DEGRADATION OF MSIMBAZI WETLAND AND IMPACT ON THE URBAN POOR LIVELIHOOD IN DAR ES SALAAM CITY TANZANIA

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CERTIFICATION

The undersigned certifies that, have read and hereby recommend for the acceptance by The Open University of Tanzania a dissertation entitled; **"Degradation of Msimbazi Wetland and Its Impact on the Livelihoods of the Urban Poor in Dar es Salaam Tanzania"** in partial fulfilment of the requirements for the degree of the Master of Arts in Natural Resources Assessments and Management of The Open University of Tanzania.

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DECLARATION

I, **Hamadi Juma**, declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirement for the Degree of Master of Arts in Natural Resources Assessments and Management (MANRAM).

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DEDICATION

I would like to dedicate this work to all people who work and protect biodiversity (Environmentalists).

ACKNOWLEDGMENTS

ABSTRACT

This study set out to assess the impact of Msimbazi wetland degradation on the livelihoods of the urban poor in Dar es Salaam Tanzania. Over the last four decades, Msimbazi wetlands have been a popular destination for poor migrants from up country. For that much, the area has undergone gradual land use changes from being a mere wetland to an agricultural and human settlement, which has implications for the livelihoods of the basin dwellers. The study aimed to examine the livelihood activities conducted in and around Msimbazi wetlands and to find out the determinants of Msimbazi wetlands degradation resources to establish the impact of degraded wetlands resources on the livelihoods of the urban poor. Using a mixed research approach data collection was conducted using a questionnaire, which was administered to 136 respondents. Field observation and documentary review were also done to secure additional data. Findings have revealed that Msimbazi wetlands are currently a settled area by the population engaged in petty trades (58 per cent), gardening (37 per cent) and quarrying (4.3 per cent) as livelihood activities. The conducted livelihood activities have negatively impacted the wetlands resources which has in turn bred in increased health problems, frequent flooding, poor crop yields and poor fishing. The study ends with a recommendation for the formulation of inclusive conservation policies that provide room for full local community participation. In addition, deliberate wetland development programs should focus on poverty eradication.

Keywords: *Wetlands, Urban Poor, Livelihoods activities, Ecological Balance, Migration.*

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LIST OF ABBREVIATION AND ACRONYMS

OUT   Open University of Tanzania

EWNRA   Ethiopian Wetlands and Natural Resources Association

UNIDR   United Nations Institute for Disarmament Research

URT   United Republic of Tanzania

IMRAD   Introduction Methods Results and Discussion

DFID   Department of Foreign International Development

WWF   World Wildlife Fund

SLF   Solo La FAM/ Research for People and Environment

UK   United Kingdom

CESS   Centre for Economic and Social Study

RULNR   Research Unit for Livelihood and Natural Resources

WB   World Bank

SPSS   Statistical Package for Social Scientists

IBM   International Business Machines

BRT   Bus Rapid Transport

NGO   Non-Government Organization

CHAPTER ONE

INTRODUCTION

1.1   Overview

This chapter starts with the presentation of the historical background of the problem. It briefly reviews some of the relevant empirical works done on the topic which in turn defines the addressed research gap. It further describes the statement of the problem, research objectives, significance, the scope and organization of the research.

1.2 Background to the Research Problem

Wetlands play a vital role in ensuring livelihoods for millions of people living in developing countries. However, in recent times these resources have experienced progressive degradation due to land use changes. The expansion of agriculture and the development of water resource infrastructure are some of the causes behind the progressive loss of wetlands (Gebresllassie et al 2014). In urban areas, the expansion of cities has gone hand in hand with the encroachments of wetlands for gardening and settlements (Mitsch and Gosselink, 1993; Shine and Klemm, 1999). Gebresllassie et al (2017), estimate that over the globe, between 50 per cent and 85 per cent of specific wetland types have been lost.

As of now, the current distribution and extent of wetlands resources no longer coincide with what used to exist in the past (Junk et al 2013). More than half of the world's wetlands have disappeared (EWNRA 2008). Lack of proper wetlands policy contributes to this loss (Kamkala, 1993; Hughes and Hughes, 1992). Because of that, the market has failed to regulate the demands and supply of the ecological goods and

services provided by wetlands (Junk et al 2013).

Where wetlands policies exist, poor policy intervention and poor physical planning have continued to affect the resources negatively (Gardner, et al 2015). Additionally, the prevalence of insufficient understanding of the functions and values of wetlands complicates the problem at hand (Namaalwa et al 2013). With the increasing influence of climate change and human activity or population pressure, wetland reclamation, water diversion, dam construction, pollution, biological incursion, desertification, and misguiding policies more and more wetlands of our planet are on progressive shrinkage (Gray, et al 2013).

In Tanzania, wetlands are located along the Great Lakes systems, major river networks and deltaic mangroves (Kamkala, 1993; Hughes and Hughes, 1992; Mbungu, 2015). Areas of permanent or seasonal freshwater swamps and seasonal flood plains distributed all over the country's major riverine systems covered approximately 2.7 million hectares of land. Hughes and Hughes (1992), estimate the presence of over 5,439,000 hectares of lake and swamps that represent 5.8 per cent of the tidal land surfaces but excluding seasonally inundated flood plains. Research and surveys have also provided empirical evidence, which shows how Tanzania's wetlands are continuously being depleted (Machiwa, et al., 2021).

Msimbazi wetland is one of such few wetland's resources situated in the city centre. Its location makes it highly subjected to severe degradation. The socio-economic consequences of the wetland degradation are evident but recent studies (see for example Machiwa, 2021; John et al., 2019 and UNIDR, 2012) have not been able to establish them empirically. The aim of the study was to address this knowledge gap.

1.2 Statement of the Research Problem

Msimbazi basin is part of the Wami-Ruvu basin that contains rivers and wetlands towards the coast of the Indian Ocean in Tanzania. The greater part of the wetland is located in Dar es Salaam city with a boundary coverage estimated at 162 square kilometres. The main river in this basin is Msimbazi which stretches for approximately 35 km long. The river traverses through many areas in the Dar es Salaam region from the Kisarawe district in the Coast region to its discharge into the Indian Ocean. In 2012, the population of the area was 2.5 million and mostly lived in unplanned settlements with inadequate infrastructure services such as sanitation and solid-waste management (URT, 2013).

Their economic activities include commercial, industrial and agricultural pursuits (Machiwa, et al, 2021). Most of such dwellers are migrant poor people with limited education surviving through petty trades and gardening. The majority of the city dwellers depend on the supply of vegetables and fruits produced in this area. It is obvious that the continued degradation of the Msimbazi wetlands resources adversely affects many especially the poor but previous studies done in the areas did not establish the magnitude of the impact (see for example Palela, 2000). There is thus a miss of adequate empirical literature on the subject matter in focus. It is on this aspect that this study is set forth to address.

1.4 Objectives of the Study

1.4.1 General Objective

The general objective of this study is to provide an understanding of the socio-economic impact of Msimbazi wetland resources degradation on the livelihoods of

the urban poor in Dar es Salaam Tanzania.

1.4.2 Specific Objectives

i. To examine the livelihood activities conducted by the urban poor communities in and around Msimbazi wetlands.

ii. To assess the determinants of Msimbazi wetlands degradation resources.

iii. To examine the impacts of degraded Msimbazi wetlands on the livelihoods of the urban poor communities.

1.5 Research Questions

i. What livelihood activities do local people get from the Msimbazi wetland ecosystem?

ii. What are the determinants of the Msimbazi wetlands resources degradation?

iii. What are the socio-economic impacts experienced by the urban poor communities' livelihoods resulting from the degradation of the Msimbazi wetland resources?

1.6 Significance of the Study

Although urban wetlands resources provide vital ecological goods and services to the surrounding communities in Tanzania, their protection is still poor because of no specific policies that address them (Kamkala, 1993; Hughes and Hughes, 1992). For that much, unregulated human activities are thus threatening the sustainability of the resources, which in turn affects the livelihoods of the poor. Therefore, the understanding of these is important in informing policymakers about the magnitude of the problem and probable actions required to arrest the situation. Additionally, the knowledge generated adds to the body of knowledge on the subject matter in

question.

1.7 Scope of the Study

The present study seeks to look into the broader issues of wetland degradation and its impacts on the sustainable livelihoods of the urban poor in Dar es Salaam City. The scope of the study is thus set after understanding the role played by wetland ecosystems in shaping the livelihood of ecosystem communities. The level of dependence of these communities on the services provided is thus very crucial and therefore, thedegradation of wetlands is bound to adversely affect them all.

Making a proper assessment of the livelihood impacts needs time and adequate resources. Also, the coverage of the population affected by the wetlands in focus may demand time and resources as the wetlands themselves stretch over considerably long distances. Taking all these into consideration this study limits itself to the livelihoods impacts of the urban poor in the selected points of the Msimbazi wetlands. For that much, the outcome of the study will apply to the locality studied and the said population in focus. However the same can be generalized over wide areas for comparative purposes only.

1.8 Organization of the Study

The organisation of the study shows that, Chapter 1 introduces the research. It starts with the presentation of the background of the study, which generally provides the problem history with the intent of showing the knowledge gap that the study addresses. Next is the statement of the problem and the research objectives. The presentation of the significance and scope of the study concludes the chapter.

Chapter 2 is about literature review and is composed of the theoretical review, empirical review and the conceptual framework of the study.

Chapter 3 introduces the methodology followed by the study. Different aspects such as the research philosophy and approaches are presented here. The area in which the study was conducted was introduced alongside the sampling design, data collection and analysis tools. The chapter ends with a brief account of the validity and reliability of the data collected together with an explanation of how research ethics were observed in the entire period of this study. Chapter 4 covers the findings and discussion. This part presents the findings alongside the specific objectives addressed by the study. It starts with the presentation of the socio-demographic characteristics of the respondents. It ends with a summary of the key findings. Chapter 5 provide conclusion. It starts with the provision of a comprehensive summary of the study followed by a conclusion and recommendation on both policy and further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This chapter presents definitions of the key concepts used in this study. It also presents the review of the theories related to the study and the empirical review of related recent and past research done on the subject matter of investigation. The chapter ends with the presentation of the knowledge gap addressed by the study and the way it is going to be addressed (conceptual framework) by the study.

2.2 Definition of Concepts

In this study, key concepts broadly defined are wetlands, livelihoods, sustainable livelihoods, livelihoods strategies, and livelihoods assets and wetlands degradation.

2.2.1 Wetlands

The Ramsar Convention (2016) describes wetlands as areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. The study uses wetlands in line with the Ramsar definition.

2.2.2 Sustainable Livelihoods

According to Chambers and Conway, (1991), a livelihood is described as the capabilities, assets and activities required for a means of living. A livelihood is said to be sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood

opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term. In this study, the word livelihood was described in the context of the Chambers and Conway definition.

2.2.3 Livelihood Assets and Strategies

DFID (1999) defines livelihood assets and strategies as the assets or capital endowments of the wetland resource users, which are derived from wetlands converted into positive livelihood outcomes. This study used this definition to explain livelihood assets and strategies.

2.2.4 Degradation of Wetlands

This study uses Keddy's (2014) definition to conceptualise the meaning of wetland degradation, which is the land use, and land cover changes of wetlands or the loss of wetlands ecosystem services due to pollution or other similar factors.

2.3 Theoretical Review

To achieve the intended study objectives, it was necessary to use two complementary theoretical lenses. This study employed the equilibrium theory and the sustainable livelihoods framework. The aim was to examine how the ecological disturbance of the wetland influences the livelihoods of surrounding dwellers in the study area. The use of two theories was also a requirement for meeting the research approach employed by the study.

2.3.1 The Equilibrium Theory

The equilibrium theory is a theory, which has proposed that ecological systems are

in a stable equilibrium or homeostasis (Root, 2019). In the context of the Msimbazi wetland, the theory contends that all ecosystem members depend on each other for their existence in nature (Kureethada, 2014). It thus hinges on the way the population in nature grows, on the factors, which limit that growth and the resulting stability, resilience, persistence or conversely degradation of the communities and ecosystems affected by those changing populations (Homewood, 2008).

The thus theory sees a growing population as being limited by density-dependent factors. It suggests that in a population at low density in a favourable environment, individuals can easily find food and shelter their growth is rapid their maturity comes early and reproduction is high with low rates of mortality. With population growth, competition for food, shelter and suitable breeding sites and transmission of diseases becomes increasingly problematic. As a result, individuals progressively grow more slowly, reach sexual maturity later and have fewer offspring themselves less likely to survive to sexual maturity or to reproduce successfully. Overall fertility declines and mortality rises (Homewood, 2008).

The theory sees wetland ecosystems as progressing through a linear sequence or succession of species population stages from the colonisation of bare landscapes through to the development of a climax depending on the local conditions of the climate and soils. Species with colonising life history strategies with rapid and prolific reproduction, rapid maturation with little investment in individual offspring and excellent dispersal abilities thrive in the early stages of succession. Species populations that overshoot the carrying capacity will eventually disrupt climax communities and push the ecosystem back to a lower succession stage, which may

be less productive or diverse. This happens when species newly introduced to a favourable environment and released from natural enemies undergo a population eruption or where species populations are held excessively high.

Equilibrium thinking suggests that such temporarily very high densities can entail permanent or long-term damage to the productive capacity of the environment, perhaps through the destruction of particular food species or erosion and loss of the top soils. A population crash may ensue and when the population eventually stabilises this will be at a new, lower value of K: the destructive impact on resources effectively resets carrying capacity at a lower level. Equilibrium thinking carries the expectation of environmental degradation wherever density-dependent limitation does not operate effectively.

The theory has, however, been challenged on the ground that it is not applicable in tropical ecosystems as in these localities the populations are not necessarily limiting the density-dependent effects. They do they function within linear ecological sequences of the succession stages. Physical factors such as climatic events like fires, floods, and volcanic eruptions have effects that operate quite independently of the size and density of the population affected. The scale of the mortality inflicted by these extreme events is also not related to nor determined by the characteristics of the population. It is generally agreed among biologists that even a small and intermittently acting density-dependent influence exerts some regulatory effect on a population over time, but that density-independent factors can cause potentially massive fluctuations. However, the validity of equilibrium thinking was already questioned in the early 1900s, but the general abandonment of the theory by

scientists working in ecology only happened in the last quarter of that century, when studies indicated that it did not match what could be observed among plant and animal populations (Kricher, 2009).

However, despite being discredited the theory is still widely held to be true by the general public, conservationists and environmentalists (Simberloff, 2014*).* Environmental and conservation organizations such as the WWF, Sierra Club and Canadian Wildlife Federation continue to promote it (McVey, 1993). Some scholars such as Kim consider the balance of nature as a foundational metaphor in ecology, which is still in active use by ecologists (Kim, 2001). The author asserts that many ecologists see nature as a beneficent force and that they view the universe as being innately predictable. It acts as shorthand for the paradigm expressing this worldview (Kim, 2020).

Douglas and Werth, (2020) see it as a conception which is a widely adopted preconception and a feature of language that seems not to disappear entirely. For that much, the theory provides insights into the way nature's retaliation affects the livelihoods of those who have degraded it. This study uses it to examine the way degradation of the wetland resources retaliates to its degraders. However, to see its signature it was necessary to complement it with the five livelihoods assets provided by the sustainable livelihoods approach.

2.3.2 The Sustainable Livelihoods Approach

The concept of sustainable livelihoods was made popular in 1992 through the writings of Chambers and Conway. It was developed based on the interlinkages of the ideas of capability, equity and sustainability. An Advisory Panel of the World

Commission on Environment and Development in its report in 1987 put forward a definition of the livelihood concept as adequate stocks and flows of food and cash to meet basic needs. Security was described to mean secure ownership of, or access to resources and income-earning activities, including reserves and assets to offset risk, ease shocks and meet contingencies.

