems. Furthermore, Kombo (2006) defines a research design as the glue that holds all of the elements in a research project together“. Similarly, Gosh (2011) states that, Research design is not a highly specific plan to be followed without deviation, but rather a series of guide posts to keep one headed in the right direction.

3.2.1 Philosophical Framework

Philosophy means the use of abstract ideas and beliefs that inform our research. We know that philosophical assumptions are typically the first ideas in developing a study, but how they relate to the overall process of research remains a mystery.

This research was guided by the Pragmatist research philosophy deals with the facts. It claims that the choice of research philosophy is mostly determined by the research problem. In this research philosophy, the practical results are considered important. In addition, according to Alghamdi and Li (2013), pragmatism does not belong to any philosophical system and reality. Researchers have freedom of choice. They are “free” to choose the methods, techniques, and procedures that best meet their needs and scientific research aims. Pragmatists do not see the world as absolute unity. The truth is what is currently in action; it does not depend on the mind that is not subject to reality and the mind dualism.

3.2.2 Research Methodologies

This study adopted a mixed research approach and it employed both qualitative research design and quantitative research design. According to Creswell (2009), qualitative research is a means for studying a topic by exploring and understanding the meaning individuals or groups assign to a social or human problem. This design was selected for this particular study because the research study aimed at establishing the Enterprise Risk Management Strategies and their effects on the performance of water utility companies in Zambia. Interest was geared at understanding the lived experiences of both managers and their assistants in their risk management experiences and the financial aspect of it.

3.2.3 Research Design for this study.

Within the qualitative research paradigm, an experience survey design was used in the collection of data. According to Gosh (ibid) an experience survey entails conducting of informal interviews with the experienced people. People who have been doing some work on the type of problem or who have empirical or theoretical knowledge may be consulted.

Backed by the above assertions, an experience survey was viewed to be a viable option in conducting this study that aimed at evaluation of the impact of enterprise risk management Strategies on the performance of national water and sanitation council of Zambia, this research design was appropriate to the task. The participants in the study were strategically chosen so that correct and appropriate data could be collected.

3.3 Study area or Site

This study was carried out at four (4) different points. In Lusaka it was conducted at the National Water Supply and Sanitation head offices and at Lusaka Water and Sewerage Company (LWSC) offices, Southern Water and Sewerage Company (SWSC) offices in Choma Southern province, and in Kabwe Central province at Lukanga Water and Sewerage Company (LWSC) offices. The selected commercial water utility companies are charged with the responsibilities of water delivery services to communities in Lusaka, Choma and Kabwe respectively.

3.4 Study population

The term population is the abstract idea of a large group of many cases from which a researcher draws a sample and to which results can be generalized. Additionally, the target population refers to a group of people that the researcher has access to, for the purpose of the study (White, 2003). Thus, the target population of this study was managers and assistant officers of the four water utility firms. An estimate of 200 people was used to choose sample from.

3.5 Study Sample

According to Bryman (2004), sampling is a process of examining a representative set of elements out of the whole population. It is a process of selecting a number of individuals from a population such that the selected group contains the characteristics representative of the entire group. A sample is a representation of elements of the target population. It consists of the list or set of directions for identifying the target population (Naresh, 2010). In this study, purposive sampling was used in the selection of research participants. Maykut and Morehouse (1995) argue that purposive sampling helps qualitative researchers to gain a deep understanding of phenomena experienced by a carefully selected group of people. Purposive sampling therefore implies that participants that are selected to take part in the study ought to be relevant in relation to the subject matter under inquiry. The careful and deliberate choice of informants and the research site were therefore aimed at drawing into the study; a sample of informants who were relevant to the research objectives.

This research adopted a mixed research design (i.e. Qualitative and quantitative research Design) but chose to use the purposive sampling in the selection of informants. Now, the purposive sampling technique is a type of non-probability sampling that is most effective when one needs to study a certain cultural domain with knowledgeable experts within. Purposive sampling may also be used with both qualitative and quantitative research techniques. The inherent bias of the method contributes to its efficiency, and the method stays robust even when tested against random probability sampling. Choosing the purposive sample is fundamental to the quality of data gathered; thus, reliability and competence of the informant must be ensured.

The sample of this study consisted of 20 managers and 44 officers who were purposively selected from the National water and sanitation company body and the three utility companies. In this sample, five managers and 11 assistant officers were selected from Finance, Audit and

Risk management departments from all the study points. The selection will be based on their availability during the time of the study undertaking.

The table shows the interpretation of the figures.

Table 3.1: Number of informants selected according to category

Research Target	Total Population	Sample Population (sample 30 – 45%)	Percentage%
4 Major water Utility companies Mangers - Zambia	50	20	40%
4 Major Water Utility Companies. Finance Department	75	24	32%
Audit and Risk Management Department	75	20	26.67%
Grand Totals, Major water Utility companies Mangers	200	64	98.6%

3.6 Sampling techniques

Convenience sampling was used to select the four water utility companies. The four companies happen to be within the reach of the researcher in terms of accessibility. As such the four companies will be convenient for the research study.

3.7 Data collection instruments

The study made use of the following instruments namely; interview guides and Discussions. These are discussed in detail below.

3.7.1 Questionnaires

The first research instrument that was used is a questionnaire. The questionnaire was developed by the researcher and it was divided into two sections. Questionnaires were used to collect both qualitative and quantitative data from both the managers and assistant officers.

3.7.2 Interviews

The second research instrument is an Interview Guide and it was used to collect data from the managers. This comprised of a list of questions to provide subjective responses. The interview guide was developed by the researcher and it sought to capture responses pertaining to the Enterprise Risk Management Strategies used and their effects on the performance of water utility companies, extent to which their existing ERM Strategies are applied in their water service delivery and challenges water utility firms face in implementing their Enterprise Risk Management Strategies.

3.8 Data collection procedure and time line

Data collection exercise was conducted by the researcher and was carried out as follows: After securing a Research Introductory letter from the University of Zambia, graduate school of business the researcher then authorization permits from management of the three water utility companies in order to conduct the study into their work premises, permit was given to proceed with the research. Subsequently consent to participate into the study was sought from the respondents. To instil confidence into respondents, the researcher introduced herself and stipulated the aim of the research study. In addition, the respondents were notified and assured of their confidentiality and anonymity in the final thesis document. The data collection exercise took place for the period of four (4) weeks.

3.9 Data analysis instruments and procedures

Ghosh (1992:261) suggests that “after collection of data, an analysis of the data and the interpretation of the results are necessary”. Hence, data to be collected was analyzed using the content analysis method in which data was divided into categories such as patterns, relationships and themes. Content analysis is a technique for examining the content or information and symbols contained in written documents or other communication media. Content analysis as one of the qualitative data analysis method is a very personal process with few rigid rules and procedures. For quantitative data, Advanced Microsoft Excel Data analysis was used in the analysis.

3.10 Pre-test

Prior to conducting data collection from the actual target areas and respondents, the pretest study was conducted at Kafue satellite LWSC point in Lusaka district whose sample size was 5 respondents i.e. 2 managers and 3 Assistant officers. The aim for carrying out the pilot/pre-test study was to pre-test the research instruments to determine whether the instruments would measure what they are supposed to measure (Bryman, 2004). In addition, a pilot study helped to reveal deficiencies in the design of a proposed experiment or procedure and these were then addressed before time. In addition, the pilot study enabled the researcher to: determine whether the study participants would understand the questions, determine deficiencies of the instruments, and establish whether the data to be obtained would be meaningfully analyzed in relation to the research questions in order to make some adjustments or retain them as they are.

3.11 Reliability and Validity

According to Borg and Gall (1989) validity is the degree to which a test measures what it purports to measure. Thus, in the first place, related studies had been examined for the researcher to understand the contextual framework in order to increase the validity of the research. In addition, to improve the validity, a pilot study was conducted at Kafue satellite LWSC point in Lusaka district whose sample size was 5 respondents i.e. 2 managers and 3 Assistant officers. This helped to restructure the instruments by correcting any error and ambiguity which would be noticed during the pre-test. However, the results of the pilot were not included in the final thesis. Likewise, after the development of each research instrument by the researcher, fellow students and colleagues reviewed the instruments and subsequently a research supervisor verified them to be fit being administered to actual respondents.

In addition, according to Mulusa (1990), reliability is a measure of accuracy of the findings and suggests the truthfulness of the collected data. Reliability gives a measure of accuracy of the test procedure and ensures the degree of precision of the outcomes. Thus, to ensure reliability the expert judgement was used to ascertain the items in the instruments to make a critical judgement about the instrument reliability.

3.12 Ethical considerations

Upholding of ethics in research ensures that no one between a researcher and respondents are harmed during the study. Before conducting the study, the proposal document was approved

by the University of Zambia Research Ethics Committee. A research introductory letter was also sought from the University. In addition, authorization and permission was sought from management of the three water utility companies. Confidentiality and anonymity of their names was upheld. Justice, respect and beneficence for respondents was equally maintained.

All the respondents were asked to willingly participate in the research; informed consent was obtained from the respondents before recruiting them into the study.

The researcher did not at any point write or record the names of the respondents as a way of taking care of ethical issues and confidentiality. The respondents were assured that this research was meant to study the effects of ERM strategies on the performance of NWASCO and that the research did not aim at disclosing the sources of data to avoid inconveniencing and putting the respondents in trouble to their senior officers.

The research also made sure to carry out the research and also appreciated or rather cited the number of authors who have written something on similar matters so as to avoid plagiarism.

3.13 Summary of the Chapter

This chapter discussed the methodology that will be used in this study. It discussed the research design, study area, study population, sample size and sampling techniques, research instruments, data collection procedure and data analysis techniques. In addition, the chapter also discussed how the pre-test will be conducted; it determined reliability and validity and ethical considerations.

CHAPTER 4

RESEARCH FINDINGS AND DATA PRESENTATION

4.1 Introduction

Enterprise risk management performance Strategies of National Water and Sanitation council of Zambia (2010 – 2022). The results and findings in the form of figures and tables are presented in this chapter.

4.2 Response rate

Completion rate is the proportion of the sample that participated as intended in all the research procedures. From the 64 expected responses, 60 respondents participated in the research, which gives a 93.8% response rate. It is usually assumed that the higher the response rate, the more likely the results are representative of the population provided the sampling is appropriate, hence 93.8% response rate is deemed as an accurate representation of the population responses (Mulusa, 1988). A summary of the response rate is shown in the Figure 4.1 and Table 4.1.