Likewise, the concept of sustainability was described to mean the maintenance or enhancement of resource productivity on a long-term basis. For that much a household would be enabled to gain sustainable livelihood security in many ways including the ownership of land, livestock or trees, rights to grazing, fishing, hunting or gathering; through stable employment with adequate remuneration; or varied repertoires of activities (Chambers and Conway, 1991). Generally, the livelihood approach places people and their priorities at the centre of development, trying to understand the differences between groups of people and working with them in a way that is appropriate to their current livelihood strategies, social environment and ability to adapt.

Moreover, they try to balance economic, institutional, social and environmental sustainability recognizing the dynamic nature of livelihood strategies and people`s flexible responses to changing situations. The approach is based on a conceptual framework to aid an analysis of the factors affecting peoples' livelihoods including their priorities (i.e., livelihood outcomes), their access to assets and their ability to put these to productive use, the different strategies they adopt, the policies, institutions and processes that shape their access to assets and opportunities, the context in which they live, and factors affecting vulnerability to shocks and

stresses.

Livelihood outcomes are the goals to which people aspire, the results of pursuing their livelihood strategies, such as increased income, reduced vulnerability, increased well-being, improved food security, and more sustainable use of natural resources. Livelihood outcomes are important because they help the analyst to understand the results of people's livelihood strategies in a particular context, why people pursue particular strategies what their priorities are, and how people are likely to respond to new opportunities or constraints.

Assets which people can rely upon play a crucial role in the livelihoods framework. Those with more assets are more likely to have greater livelihood options with which to pursue their goals and reduce poverty. Traditionally, five categories of assets or capitals (i.e., human, social, natural, physical, and financial) are identified, although subsequent adaptations have added others. Livelihood strategies are the combination of activities that people choose to undertake to achieve their livelihood goals. They include productive activities, investment strategies and reproductive choices. A major influence on people's choice of livelihood strategies is their access to assets and the policies, institutions and processes that affect their ability to use these assets to achieve positive livelihood outcomes.

The livelihoods approach tries to understand the strategies pursued and the factors behind people`s decisions, to re-enforce the positive aspects of these strategies and mitigate against constraints. Policies, institutions and processes refer to the complex social, economic and political context within which people pursue their

livelihood strategies. They can have a great influence on access to assets – creating them, determining access, and influencing rates of asset accumulation.

Those elements in the sustainable livelihoods framework cover the inter-related issues of social relations, social and political organisation, governance, service delivery, social norms, policy and policy processes. These operate at global, national, regional, district and local levels. Key to understanding their impact on local livelihoods is an analysis of the operation, or absence, of links between micro, meso and macro levels. The vulnerability context within which people pursue their livelihoods includes trends (for example, economic or resource trends), shocks (for example, conflict, economic shocks, natural shocks, etc.), and seasonal fluctuations in prices, production, health, and employment opportunities.

These factors can have a direct impact on people's assets and on the options available to them to pursue beneficial livelihood strategies. The vulnerability context of poor people's livelihoods is usually influenced by external factors outside their direct control and is dependent on wider policies, institutions and processes. To support people to be more resilient to the negative effects of trends, shocks and seasonality, development policy-makers and practitioners can support people's access to assets and help ensure that critical policies, institutions and processes are responsive to their needs. The livelihood approach is valuable in understanding the dynamics of the trajectory out of social protection to the production and promotion of more viable livelihoods. Even for those with very few assets; the approach helps in analysing complex trends such as climate change and conflict situations and linking these to practical action. It also provides a framework for understanding food

crises and the way they affect different groups in different ways (Clark and Carney, 2008). The approach is thus suitable for use in the evaluation of reality when such efforts disrupt the natural balance of the ecosystem. The theory was used in this study to complement the ecological balance theory.

2.4 Empirical Literature Review

According to Nakano and Muniz (2018), an empirical literature review entails elaboration of the relevant previous research that is correlated with the methods used in the research that ought to be used as the reference for the development of the methods and for solving the problems in the research. In this section, the empirical review was done in line with the specific objectives pursued by the study.

2.4.1 Impact of the Livelihood Resources and Strategies

Wetlands livelihood resources from locality to locality however, the common ones are wetlands with water, soil, various species of flora and fauna. These resources are part of the physical assets that the inhabitants can employ to support their livelihoods. The modalities to which they have been in use have been extensively studied in different parts of the world. It has been asserted that the concept of sustainable livelihood has been widely used in various studies since the 1990s. Reddy et al (2004) for example use irrigation activities to study how the net earnings from these activities have contributed to improving the economic well-being of the people in India. Going beyond the obvious conclusion that water enhances rural livelihood the authors try to study whether effective interventions can be made in the absence of this critical resource. Elasha et al (2005) on the other hand used the sustainable livelihood conceptual framework to study the sustainable

livelihood and environmental management measures to build resilience and adaptive capacity of the region to future climate change adopted in Sudan. The study used the notion of five capital assets embodied in the SLF of the UK Department of Foreign and International Development, to study the climate change stress on livelihood and the potential of the environment management measures to reduce vulnerability of future climate change.

Santhi, (2007) on the other hand uses the livelihoods approach to study the linkages between natural resources and livelihoods for survival in the context of Kerala's sustainable development. The author opines that the unique topography and ecology of Kerala state were major limiting factors that hindered the growth of large market economies. This has traditionally restricted the over-exploitation of natural resources and humans. The study found that the rich natural resources and ecosystems have helped human beings to survive in the midland, highland and coastal belts of Kerala with minimum dependence from outside.

However, the destruction of its ecological foundations was the biggest challenge faced by the state. This destruction may be attributed to the development of a monoculture mindset and the change in the basic attitude to life and all life on earth. All livelihood strategies have become wage labour. With the growing importance of money making, people's concept of livelihood, and socio-ecological systems which support life and environment have changed and exploitative interventions have eventually increased. This has led to a survival crisis which was unknown earlier. Food security, social security and all the conveniences and comforts of life may not last long. The solution lies in panchayath (local) level

conservation of basic livelihoods which may be better than state-level plans. The global environment collapse and an increase in awareness about the disastrous effects of uncontrolled development plans have led to growing experiments for more just and sustainable ways of living.

Another study that was conducted in India was pioneered by The Centre for Economic and Social Studies (CESS) of Hyderabad. CESS set up the Research Unit for Livelihood and Natural Resources (RULNR) in 2008 to research relevant issues relating to human livelihood and noted that river basins are not just interconnected ecosystems but interconnected socio-political systems as well. The infrastructure development in river basins for irrigation, flood control, power generation, navigation etc. has thus exerted pressure on the ecosystem services. The study identifies a few key issues concerning river basins in India. These include the variability among the availability and quality of land, water and natural resources in the river basins and the direct and indirect implications of this variability on poverty and livelihoods;

the development of the river basin concerning the production of goods and services and the impact of such production on upstream and downstream communities and their livelihood; issues relating to water productivity including methods of increasing water productivity in the basins to alleviate poverty; issues relating technical interventions (irrigational, industrial and infrastructural) in terms of trade-off between resource use and livelihoods and issues relating to river basin development (like interlinking of rivers) for proper allocation of natural resources to all sectors (Sreenivasan, 2010).

Another RULNR monograph conducted by Sarangi (2014) established the impact of the Forests Rights Act, of 2006 on the livelihoods in Odisha and Jharkhand that secure land tenure will empower people by protecting their livelihood options. On the other hand, Alinovi et al (2010) combined the sustainable livelihood framework with a resilience framework to study and compare the livelihood strategies of resilience to food insecurity of households in Kenya and noted that large holder farmer's cluster was the most resilient while pastoralist was the least resilient.

Using SLF to study the impact of climate change on livelihoods in Ghana Aniah, (2016) observed that climate change was a serious threat to the livelihood activities of the poor. A similar analysis of livelihood capital assets to study relations between livelihood assets and livelihood strategies was used by various authors like Shahbaz (2008), Su and Shang, (2012) and Ruiying, et al (2015). The study by Shabaz (2008) is an attempt to provide an exploratory analysis of the vulnerability of rural people to risks and shocks concerning their livelihood in the western frontier Province of Pakistan.

The study found that the access to ownership of certain livelihood assets had an impact on their levels of vulnerability and risk. The access to natural assets in the region was limited by large-scale deforestation. The small size of holdings, steep terrain and harsh climatic conditions added to the risks. The most important livelihood strategy followed was migration. Physical and financial capital were the least available capital assets of the region.

Another study by Su and Shang, (2012) on the livelihood issues and quality of life of farmers in the Heihe river basin found that endowment of livelihood assets was the

most crucial factor that determined the choice of the livelihood strategy. The increased human, social and natural capital had an impact on the Heihe River basin that has caused a deterioration of its ecological character. The degraded environment has reduced the capacity of the river basin to support a large population and has led to the migration of the population from the region. The study followedthe Sustainable Livelihood Framework and used the five classifications of livelihood assets.

On the other hand, Ruiying et al (2015) conducted an analysis of peasant livelihood in areasof rural tourism by including three aspects of livelihood capital, livelihood strategy and livelihood outcome. In the Jixian study to analyze the livelihood dynamics of four types of households working, tourism, part-time tourism and part-time non-tourism households, results indicated the differing levels of livelihood capital among households. This was the case for Nee and Mansur (2015).

In all cases surveyed, the livelihoods approach was used to evaluate the different livelihood activities deployed by the people over different resource bases. None of the above has had a focus on the consequences of the misuse of the resources base to which the livelihoods asserts, activities and strategies are deployed. In the context of the human nature inter-linkage it is worth to pursue further this line of inquiry for probable solution establishment for future use.

2.4.2 Impacts of degraded Wetlands on the Poor

The impact of wetlands degradation on the livelihoods of the poor has been studied on several scales across different parts of the world. One such study was conducted by Florence (2011) who studied the livelihood issues of Vembanad ecosystem

communities in India. This was done using the SLF that was developed by DFID. The study noticed that the construction of the Thanneermukkam barrage across the lake in 1976 and its ineffectiveness damaged the continuity of the ecosystem and resulted in a decrease in fish yield and loss of species thereby contributing to the vulnerability of the fishers. The study clearly describes how resource depletion and ecosystem degradation can aggravate poverty.

On the other hand, Srinivasan (2011) attempted to analyze the wetland agriculture interactions in the Kole lands of Thrissur, in Kerala India and found that various types of activities were performed on Kole lands which support the livelihood of the people, but often, these activities were in conflict with the interest of households which consider Kole lands as their major source of livelihood. Similarly, Lamsal, et al. (2010) performed a study on the involvement of local ethnic groups in wetland conservation. The study established that there was a need for community-based conservation approaches to increase productivity.

The study also recommended strategies like the adoption of biogas plants for improved cooking fuel wood consumption and conservation awareness programs to promote conservation of wetlands and livelihood. As reviewed above, most of the empirical studies done that connect sustainable livelihoods approach and their impacts on the wetland resources are largely done elsewhere particularly in Asia and in the Western world. There is still a dearth of information on the African continent especially in the sub Saharan Africa and Tanzania in particular. It should be understood that the livelihoods approach was conceived to find ways in which the poor people can be empowered through perfecting their assert, capital and

strategies they deploy to earn their learning. The operations of these programs leave a mark that needs to be evaluated empirically.

2.5 The Conceptual Framework

To address the above-established gap, this study adopted a conceptual framework that combines thinking from the ecological theory of the natural balance and the sustainable livelihoods approach (Figure 2.1). The Conceptual Framework (or Concepts Statements) is a body of interrelated objectives and fundamentals.

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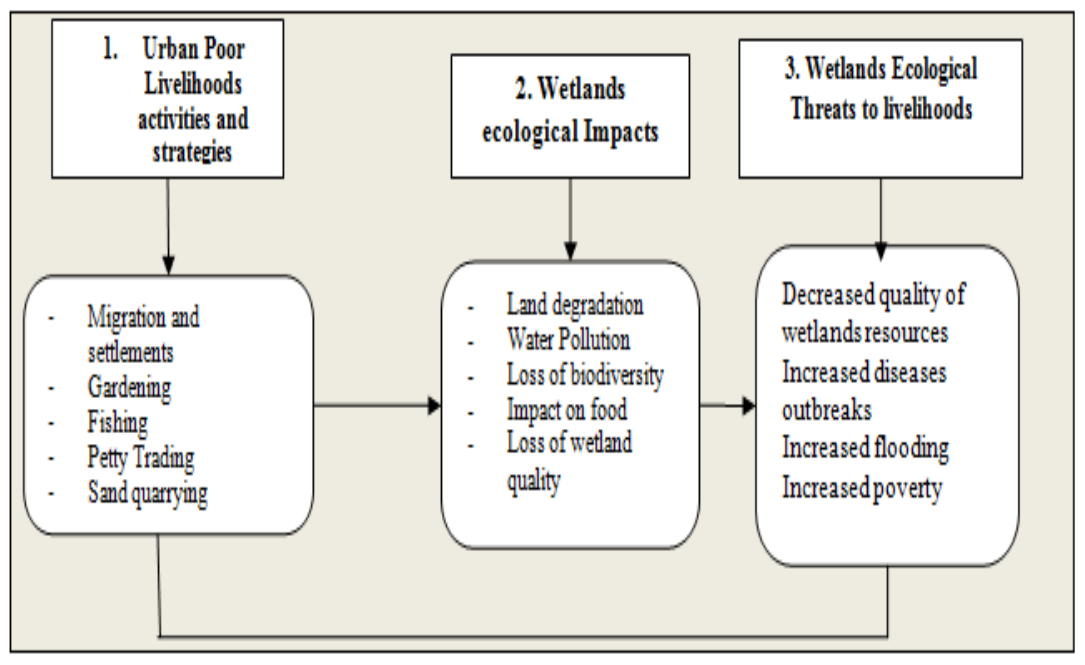
Figure 2.1: The Conceptual Framework
 Source: Adopted and modified from Chambers and Conway, (1991)

As per this conception, the ecological consequences of wetland degradation on the livelihoods of the poor emanate from human interferences with the natural settings of the wetlands, which manifests itself through human migration and settlements in and/or around the wetlands. Ecological disturbance results when man deploys on its

livelihood activities which eventually results in resource degradation. In retaliation, nature induces some challenges that affects directly and indirectly the livelihoods of the people. However, the wise use of the resources helps to retain the ecological balance of the wetlands, which in turn pave the way the sustainable well-being of both man and nature.

2.6 The Research Gap

The reviewed literature has revealed that the degradation of the wetland resources has far-reaching consequences for the livelihoods of its dependents but this consequence is yet to be established empirically in the locality where this study intends to commence. Studies that have been done in the locality have focused on other aspects depending on their objectives. None has been able to employ the complementary theories of the ecological balance and livelihoods approach to evaluate the impact of the livelihoods activities on the ecological balance of the wetland resources. For example Palela, (2000) did a study in Msimbazi wetland but this study concentrated on the anthropogenic factors that impact the wetlands.

In Machiwa et al (2021) case, the focus was on the monitoring process of the development of human settlement in the Msimbazi Valley. Lindstrom (2016) on the other hand explored the possibilities of turning Msimbazi Valley into a city park while Magina et al (2019) dwelled on the wetland impact resulting from increasing human settlements in the locality. Most of the consequences explored are focused on the wetland resources itself but none has tried to evaluate the resultant consequences of the resource degradation on the wetland dwellers. It is this missing link that defines the necessity of this study.