Table 4.1: Response rate

Respondents	Expected responses	Actual responses	Percent
Managers	20	19	29.7%
Finance	24	23	35.9%
Audit and Risk Management	20	18	28.1%
Total	64	60	93.8%

Source: Field Data 2022

Figure 4.1: Response Rate

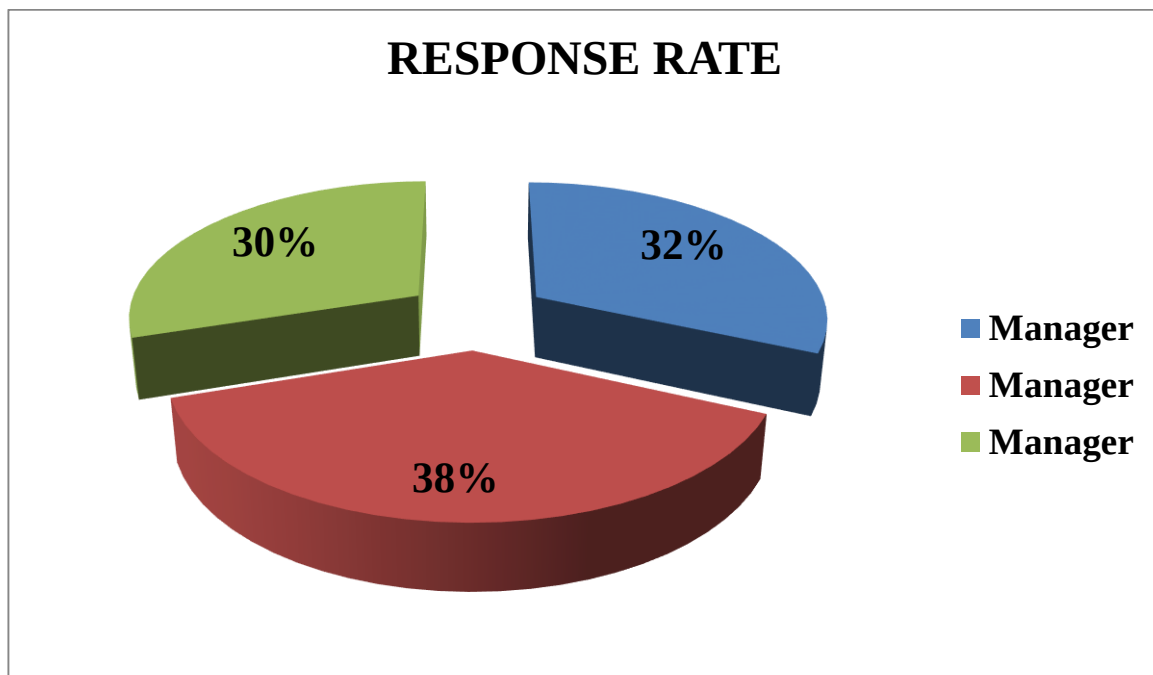


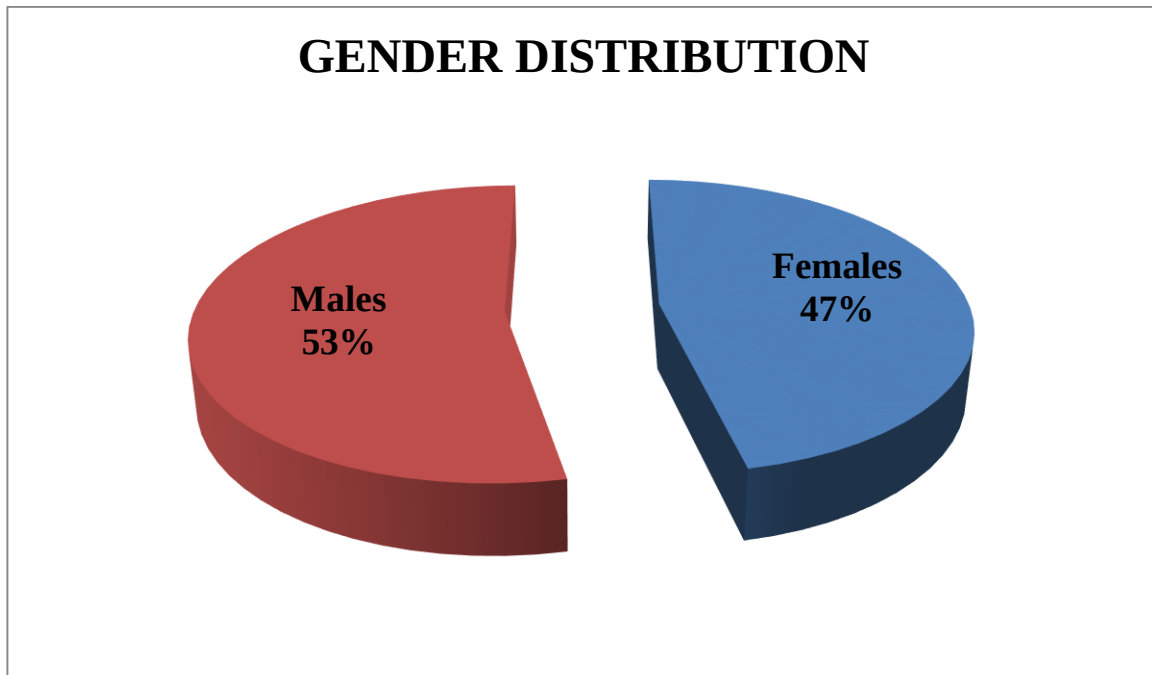
Figure 4.1 shows response rate of the respondents. The pie chart indicates that 19 of 20 managers participated in the research, while 23 out of the 24 respondents from the finance department participated in the research last but not the least, 18 respondents participated in the research to respondents.

4.3 Demographic information of the respondents

The demographic information of the respondents was based on their gender, academic qualification and length of service in the councils. Demographic characteristics give a clear understanding of the respondents and institutions included in the study.

4.3.1 Respondent's Gender Distribution

Figure 4.2: Respondent's Gender Distribution



Source: Field Data 2022

Figure 4.2 shows Respondent's Gender Distribution. The pie chart indicates that there were 32 respondents who were males representing 53% of the respondents, the remaining 28 respondents comprised of females representing 47%.

4.3.2 Academic qualifications Respondents

Table 4.2: Academic qualifications of the respondents

Category of Respondents	College Level	Percentage	University Level	Percentage
Managers	9	47.4	10	52.6
Finance	17	73.9	6	26.1
Audit and Risk Management	10	55.6	8	44.4

Source: Field Data 2022

4.3.3 Length of service in the council and duration doing business in the market for marketeers.

The length of service or working experience brings can affect the performance of employees or workers in an organisation such as NWASCO. The staff members who have worked at NWASCO for a longer period of time are familiar with the risks and challenges which NWASCO has been facing it its day to day operations. This can enable the researcher collect enough data so as to bring about accurate and unbiased results.

Research has shown that experience or length of service may or may not affect service delivery. The researcher therefore saw it fit to gather information in line with the researcher.

Table 4.3: Length of service in the council

Category of respondents	1-5 Years	6-10 Years	11-30 Years
Managers	10	6	3
Finance	12	6	5
Audit and Risk Management	7	8	3

Source: Field Data 2022

Figure 4.3: Lengths of Services in the Council

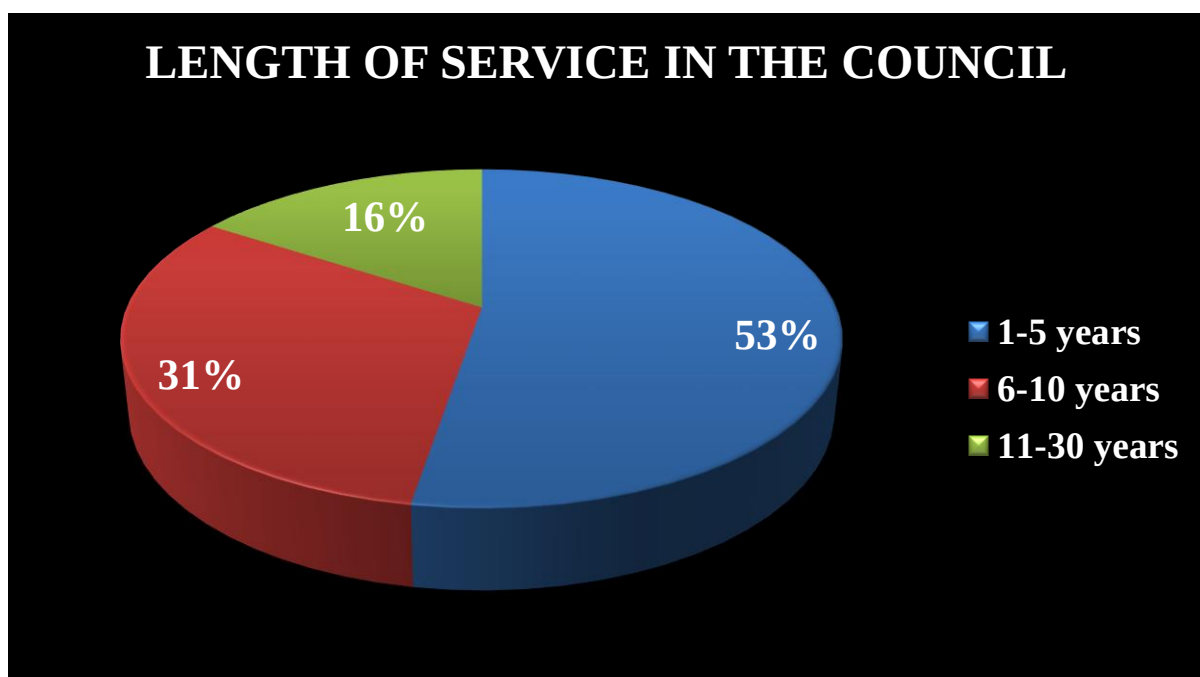


Table 4.3 shows that 10 out of 23 managers had worked with the council between 1-5 years, 6 had worked with the council between 6 to 10 years while 3 had worked with the council for

more than 10 years, which is between 11 to 30 years. From the Finance department, 12 had worked with the council in the range of 1-5 years, 6 worked with the council between 6-10 years while 3 have been worked with the council for more than 10 years. Lastly, from the Audit and Risk management department, 7 had worked with the council in the range of 1-5 years, 8 worked with the council between 6-10 years while 3 have worked with the council for more than 10 years.