CHAPTER THREE

RESEARCH METHODOLOGY

1.1 Overview

This chapter presents the methodology used in this study. It also discusses the research design and its processes, the sampling procedures and techniques used. It also focuses on the data collection methods and analytical tools employed by the study. The chapter ends with a discussion of the issues of the validity and reliability of the collected data and ways in which ethical issues in research were addressed.

3.2 Research Design

Research design refers to the conceptual structure within which the research is conducted (Kothari, 2014). Generally, the purpose of the research design is to give a means that enables the researcher to collect data with minimal expenditure of effort time and money (Orodho, 2008). moreover, it is thus a plan which defines the research processes (Lavrakas, 2008). Four types of research design are descriptive case study and experimental. This study employed a mixed descriptive research design that mixed both qualitative and quantitative information. The intent of using this design was born from the need to collect information capable of answering questions like "what is" or "what was designed to secure data needed by this study.

3.3 Research Approach

According to Cresswell (2014), the research approach refers to the plan and the procedures for the research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation. This plan involves several decisions taken in the order in which they make sense. Selection of a research

approach depends on the nature of the research problem or issue addressed the researchers' personal experiences, and the audiences for the study. Three research approaches, which are normally utilised in social science research, are the qualitative, quantitative and mixed methods. This study used a mixed research approach as a way of enjoying the benefits provided by the mixed approach philosophy adopted by this study.

3.3.1 The Study Area and Justification

The study took place along the Msimbazi River valley in the Dar es Salaam city. Msimbazi Basin is part of the Wami-Ruvu Basin that contains rivers and wetlands towards the coast of the Indian Ocean in Tanzania (Figure 3.1).
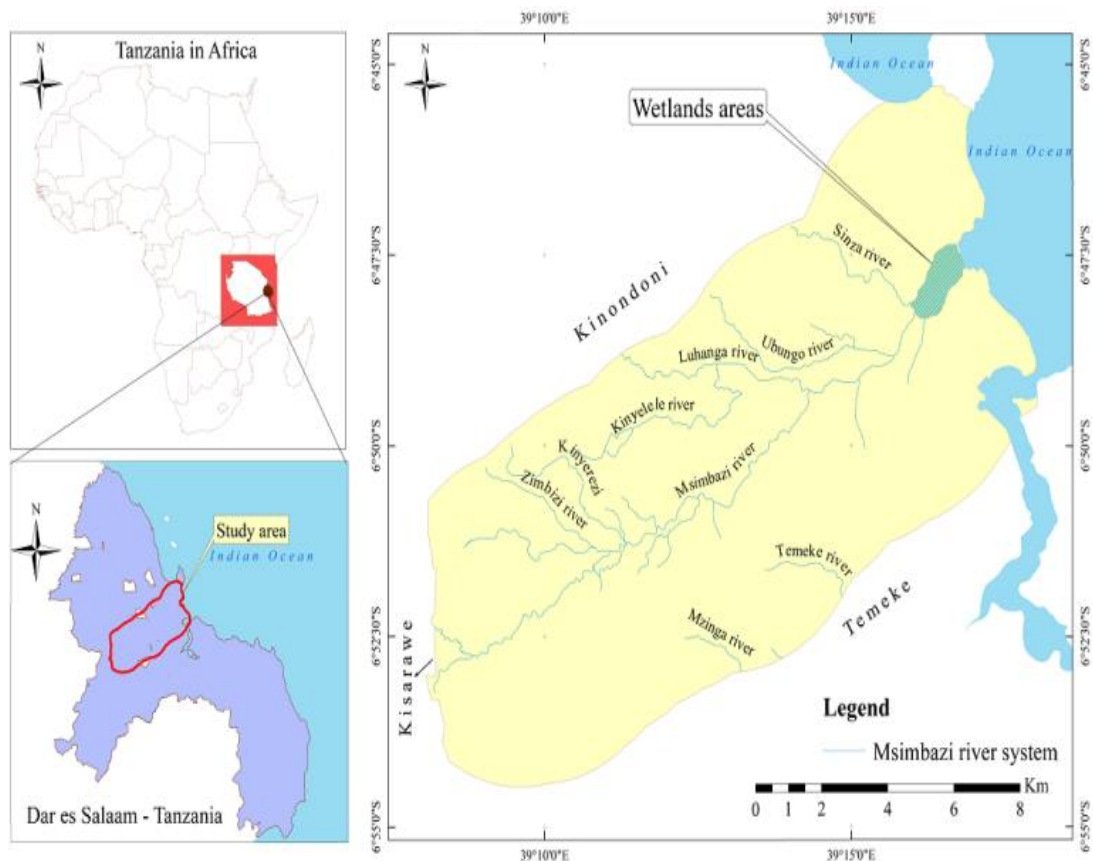
Figure 3.1: A Map of Msimbazi Valley Showing the Catmint of the Wetland
Source: Machiwa, (2021)

The study area covered the entire wetlands through which the Msimbazi River valley passes. The flood plain of Msimbazi is a natural flood retention basin, which has been an important resource for the citizens of Dar es Salaam for a long time. The wetland area is within the river basin. It is an important bio-diverse habitat for endemic species. The river basin itself covers nearly one-fifth of the city area. It is home to an estimated 1.6 million inhabitants, which is equal to 27 per cent of the Dar es Salaam City population (WB, 2022). Flooding and rain-induced flooding affects some 50,000 people throughout the valley.

Data shows that throughout the river basin, between 8,000 and 10,000 households live in such areas whose livelihoods activities are predominantly commercial, industrial (e.g., textile, breweries and meat plants) and agricultural pursuits (Sawe et al, 2021). The climatic condition of this area is humid tropical characterized by dry and wet seasons. The average annual rainfall ranges between 800 and 1400 mm. The long rainy season is between March and May while the short rains are from October to December. The mean daily temperature varies between 18°C and 33°C. The mean annual evaporation rate is 2104 mm, and humidity lies between 67 per cent and 96 per cent (Machiwa et al, 2021).

From the 1980s to the 90s, Dar es Salaam City experienced a strong urbanization due to the establishment of the free market economy in 1985. The peak of the housing expansion occurred over five years at the beginning of the 1990s, which put a lot of pressure on the areas surrounding the urban parts of the Msimbazi River. Before this time, these areas had an unexploited flood plain, which worked as a buffer zone for the excess water during the seasonal heavy rains. However, with the

strong urbanization, the city became crowded and many people who came searching for a home could not afford to buy plots in the planned areas of the city. Instead, they settled on the empty flood plain, built their houses and started small-scale farms, growing seasonal crops. Settlements and farming when coupled with industrial wastes and pollution of all sorts present challenges to the livelihoods of the poor basin dwellers. Needs for the understanding of these ecological and socio-economic challenges have influenced the choice of the area for this study.

3.3.2 The Study Population

According to Kombo and Tromp (2006), a study population is a group of individuals, objects, or items from which samples of measurements are taken. It is also known as the accessible population. This population is usually a subset of the target population. It is from the accessible population that researchers draw their samples. For this study, the accessible population comprised the urban poor who worked and lived within the catchment of the river basin. The study intended to collect opinions from communities living and earning livelihoods directly from the Msimbazi wetlands. For that, the targeted population sample frame was the entire population living within the Msimbazi River catchment which was estimated to be 1.6 million people. However, the study population comprised 250,000 people who resided in the middle and lower basin of the Msimbazi River, which is located between Sealander Bridge and Nelson Mandela Road. Therefore, the sample size used in this study was randomly drawn from this population.

3.3.3 Sampling Procedures and Sample Size

Sampling procedures are defined by Kothari (2014) as the process of selecting a

sample from the population. This population is divided into several parts called sampling units. Sampling is a process by which a sampling of a relatively small number of individuals is selected and analysed to find out something about the entire population from which it was selected. Generally, sampling procedures help the researcher in reducing expenditure. It also saves time and energy, permits measurement of greater scope, and produces greater precision and accuracy. In this study, to get the required sample size and which was representative enough the capture the objective of the study, this study employed a purposive sampling procedure to determine the wards and sub-wards targeted by the study and also heads of households from which information was drawn.

A sample size of 396 respondents was drawn from the study population of **12,500** households residing within the lower Msimbazi basin using a formula for finite population which was developed by Yamane (1967) and Gleen (1992) to get the appropriate sample size as follows

$$n = \frac{N}{1+N(e)^2} \qquad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where **N** is the population of the study, **n** is the sample size required and **e** denotes the precision level required.

The actual sample size was obtained as per the above formula

$$n = \frac{12,500}{1+ 12,500(0.05)^2} \qquad = \mathbf{396} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots. (2)$$

Since purposive sampling was used to establish the sample frame and sample size, there was no need to establish proportions as respondents were selective based on the

level of understanding of the information sought and their readiness to participate. Additionally, to conform to the principles of the qualitative research approach, this study employed the principle of saturation. This was done because of the nature of the respondents whose majority were homogenous in terms of socio-demographic conditions. For that much, instead of surveying all 396-target respondents the level of saturation was attained at 136 respondents.

3.4 Data Collection Methods and Sources

In this study, both qualitative and quantitative data were collected. It was done to conform to the triangulation requirements. Triangulation is described as the combination of two or more methodological approaches, theoretical perspectives, data sources, investigators and analysis to study the same phenomenon, which aims at increasing study credibility (Hussein, 2009). According to Coviello (2005), applying a mixed-methods approach requires the use of triangulation as this helps in answering the research questions adequately. Collection of primary and secondary data was done as a complement to this requirement.

3.4.1 Primary Data

Primary data were obtained using the semi-structured questionnaires. This was the principal means used to generate information in this study. It was administered to the heads of households involved in this study along the Msimbazi wetlands. Information collected was related to the socio-demographic condition of the respondents, livelihood activities performed within the Msimbazi wetlands, the perceived consequences of these activities on the resource base and the perception of the wetland's degradation on the livelihoods of the wetland dwellers.

Field observation by way of a transect walk was also a second source of data collection. Field observation schedules were used to depict additional data that was used in producing this report. This was done to depict the present condition of the wetlands as it is. Transect walks accompanied by photographs were done to collect evidence of the state of the art of the wetland's environmental conditions. The information sensed out was thus used to produce information used for reporting.

3.4.2 Secondary Data

Secondary data were collected to augment the primary data and was done through documentary analysis. The type of data collected focussed on the past and present conditions of the Msimbazi wetlands. It also focussed on the historical trends of the changing natures of resources question. The ecological condition of the wetlands for the past fifty years and periodic actions taken to rectify the problem that has been taken by the government and other stakeholders were all sensed from the documentary records kept in government offices, museums and from other stakeholders. The intent of using this method was to generate data that was used to complement those already collected using primary data collection methods. They were done as a way of triangulation with the aim in mind of generating information that was close to reality.

3.5 Data Analysis

Generally, data analysis was done on two levels that is an analysis of data in the field and a post-field data analysis. Field data analysis involved mostly quantitative data where in every evening all dully filled and returned questionnaires and additional face-to-face conversations done during the daytime were closely examined and

refined. Questions, which were observed to deviate from what was expected, were refined to remove areas that would bring confusion to the side of the respondents. For that respect, all questions, which were noted to have ambiguities, were reframed or removed altogether. Additionally, ideas, which were generated through follow-up questions, were compared and ranked to draw a pattern. This practice was important because it contributed to the final collection of the information, which was relevant to the study.

The post-field data analysis involved cleaning and coding the data through the use of the IBM data template version 24. All the coded information was thus run by the SPSS computer program software. It was done to simplify work. In this way, multiple responses obtained from respondents were analysed using descriptive statistics whereby frequencies and percentages were generated and interpreted. Descriptive data were also analysed using cross-tabulation for comparative purposes. Data presentation was made possible using charts, figures and tables. Graphs and tables were also generated using both SPSS and EXCEL. Qualitative primary data collected from follow-up questions were again coded and run using SPSS software for the same purpose as well.

3.6 Validity and Reliability of the Research Instruments

Validity refers to the degree to which an instrument measures accurately what it has been intended to measure (Saunders et al. 2007). This requirement was met with the triangulation of data collection tools, analytical tools and as well as the triangulation of the theoretical lenses used in this study. The use of follow-up questions and documentary analysis all were done to fulfil the same mission. On the other hand,

reliability, which refers to the degree to which data collection techniques will yield consistent findings (Creswell 2005), was employed in this study by pre-testing the tools of the data collection.

3.7 Ethical Considerations

Being ethical means adhering to the code of conduct that has evolved over the years regarding both research participants and the researcher during the collection of information, seeking consent, the possibility of causing harm to participants, maintaining confidentiality, introducing bias, using unacceptable research methodology, inaccurate reporting and the inappropriate use of information. This adhered to the ethical code and conduct of research by observing all procedures required in the field and treatments of collected data. To conform to the research ethics, the researcher sought research clearance letters from all relevant offices as per OUT prescribed set procedures. That is getting research permit letters from the University Authorities and thereof seeking the same from the regional and district government authorities. All these actions were taken and consent was obtained as per set procedures.

Other kinds of consent were requested from the respondents themselves. Apart from obtaining permit letters from relevant authorities, the researcher had the task of making clarity to the respondents to ensure that the same respondents made an informed decision. Those who were hesitant were left free. Information sensed from the respondents was treated stored confidentially later to be destroyed after the mission completion.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Overview

This chapter presents the findings and a discussion of the study addressing the specific objectives. It begins with the presentation of the socio-demographic characteristics of the respondents and then progresses to discuss emerging issues as per the specific objectives that guide this study. It ends with a summary of the key findings arising issues.

4.2 Socio-Demographic Features of the Respondents

The sociodemographic variables are individuals' attributes which include age, gender, social class, migration background, relationship status, parental status, and employment status and town size. This study addressed variables such as age, sex, occupation, marital status, education, ethnicity and migration for understanding kinds of the respondents involved in this study.