4.4 To examine the Enterprise Risk Management Strategies used and their effects on the performance of NWASCO.

4.4.1 NWASCO's 2021-2025 Strategic Objectives

According to the findings, documents were presented to present NWASCO's strategic planning for the years 2021-2025. These are shown below;

In an interview, the respondents said;

“Six (6) Strategic Objectives for the 2021-2025 strategy have been developed. These are presented in Table 14 here below, and as follows: 4.2.1 NWASCO 2021-2025 Expected Outcomes and Plans of Action. The detailed logical frameworks for each of the Strategic Objectives for 2021-2025 are presented in the next section of this document. The Expected Outcomes, key activities, KPIs, Means of Verification as well as the Drivers and respective timelines for delivery are all outlined for every Strategic Objective under consideration. The Log frames are presented below:”

Table 4.4: NWASCO's 2021-2025 Strategic Objectives

PERSPECTIVES	STRATEGIC OBJECTIVES
Internal Capacities	1. To strengthen the capacity of NWASCO in order to implement regulation for rural water supply and sanitation and urban onsite sanitation service delivery
Access and inclusion	2. To effectively regulate water supply and sanitation service delivery in order to ensure improved and inclusive service provision
Resource Mobilisation	3. To mobilise financial and other resources in order to facilitate for effective operations of NWASCO and ensure financial sustainability of the commercial utilities
Corporate Governance	4. To promote good corporate governance in order to ensure that NWASCO and Commercial Utilities are accountable, transparent and efficient in their operations
Information systems	5. To enhance information management systems in order to ensure availability of up to date information for effective decision making
Research, Development and Innovation	6. To coordinate and undertake research and development in order to generate innovation and information for evidence based sector policy formulation and implementation

Source: 2021-2025 strategic plan

4.4.2 General Research Question

During document analysis, a NWASCO'S strategic plan for the years 2021-2025 showed the following information;

“The final year of NWASCO's 4th Strategic Plan (SP) fell in 2020, coinciding with the 20th Anniversary of regulating WSS provision. The development of the 2021 to 2025 Strategic Plan necessitated the review of performance over the past 4 years (2016-2019) to be done and articulation of the desired new future be documented through the

development of the new Strategic Plan which would guide NWASCO into the new horizons of regulating WSS in Zambia. A participatory process was adopted to facilitate the review of the past performance of NWASCO; and to guide the integration of key findings from the review exercise in order to enrich the design and development of the new Strategic Plan. It was commendable to observe that the overall cumulative performance review of 2016-2020 across all the 4 Strategic Objectives was at a score of 81.45% which was a 'Very Good' rating. Due consideration was made regarding some respective activities that needed to be carried over and therefore, would be reflected in the new Strategic Plan."

"The following six Strategic Objectives were developed for the 2021-2025 Strategic Plan:

- To strengthen the capacity of NWASCO in order to implement regulation for rural water supply and sanitation and urban onsite sanitation service delivery.*
- To effectively regulate water supply and sanitation service delivery in order to ensure improved and inclusive service provision.*
- To mobilise financial and other resources in order to facilitate for effective operations of NWASCO and ensure financial sustainability of the commercial utilities.*
- To promote good corporate governance in order to ensure that NWASCO and commercial utilities are accountable, transparent and efficient in their operations.*
- To enhance information management systems in order to ensure availability of up to date information for effective decision making.*
- To coordinate and undertake research and development in order to generate innovation and information for evidence based sector policy formulation and implementation."*

"The focus for this plan will be to effectively regulate Water Supply and Sanitation Services through enhanced enforcement, R&D, innovation and facilitation of evidence based policy formulation to ensure adequate, clean and safe water supply and sanitation services to all. Monitoring and Evaluation of the plan will be done by quarterly by the internal Strategic Plan drivers. A mid-term evaluation will be conducted half way through the NWASCO 2021-2025 Strategic Plan implementation timeline. The results of the mid-term review will inform revision of the plan if need be."

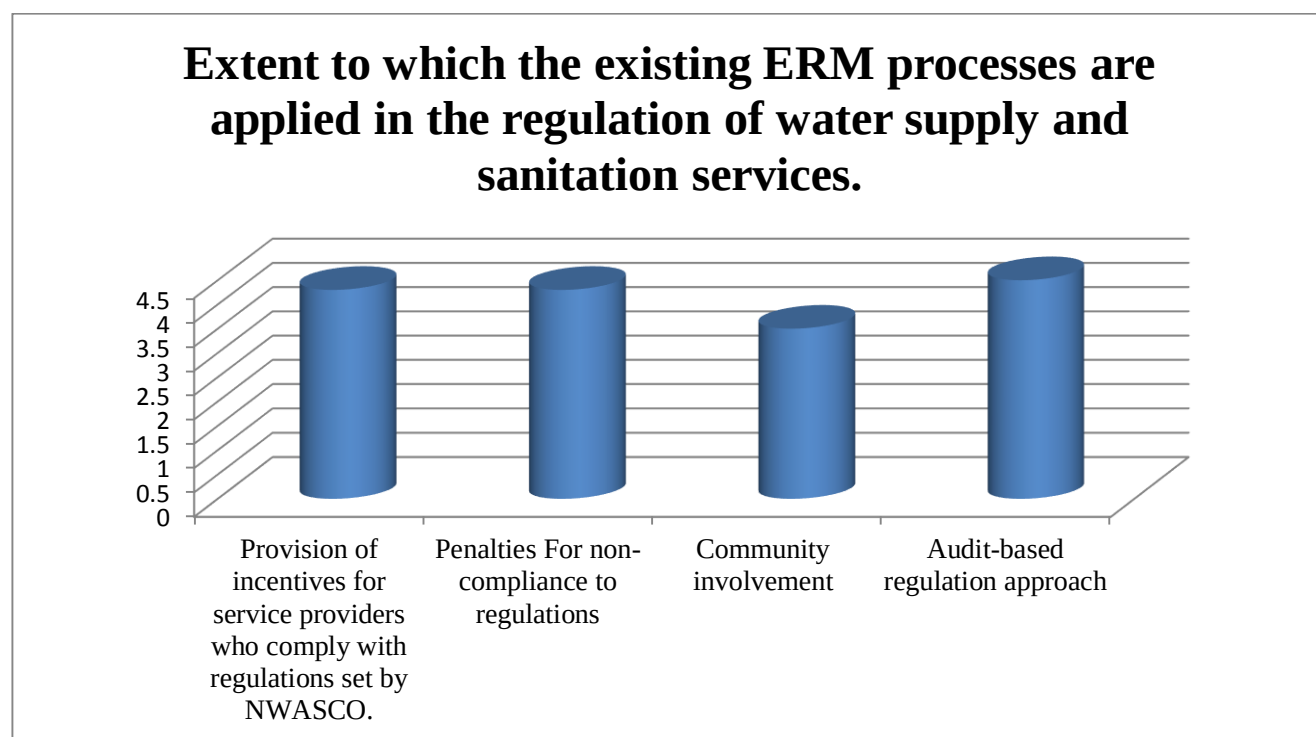
A number of strides and gains were made in implementing the 2016-2020 Strategic Plans for NWASCO as per evaluation which was done using the internal Monitoring and Evaluation (M&E) process under the auspices of the Audit and Risk Committee of the NWASCO Board. Further an independent End of Term review of NWASCO's performance was conducted, the results of which fed into the development of a new Strategic Plan for the period 2021 - 2025. (Nwasco, 2022). The final year of NWASCO's 4th Strategic Plan happened to fall in 2020, coinciding with the 20th anniversary of regulating WSS provision. This development necessitated for the review of performance over the past 4 years (2016-2019) to be done and articulation of the desired new future be documented through the development of the new SP which would guide NWASCO into the new horizons of regulating the WSS in Zambia. There was also the need to have a Strategic Plan which would present a statement of principles, values, policies and, objectives in accordance with the prevailing regulatory policies; legal reforms and 7th National Development Plan (NDP); to allow NWASCO to timely adjust to changes in the global environment, technology, market opportunities and challenges.

The new Strategic Plan would therefore help to define the future direction of NWASCO's Council, management and other senior officers charged with the responsibility of accounting for, reviewing and determining long-term goals and objectives of the institution. It would also help cultivate a unity of purpose and effort to be shared by all employees, management and stakeholders. Above all, NWASCO's new Strategic Plan will provide means for the Board (Council) and various management team members to communicate and engage effectively with various stakeholders such as the Government, collaborative institutions, regulators, Cooperating Partners (CP's), the WSS utility companies, the business world (companies), funding agencies, research institutions and other likeminded entities to bench-mark within the regulation and implementation of WSS programs.

Most of the information given by the respondents indicates that there is no specific ERM being used by NWASCO. After the analysis of documents and interviews were conducted with management as well as other respondents, no proper ERM was brought about by the respondents. Some respondents also lacked knowledge on Risk Management being used by NWASCO in their operations. The lack of knowledge by the employees is an indication that there is lack of a proper ERM which is effective, if an ERM strategy was being used it is possible that the respondents would have mentioned about it.

4.5 Extent to which the existing ERM Strategies are applied in the regulation of water supply and sanitation services.

Figure 4.4 Extent to which the existing ERM Strategies are applied in the regulation of water supply and sanitation services.



Source: Field Data 2022.

Figure 4.4: Extent to which the existing ERM processes are applied in the regulation of water supply and sanitation services.

According to the findings shown in Figure 4.4, it was observed that NWASCO had put in place measures that would lead to a reduction in its exposure to risk to achieve the objectives, these measures included but not limited to; the Provision of incentives for service providers who comply with regulations set by NWASCO, Penalties For non-compliance to regulations, Community involvement and Audit-based regulation approach.

Furthermore on the extent to which the existing ERM are applied, one of the managers said;

“the Human Resource Department of NWASCO has held and will continue to hold internal briefing sessions for different categories of staff of NWASCO to explain to them - in detail its new Vision, Mission Statement, Values as well as the 6 Strategic Objectives for the period 2021-2025.”

He went to say, *“Furthermore, it is incumbent upon individual Heads of Departments to ensure that members of staff under their respective Departments understand what role they must play in implementing the aims of the Strategic Plan. This will guarantee a complete “buy-in” from all personnel in accordance to the organizational policy provisions such as Code of Ethics, Whistle-blower Policies, etc.”*

With regard to sustainability and risk mitigation, another respondent during the interview said;

“Sustainability is simply understood to be the ability to maintain reasonable levels of internally generated resources supplemented by some external inflows so that the required services are delivered by an institution. This is a matter of primary concern to NWASCO. Strategies of how NWASCO plans to improve its sustainability in the long-run have been highlighted under the Finance Perspective within the Strategic Plan. Additional funding mechanisms will be explored as and when deemed appropriate within and beyond the provisions of this Strategic Plan. NWASCO leadership also seeks to implement the 2021-2025 Strategic Plan with an awareness of the prevailing competitive ratings and ensure adherence to the various risk mitigation strategies as outlined in Table 12 within the body of this Strategic Plan.”

A question was asked on how NWASCO will do the monitoring and evaluation of the strategic plan, the response is given below;

Constant or regular critical review of the Strategic Plan is recognised as being important in ensuring that it is on track towards achieving the objectives set and the implementation pathway. Should it be found that the Strategic Plan is off course; NWASCO shall establish the reasons why and thereby take appropriate corrective measures. NWASCO’s 2021-2025 Strategic Plan will be translated into Annual Implementation Plans for each of the 5 years covered during this strategy timeline. The existing monitoring and evaluation Framework will be used to conduct quarterly evaluation of the plan by NWASCO’s Strategic Plan Driver in order to accelerate effective and efficient implementation of the Strategic Plan.

She went further to say; *“A Mid - Term Evaluation will be done half way through the NWASCO 2021-2025 Strategic Plan implementation timeline. The findings from the monitoring and evaluation activities will be infused back to inform the appropriate, effective, efficient and continued implementation of the Plans of Action throughout the*

Strategy period. Constant reviews of NWASCO's Strategic Plan will also be necessary, given the dynamism and fluidity of the macro-environment in which NWASCO operates; as well as the need to seek to establish continued validity and relevance of the critical assumptions made during the planning of this 2021-2025 Strategic Plan."

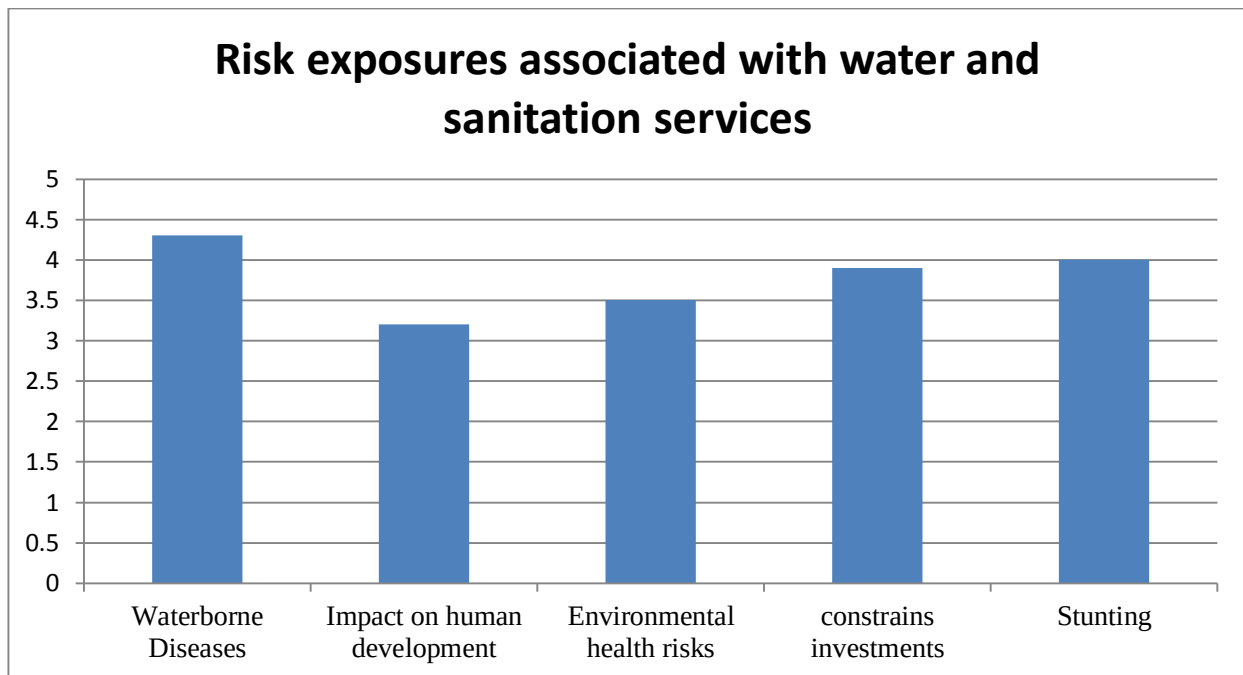
4.5.1 Research Question One

It came to the researcher's attention during data collection that NWASCO had introduced some cardinal ways of improving water supply and sanitation, some of the major introductions include;

- ✓ The introduction of Part-time inspectors (PTIs) in 2005 15 around the country, strengthening the monitoring of Commercial Utilities.
- ✓ Introduction of submission of annual reports online Commercial Utilities submit annual reports electronically. The system has become the major source of information for urban water supply and sanitation.
- ✓ Introduction of a Complaints Resolution Platform for the submission of water supply and sanitation complaints to the water supply and sanitation provider named My Wat San was launched. This led to a situation where the stakeholders and clients had the opportunity to submit their complaints directly to NWASCO.

4.6 Risk exposures associated with water and sanitation services.

Figure 4.5 Risk exposures associated with water and sanitation services



Source: Field Data 2022

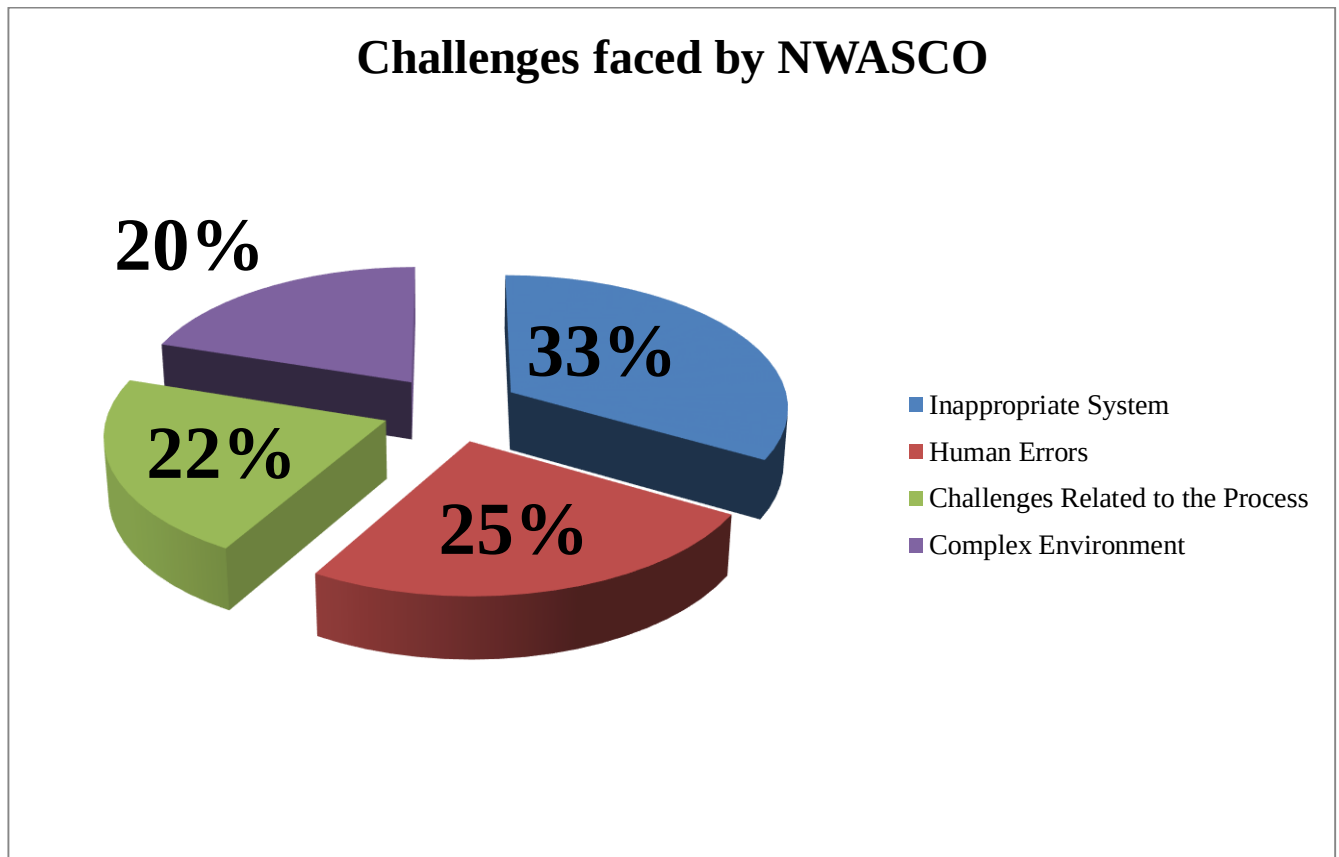
Figure 4.5: Risk exposures associated with water and sanitation services

4.6.1 Research Question Two

Figure 4.5 shows the risk exposures associated with water and sanitation services. According to the finding as shown in the table above, the risk exposures associated with water and sanitation include; impact on human development, waterborne diseases, and environmental health risks, constrains investments as well as stunting.

4.7 Challenges NWASCO faces in implementing their Enterprise Risk Management Strategies.

Figure 4.6 Challenges NWASCO faces in implementing their Enterprise Risk Management Strategies.



Source: Field Data 2022

Figure 4.6: Challenges faced by NWASCO

4.7.1 Research Question Three

Figure 4.6 shows the challenges faced by NWASCO. The challenges were outlined by the respondents who included the managers, finance department and the Audit and risk management committee. The 20 of the respondents representing 33% stated that the first challenge faced by NWASCO is inappropriate system, 15% of the respondents representing 25% stated that the other challenge is related to human rights, 13 respondents representing 22% said that there were challenges related to the process, lastly, 12 respondents representing 20% indicated that the complex environment was another challenge faced by NWASCO.