4.2.1 Age and Sex of the Respondents

The information regarding the status of the respondents in terms of age and sex was deduced from running the cross-tabulation of the compiled data. The results indicated that the majority of the respondents were in the age range of between 30 years and 60 years. The proportions of those aged below 30 years were small because the study intended to get information from those who had a longer stay in the locality and who had good knowledge of the area. As such, respondent concentration in this age category was a function of the sampling design adopted by the study, which was purposive sampling. The design was used by Creswell (2009)

in which the researcher used their judgment to choose respondents. For that much information collected was thus case specific.
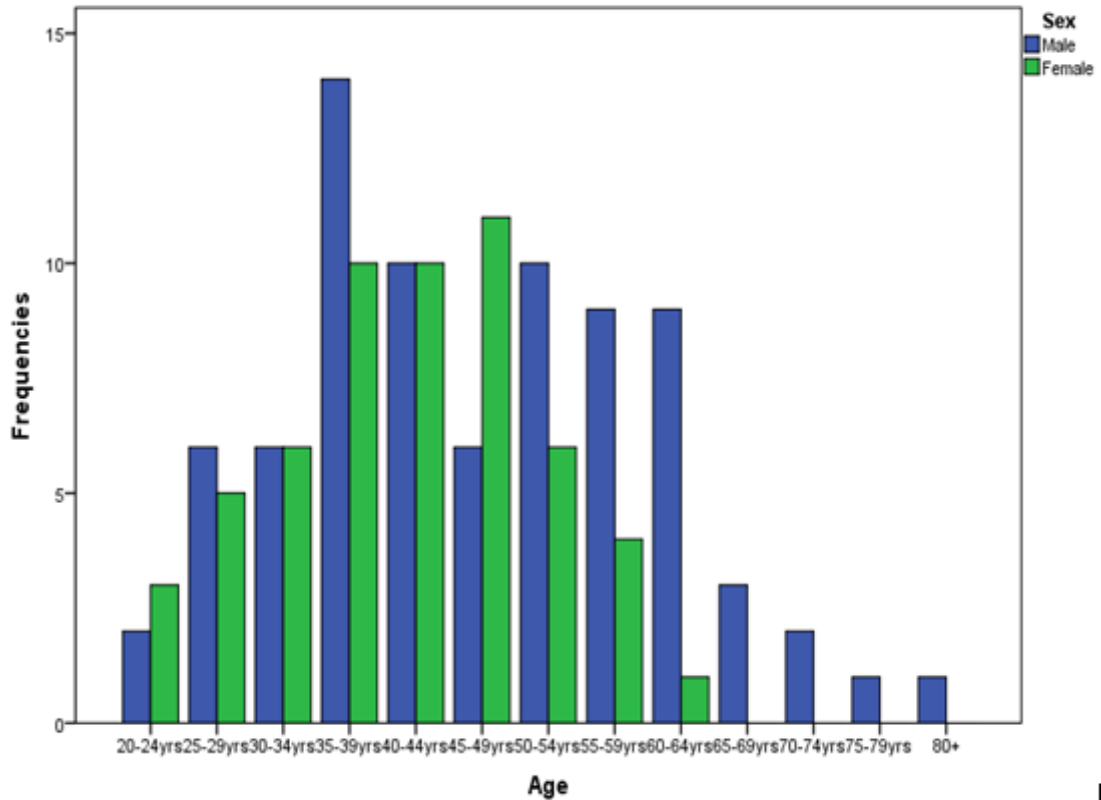
Figure 4.1: Distribution of respondents by Age and Sex

In Figure 4.1, the distribution of respondents by sex displays a similar pattern in which male respondents were more in comparison to the female respondents. As already noted above, this pattern was not demographically determined. It was the function of the sampling design used and the research approach employed. The unit of the study was a household in which it was the head of the households to which the study targeted. Therefore, since most of the families in Tanzania are patrilineal, most of the respondents interviewed were male. Only a few females were involved and most of them were female-headed households and were the only ones available during the survey time. It should be well understood that in the sex ratio, females

outnumber males in Tanzania as attested by the recent population housing census report (see URT, 2022). As explained, the use of purposive sampling was responsible for the results noted above. It should also be noted that in this study, the issue of gender balance was not a criterion set forth and because of that, the results displayed were normal.

4.2.2 Education and Occupation of the Respondents

An analysis of the data concerning the status in terms of education and occupation of the respondents was displayed in Figure 4.2.
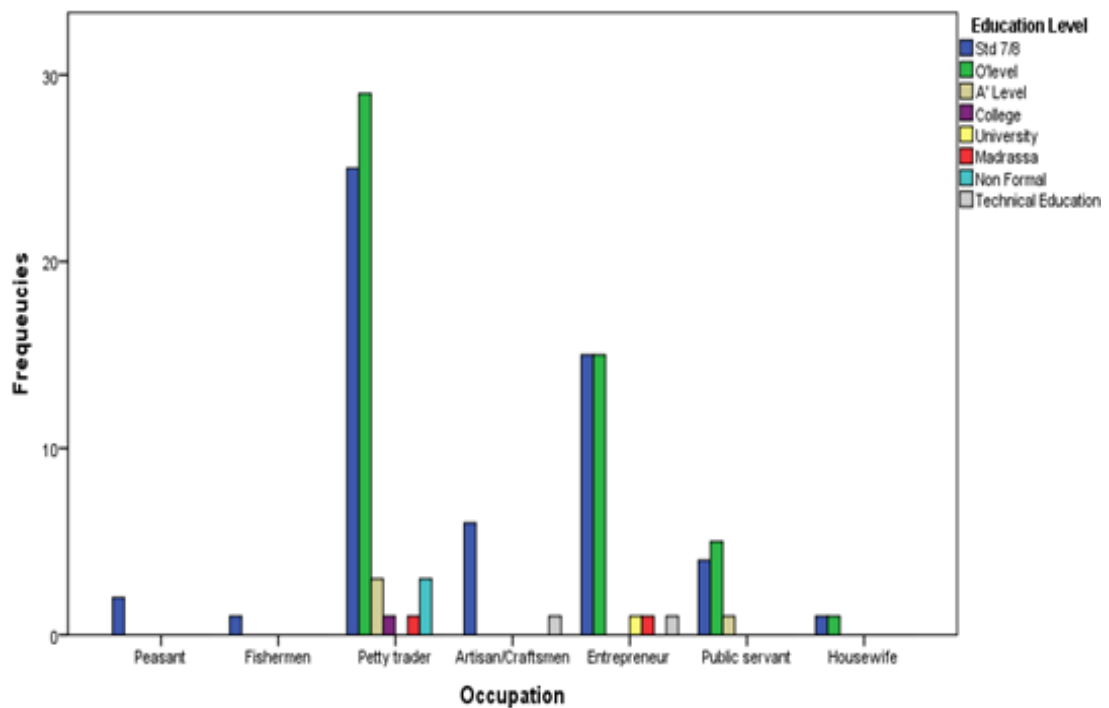
Figure 4.2: Status of the Respondent's Education and Occupation

The respondents were those whose highest educational level so far attained was standard seven (47.7 per cent) followed closely by those who had completed an ordinary level secondary education (42.3 per cent). The proportion of those who had either advanced level secondary education and/or University was extremely few (0.8

per cent respectively). Looking at the data one realizes that the greater proportions of those residing in risky areas such as the Msimbazi wetlands were those with lower levels of education. This observation tallys with what Kondoro (1998) observed. However, looking closely at the data and comparing study results by Kondoro (1998) and Palela (2000) one notes that there is a progressive shift in the education qualifications of the respondents.

The results by Palela indicated that the proportions of standard seven leavers were far higher (72 per cent) and lower for those with secondary education (13 per cent). This indicates that there has been a steady shift in the qualifications of the respondents over time, which might as well be the function of the changes in the education reforms in the country (see BEST, 2022 and URT, 2004). The provision of free education for both primary and secondary education levels has enabled the increase in the number of standard seven and form four leavers. As commented by Palela (2000) indeed, the Msimbazi wetland Basin dwellers are no longer people with lower education. This is evidenced by the presence of a few proportions of individuals with higher levels of education.

The nature of the respondents in terms of education levels attained influenced the choice of the occupation in which the respondent's majority were employed. By learning from Figure 4.2, one realizes that the greater majority of the wetland dwellers were highly employed in the informal sector particularly petty trades and/or other different kinds of entrepreneurship. The current employment status shows, however, a shift from what was earlier documented by the previous studies.   For example, while agriculture was the dominant activity before the 2000s (see Palela,

2000 and URT, 2019) to date this activity has been taken by events. Palela comments that the shift has been caused by the shifts in the agricultural policies following the government's stopping from providing agricultural subsidies and that since then; there has been a slow progression of change from farming to more entrepreneurial activities.

As of present majority of the respondents were employed in petty trading (53.3 per cent) and entrepreneurship (28.8 per cent) than in gardening (1.7 per cent) and/or fishing (0.8 per cent). Increased levels of pollution and frequent shifts in agricultural policies shifts might have influenced the basin dwellers' employment perception. In addition, increased levels of literacy among the respondents might have an upper on the change in the employment status of the respondents. It is thus obvious that this finding deviates a little bit from what was documented by the previous empirical works (see Palela, 2000; Kondoro, 1998 Jambia et al., 1996). The presence of individuals with university education shows as well that there has been an increase of people who are employed in the both private and public sectors that reside in the locality.

4.2.3 Migration and Settlement

Documentary analysis attests to the fact that before the 1960s, the Msimbazi wetland was intact while the upper and middle parts of the basin were naturally forested and the frequent flooding and sedimentation led to the fertility of the wetland area (URT, 2019). With the increased trends of rural-urban migration since the 1970s, there has been a shift in the Dar es Salaam city population. The urbanization process has gradually reduced water retention capacity in the basin thereby creating blockage of

the natural water discharge (World Bank, 2017) an incidence which has in turn resulted in frequent flooding. Increased urbanization and shortage of accommodation in the city were among the factors that necessitated the spontaneous human habitation in the Msimbazi wetlands and the same has continued to receive more migrants from different regions all over the country.

Available documentary data when read together with the empirical information collected from the respondents shows that currently, Msimbazi wetlands host a population of more than 30 ethnic groups from upcountry of which the dominant ones are the Zaramo (11.3 per cent) followed by the Ruguru (8.9 per cent), Chagga (5.6 per cent) and (Kwere, 5.6 per cent). The distribution of the respondents in terms of migration source areas shows that the area is very popular in attracting rural poor migrants. The major pulling factors are summarized in Table 4.1.

Table 4.1 Respondents' Migration and Settlement Determining Factors In Msimbazi Wetlands

			Settlement factors					
			Gardening	Market	Workplace	Transport	Born here	Total
Ethnicity	Mrangi	Count	0	0	0	0	1	**1**
	Mzaramo	Count	2	7	2	6	4	**11**
	Mchaga	Count	0	5	1	3	0	**5**
	Msambaa	Count	0	1	2	1	0	**2**
	Mruguru	Count	2	7	5	2	1	**10**
	Mkwere	Count	0	3	1	2	1	5
Total		**Count**	**4**	**23**	**11**	**14**	**7**	**34**

Source: Field Data, 2023

Information presented in Table 4.1 shows the motives behind each migrant. The majority of the Learning from Table 4.1 is obvious that migrants were much influenced by the opportunities available in the locality which provided enabling conditions for the support of their survival livelihoods strategies. The decisive

factors for the majority were the closeness to the workplace and businesses. Gardening as a settlement factor influenced the indigenous Zaramo who probably were living in the locality even before the development of the Dar es Salaam city.

The later migrants came with business in mind, which was more likely to be influenced by the fast development of the Dar es Salaam city. The shifting nature of the utilization of the Msimbazi wetlands was as well reported by the previous studies. While Kondoro (1998) and Jambia et al. (1996) report gardening as the most dominant livelihood activity later study by Pallela (2000) reports a progressive shift from farming to more business following the government's removal of agricultural subsidies. With the increasing nature of the wetland's degradation and the livelihood priorities of the urban population, this progressive shift could thus be expected.

4.2.4 Marital Status and Size of the Household

Analysis of the respondent's opinions shows that residents of the Msimbazi wetlands had marriage stability, as the proportions of those who were in marriage comprised 73.7 per cent against 12 per cent of those who were singles. The widowed ones comprised only 10 per cent. The prevalence of marriage stability was an important indicator of the growing population in the locality, which had repercussions on the carrying capacity of the area. Furthermore, analysis of the data in terms of household size indicated that on average 54.5 percent had household sizes that were below 5 while 41.0 percent had household sizes that were between five and nine members. In general, 95.5 per cent of all the interviewed respondents had household sizes that ranged from zero to nine members. Comparing this to the size of land plots owned by the respondents and probably the type of dwellings possessed by the

respondents one would conclude that the area was moderately to highly densely populated.

When the respondents' opinions over the size of the households were cross-tabulated with the size of the land plots owned, the results indicated that 106 respondents lived on a land plot which was less than an acre. Implicitly this means that areas settled in and around the Msimbazi wetlands were overcrowded and this could thus explain why this area is highly polluted. Given the trend of in-migration in the locality and the lack of appropriate policies that regulate wetlands, it is obvious that shortly the carrying capacity of the valley may be overwhelmed while at the same time constraining the needs of the people and perpetuating the degradation of the resources.

The connectivity between urbanization and wetlands degradation noted in this study is in support by other empirical studies done elsewhere in the world. However, the defining livelihood activities tended to vary from one locality to another. In Kampala city of Uganda, Warsame et al (2022) attribute this to the construction activities performed within the wetlands. In Lagos City Nigeria, it was the incessant sand filling and the conversion of the wetland's environment to economic uses such as construction and perennial flooding and solid additions that contributed to the degradation of the quality of the wetlands resources (Ajibola, et al., 2012). Basu et al., (2021) also report the same scenario in India the increased human activities in wetlands increase as well as stress on the urban wetlands a situation, which eventually leads to resource deterioration. In the case of Msimbazi wetlands, human habitation is leading to resource losses.

4.3 Livelihoods Activities of the Msimbazi Wetlands

In the past wetlands were regarded as wasteland (Keddy, 2010). However, with the continued discovery of the best use of the resources, wetlands are turning from wastelands to valuable resources worth competition. The ongoing struggles over the use of the same by herders, farmers and even nature conservators in different localities where wetlands are available are clear evidence (Musana, 2018). Msimbazi wetlands though located in urban areas where it is hard to encounter pastoralists are not exempted from this phenomenon. With its vegetation, fertile soils and blackish water Msimbazi wetlands have been noted to attract and support the rural poor from different parts of the country. However, reasons for the in-migration and settlements tended to vary depending on the individual's capabilities.

Respondents whose motives were businesses, used the wetland for settlements while those with the motives of gardening settled in the locality to exploit the fertile soils that have been cumulated for millennia. The proportions of those that settled in the locality for fishing reasons were very few probably because of the limited fish catches due to the pollution conditions of the area. Sand quarrying is a third livelihood activity observed to prevail in the locality. The sluggish nature of the Msimbazi River results in the deposition of the sediment materials which given the growing markets of the materials has influenced a sizeable proportion of the respondents who are currently employed in the business of quarrying and selling sands to the housing constructors.

Similarly, the observation made in the study area discovered that, although livestock is not herded inside the wetlands as is in many other wetlands, it does not mean that

Msimbazi wetlands were not supporting livestock. The transect walk made within the wetlands encountered temporary routes used by small cars, motorcycles and tricycles that were used to harvest wetlands grasses as fodder crops for the livestock kept indoors in the city centre and its vicinities. Therefore, the resources within wetlands were used as summarized in Figure 4.3.

Legend
- Gardening
- Business
- Entrepreneur
- Sand Quarrying

4.27%

36.97%

57.82%
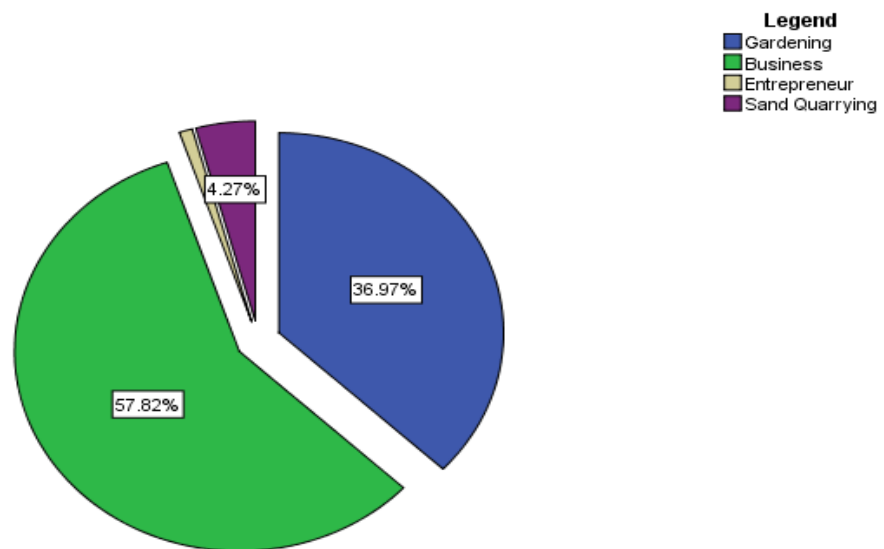
Figure 4.3: Perceived use of the Wetland Resources by the Respondents

4.3.1 Human Habitation

Learning from Figure 4.5, one notices that 58 per cent of all the respondents used the Msimbazi wetland for establishing settlements. This does not mean that people were interested in living in such a hostile environment but rather, it was the only way that could enable them to conduct their businesses in the city in the city centres. Even those who were employed in farming did so because of the lucrative market of their farm produce that was available in the city. While in the past the area was

predominantly settled by small farmers (see Palela, 2000), in the current time there have been gradual shifts from farming to more businesses in non-farm entrepreneurial activities. The study has also noted that changes in wetland use have come with the government's deliberate decision to enforce the existing laws and regulations for urban land use (see URT, 2019). Since 2015, wetlands occupants have been forced out of the area by the government order.