4.8 Discussion of Findings

The discussions of the research were guided by the research questions, these are;

General Research questions

The general research Question of this study is;

1. What are the Enterprise Risk Management Strategies used and their effects on the performance of NWASCO?

Specific Research Questions

The specific research questions are as follows;

1. To what extent do the existing ERM Strategies are applied in the regulation of water supply and sanitation services?
2. What risk exposures are associated with the water and sanitation services?
3. What challenges does NWASCO face in implementing its Enterprise Risk Management Strategies?

4.7.1 Enterprise Risk Management Strategies used and their effects on the performance of NWASCO.

During document analysis, a NWASCO'S strategic plan for the years 2021-2025 showed the following information;

“The final year of NWASCO’s 4th Strategic Plan (SP) fell in 2020, coinciding with the 20th Anniversary of regulating WSS provision. The development of the 2021 to 2025 Strategic Plan necessitated the review of performance over the past 4 years (2016-2019) to be done and articulation of the desired new future be documented through the development of the new Strategic Plan which would guide NWASCO into the new horizons of regulating WSS in Zambia. A participatory process was adopted to facilitate the review of the past performance of NWASCO; and to guide the integration of key findings from the review exercise in order to enrich the design and development of the new Strategic Plan. It was commendable to observe that the overall cumulative performance review of 2016-2020 across all the 4 Strategic Objectives was at a score of 81.45% which was a ‘Very Good’ rating. Due consideration was made regarding some

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Most of the information given by the respondents indicated that NWASCO is using traditional risk management as opposed to ERM. After the analysis of documents and interviews were conducted with management as well as other respondents, no proper ERM was brought about by the respondents. Some respondents also lacked knowledge on Risk Management being used by NWASCO in their operations.

4.7.2 Extent of the existing ERM Strategies applied in the regulation of water supply and sanitation services.

According to the findings shown in Figure 4.2, it was observed that NWASCO had put in place measures that would lead to a reduction in its exposure to risk to achieve the objectives, these measures included but not limited to; the Provision of incentives for service providers who comply with regulations set by NWASCO, Penalties For non-compliance to regulations, Community involvement and Audit-based regulation approach.

In NWASCO's pursuit to achieve its objectives and to see to it that all Water Supply and Sanitation service providers are following the regulations put in place, it Assesses service

provision. To regulate the water and sanitation service provision, NWASCO uses the audit-based regulation approach which requires the service provider to demonstrate compliance to standards by providing information to the regulator on a regular basis.

When the service provider complies incentives are given like positive tariff reviews, allocation of performance based subsidies and good corporate image. For non-compliance penalties like financial fees, suspension of a service provider and cancellation of a license are enforced. This is in line with the findings of Kayaga, (2004). The assessment of the service providers by the Regulator shows some of the missing links in as far as water and sanitation to the Peri-Urban Areas (PUAs) is concerned. Kayaga (2004) found that the schemes are not regulated directly by the regulator because they are considered to be a stop gap measure and they are not viable enough to be a solution to PUAs water supply improvement.

The lack of recognition has resulted in the communities served by the schemes not to be beneficiaries of the regulatory regime. If the service providers combine their efforts and work in accordance with the regulations set by NWASCO there will be an improvement in service provision.

An in-depth review of NWASCO's performance for the period 2016-2020 was undertaken using a participatory process involving the analysis and rating of the attainment of each of the Key Performance Indicators at the end of the term on the Ricket Scale Performance of 1-5 with 1= Poor Performance; 2= Average Performance; 3 = Good Performance; 4 = Very Good Performance; and 5 = Outstanding Performance. The ratings by stakeholders were then subjected to a ratification process based on the annual and mid-term evaluation reports by NWASCO's Monitoring and Evaluation Team. It was noted that some of the activities were still under-going implementation as at the time of this end term evaluation ; and due consideration was given to such activities in order to get most accurate and correct opinion on the status of the respective or associated performance indicators under consideration.

The final scores for all the Key Performance Indicators (KPI's) for each Strategic Goal were then summed up and the average score converted to percentage ratings for ease of interpretation and comprehension. The summary of the performance per Goal (Expected Outcomes) for each Strategic Objective were therefore observed and categorized as follows:

- Outstanding Performance = (90%-100%)
- Very good Performance = (80% - 89%)

- Good Performance = (70%- 79%)
- Average Performance = (50%-69%)
- Poor Performance = (Below 50%)

It was revealed in one of the discussions that the quality of the water supplied in some areas in Lusaka is very poor it has a bad smell, brownish colour and causes diarrhoea diseases though the consumers have continued using since they have no choice. This was confirmed by the management team attributing it to the breakdown of the Dosatron causing them to add the chemical mostly more or less manually. This is what has led to the government through the Regulator to recognise and monitor the operations of the Water Supply and Sanitation service providers directly if the urban poor have to receive a quality service. Since unacceptable water quality may cause outbreaks of infectious water-related diseases and serious epidemic there is need for the government to take up this responsibility and provide financial assistance to the service providers to ensure that the urban population receive quality water.

NWASCO has also involved the Community in getting feedback on service provision from the WSS service providers. When the community is involved in decision making or any activity there is more acceptance, greater participation, willingness to support and strong sense of ownership. Community participation becomes a process of partnership as those involved turn to develop a sense of responsibility. As understood by the policy makers at national level “Community participation is seen as a basic right of people, a fundamental principle of democracy, a prerequisite for service sustainability and a catalyst for community self-reliance” (MLGH/PUWSS, 2005). The study found that community participation in water and sanitation services is becoming more understood and appreciated for instance service providers were found to be working with the community leadership where the input of the community was required.

Since water is a community resource, community participation is needed at all levels if water and sanitation services have to be sustainable because without it the users will feel left out hence may not be willing to pay for the services. Majority of the users mentioned safeguarding and protecting infrastructure from vandalism and payment for the services as ways through which they contribute in making the service provision more sustainable.

Although the type of program activities is generally adequate to achieve objectives, more emphasis remains on the creation of infrastructure rather than strengthening the capacity for service provision. For instance, although the first phase of NWASCO exceeded its water point

targets, coverage lagged as a result of fewer users per water point and the fact that at the end of the program period, more than 30 percent of the water points were not functioning. Similarly, the NUWSSP has driven considerable investment in increased water provision across the CUs; however, service coverage and quality have not changed much because most of the capital has gone into large bulk water production projects. Rehabilitation and expansion of aging water distribution networks, especially in small towns and peri-urban areas, have not received the same level of attention. Consequently, most of the increased production is lost in leaky networks, thus undermining the ability to expand coverage. Sanitation has received limited capital investment in both rural and urban areas. The NRWSSP investments on rural sanitation are limited mainly to creating community awareness using voluntary community champions—a strategy that has proved ineffective in changing behaviour (open defecation has remained at 19 percent for the past 10 years).

From the findings and analysis, it can be said that there is no progress on the extent to the implementation of the existing ERM, this so because of the observation made in the first research question as stated above that there is no proper ERM that was observed at NWASCO, hence; NWASCO has put in place measures that can help in risk management, these included; Provision of incentives for service providers who comply with regulations set by NWASCO, Penalties For non-compliance to regulations, Community involvement and Audit-based regulation approach.

In NWASCO's pursuit to achieve its objectives and to see to it that all Water Supply and Sanitation service providers are following the regulations put in place, it also Assesses service provision.

4.7.3 Risk exposures associated with the water and sanitation services.

Risk exposure is the quantified potential loss from business activities currently underway or planned. The current global water and sanitation crisis creates a profoundly negative impact on the environment. Water is the fundamental part of ecosystems and everything within a watershed is connected. The connectedness means that the use of a river or aquifer in one area will affect and be affected by its use in another area, even far away. When sewage and waste enters a water source, the effects can be geographically widespread. People get sick from drinking the contaminated water or eating the plants and animals that rely on it.

In developing nations, approximately 90 percent of sewage and wastewater is emptied into rivers, lakes and nearby streams, polluting some of the same resources which people use as drinking water. Along with polluting drinking water sources, discharging untreated sewage pollutes the environment and affects plant and aquatic life. According to research studies by the United Nations Environment Programme, coastal habitats, fisheries, marine wildlife and the individuals near several large coastal areas, including the South part of Africa where Zambia is found, are threatened mostly from untreated sewage discharge into coastal waters due to polluted watersheds, making some of the water completely unusable.

Improving access to water and sanitation improves the environment by allowing for the appropriate disposal of human waste. Access to ecologically sustainable sanitation technologies helps provide a healthier living environment for all people. Approximately 2.5 billion people live without improved sanitation even a simple latrine and 1 billion people practice open defecation, the vast majority of these people living in rural areas. As these people gain access to latrines and the practice of open defecation declines, large areas around the world could experience dramatic increases to environmental quality, especially water quality, and health.

Figure 4.5 shows the risk exposures associated with water and sanitation services. According to the finding as shown in the table above, the risk exposures associated with water and sanitation include; impact on human development, waterborne diseases, and environmental health risks, constrains investments as well as stunting.

Lack of adequate water supply and sanitation results in environmental health risks and constrains investments that is dependent on reliable water availability. Currently only 63% of Zambians have access to clean drinking water supply, while 43% have access to adequate sanitation, of this 56% are in the urban areas and 34% in rural areas.

Zambia loses 1.3% of GDP due to public health impacts arising from poor sanitation (Water and Sanitation Program, 2019) which results in child malnutrition, illness and premature deaths. The economic burden of inadequate sanitation falls most heavily on the poor who lack adequate sanitation facilities. The adverse impact of poor sanitation is most acute in Lusaka due to its high population density and unplanned settlement areas.

Poor water, sanitation and hygiene (WASH) are the main causes of infections like cholera and diarrhoea, and inadequate WASH continues to be the leading cause of death of children under

the age of five in sub-Saharan Africa. Girls and women are particularly affected by poor WASH conditions. The drudgery of hauling water leads to loss of productivity and leisure time and the lack of toilets negatively impacts their dignity.