This study observed a large area of the wetlands, which is now starting to rejuvenate into a truly aquatic environment though there is a slow move of human habitation in the locality. This study was able to notice temporary sheds, which are currently used as farmhouses, which in the future have the potential of being turned into permanent dwellings in the future if the municipal authorities will not re-bound back to strictly enforce the law. It should be understood that the practice of relocating people from the so-called hazardous areas of the Msimbazi wetlands is not current. It has been reported in previous empirical works (see Palela, 2000; Kondoro, 1998 Jambia et al, 1996). The question one would ask is why people keep on coming back to the sites. The probable answer could thus be found in the motives behind the relocation. The situation may change in the future if the current redevelopment and improvements of commuting services in the city continue in the future.

4.3.2 Gardening

In the study area, gardening was reported to employ 37 per cent of all the respondents. Among these 59.8 per cent, owned plots on which they farmed and settled while 40.2 per cent used rented or hired plots. This study observed that together with the state's ongoing restrictions in terms of the use of wetland resources

for farming and livelihoods activities, evidence of farming activities was common throughout the wetland area, especially in the southern western part of the wetland between Jangwani Rapid Bus Terminal (RBT) and Kigogo area (Figure 4.4). It was astonishing to note to why farming activities were so rampant in the face of the current resource use restrictions for farming and human habitations.

Figure 4.4: Observed Economic Activities Conducted Inside the Msimbazi Wetlands

When the respondents were asked to comment on the means used to acquire land plots from the wetland, the commonly reported means were purchase (37.1 per cent), gifts (38.1 per cent) and/or rent (5.7 per cent). Based on the by-laws currently used, it is obvious the land acquisition was illegal as no one is allowed to settle in the

locality (see, URT, 2001). Whether illegal or not, gardening was noted to support the livelihoods of some wetlands occupants as the city dwellers needed fresh vegetable supply. Continued in-migration into the area and lack of alternative employment have been pushing some segments of the population into this livelihood activity. Analysis of the duration spent by the migrants in the locality portrays that in-migration is steady and for that continued lack of employment will remain the catalyst for more encroachments into the wetland resources.

This study noted that the in-migration into the locality follows closely the precepts of the network migration theory in which in-migration is fuelled more by networking (Maasey et al., 1998) and is an ongoing business in the area. The fact that the area is monitored by the city militia who do not seem to bother those who are performing gardening activities conforms to what the World Bank (2010) describes as quite corruption. Quite a corruption is the practice of the actors to turn their eyes blind to the abusers of the law and/or inject low efforts in the course of carrying out their duties. The fact that previous studies such as Musana (2018); Dominick, (2020) and Mungure, (2021), do not also evidence such practices describes that the findings of this study are consistent with the prevailing body of knowledge regarding the utilization of wetland resources in Tanzania.

4.3.3 Sand Quarrying

Cumulated sand along the bank of the Msimbazi River valley deposited there by river deposition was spotted by the wetlands dwellers as a resource of great significance. During the fieldwork time, the researcher observed heaps of sand that were being mined in the riverbank of the Msimbazi River valley. 4.3 per cent

involved in this study reported sand quarrying to be their major livelihood activity (Figure 4.5).

Figure 4.5: Sand Heaps Quarried along the Msimbazi River Valley at Jangwani Observation Point

Observation made by this study shows that this business flourished more along the Jangwani area northeast of the (BRT) central station. The business was particularly performed during the dry season when the river flow is very low and is a popular business not only in Msimbazi river valley but also in other valleys of similar nature. Sand quarrying has also been reported by other previous studies as a key determinant of river degradation in the locality (see Palela, 2000; Kondoro, 1998). The growing construction sector in the city is in all these studies reported to fuel the proliferation of the sand quarrying business. The municipal by-laws do not permit this but it has not been strictly enforced and individuals involved do not seek official permits from the city authorities. Its repercussion on the wetland resources and potential impact on

the city inhabitants is thus significant.

4.3.4 Fishing

Analysis of the opinions collected from the respondents indicated that the proportion of the wetlands dwellers who were employed in the fishing industry comprised 2.5 per cent only. Although this was reported to be one of the livelihood, activities conducted by the respondents it was clear that the activity was not popular. Observation made in the study area through the transect walk indicated that a larger part of the wetlands was virtually very dry due to the prolonged human interference. Before 2015 people used to live inside the wetlands. This act helped a great deal to drain water from the area. Information provided by the respondents during the discussion contended that the wetlands were only fully inundated during the rainy seasons but during the dry season, most of the wetland was virtually dry. The institution's gardening activities have in part responsible for draining water from the area.

Secondly, vegetation which would provide spawning grounds for fish was highly disturbed by human activities, especially rice cultivation and livestock forage harvesting. The study also noted that the greater part of the river channel was heavily polluted with domestic and industrial refuse. Evidence of chemical pollution would be revealed by elements of oil spills from adjacent industries and garages. The prevalence of land and water pollution in conjunction with vegetation destruction in most of the wetlands would explain why fishing activities were not popular. Vegetation destruction means that fish have no nowhere to spawn while water heavy water pollution indicates that only extremely few fish species would be able to

prevail in such a hostile environment.

What is revealed by this study could be correlated with what Musana (2018) and Gwalema (2022) observed along the Lake Rukwa wetlands. Together with the government and donor communities in formulating strategies to involve the local communities in the conservation of wetland resources through the so-called JILINDE organization, the decline in the fish catch continues to manifest itself as farming and feeding livestock in the wetlands helped to destroy hatching grounds for fishes in the locality. In addition, mining pollution was concluded in Gwalema's (2022) study as a causative agent for the stunting growth of fish catches in the wetlands. Therefore, unless the resources are left intact to replenish themselves, there is no way fishing activities will be a dependable source of livelihood for the surrounding communities in and around the Msimbazi wetlands.

4.3.5 Livestock Keeping

Wetlands have been the focus of livestock keeping but for Msimbazi wetland, this was not the case due to its location in the heart of the Dar es Salaam city. Observation made in and around the wetland, resources could not identify a single livestock grazed in the wetlands. However, the absence of evidence for the livestock use of the wetland resources does not mean that the ecology was void of domestic animals. Close observation of the location revealed that Msimbazi wetlands supported as well the livestock sector. Most of the livestock supported by the wetland resources were those that were grazed indoors downtown. Instead of taking the livestock into the wetlands, pastures were harvested daily and used to feed livestock at home. Contrary to other areas where cattle track indicates the presence

of livestock rearing, in the Msimbazi wetlands case, the cattle track was replaced by car motorcycles and tricycles that were used to harvest forage (Figure 4.6).

Figure 4.6: Routes used by Livestock fodder Crops within Msimbazi Wetlands

The information depicted in Figure 4.6 is not a shortcut road to Mkwajuni. It is instead a road used by the local communities to areas where they harvest forage grasses for livestock kept indoors outside the Msimbazi wetlands. It has to be understood that although Msimbazi wetlands are not fully protected by the law, Municipal by-laws, which are used to govern the resources, do not permit free use of the wetlands for livestock keeping. This could be the reason why people do not take livestock there instead pasture requirements are met through harvesting wetlands grasses. Given the condition of the milk market in the city, this study observed this to be an ongoing livelihood activity with a great potential of destroying the wetland resources shortly. This is an emerging one as previous studies done in the area (see Palela, 2000; Kondoro, 1998 and Jambia et al., 1996) do not report it and is expected to compete with the current plans of turning the wetland resources into the city

garden (URT, 2019).

As of present, the condition of the wetland resources of Msimbazi discourages other livelihood activities such as eco-tourism from flourishing. The high levels of pollution and fouls prevailing there discourage people from spending time just for aesthetic enjoyment. It is because of this condition that wetland is perceived negatively by many respondents as fits for nothing. Of all the respondents, 55.7 per cent could not see the value of the resources while 44.3 per cent were the ones who perceived the wetlands resources as an area fit for gardening activities. Together with the prevalence of gardening activities, not many city dwellers prefer to use vegetables and fruits produced in the Msimbazi wetlands because of the high levels of pollution.

As noted above, the majority of the respondents prefer to live in the location for reasons other than farming, fishing and livestock rearing. Currently, one of the big establishments so far made in the area is Central Park of the BRT. However, the park suffers frequent closures during the rainy seasons because of the incidence of flooding. There is still a need for the city authority to see to it that human habitation is discouraged in the wetlands as the potential benefits of leaving the resources intact is higher than allowing people to settle freely in the locality.

4.4 Determinants of Msimbazi Wetlands Resources Degradation

The set of livelihood activities described in the preceding discussion explains the key determinants of the Msimbazi wetlands degradation. Of the most, pressing ones are the farming and trading activities within the 60m of the wetland's resources; increased settlements within the 60 metres of the wetlands and the irresponsible law

enforcers.

4.4.1 Farming and Trading

Observation made in the study area indicated that gardening activities were established right inside the wetland resources exposing the fragile ecosystem to other degradation forces under the influence of running water, winds and waves. This was conducted by the marginalized urban poor people who live and work in the locality. Consulted respondents reported that farming activities had the upper hand in the degradation of the wetlands. 78 percent of all the respondents were in agreement with the contention while only 19 percent did not second the contention leaving only 3 percent of the undecided respondents.

Cross-tabulation of the collected opinion indicated that this was a survival strategy done by all people irrespective of their economic activities to which they had much subscribed (Table 4.3). The majority of those employed in the gardening activities were also those who were doing petty trades. This study was able to notice scattered farm plots with different crops that were in different stages of growth. These activities were noticed to commence right inside the wetlands. For that much, their consequences on the resource were thus remarkable.

Table 4.2: Proportions of the Respondents Employed in Gardening in Msimbazi Wetlands

| | | Occupation | | | | | |
		Peasant	Fisher men	Petty trader	Craftsmen	Entrepreneur	Total
Gardening	Count	2	1	34	2	25	64
Business	Count	1	1	61	5	31	99
Entrepreneur	Count	0	0	0	0	2	2
Sand Quarrying	Count	0	0	3	0	1	4
Total	**Count**	**2**	**1**	**63**	**5**	**33**	**104**

Percentages and totals are based on respondents.
Source: Field Data (2023).

Cases of urban wetlands degradation through farming and businesses have also been documented by other studies elsewhere in the world and is a potential threat to many all wetlands in Tanzania in general. Conflicting interests between farming and herding along the Rukwa wetlands resources were reported by Musana and Gwalema (2019) to be the determinants of the degradation of the said resources. Similarly, the degradation of the urban wetlands was the function of overgrazing, urbanization, waster damping and rapid population growth, which in turn triggered conflicts between farming and other people around as both of them needed wetlands for different purposes.

Basu, et al (2021) who reports also share this opinion that the degradation of urban and peri-urban wetlands is mostly the result of rapid urbanization, which in turn generates immense stress on the urban and peri-urban wetlands resources. To him, this problem is accentuated by the absence of proper infrastructural plans and planning maps. For the case of Msimbazi wetland, the conflicting perception of the wetland's resource use is expected to commence between the current resource's occupants and the city authorities shortly given the current efforts of making the area a city park with multiple functions other than farming and settlements (URT, 2019). Therefore, unless proper plans for containing the rural-urban migration are put in place or mechanisms that will accommodate urbanization are established if the current trends of wetlands in-migration continue may result in the disappearance of the wetland resources.

4.4.3 Increase in the Informal Settlements

Informal settlements in the Msimbazi wetlands may be described by the human

habitation in the area without observation of the rules and regulations that govern the current use of the resource in question. Analysis of the respondents' opinions sensed out in the field indicates that there is a connection between informal settlements and Msimbazi wetlands degradation. Observation made by this study in the locality shows that although the resources in question are governed by the urban land use plans, people have continued to encroach on the resources over time. Since the municipal authorities have not allocated plots in the wetlands this means that those that have settlements over there did so without permits. Because of that, the city authorities have time to conduct a series of operations to relocate people from the wetlands, which has been, counterbalanced by the steadily increasing trend of people returning to where they were evacuated before.

Figure 4.7: Settlements and Pollution of Msimbazi Wetland

During the fieldwork time, this study observed that the rate of relocating back to the wetlands was on the increase. Illegal settlements in the locality go hand in hand with farming and trading which in turn increases the rate of wetland pollution (Figure 4.7)

Information deduced from Figure 4.7 justifies the contention that the degradation of Msimbazi wetlands is facilitated by formal and informal social structures. For example, the establishment of farms and temporary dwellings in the locality results in the degradation of the wetland resources as these activities contribute to various sorts of wetland pollution. During the fieldwork time, the researcher was able to observe various kinds of human refuse that found their way into the river channels that were spilt onto the flood plain as pollutants. Similarly, the official establishment of the BRT Central Park and service station within the wetland is a deliberate state decision, which contributes to the wetland's degradation. Several studies such as Juma (2022) and Andrew (2022) report on the beneficial part of the BRT on the economic development of the Dar es Salaam city.

However, the activities undertaken by the BRT Central Park yield different sorts of chemical pollution along the waterways which includes various oil spills and other chemical materials. One of the consequences of wetland pollution is the existence of fermentation in the Msimbazi river channels and the increased nature of water lilies that have massively invaded the wetlands in different sorts of resources. In Tanzania problems of similar nature have been reported along Lake Victoria (Odada and Kulindwa, 2004), Lake Rukwa (Gwalema and Malata, 2018) and even in Kampala (Warsame et al 2022)). This problem is common and has also been empirically established in other cities of the world that have wetlands resources within.

4.4.3 Negligence Problems

During the fieldwork, respondents were asked to comment on what they perceived to be the cause behind the declining nature of the wetland resources in the Msimbazi Valley. Of the commonly responded factors was the increasing number of people settling within 60 metres of the wetlands. 93.3 per cent of all the respondents thought that spontaneous settlements of the human population in the wetland were highly facilitated by the urban authorities themselves. In other words, city officials were not doing enough to enforce the existing by-laws that would ensure the proper protection of the wetland resources.

The World Bank (2010) states that corruption is the act of not doing what is right. The bank goes on to describe it as the act of the officer in charge of turning an eye blind to the rightful action to be taken. The respondents also alleged officials take bribes from those interested in exploiting the resources found in the wetlands. The assertion provided by the respondents was justified by the author himself during the fieldwork as witnessed the proliferation of gardening and quarrying activities going on as if the concerned parties were legalized. These activities were also conducted under the eyes of the law enforcers who did daily monitoring of the resources

Further inquiries were made to some respondents as to why the law enforcers were not taking to task individuals who were doing the sand quarrying, the straight answer provided was connected to corruptive practices. They claimed that gardeners and sand miners were able to do so after brushing the city guard officers. Whether this assertion was true or not correct could not be justified by this study as it was beyond its scope. What this study could establish is the fact that there was a connectivity

between negligence and degradation of wetland resources, an act, which was also reported in other studies of similar nature (see for example, Musana, 2018; and Gwalema, 2019); Benjaminsen and Ba (2008). In addition, Brockington (2006) reported an assertion similar to this in which invaders of the wetlands of the lake Rukwa used bribery to gain access to the wetland resources. The case is common in wetlands located in protected areas such as in national parks where illegal fishermen bribe the park rangers to gain access to the resources.

An important issue raised by this study is that negligence, which is a deliberate action of not taking action for one to carry out rightful duties, is the cause behind Msimbazi wetland degradation. It is, however, the government's intention to ensure that this resource is fully protected and several efforts have been made to ensure that this is made possible but full protection of the resources has not been affected. Some scholars such as Kamkala (1992), Hughes, and Hughes (1992) perceive this problem to be associated with the lack of policy that would protect the said resources. Partial protection of the resources has been an issue not only for Msimbazi but also in all other wetlands resources in Tanzania in particular Africa and the world in general (see for example, Keddy, 2000; Hughes and Hughes, 1992).

To recap, it is enough to say that Msimbazi wetland degradation is made so because of the lack of proper policy for resource protection and the negligence of the by-law enforcers to deliberately carry out their duties in the rightful manner. Consequently, the local communities have taken the law into their hands to carry their business right within the resources including establishing businesses and settlements within the restricted 60 meters of the wetlands. Therefore, unsustainable human activities

when coupled with negligence in the enforcement of the environmental by-laws have resulted in the continuance of resource degradation as so far noted in the above discussion.

4.5 Impact of the Wetland's Degradation on the Urban Poor

During the fieldwork, respondents were asked to provide their opinions on what they perceived to be the repercussions of the degradation of Msimbazi wetlands on their daily livelihoods. The responses provided are displayed in Figure 4.8. Looking at the information in Figure 4.8 one notes several issues of great concern. These will be discussed shortly.
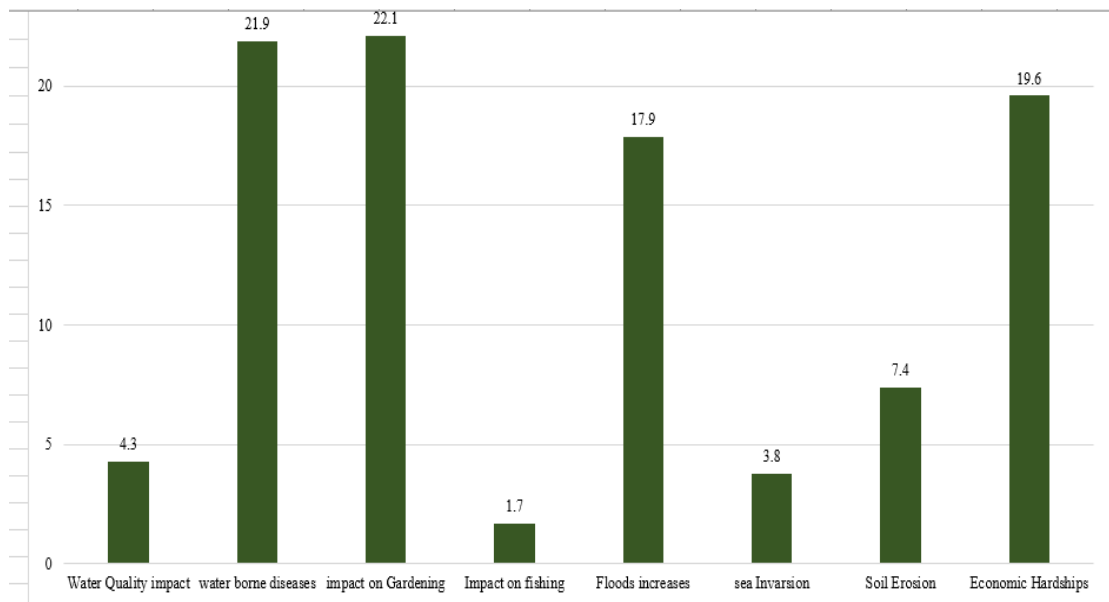
Figure 4.8: Perceived Impacts of Wetland Degradation

4.5.1 Prevalence of Waterborne Diseases

Waterborne diseases are illnesses, caused by microorganisms found in untreated or contaminated water. In the study, area respondents identified waterborne diseases to include Malaria (52.53 per cent), Cholera (14.14 per cent), Rashes (12.1 per cent)

and Dysentery (9.09 per cent). A summary of the same is presented in Figure 4.9.
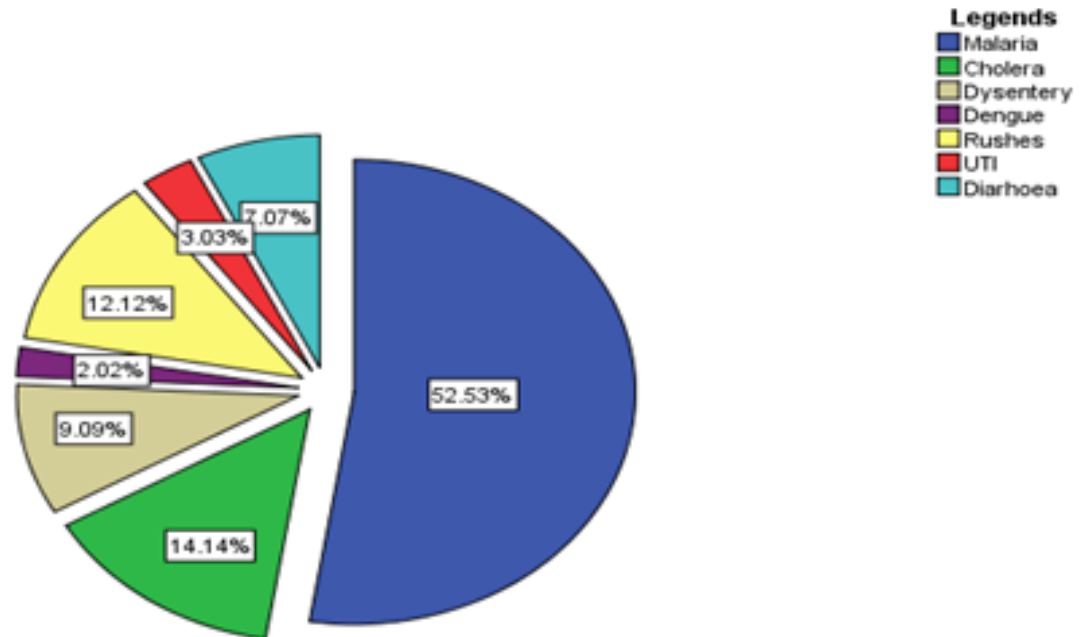
Figure 4.9: Perceived Waterborne Diseases affecting Msimbazi Wetlands Dwellers

While malaria is a typical disease in most lowland areas and especially along the coast, the other diseases were linked to pollution. Cases of rashes, dysentery and cholera were common cases associated with the use of polluted water for drinking and/or bathing. Wetlands harbour different varieties of insect species some of which bites human being. Ramsar Convention Secretariat (2012) does not identify rashes as wetland disease but given the condition of the resources by now, it is obvious that insects are on the increase due to the current trends of climate change. Malaria was the leading disease in the locality.

The prevalence of Malaria is not astonishing as it matches the general trends of the disease in Dar es Salaam (see NBS, 2018). For that much, at least 41.5 per cent of all the respondents reported having suffered from one of the above infectious diseases

while some of them reporting to have lost loved ones. The findings of this study tally well with the general condition of the wetlands. Wetlands have been designated as disease-stricken areas and that is why in the past the area was perceived as useless (Maltby, 1986) and were not unique as similar cases have been reported in other parts of the world where studies of a similar nature were conducted. Problems of waterborne diseases especially those which are related to pollution are noted to be common in many wetland areas.

Scientific studies done by Mkuula (1993) in the same area reports that such health problems are commonly associated with the presence of substantial amount of organic matter, nutrients and chemical pollutants. Again, bacteriological investigations carried out in the locality attest to the fact that human faecal contaminations of the river make its water unsuitable for domestic use but when the occupants use it, they end up suffering from numerous kinds of diseases as above reported.

4.5.2 Increased Frequencies of Flash Floods

Incidences of flash floods were reported by 17.9 per cent of the respondents as a pressing issue in the study area. Naturally, the Msimbazi wetland was used as a buffer zone that works to absorb floods. As such, it has been an ecological service enjoyed by man without knowing it for millennia. As of current, Msimbazi wetland is surrounded by many built structures that collect water from corrugated irons later to be filtered into the wetland. The ongoing encroachments of the resources mean that increased volumes of water collected after torrential rains find their way into people's dwellings, which means that increased human settlements have also

increased the frequency and magnitude of the flash floods.

In discussing with the respondents, it was learned that 54.6 per cent of all the respondents had experienced incidences of flooding whenever there were heavy rains. An obvious report was on the severity of the floods itself. 63.8 per cent of the respondents reported that frequent floods had affected them economically. A basic issue noted by this was that, although floods affected them negatively, the majority could not be able to predict their timing so that they could avoid them. The cause behind this problem is, however, connected with the nature of the rains that come over Dar es Salaam, which is in most cases not predictable. This situation may be accentuated by the ongoing trends of climate change, which is a worldwide phenomenon.

In many lowlands, communities' incidences of floods are a blessing as flooding helps in improving soil fertility but this was not the case for Msimbazi wetlands dwellers as 78 per cent of all the respondents connected flash floods with loss rather than opportunity. Perception of floods as a nuisance was reported by Basabuih and Melissa (2017) in Ethiopia where changes in the wetlands resources resulted in the outbreak of diseases and increased incidences of flash floods as the resources could no longer provide protection services.

The same observation was also noted among the communities living closer to Lake Yala wetland in Kenya where increasing degradation of the wetlands resulted in water pollution problems, siltation, floating biomass and flooding. Together with the destruction of life and properties, it also increased incidences of disease outbreaks,

which affected negatively the livelihoods of the people. In all cases, cited floods could not be perceived as an opportunity but rather as a loss (Thenya, et al., (2006). In Msimbazi's case, its consequences were associated with frequent resettlements of the local inhabitants.

4.5.3 Increased Poverty and Economic Hardships

Poverty and economic hardships were reported by 19.6 per cent of all the respondents and were said to be associated with many factors. The most raised issues included the lack of occupancy legality in the area whose consequences were property loss from frequent resettlement programs carried out by the city authorities, especially during the heavy flood's incidences. It was reported that since 2015 when the fifth government regime came into power the government strict measures have been impinged on the residents of the Msimbazi wetlands, the majority of the resident dwellings were demolished, and people were evacuated by force. Those who happened to escape the exercise had no confidence to carry out their economic activities because of the fear of being taken to task. The matter was complicated more by the increased frequency of flash floods, which come with property destruction and increased outbreaks of infectious diseases and pollution cases.

The interviewed respondents also reported the problem of interferences in their daily livelihood activities received from the city law enforcers who oftentimes were alleged to ask for bribery. All these incidences contributed to making life unbearable. Economic hardships were also revealed in other areas of similar nature such as in and around Yala wetlands in Kenya (Thenya et al 2006). A similar incidence was observed in Zimbabwe where the degradation of the Mutubuki

wetland resulted in the reduced quantity and quality of the function and products of the ecosystem, which in turn impacted negatively the economic status of the local people making the other hand life unbearable (Hardlife et al., (2014).

Similarly, the increased loss of wetland resources in Ethiopian wetlands was reported by Basebuih et al (2017) to have negatively affected the livelihoods of the wetland dwellers and increased more hardships in their lives. In other localities, the degradation of the wetlands has increased closer contact of wildlife and people which in turn has increased the risks of being exposed to zoonotic diseases (Altiman, 2023). In their totality, these challenges increase economic hardships for the residents and poverty as recapped in the preceding discussion.

4.5.4 Impact on Farming and Fishing Activities

Gardening which is one of the livelihood activities through which the wetland dwellers depended on was reported by 22.1 per cent of all the respondents to be adversely affected by the degradation of the Msimbazi wetlands resources. Pollution of the wetlands was reported to be the reading factor that impeded farming activities. It should be understood that Msimbazi wetlands are fed by several rivers which traverse through the Dar es Salaam city and as such, rivers pollution are both point and non-point in nature. During the fieldwork, the researcher witnessed heaps of pollutant materials scattered all over the wetlands.

Additionally, the flowing water had indicated all evidence of being polluted. One could easily notice traces of oils from industries and nearby garages. Accumulation of these pollutant materials contributes to destroying farming lands as they are said

to affect the rooting systems of the plants and the ability of the soil to retain moisture, especially during the dry seasons.

Additionally, liquid pollutants which were in the form of chemicals were some of the forms of pollution which had a far-reaching impact on farming activities and as well as to the health of the wetland dwellers. It was narrated by one of the respondents that harmful chemicals once absorbed by the plants are retained in plant tissues which when ingested by humans or animals may lead to various health complications. During the fieldwork time, evidence of chemical pollution was shown by the presence of fermented stagnant water and in some points of the rivers. The prevalence of water lilies is indicated as well as the presence of some nutrients in the water that is not healthy to human being. The use of such polluted water in gardening activities impacted negatively the marketability of the vegetables and other farm products.

Some respondents indicated how difficult it was to sell fruits and vegetables thought to be harvested from the polluted Msimbazi wetlands. Respondents reported that this challenge affected them negatively. The impact of wetlands degradation on the livelihoods noted in Msimbazi wetlands was thus consistent with those observed by Stayanova and Harizanova (2019) and those by Munishi et al, (2012) and Sarathamani et al. (2014). In addition, Mkuula (2023) report another pollution case, which is common to Dar es Salaam and in other major cities, which is wetlands water contamination due to human faecal, and water from the urban animals' industry.

In all cases, it was noted that wetland water affected planted vegetables and perennial crops in different ways as the pollutants discharged from adjacent industries degraded the soil quality and quantity apart from resulting in the loss of croplands, chemicals absorbed by vegetables once ingested by human beings resulted into different complicated health problems. Although local states have been at the forefront of restricting people from using polluted wetlands for livelihood activities, this has not been possible hence the consequences. Other noted challenges reported comprised soil erosion (7.4 per cent), water quality degradation (4.3 per cent), sea invasion (3.8 per cent) and impact on fishing (1.7 per cent). All these cases have negative impacts on the livelihoods of the wetland dwellers.

These problems are chronic in the area because of the steady growth of the human population and the inability of the city systems to administer wetlands due to the lack of proper policy addressing wetland issues. For that, much there is no way that the water can be used for different human uses including domestic use, swimming and vegetable irrigation. Because of the high levels of wetland pollution, interviewed respondents reported preferring fewer fish from the wetland. Thus, this state makes fishing less popular in the area.

4.6 Perceived Solution to Wetlands Degradation

During the fieldwork time, respondents provided different views, they have over the cause and consequences of the Msimbazi wetlands degradation; they again asked to provide opinions on what they perceive to be the solution behind the restoration and conservation of the resources found in the Msimbazi wetlands (Table 4.2).

Table 4.2: Perceived Solution to Wetlands Degradation

Opinion	Agreement Levels	Total Percent
1. Involvement of all stakeholders in wetlands conservation	Strongly Agree	96.9
	Agree	2.3
	Disagree	.8
2. Merge traditional and modern Conservation Methods	Strongly Agree	97.7
	Agree	1.5
	Strongly Disagree	.8
3. Provide Conservation Education	Strongly Agree	98.5
	Agree	1.5
4. Rehabilitate wetlands while eradicating Poverty	Strongly Agree	93.1
	Agree	2.3
	Not sure	2.3
	Disagree	2.3
5. Improve conservation policies	Strongly Agree	98.5
	Agree	1.5

Source: Field Data, (2023).

By looking at the information depicted in Table 4.2 one notes five lines of opinions. Generally, the majority of the respondents agree that something must be done to restore the resources in question. The first concern of stakeholder's involvement in the restoration of the wetland resources is also shared with the government conservation philosophy, which since the 1980s there has been a shift in the world community outlook on how natural resources ought to be conserved. Involvements of the local communities in the conservation of resources have been pioneered in different natural resources although there remains a mismatch between theory and practices.