An example of Lusaka was mentioned as one area exposed to risks of waterborne diseases. Lusaka continues to suffer from a sanitation crisis that has claimed lives through waterborne diseases such as; cholera, typhoid and dysentery. The outbreak of waterborne diseases is common in the rainy season when the storm water runoff from the seasonal rains push the existing sewerage infrastructure and drainages to the limit. An estimated 70% of Lusaka's urban residents live in peri-urban areas, which are relatively high-density, unplanned neighbourhoods largely comprised of low income households. An estimated 80% of peri-urban areas rely on pit latrines, most of which are unimproved, and the remaining 20% living in peri-urban areas use sewers, septic tanks or defecate in the open. In addition, 60% of Lusaka's water supply is derived from fairly shallow groundwater abstracted within the city, which is prone to contamination through fissures in the underlying rock. The most vulnerable areas coincide with low-income neighbourhoods situated to the south-west of the city center in townships like Kanyama, making sewerage an attractive sanitation option in these areas, provided it is possible to ensure low leakage rates in the operating the system.

The other risk exposure is Stunting. Zambia's high rate of child stunting (35 per cent) is in part a result of poor sanitation. Research indicates that adequate sanitation can decrease the risk of stunting. In Zambian schools, lack of access to adequate water supply, sanitation and washing facilities negatively affects students and contributes to high dropout rates, especially among girls. With separate toilets for girls and boys, and privacy for menstrual hygiene management, girls are more likely to remain in school, delay pregnancy and marriage, and have stronger employment opportunities.

From the findings and Analysis on the risk exposures, the researcher can conclude to say that Risk exposure is the quantified potential loss from business activities currently underway or planned. The current global water and sanitation crisis creates a profoundly negative impact on the environment. Water is the fundamental part of ecosystems and everything within a watershed is connected. The connectedness means that the use of a river or aquifer in one area will affect and be affected by its use in another area, even far away. When sewage and waste enters a water source, the effects can be geographically widespread. People get sick from drinking the contaminated water or eating the plants and animals that rely on it.

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4.7.4 Challenges NWASCO faces in implementing their Enterprise Risk Management Strategies.

There are five main aspects that cause mistakes when implementing an Enterprise Risk Management tool. The challenges included; the system itself can be inappropriate, human errors, complexity of the environment and challenges in identifying risks.

Figure 4.4 in chapter four shows the challenges faced by NWASCO. The challenges were outlined by the respondents who included the managers, finance department and the Audit and risk management committee. 20 of the respondents representing 33% stated that the first challenge faced by NWASCO is inappropriate system, 15% of the respondents representing 25% stated that the other challenge is related to human rights, 13 respondents representing 22% said that there were challenges related to the process, lastly, 12 respondents representing 20% indicated that the complex environment was another challenge faced by NWASCO.

Inappropriate system is the first challenge faced by NWASCO that will be discussed. A challenge could be to find the perfect framework. There are different types of frameworks, for example COSO, AIRMIC, Combined Code on Corporate Governance, FERMA and others.

The decision for an appropriate framework includes the selection of an appropriate risk framework and the implementation into the organisation. Some of the frameworks have advantages, such as workbook materials and display slides that may help the implementation process. Internal auditors can help a management evaluate which are best suited to the organisation's needs.

Related to that, the technologic part is important as well. Many risk management packages use a methodology that is not specifically based on the framework. If that happens, the deficiencies can lead to difficulties. Technology should be built around the methodology and used in several ways.

Some respondents failed to identify the Enterprise risk management framework being used by NWASCO. This can be so due to lack of integration of human resource in the ERM system. From the Human Resource's view, specific goal-setting tied to the success of ERM must be part of an individual's performance management plan. If this is not done, the implementation exercise could fail. This is in line with what Schanfield/Helming, (2008) said, "The business strategy should be defined at the outset of the exercise along with the organisation's mission and vision. The ERM process will flow forward from this strategy, and events will be identified that may impact the achievement of the organisation's strategies and objectives."

The other challenge NWASCO faces is Human Errors. To ensure that the framework suits an organisation, the human factor needs to be minimised. There are different types of human errors. The project team should develop a risk glossary at the beginning of the ERM implementation process, so the company can save money and time. The risk management team has to agree on definitions for risks, risk assessment, risk management, ERM, significance, likelihood, inherent risk and residual risk. Afterwards it is very important to define what risk really means for the entire organisation, because there are several different interpretations. After this process, when the team is at the same level, they can go on.

Effective monitoring needs to ensure that the agreed-upon risk response is actually implemented and working. It is important to clarify monitoring responsibilities among internal auditing, individual business managers, and the board. Software based on key performance metrics may be used to design an effective continuous monitoring process. A risk-aware culture is necessary to ensure that the risk process becomes institutionalised within the organisation. More advanced risk identification techniques, such as control self-assessment, may be adopted eventually. Decisions and actions within the organisation must be viewed within the context of

a team approach. Moreover, each team member authority and responsibility for risk must be spelled out. The last step is to communicate the most important impacts to the rest of the organisation. So the entire organisation understands the benefits they gain from implementing an ERM model (Schanfield/Helming, 2008).

Complex Environment is the other challenge that will be discussed. Different studies state that the main reason for a complex environment is that the world faces VUCA (volatility, uncertainty, complexity and ambiguity). Volatility is the nature and dynamics of change, and the nature and speed of change forces and change catalysts. Uncertainty points out the lack of predictability of issues and events. Complexity is the confounding of issues and the chaos that surrounds organisations. Ambiguity is the haziness of reality and the mixed meaning of conditions, cause-and-effect confusion (Horney et al, 2010). Especially according to evaluating and measuring risks it is necessary to know what could happen in the environment. In VUCA are also challenges that have to do with declining infrastructural investment, reluctance to provide services to low-income communities, growing affordability burden for poor household, increasing vulnerability of many households, inability to cope with the growing demand due to increased population and the ageing infrastructure. Some of these challenges are manifested in the water utility firms' inability to expand the network to un-served areas, especially in low-income communities.

The other challenge that NWASCO faces are Challenges Related to the Process. The process from identifying risks to monitoring risks means a lot of challenges. Mostly the problems occur when identifying risks because that has to be done by a Risk Management-Team. The team has to systematically collect information on all risks and types of risks. It is important to uncover all risks, because undetected risks can influence the organisation (Posch, 2012). Consequently, the team has to understand the techniques for identifying risks. The process should include reviews of prior internal audit reports, risk questionnaires, brainstorming, business studies, scenario analysis and more. It is helpful to interact with internal and external stakeholders. For example the term "risk questionnaires" can include questions in several areas, such as operation, information/IT, finances, regulations, economics, competition, strategy, litigation and catastrophe. Concerning regulations, questions such as: "What regulations apply to the organisation?", "Has it ever been audited by an external agency?", "Are copies of such audit reports available?" and others might be asked. For assessing risk it is important to take the significance and the likelihood of risk events into account. There are qualitative, semi-quantitative, and quantitative techniques available to assess the risk in the best way.

The challenge here is to determine an appropriate technique or combination of techniques so that the various risks can be taken care of effectively. Afterwards it is difficult to quantify the risk, the auditors must keep in mind that just because something cannot be quantified in monetary terms, it does not mean that the risk will never occur and does not exist. For example the governance risk cannot be quantified easily, although governance activities can highly influence an organisation. After risks are implemented in the risk assessment, the risk has to be evaluated. To evaluate the risks they have to be prioritised and afterwards compared with the established risk tolerance. The next challenge for the management is to treat the risks. As already mentioned in the step before, it is necessary to produce a comprehensive list of all risks and tolerances. Afterwards the organisation has to take action on the risks that exceed the tolerance line. The board may have to re-examine tolerances if many of the risks identified exceed them. The risk treatment options are: Accept risk, avoid risk, outsource, share, transfer or remedy risk. These steps have to be individualized by the organisation itself (Schanfield/Helming, 2008).

Promoting a sound risk management culture is one of the key challenges in implementing ERM. The objective is to ensure risk management is everyone's responsibility. Promoting risk management culture has a very high impact towards achieving risk management objectives in the organization.

Often, organizations can be good at identifying risks but not at treating them. For a mature environment, all stakeholders need to assess, identify, and treat risks, as identifying risks only is not sufficient. A strong and consolidated framework on how to address risks will give the organization a definite edge. Role distribution and awareness are undeniable success factors.

In this context, promoting risk management culture needs to also draw from the following concept: Risk starts with uncertainty, and uncertainty results from a lack of information. The more people are involved, the more information gaps are filled. Once executives are involved and employees understand that their input is crucial, it is easier to perform risk management.

Institutional capacity for planning, implementation, and monitoring and evaluation (M&E) is weak. Both programs are, in practice, guiding frameworks, with no clear guidelines for planning and execution and no mechanism for investment prioritization. For NWASCO, the division of roles among districts, provinces, and the Ministry of Water Development, Sanitation, and Environmental Protection (MWDSEP) remains unclear a reflection of an incomplete devolution process. Some projects are implemented by the Ministry of Water

Development, Sanitation, and Environmental Protection directly, others by districts. However, there is a severe lack of human resources at the provincial and district levels with vacancies of more than 90 percent of WSS staff positions. Consequently, there is limited capacity at the local level for planning, implementation, and monitoring of program investments. Commercial Utilities mainly drive the National Urban Water Supply and Sanitation Program, but there are no mechanisms to hold either districts and Commercial Utilities accountable for performance (Monitoring and Evaluation is especially weak in the rural program). In short, both programs are affected by broader public sector governance issues, including the slow pace of decentralization and lack of accountability.

Even worse, the existing sector expenditure framework does not support efficient program implementation. Although the GRZ's medium-term and annual budget frameworks provide a sound basis for prioritization of expenditures in line with national development plans (NDP), historical budget allocations to the WSS sector show a declining trend. The annual average budget allocation to the sector programs was US\$140 million per year under the SNDP and fell to US\$80 million per year under the 7NDP, and both are well below the estimated costs for the rural and urban programs. Worse still, the budget allocations approved by the Ministry of Finance (MoF) are almost always lower than those in the NDP, and actual releases are always lower than the approved budget. In some years, releases have fallen to only 40 percent of the budgeted amount.

Budget execution is also weak, with large persistent deviations (40 to 66 percent) between expenditure outturns and approved budgets. In short, the GRZ's medium-term budget does not reflect the cost of the activities needed to achieve the objectives of both programs, and there are questions about the government's ability to execute its budgeted expenditures. The National Urban Water Supply and Sanitation Program is starved of funds. Budget allocations and releases are inconsistent with the program's ambitions.

Planned National Urban Water Supply and Sanitation Program expenditure for 2016–20 is US\$330 million, or US\$66 million per year. However, actual Ministry of Finance allocations for rural water supply and sanitation (RWSS) was only US\$14 million per year from 2016–18. For 2021–30, the planned expenditure is US\$1.2 billion, about US\$120 million per year. Raising this level of funding will be a significant challenge. Although donor-funding agencies provide most of the financing of the sector (about 70 percent), funding predictability is low, and most of the funding is provided off-budget and is, therefore, difficult to track. The National

Urban Water Supply and Sanitation Program, on the other hand, is better funded. Most of the funding is based on loan or grant agreements signed by the Government of the Republic of Zambia and donors for specific projects. From 2013–18, the Government of the Republic of Zambia was able to mobilize US\$925 million for the National Urban Water Supply and Sanitation Program. Total signed commitments for the period 2013–30 is about US\$2.7 billion, which represents about 67 percent of the overall program cost (US\$4.08 billion). The GRZ, therefore, needs to raise US\$1.3 billion (about 33 percent of the total program cost) over the next decade. Based on their track record, raising this level of capital for the urban program is feasible, provided the GRZ can expand the fiscal space.

The overall resources within the Commercial Utilities to plan and deliver projects are adequate, but broader skills are needed to move toward a more strategic approach to project planning and implementation. The resources within Commercial Utilities vary significantly by the size of the Commercial Utilities, ranging from more than 900 staff in Lusaka to about 80 in Luapula (NWASCO 2017). However, a simple comparison of the actual amount invested in projects against staff numbers suggests that size is not the sole consideration. The NUWSSP investment mix is heavily skewed toward bulk water supplies.

A major issue is that implementation has focused substantially on new water resource development. Rehabilitation and expansion of aging water distribution networks, especially in small towns and peri-urban areas, has not received the same level of attention. Consequently, most of the increased production is lost in leaky networks, thus undermining the ability to expand coverage. Although the NUWSSP is on target to deliver the planned capital expenditure, the urban water supply coverage has not increased at all since the program was conceived. Asset maintenance in Commercial Utilities is reactive. Most Commercial Utilities struggle to keep services running and, at the same time, expand service areas, which often lead to long-term maintenance being deferred.

The 2017 NWASCO report has several tables showing O&M performance. One indicator is the percentage utilization of water and sewer plants that is, the percent of the design capacity that is used and low figures suggest a maintenance problem. The utilization figures show that about half of the plants operated at less than 50 percent capacity.

The second indicator is the volume of planned maintenance work compared with unplanned again, a low figure indicates maintenance problems. The planned versus unplanned maintenance figures show that three Commercial Utilities had high levels of unplanned work.

A major issue in the urban sector is how to improve non-piped services in particular, water and sanitation to peri-urban areas and non-piped sanitation in all urban areas. Up to now, the CUs have avoided this issue by focusing on improving bulk water supply, but with increasing urban populations and upgraded bulk water supplies, non-piped services are becoming a critical issue. There is no agreed-upon national policy or guideline on how best to implement non-piped services, though NWASCO has prepared strategies and various models have been used by different CUs with an implied assumption that the main urban areas will all eventually have piped sanitation, despite the very high investment and operational costs. In peri-urban areas, the primary approach by CUs is the traditional approach of selling water at kiosks and promoting sanitation through community sensitization with little or no investment of financial support to households. Lusaka has experimented with water trusts, which are a form of community-managed systems.

As “commercial” utilities, the Commercial Utilities have a more business-related culture than the rural implementing agencies and are generally good at getting funding and developing projects. However, the perceived incentive within Commercial Utilities is to increase bulk water supply to the main urban areas in the larger cities rather than to reduce NRW, to supply water to small towns and peri-urban areas, or to 22 Zambia Water Supply and Sanitation Sector Diagnostic improve sanitation, all of which are perceived as “difficult” projects with higher overheads, lower visibility, and higher risks. The incentives of the CUs and CPs are well aligned, as most CPs also wants to deliver safe projects with clear and easily measured outputs.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the research, the conclusion as well as the recommendations for this study which aimed at assessing the effects of Enterprise Risk management (ERM) strategies on the performance of National water and sanitation council of Zambia.

5.2 Summary

The General objective of this study was to assess the Enterprise Risk Management Strategies used and their effects on the performance of NWASCO. Specifically, the objectives were; to establish the extent to which the existing ERM Strategies are applied in the regulation of water supply and sanitation services, to establish the risk exposures associated with the water and sanitation services and to determine the challenges NWASCO faces in implementing their Enterprise Risk Management Strategies. Each of the objective was discussed as below;

5.2.1 Enterprise Risk Management Strategies used and their effects on the performance of NWASCO.

The study found out that according to most of the information given by the respondents, it can be said that NWASCO is using traditional risk management as opposed to ERM. After the analysis of documents and interviews were conducted with management as well as other respondents, no proper ERM was brought about by the respondents. Some respondents also lacked knowledge on Risk Management being used by NWASCO in their operations.

5.2.2 Extent of the existing ERM Strategies applied in the regulation of water supply and sanitation services.

From the findings and analysis, it can be said that there is no progress on the extent to the implementation of the existing ERM, this so because of the observation made in the first research question as stated above that there is no proper ERM that was observed at NWASCO, hence; NWASCO has put in place measures that can help in risk management, these included; Provision of incentives for service providers who comply with regulations set by NWASCO,

Penalties For non-compliance to regulations, Community involvement and Audit-based regulation approach.

In NWASCO's pursuit to achieve its objectives and to see to it that all Water Supply and Sanitation service providers are following the regulations put in place, it also Assesses service provision.

5.2.3 Risk exposures associated with the water and sanitation services.

From the findings and Analysis on the risk exposures, the researcher can conclude to say that Risk exposure is the quantified potential loss from business activities currently underway or planned. The current global water and sanitation crisis creates a profoundly negative impact on the environment. Water is the fundamental part of ecosystems and everything within a watershed is connected. The connectedness means that the use of a river or aquifer in one area will affect and be affected by its use in another area, even far away. When sewage and waste enters a water source, the effects can be geographically widespread. People get sick from drinking the contaminated water or eating the plants and animals that rely on it.

In developing nations, approximately 90 percent of sewage and wastewater is emptied into rivers, lakes and nearby streams, polluting some of the same resources which people use as drinking water. Along with polluting drinking water sources, discharging untreated sewage pollutes the environment and affects plant and aquatic life. According to research studies by the United Nations Environment Programme, coastal habitats, fisheries, marine wildlife and the individuals near several large coastal areas, including the South part of Africa where Zambia is found, are threatened mostly from untreated sewage discharge into coastal waters due to polluted watersheds, making some of the water completely unusable.

Improving access to water and sanitation improves the environment by allowing for the appropriate disposal of human waste. Access to ecologically sustainable sanitation technologies helps provide a healthier living environment for all people. Approximately 2.5 billion people live without improved sanitation even a simple latrine and 1 billion people practice open defecation, the vast majority of these people living in rural areas. As these people gain access to latrines and the practice of open defecation declines, large areas around the world could experience dramatic increases to environmental quality, especially water quality, and health.

5.2.4 Challenges NWASCO faces in implementing their Enterprise Risk Management Strategies.

There are five main aspects that cause mistakes when implementing an Enterprise Risk Management tool. The challenges included; the system itself can be inappropriate, human errors, complexity of the environment and challenges in identifying risks.

Figure 4.4 in chapter four shows the challenges faced by NWASCO. The challenges were outlined by the respondents who included the managers, finance department and the Audit and risk management committee. 20 of the respondents representing 33% stated that the first challenge faced by NWASCO is inappropriate system, 15% of the respondents representing 25% stated that the other challenge is related to human rights, 13 respondents representing 22% said that there were challenges related to the process, lastly, 12 respondents representing 20% indicated that the complex environment was another challenge faced by NWASCO.

ERM can offer exceptional value if it is soundly applied. It is not only a team effort, but also an organization effort and not a random one. It needs to be based on a strong risk culture, and it requires the sponsorship of the executives in the company or institution. In addition, the aggregation of risk information needs to be performed according to clear rules that everyone would understand and abide by. Besides, simplifying the complex can garner loyalty to risk in the company.

5.3 Conclusion

Risk Management (ERM) is a process effected by an entity's board of directors, management and other personnel, applied in strategy-setting and across the enterprise, designed to identify potential events that may affect the entity and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives. The goal of an ERM process is to generate an understanding of the top risks that management collectively believes are the current most critical risks to the strategic success of the enterprise.

Most of the information given by the respondents indicates that there is no specific ERM being used by NWASCO. After the analysis of documents and interviews were conducted with management as well as other respondents, no proper ERM was brought about by the respondents. Some respondents also lacked knowledge on Risk Management being used by NWASCO in their operations.

In NWASCO's pursuit to achieve its objectives and to see to it that all Water Supply and Sanitation service providers are following the regulations put in place, it Assesses service provision. To regulate the water and sanitation service provision, NWASCO uses the audit-based regulation approach which requires the service provider to demonstrate compliance to standards by providing information to the regulator on a regular basis.

When the service provider complies incentives are given like positive tariff reviews, allocation of performance based subsidies and good corporate image. For non-compliance penalties like financial fees, suspension of a service provider and cancellation of a license are enforced. This is in line with the findings of Kayaga, (2004). The assessment of the service providers by the Regulator shows some of the missing links in as far as water and sanitation to the Peri-Urban Areas (PUAs) is concerned. Kayaga (2004) found that the schemes are not regulated directly by the regulator because they are considered to be a stop gap measure and they are not viable enough to be a solution to PUAs water supply improvement.

There are risk exposures associated with water and sanitation services. The risk exposures associated with water and sanitation include; impact on human development, waterborne diseases, and environmental health risks, constrains investments as well as stunting.

Lack of adequate water supply and sanitation results in environmental health risks and constrains investments that is dependent on reliable water availability. Currently only 63% of Zambians have access to clean drinking water supply, while 43% have access to adequate sanitation, of this 56% are in the urban areas and 34% in rural areas. The economic burden of inadequate sanitation falls most heavily on the poor who lack adequate sanitation facilities. The adverse impact of poor sanitation is most acute in Lusaka due to its high population density and unplanned settlement areas. Poor water, sanitation and hygiene are the main causes of infections like cholera and diarrhoea, and inadequate WASH continues to be the leading cause of death of children under the age of five in sub-Saharan Africa. Girls and women are particularly affected by poor WASH conditions. The drudgery of hauling water leads to loss of productivity and leisure time and the lack of toilets negatively impacts their dignity.