Studies conducted by Kideghesho (2006), Goldman (2003) and Wilfred (2010) portray how the state is still hesitant to provide full power to the local communities in the question of development, management and preservation of the natural resources. Therefore, instead of fully participating, local communities are only partially involved in the management of resources. Thus, these mistrusts deny local

communities the right to fully manage the resources in question. However, in the case of Msimbazi Valley development, there is a light of the community's full involvement in the re-development of the wetlands resources which is currently championed by the government of Tanzania and the World Bank (see URT, 2020).

The question of conservation education was raised as an important step to be taken in the course of ensuring that the resources in question are restored. Reading through the World Bank project paper mentioned above a notion of mass education is taken into consideration but an issue here of great concern is the kind of education that the local community needs. Most policy documents currently in use consider the Western natural conservation discourse as appropriate and which ought to be followed by the local communities. While this discourse has been in use, the same does not seem to fit in the African nature conservation contexts. Some scholars such as Homewood (2008) argue that the Western conservation discourse is not appropriate to use in Africa. The author suggests the use of local conservation models, which are capable of blending the modern conservation discourse with the traditional conservation discourses. This is what the respondents in this study also did.

It should be understood that before the coming of the whites in Africa and Tanzania in particular, communities that lived in the Msimbazi River valley used to manage the resources in question using traditional conservation methods which were sadly replaced by the western conservation policies. This means that the local communities have sets of conservation principles perceived to be appropriate to the conservation of wetland resources. Unfortunately, this knowledge is not used in the management

and conservation of wetland resources. Empirical studies done elsewhere in the world have shown that traditional methods when properly aligned with modern conservation approaches work swiftly. Local knowledge means a set of practical information accumulated over generations in a specific area. This knowledge includes local agricultural techniques, the knowledge of edible or medicinal plants, the religious skills of rituals and knowledge of local social systems (Scott, 1998).

In Thailand, NGOs utilized the local knowledge of forest management as an argument to support their claim for the superiority of local people's natural resources management over that of the state. The superior nature of the local knowledge was claimed as a solution to the failure of the large state projects, which caused ecological destruction, and damage to the local community. Mukul et al (2012) study indicates how the local religious and/or spiritual beliefs favour conservation of the biodiversity at both species and habitat levels has been able to conserve the biodiversity of the areas for millennia. The powers of traditional knowledge in natural resource conservation were evidenced by the study results done by Bortolomiol et al. (2018) in the area of the Kibale National Park of Uganda. In this locality, the author noticed that although humans and wildlife were legally disjointed, the traditional wildlife and spiritual contact with nature maintained were crucial in the conservation of the primates of the area.

Although the cited studies do not directly address the issue of wetlands resources conservation an important message consistent with the findings is that there is a need for forging a better integration of nature conservation with the local conservation knowledge of the local people as this may help to motivate the wetlands

conservation behaviours that may contribute in promoting sustainable management of the resources in question. Other concerns raised by the respondents, which they thought properly implemented, would contribute to sustainable wetland resources conservation was the issue of wetlands rehabilitation, poverty eradication and policy formulation. Between 93 per cent and 98 per cent of all the respondents were in support of the issue.

When asked to comment on this contention their basic argument was that between 2015 and 2020 the city authorities embarked on solving the problem of frequent floods in the Msimbazi valley by enlarging the river basin and periodically removal of the pollutant materials. While this exercise while undertaken every year has to some extent reduced the flooding severity, to them it remains a temporary solution to the problem. To them, there is a need to tackle the root cause of the problem other than the symptoms. In their opinion, poverty was the underlying cause of wetlands encroachments and degradation. Although this study did not venture beyond knowing the economic status of the respondents, by learning from the socio-demographic background of the respondents, it is obvious that the urban poor inhabited the wetland. It was thus suggested that improvements in the river flow through river channel enlargements and clearance would have gone hand in hand with improving the livelihoods of the local communities. This was because they were the key polluters of the resources.

Wetlands have been for a long time without proper protection and this has been an international issue. Previous studies by Keddy (2010), Bakobi (2003), and Hughes and Hughes (1992) all justify the fact that wetlands resources are not fully protected

by the law and that those which are protected comprise those which fall under certain sets of protected areas. For example, wetlands, which are found in national parks, are protected by the wildlife conservation policies while those under the jurisdiction of the watersheds are protected by the National Water Policy. Wetlands located in urban areas, those, which fall under the village lands usually, lack proper protection, and these are the ones, which are severely degraded (see for example Warsame et al., 2022; Liberath, 2017). It is thus on this concern that respondents were in suggestion that to restore the resources there is a need to ensure that these resources have specific laws and policies that regulate them.

The opinion provided does reflect what other researchers have suggested in principle. Researching the wetlands degradation condition in Uganda, Wasrsame et al., (2022) suggest the need to develop a policy framework that will encourage the sustainability of the Kampala city wetlands including among others enforcements and procedures that will control and stop destructive anthropogenic activities that pervade the wetlands. Arguing in the same vein, Li et al (2022) assert that policies formulated ought to emulate the notion of co-management, as this can promote greater participation of the local communities in the management of the resources.

For Newaz and Rahman (2019), co-management ought to go hand in hand with strengthening the community organization through a collaborative process. All the surveyed literature agrees in principles with the findings of this study regarding the necessity of co-management, which unfortunately in Tanzania is yet to be closer to the reality despite that since the 1980s many natural resources conservation policies have been formulated with aspects of local communities' participation (see for

example Kideghesho, 2006 and Goldman, 2003).

4.7 Summary

The findings of this study have revealed that Msimbazi wetlands are resided by people who have in-migrated to the area from different parts of Tanzania where nearby regions such as Morogoro, Coast, Kilimanjaro and Tanga have a greater representation of all the respondents. It has also been revealed that most of these migrants have had a longer stay in the locality. The primary use of the wetland resources is settlements, petty trades and gardening. Other livelihood activities such as sand quarrying and fishing are also performed but their performance is at a lower scale in comparison to business and settlements. Centrality to the social services within the city, ease of transport and nearness to the hub of the city businesses are among the decisive factors that have been pulling migrants to the locality.

It has also been established the livelihood activities conducted in the area, which are petty trades, gardening, sand quarrying, and fishing have an upper hand in the degradation process of the Msimbazi wetlands. Spontaneous settlements in the wetlands apart from reducing the size of the wetlands contribute to all sorts of pollution on the resources. Both migrants and the government have equal shares in the degradation of the wetland's resources. While migrants have established gardens inside the wetlands and informal dwellings near the wetlands, the government in its turn has established the Bus Rapid Transport terminal office and a garage, which equally pollutes the wetlands.

The consequences of the Msimbazi wetlands degradation hurt the wetlands dwellers, which includes among others the proliferation of different waterborne diseases and

those resulting from consuming resources produced from the polluted soils and water. Additionally, pollution by solid materials such as plastics and other materials has tended to block the waterways thereby reducing the capacity of the wetlands to regulate floods. Therefore, the obstruction of the waterways has caused water to find its way into people's houses thereby increasing the incidences of loss of lives and properties. The chapter ends by suggesting the need to formulate wetlands conservation policies, which involve the local communities in the process of managing and conserving wetland resources. Therefore, the development of the wetland resources should go hand in hand with eradicating the poverty of the basin dwellers.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Overview

This chapter presents a summary of the major findings of the study. It then proceeds to provide the conclusion based on the specific objectives addressed by the study. It ends with the presentation of the recommendation divided into recommendations for policy action and recommendations for further research.

5.2 Summary

This study was set out to provide un understanding the impact of Msimbazi wetland degradation on the livelihoods of the urban poor population. It was guided by three specific objectives with the intent to examine the sets of livelihoods activities, which are conducted on the wetland resources of the Msimbazi wetlands; the impact of these activities on the wetland's ecology and the consequences of the wetland's degradation on the livelihoods of the poor whose livelihoods were dependents on the resources in question. A set of prepared questionnaires were administered to 137 randomly sampled from Msimbazi wetlands. Data collected were analysed quantitatively using IBM version 24 to establish result patterns that have been used to answer the research question addressed by the study. The overall results and the conclusion reached are thus presented in the proceeding section of this chapter.

5.3 Conclusion

The conclusion of this chapter is done under the guidance of the research question addressed by this study.

5.3.1 Resources and Livelihoods Activities of the Msimbazi Wetlands

This objective intended to establish resources that support the livelihood activities of the inhabitants of the Msimbazi wetlands. The study has three kinds of resources, which are the wetland, sands and aquatic vegetation. It has been noted that these resources support three major livelihood activities, which include petty trades, gardening and sand quarrying. Other activities such as fishing and livestock rearing were not significant due to the nature, location and quality of the wetlands. Contrary to other wetlands where farming and livelihood keeping are dominant activities, the principal use of the Msimbazi wetlands was for the provision of human habitation and petty trades.

Its central location to the city business hub and the challenges of transport in the city were the major influential factors behind the use of the location for habitation other than farming. Therefore, based on these findings, the study concludes that the principal livelihood activities pursued by the dwellers of the Msimbazi wetlands for the current time are petty trade, gardening, sand quarrying and harvesting fodder pasture grasses for indoor livestock keeping which are accompanied by a larger extent with illegal settlements establishment.

5.3.2 Determinants of Msimbazi Wetlands Degradation Resources

The second objective intended to establish the current determinants of the degradation of the Msimbazi wetlands resources. The findings of the study have revealed that the degradation of the wetlands is a function of the various formal and informal livelihood activities performed within and adjacent to the wetlands. Pollution is the far-reading factor behind the deterioration of resources, which is

accompanied by the conduction of domestic activities. Ongoing gardening has also an upper hand in speeding up the deterioration of the quality of the resources as it has stripped out the vegetation of the wetlands. The conditions are worsened by the conduction of sandy quarrying in different sections of the river basin. These activities contribute to the degradation of the resources.

Furthermore, the establishment of the BRT garage and central station within the wetlands broke the waterways thereby contributing to the incidences of floods. It is also an important source of water pollution. In light of this objective, it can thus be concluded that the degradation of the wetlands is contributed by illegal settlement establishments, farming, sand quarrying and petty trades and the industrial refuse from adjacent industries and from the BRT central bus terminal and workshop.

5.3.3 The impact of Degraded Msimbazi Wetlands on the Livelihoods of the Urban Poor Communities

In light of the third objective, this study has found that the degradation of the Msimbazi wetlands hurts the livelihoods of the inhabitants, which range from the prevalence of infectious diseases such as Malaria, dysentery, diarrhoea and rashes. Malaria is very common while rashes are associated more with pollution of the water. Frequent flooding which ends up destroying people's properties and human lives was rampant. The problem is connected to the obstruction of the waterways in the Msimbazi River channel. In addition, establishments of the farms inside the wetlands, and livestock pasture harvest have reduced the size of the area covered by vegetation, which in turn has increased the size of the land, which is bare. On the other hand, it means that De-vegetation of the wetlands exposes the land to severe

soil erosion. The matter is complicated more by the increasing trends of sand quarrying which removes deposited sands that would be deposited along the shoreline to counterbalance the wave erosion and deposition. To sum up, the degradation of Msimbazi wetlands affects negatively the inhabitants of the area by exposing them to frequent flash floods and the spread of water-borne diseases.

As far as this problem is concerned, the study ends by suggesting that the city authority ought to collaborate with the inhabitants for the wetlands to formulate wetlands conservation policies, which take into consideration the local communities in the management and conservation of wetlands resources. In other words, the development of the Msimbazi wetland resources has to go hand in hand with eradicating the poverty of the basin dwellers.

5.4 Recommendation

Based on the above, this study recommends as following

5.4.1 Policy Recommendations

i. Strict measures, which were taken by the government between 2015 and 2020 to forcefully remove illegal inhabitants from the Msimbazi wetlands have shown that the wetlands can quickly return to their original state if, left intact. As of current, areas, which have been left on their own to regenerate, are picking up quickly. This means that Msimbazi wetland is capable of returning to its original state and thus being able to provide its original ecological goods and services needed by the city dwellers. In light of this observation, this study suggests to the policymakers and implementers to design mechanisms that will keep people

away from the boundaries of the wetlands.

ii.   It has been established that the degradation of the Msimbazi wetlands is in one part facilitated by the lack of the proper policy that would regulate the use of the resources. Illegal establishments of settlements and businesses inside the wetlands it is a reflection of the lawlessness condition that prevails in the locality. To rescue the resources from vanishing, this study suggests that policymakers, formulate, and strictly enforce the wetland conservation policy capable of regulating the use of the resources.

iii.   During the fieldwork time, this study witnessed the presence of the city militia who monitored the day and night the wetlands. These laws need to be monitored as most were alleged to be corrupt. Although the subject of corruption was not part of this study, the fact that illegal activities such as gardening and sand mining commenced in the eye of the law enforcers indicates elements of negligence, which is an aspect of corruption. In light of this observation, it is suggested by this study that the law enforcers tasked to monitor the resources need to be closely monitored and ensure that they carry out their activities more diligently.

iv.   Efforts made by the government to rehabilitate the wetland resource to retain its original state of function, will not be successful if they are conducted without combined poverty eradication of the local inhabitants. This study suggests that efforts to restore the wetlands ought to go hand in hand with improving the livelihoods of the local inhabitants. There is also a need to formulate containment policies capable of handling rural–urban migrants who upon coming to Dar es Salaam end in developing shunt towns in the Msimbazi wetlands.

Cheap housing schemes and continuing efforts to improve efficiency in city transport may create an enabling environment that will make people leave the wetlands intact.

v. Areas where the local natural resources conservation knowledge has been integrated into the accepted wisdom of nature conservation such as Bangladesh have shown positive results. Since the current conservation philosophy calls for the involvement of the local communities in the development and management of natural resources, the current wetland policy in formulation ought to include traditional wetland conservation knowledge and ensure that it is more participatory. A sense of resource ownership will be important in capturing the local communities' maximum cooperation in the conception, development and management of wetlands-related projects in the Msimbazi River Basin.

5.4.2 Recommendation for Further Research

This study limited itself to how the degradation of the Msimbazi wetlands affects negatively the livelihoods of its dependants. In the pursuance of the study, several issues have surfaced which could not be dealt with by this study as they were out of its scope. These issues are worth investigating and for that much, this study recommends further studies in matters related to wetlands degradation and their solution to take into consideration the issue of how local conservation knowledge of wetland resources could be incorporated into the current wetland conservation discourse. This is because this knowledge is still relevant but the current conservation practices have tended to obscure it. Given the fact that this knowledge is still relevant, there is thus a need for further empirical inquiries into the modalities

of incorporating them into the current conservation discourse for the sustainable future of our wetlands. This study thus suggests that further research be focussed on this area.

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APPENDICES

APPENDIX 1: DODOSO JUU YA ATHARI ZA UHARIBIFU WA ENEO OEVU (TINGATINGA) LA BONDE LA MTO MSIMBAZI KWA WANANCHI

Habari,

Jina langu naitwa JUMA HAMADI. Ni mwanafunzi wa shahada ya Udhamili katika Chuo Kikuu Huria cha Tanzania (CKHT). Kwa sasa niko kwenye hatua ya utafiti unaojihusisha na kuangalia *Athari za uharibifu wa eneo oevu (Tingatinga) la bonde la mto msimbazi kwa wananchi waishio na kutegemea bonde hilo.*

Utafiti huu ni wa kitaaluma na wenye lengo la kupata taarifa sahihi za athari hizo na hauna mahusiano yoyote na mambo ya serikali na vyama vya siasa. Hivyo, unapojibu maswali hayo nakuomba uwe huru kabisa kutoa mawazo yako na chochocte utakakichosema au kuandika hapa kitatunzwa kama SIRI na hakitatumika kwa namna nyingine yoyote zaidi ya matumizi ya kitaaluma. Unaombwa usiandike jina lako mahali popote kwenye dodoso hili.