Among the challenges faced by Nwasco include; the use of an inappropriate system, human rights, challenges related to the process, lastly, complex environment which lead to poor service delivery.

ERM can offer exceptional value if it is soundly applied. It is not only a team effort, but also an organization effort and not a random one. It needs to be based on a strong risk culture, and it requires the sponsorship of the executives in the company or institution. In addition, the aggregation of risk information needs to be performed according to clear rules that everyone would understand and abide by. Besides, simplifying the complex can garner loyalty to risk in the company.

5.4 Recommendations

NWASCO should develop and implement an appropriate system. The decision for an appropriate framework includes the selection of an appropriate risk framework and the implementation into the organisation.

Administrators at NWASCO do not only need to understand the importance of risk management, the importance of its Strategies, and the importance of their involvement, but they also need to ensure its continuity by championing a thorough but relatively simple framework. Once ERM is well implemented, it becomes an important tool of timely decision-making towards minimizing negative risks and creating value for future opportunities.

NWASCO should start promoting risk management culture which can also draw from the following concept: Risk starts with uncertainty, and uncertainty results from a lack of information. The more people are involved, the more information gaps are filled. Once executives are involved and employees understand that their input is crucial, it is easier to perform risk management.

Both administrators and employees manage risks. Employees of all levels need to be on constant lookout for hazards related to their specific knowledge area; especially that perspective towards risk changes from one person to the other and a consolidated input will bring precious value. NWASCO should therefore communicate the ERM frameworks or systems so as to move at the same pace with all other employees.

NWASCO must be identify, categorize, analyse, and prioritize each risk and then treat or escalate to the appropriate management level. This process needs to encompass the risk score and its exposure using the adopted ERM framework in place.

Once identified through regular risk workshops and other techniques, NWASCO should aggregate and analyze all risk registers in a centralized risk office. That type of office by

definition should be well aware of strategic objectives and will work on responses accordingly. The purpose of aggregation is also to find potential links between various risks that would lead to potential leads between responses. This would save time and effort spent on the design of unnecessary and redundant responses. With one response, one might address several risks, even if those risks were documented by different units or sectors.

In addition, the centralized risk office should support all units, departments, and sectors in conducting risk workshops and should facilitate the required discussions and risk awareness exchanges to promote the culture of risk. It also plays a role in minimizing the threats and maximizing the benefits, in addition to its monitoring and controlling Strategies and overall ERM functions to ensure success.

5.5 Recommendations for Further Research

The study focussed on the effects of enterprise risk management strategies on the performance of national water and sanitation council of Zambia (NWASCO). The researcher recommends further research on how institutions like NWASCO can implement ERM in their operations. Further research is also recommended on assessing the benefits of using an ERM by institutions like NWASCO. The study specifically addressed three key areas of risk management. Further, the research can be used to study the effect of the comprehensive enterprise risk management on performance of other government state enterprises.

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APPENDICES

Appendix 1: Instruments for Data Collection

Appendix I: Questionnaire

Dear Respondent

I am conducting a research on Evaluation of the impact of Enterprise Risk Management Strategies on the performance of National Water and Sanitation Council of Zambia. Please assist me by filling the questionnaires aimed at gathering data/information which will assist in evaluating the impact of Enterprise Risk Management Strategies on the performance of National Water and Sanitation Council of Zambia. All responses will be treated as confidential.

PART A: Background Information

1. Age
2. Sex (tick where is applicable)
 - i. Male
 - ii. Female
3. Education level (tick where is applicable)
 - (i) Primary
 - (ii) Secondary
 - (iii) College/University
 - (iv) No education
 - (v) Others (Specify)
4. Are you an Employee of a water and sewerage company? (Tick where is applicable)
 - i. Yes
 - ii. No
5. If yes, in which Department/Section do you work?

When did you start working with this water and sewerage/sanitation company?

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PART B

6. What are the enterprise risk management Strategies used by your water and sewerage company? Mention them:

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7. What are the effects of the enterprise risk management Strategies you have mentioned above? (*Mention them*)

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Question 1: *How is the Existing ERM Strategies applied in the regulation of water and sanitation services?*

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Question 2: *Are there risk exposures associated with the water and sanitation services? (Tick your answer)*

- (a) **Yes** (*if yes, mention some of the risks associated with water and sanitation services*)
(b) **No**

Reasons if yes:

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Question 3: What are some of the challenges which your water and sanitation company face in implementing its enterprise risk management process?

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(i) What factors do you think influence these challenges in implementing the risk management process?

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(ii) Do you think that the established factors are exhaustive? Or there are other factors ought to be considered?

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(iii) What are the measures taken to overcome the challenges which your water and sanitation company face in implementing its enterprise risk management process?

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(iv) What suggestions would you make in order to help address the challenges faced when implementing NWASCO's enterprise risk management?

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Appendix 2: Time line

Activity	May2022	Jul 2022	Sep 2022	Nov2022	Mar 2023
Data collection	xx				
Data processing		xx			
Data Analysis			xx		
Preparation of the final thesis				xx	
Submission of the thesis					xx

Appendix 3: Research Budget

S/no	Description	Amount
1	Stationary	5,000.00
2	Fuel	4,000.00
3	Lodging	7,000.00
4	Food and beverages	3,000.00
5	Talk time and internet bundles	1,500.00
6	Allowances for assistants	4,000.00
7	Miscellaneous expenses	<u>3,000.00</u>
	Total	<u>28,000.00</u>

Appendix 4: Approval of Study



THE UNIVERSITY OF ZAMBIA DIRECTORATE OF RESEARCH AND GRADUATE STUDIES

Great East Road Campus | P.O. Box 32379 | Lusaka10101 | Tel: +260-211-290 258/291 777 Fax: (+260)-211-290 258/253 952 | E-mail: director.drgs@unza.zm | Website: www.unza.zm

APPROVAL OF STUDY

IORG No. 0005376
HSSREC IRB No. 00006464

5th May, 2022

REF NO. HSSREC-2022-MAR-042

Ms Angela Mayaba
The University of Zambia
Graduate School of Business
P.O. Box 32379
LUSAKA

Dear Ms Mayaba,

RE: “EVALUATION OF THE IMPACT OF ENTERPRISE RISK MANAGEMENT PROCESSES ON THE PERFORMANCE OF NATIONAL WATER AND SANITATION COUNCIL OF ZAMBIA (2010-2020)”

Reference is made to your submission of the protocol captioned above. The HSSREC resolved to approve this study and your participation as Principal Investigator for a period of one year.

REVIEW TYPE	ORDINARY REVIEW	APPROVAL NO. 2022- MAR-042
Approval and Expiry Date	Approval Date: 5 th May, 2022	Expiry Date: 4 th May, 2023
Protocol Version and Date	Version - Nil.	5 th May, 2022
Information Sheet, Consent Forms and Dates	☐ English.	To be provided
Consent form ID and Date	Version - Nil	To be provided
Recruitment Materials	Nil	Nil
Other Study Documents	Questionnaire.	
Number of Participants Approved for Study		

Specific conditions will apply to this approval. As Principal Investigator it is your responsibility to ensure that the contents of this letter are adhered to. If these are not adhered to, the approval may be suspended. Should the study be suspended, study sponsors and other regulatory authorities will be informed.

Conditions of Approval

- No participant may be involved in any study procedure prior to the study approval or after the expiration date.
- All unanticipated or Serious Adverse Events (SAEs) must be reported to HSSREC within 5 days.
- All protocol modifications must be approved by HSSREC prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address.
- All protocol deviations must be reported to HSSREC within 5 working days.
- All recruitment materials must be approved by HSSREC prior to being used.
- Principal investigators are responsible for initiating Continuing Review proceedings. HSSREC will only approve a study for a period of 12 months.
- It is the responsibility of the PI to renew his/her ethics approval through a renewal application to HSSREC.
- Where the PI desires to extend the study after expiry of the study period, documents for study extension must be received by HSSREC at least 30 days before the expiry date. This is for the purpose of facilitating the review process. Documents received within 30 days after expiry will be labelled “late submissions” and will incur a penalty fee of K500.00. No study shall be renewed whose documents are submitted for renewal 30 days after expiry of the certificate.
- Every 6 (six) months a progress report form supplied by The University of Zambia Humanities and Social Sciences Research Ethics Committee as an IRB must be filled in and submitted to us. There is a penalty of K500.00 for failure to submit the report.
- When closing a project, the PI is responsible for notifying, in writing or using the Research Ethics and Management Online (REMO), both HSSREC and the National Health Research Authority (NHRA) when ethics certification is no longer required for a project.
- In order to close an approved study, a Closing Report must be submitted in writing or through the REMO system. A Closing Report should be filed when data collection has ended and the study team will no longer be using human participants or animals or secondary data or have any direct or indirect contact with the research participants or animals for the study.
- Filing a closing report (rather than just letting your approval lapse) is important as it assists HSSREC in efficiently tracking and reporting on projects. Note that some funding agencies and sponsors require a notice of closure from the IRB which had approved the study and can only be generated after the Closing Report has been filed.
- A reprint of this letter shall be done at a fee.

- All protocol modifications must be approved by HSSREC by way of an application for an amendment prior to implementation unless they are intended to reduce risk (but must still be reported for approval). Modifications will include any change of investigator/s or site address or methodology and methods. Many modifications entail minimal risk adjustments to a protocol and/or consent form and can be made on an Expedited basis (via the IRB Chair). Some examples are: format changes, correcting spelling errors, adding key personnel, minor changes to questionnaires, recruiting and changes, and so forth. Other, more substantive changes, especially those that may alter the risk-benefit ratio, may require Full Board review. In all cases, except where noted above regarding subject safety, any changes to any protocol document or procedure must first be approved by HSSREC before they can be implemented.

Should you have any questions regarding anything indicated in this letter, please do not hesitate to get in touch with us at the above indicated address.

On behalf of HSSREC, we would like to wish you all the success as you carry out your study.

Yours faithfully,



Dr. J. I. Ziwa

DR. J. I. Ziwa

**ACTING CHAIRPERSON
THE UNIVERSITY OF ZAMBIA HUMANITIES AND
SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE - IRB**

cc: Director, Directorate of Research and Graduate Studies
Assistant Director (Research), Directorate of Research and Graduate Studies
Assistant Registrar (Research), Directorate of Research and Graduate Studies