ASANTE SANA KWA KUNIELEWA

A: TAARIFA BINAFSI

1. Jina la Kata: ……………………… Mtaa wa: …………………………….
   KITONGOJI CHA……………………………………………………………

2. Umri wako ni Miaka: ....

3. Jinsia yako: 1 = Me (…)   2 = Ke (…...)

4. Hali ya Ndoa
   1= Oa/Olewa (…) 2= Sijaoa/Olewa (…) 3= Mjane/Mgane(…) 4 =Mtariki(…)
   5= Tumetengana (…)

5. Taja idadi Kamili ya wanakaya wako (wewe, mwenza na wategemezi): ………

6. Idadi ya wana kaya waliofariki ndani ya miaka mitano iliyopita ni:

Me………….   Ke: …………..

7. Kiwango chako cha juu cha Elimu ni (chagua chaguo moja tu):

1= Elimu ya watu wazima   (…)   2= Elimu ya Jadi (Sijasoma (…)

3= Elimu ya Msingi Sikumaliza (…)   4= Darasa la saba/Nane   (…)

5= Elimu ya Ufundi   (…)   6= Elimu ya Sekondari sikumaliza   (…)

7= Kidato cha nne   (…)   8= Kidato cha Sita   (…)

9= Kidato cha nne na cheti(…)   10= Diploma   (…)

11= Elimu ya chuo Kikuu (…)   12= Elimu ya Dini (Madrassa)   (…)

B: TAARIFA ZA UHAMIAJI

8. Kabila lako ni: ………………………………………………………………..

9. Katika Jedwali lifuatalo tafadhali jaza taarifa hitajika

Jina la Kijiji/Mtaa ulikozaliwa	Kata	Wilaya	Mkoa	Muda uliokaa hapa (idadi ya miaka)

10. Kama hukuzaliwa katika mtaa huu ni zipi kati ya sababu kuu tatu zilikusukuma kuhama kutoka huko ulikozaliwa?

    1. ………………………………………………………………………………

    2. ……………………………………………………………………………...

    3. ………………………………………………………………………………

    4. ………………………………………………………………………………

11. Kama hukuzaliwa katika Mtaa huu, ni mambo gani hasa yaliyokuvutia kuhamia na kuja kuishi katika mtaa huu?

1. …………………………………………………………………………………

2. …………………………………………………………………………………

3. ………………………………………………………………………………

4. …………………………………………………………... ……………………

C: MAKAZI NA SHUGHULI ZA KUJIKIMU

12. Shughuli yako kuu ya kiuchumi ni (taja moja tu): …………………………...

13. Ulianza kujishughulisha katika eneo hili toka mwaka gani?: ………..………

14. Katika sababu zifuatazo zipizilikushawishi kuishi hapa?

1= shughuli za Kilimo/Bustani   (…)   2= Uvuvi   (…)

3= Ukaribu wa soko   (…)   4= Ukaribu na Mahali pa kazi(…)

5= Usafiri wa uhakika   (…)   6= Ardhi yenye rutuba   (…)

7= Ukosefu wa Mahali pa kukaa   (…)

8= Sababu Nyinginezo (Orodhesha hapa): ……………………………………………

…………………………………………………………………………………………

…………………………………………………………………………………………

15. Je, eneo hili unaloishi/kufanyia shughuli zako ni mali yako?

   1= Ndiyo (…)   2= Hapana (…)

16. Kama ni Mali yako, ulilipataje?

   1= Nilinunua   (…)   2= Nilipewa na ndugu/rafiki   (…)

   3= Nilijikatia mwenyewe   (…)   4= Tulipewa na serikali ya Mtaa(…)

   5= Tuliuziwa na Mipango Miji   (…)

   6= Sababu nyinginezo (Orodhesha): ……………………………………………

   ……………………………………………93………………………………………

   ………………………………………………………………………………………

17. Je eneo lako lina ukubwa gani

1= Pungufu ya Ekari 1(…) 2= Ekari Moja (…) 3= Zaidi ya Ekari Moja (…)

18. Ni Mazingira gani uliyakuta wakati unahamia hapa?

1= Asili (…)   2= Makazi (…)   3= Kilimo   (…)

19. Kwa uzoefu wako wa kuishi mahali hapa unadhani ni shughuli gani kuu tatu

unaziona zinafanyika katika eneo hili?

1= ………………………………………………………………………………………

2= ……………………………………………………………………………………….

3= ………………………………………………………………………………………

20. Wewe binafsi unajishughulisha na nini hasa? (Taja): ……………………………

…………………………………………………………………………………………..

21. Kwa maoni yako ni zipi kati ya hizi ni faida za eneo hili Oevu la bonde la

Msimbazi kwako wewe na kwa wengine wanaozunguka eneo hili?

1= Eneo hili halifai kwa lolote (…)   2= Bustani za mbogamboga na matunda (…)

3= Maji kwa Matumizi ya Nyumbani (…) 4= Kuzuia mmomonyoko wa ardhi (…)

5= Kinga dhidi ya Mafuriko (…)   6= Kurekebisha hali ya hewa (…)

7= Kutunza mbolea ya asili (…)

22. Katika hoja zifuatazo onesha kiwango cha kukubaliana na/au kutokukubaliana na

maelezo tajwa kwa kuweka vema (√) sehemu sitahiki.

1= Nakubaliana sana   2= Nakubaliana   3= Sina hakika 4= Sikubaliani

5= Sikubaliani Kabisa

Na.	Maelezo	Maoni yako				
		1	2	3	4	5
1.	Ninafanya shughuli zangu za kilimo cha bustani na biashara nje ya mita 60 kutoka kwenye ukingo wa eneo oevu(tingatinga)					
2.	Huwa sifyeki miti na majani kwenye kingo za eneo oevu za mto msimbazi					
3.	Ninavua samaki katika eneo la tingatinga la mto Msimbazi kwa kutumia zana za uvuvi zilizoidhinishwa na serikali					
4.	Ninatumia njia zote za kisasa na za kiasili kuzuia uharibifu wa matingatinga yam to Msimbazi					
5.	Ninashiriki kuwafundisha wengine njia sahihi za kutunza matingatinga ya mto Msimbazi					
6.	Watu wa eneo hili wanashiriki kikamilifu kusafisha mifereji ya maji ya mto Msimbazi					
7.	Kuna ongezeko kubwa la makazi yaliyojengwa ndani ya mita 60 kutoka kwenye ukingo wa tingatinga la mto msimbazi.					
8.	Ujenzi holela ndani ya bonde la Msimbazi chanzo ni pamoja na serikali kutoa vibali vya ujenzi na kuweka miundo mbinu ya maji na umeme					

D: ATHARI ZITOKANAZO NA UHARIBIFU WA ENEO OEVU LA BONDE LA MSIMBAZI

23. Katika hoja zifuatazo onesha kiwango cha kukubaliana na/au kutokukubaliana na

maelezo tajwa kwa kuweka vema (√) sehemu sitahiki kuhusiana na uharibifu wa

eneo oevu la bonde la mto Msimbazi.

1= Nakubaliana sana   2= Nakubaliana   3= Sina hakika 4= Sikubaliani

5= Sikubaliani Kabisa

NA.	MAELEZO	MAONI YAKO				
		1	2	3	4	5
1.	Eneo la tingatinga katika bonde la mto Msimbazi linapungua siku hadi siku					
2.	Kukauka kwa tingtinga la bonde la mto Msimbazi imesababisha kupungua kwa fursa za kiuchumi					
3.	Uharibifu wa eneo la tingatinga la mto Msimbazi limeathiri wingi na ubora wa maji kwa matumizi ya nyumbani					
4.	Uharibifu wa eneo la tingatinga la mto msimbazi uinachangia ongezeko la maradhi mbalimbali					
5.	Uharibifu wa wa eneo la tingatinga la mto msimbazi unaathiri pakubwa kilimo cha bustani za mboga na matunda					
6.	Uharibifu wa eneo la tingatinga la mto msimbazi umeathiri pakubwa shughuli za uvuvi					
7.	Uharibifu wa tinga tinga la bonde la mto msimbazi umesababisha ongezeko la mafuriko ya mara kwa mara					
8.	Uharibifu wa eneo la tingatinga la mto msimbazi ni chanzo kikubwa cha bahari kujongea ndani ya nchi					
9.	Uharibifu wa eneo la tingatinga la mto Msimbazi umechangia ongezeko la mmomonyoko wa udongo					
10.	Uharibifu wa eneo la tingatinga la mto msimbazi umechangia ugumu wa maisha wa wakaaji wa eneo hili					

24. Kwa kipindi cha miaka mitano iliyopita, taja magonjwa makuu matatu ambayo

yamekuwa yakisumbua mara kwa mara familia yako

1. …………………………………………………………………………..

2. ………………………………………………………………………….

3. ………………………………………………………………………….

25. Unadhani kuna mahusiano yoyote kati ya milipuko ya magonjwa hayo na

uharibifu wa maeneo oevu katika bonde hili la Msimbazi?

1= Ndiyo (…)   2= Hapana(…)

26. Je familia yako imewahi kuathiriwa na mafuriko katika kipindi cha miaka mitano iliyopita?

1= Ndiyo (…)   2= Hapana (…)

27. Kama jibu lako ni ndiyo mafuriko hayo yametokea mara ngapi hapa?

1= Mara Moja kwa kila mwaka (…)   2= Mara mbili kwa mwaka (…)

3= Mara tatu kwa mwaka (…)   4= Hii ni mara kwa mara kila mvua

kubwa inaponyesha (…)

28. Katika hoja zifuatazo onesha kiwango cha kukubaliana na/au kutokukubaliana na maelezo tajwa kwa kuweka vema (√) sehemu sitahiki.

1= Nakubaliana sana   2= Nakubaliana   3= Sina hakika 4= Sikubaliani

5= Sikubaliani Kabisa

Na.	Maelezo	Maoni yako				
		1	**2**	**3**	**4**	**5**
1.	Mafuriko ya mara kwa mara ya mto Msimbazi yanaathiri sana familia yangu					
2.	Nina taarifa sahihi kuhusu matukio ya mafuriko katika bonde la mto Msimbazi					
3.	Wananchi wa eneo linalozunguka bonde la mto Msimbazi wana shaka sana na mafuriko ya mara kwa mara katika bonde hili					
4.	Kuna tofauti kubwa ya maoni kati ya wanaume na wamawake ya jinsi watu wanavyoyaona mafuriko					
5.	Mafuriko ya mara kwa mara katika bonde la mto Msimbazi ni fursa ya maendeleo					
6.	Mafuriko ya mara kwa mara katika bonde la mto msimbazi ni chanzo cha Umasikini					

29. Katika hoja zifuatazo onesha kiwango cha kukubaliana na/au kutokukubaliana na maelezo tajwa kwa kuweka vema (√) sehemu sitahiki kuhusiana na kuharibika kwa tingatinga la Mto Msimbazi

1= Hakijaathirika 2= Kimeathirika 3= Kimeathirika kidogo 4= Sina hakika 5= Hakijaathirika Kabisa

Na.	Maelezo	Maoni yako				
		1	2	3	4	5
1.	Kiwango cha ubora wa tingatinga la mto Msimbazi					
2.	Kilimo cha Bustani					
3.	Shguhuli za viwanda na biashara					
4.	Shughuli za uvuvi na ufugaji					
5.	Ujenzi holela wa Makazi					
6.	Ongezeko la watu maskini mjini					
7.	Ulegevu wa wasimamizi wa shughuli za mipango miji					
8.	Ongezeko la Rushwa					
9.	Ubora wa mbogamboga na matunda					
10.	Ubora wa samaki					
11.	Afya ya walaji					

30. Katika hoja zifuatazo onesha kiwango cha kukubaliana na/au kutokukubaliana na maelezo tajwa kwa kuweka vema (√) sehemu sitahiki kuhusiana na kurejea kwa tingatinga la Mto Msimbazi

31. 1= Nakubaliana sana 2= Nakubaliana 3= Sina hakika 4= Sikubaliani 5= Sikubaliani Kabisa

Na.	Maelezo	Maoni yako				
		1	2	3	4	5
1.	Ushirikiano wa wadau wote wa maendeleo ni muhimu kwa ustawi wa bonde la mto Msimbazi					
2.	Ushirikishaji wa njia za asili za uhafadhi pamoja na njia za kisasa ni muhimu kwa ustawi wa bonde la mto Msimbazi					
3.	Elimu juu ya uhifadhi wa maeneo Oevu yafaa kwa uhifadhi wa bonde la Mto Msimbazi					
4.	Ukarabati na urejeshaji wa tingatinga sharti uendane na upunguzaji wa umasikini miongoni mwa wakazi wa bonde la Msimbazi					
5.	Mabadiliko ya sera za uhifadhi uendane na malego yanayopimika ya kuzuia uharibifu wa maeneo oevu ya bonde la Mto Msimbazi,.					

MWISHO
ASANTE SANA KWA USHIRIKI WAKO

Appendix 2: Research Clearance Letters

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/ PG202086127   18th **October, 2022**

Regional Administrative
Secretary (RAS),
Dar es alaam Region,
 P.O. Box 5429,
DAR ES SALAAM.

Dear Regional Administrative Secretary,

RE: **RESEARCH CLEARANCE FOR MR. HAMAD A. JUMA. REG NO: PG202086127**

2.   The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1[st]March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1[st]January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3.   To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to

you **Mr. Hamadi A. Juma, Reg. No: PG202086127)** pursuing **Master of Arts in Natural Resource Assessment and Management (MANRAM).** We here by grant this clearance to conduct a research titled **"Msimbazi Wetlands Degradation and its Impact on the Livelihoods of the Poor in Dar es salaam Tanzania".** He will collect his data at your area from 30th October to 30th December, 2022.

4.   In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof. Magreth S.Bushesha

For: **VICE CHANCELLOR**

JAMHURI YA MUUNGANO WA TANZANIA
OFISI YA RAIS
TAWALA ZA MIKOA NA SERIKALI ZA MITAA

MKOA WA DAR ES SALAAM
Anwani ya Simu:
Simu:2203156/2203158/286371
Barua pepe ras@dsm.go.tz

OFISI YA MKUU WA MKOA,
3 Barabara ya Rashidi Kawawa
S.L.P 5429,
12880 DAR ES SALAAM.

Unapojibu Tafadhali taja:

Kumb. Na. EA.260/307/02B//59

26 Oktoba, 2022.

Mkurugenzi wa Jiji,
Halmashauri ya Jiji la Dar es Salaam,
Dar es Salaam.

Mkurugenzi wa Manispaa,
Halmashauri za Manispaa Kinondoni,
S.L.P 31902,
Dar es Salaam.

Yah: **KUMTAMBULISHA NDG.HAMAD JUMA KUFANYA UTAFITI**

Tafadhali husika na somo tajwa hapo juu.

2.   Ofisi ya Mkuu wa Mkoa wa Dar es Salaam imepokea barua **Kumb. Na. OUT/PG201801789 ya tarehe 18 Oktoba, 2022** kutoka Chuo Kikuu Huria Tanzania ikimtambulisha na kumuombea kibali cha kufanya utafiti Ndg. Hamad Juma katika Halmashauri yako.

3.   Mwanafunzi huyu anafanya utafiti kuhusu *''Msimbazi Wetlands Degradation and Its Impacts On the Livelihoods Of the Poor in Dar es Salaam Tanzania .''*

4.   Kwa barua hii, kibali kimetolewa kuanzia 30 Oktoba, 2022 hadi 30 Desemba , 2022.

5.   Asante kwa ushirikiano wako.

Samwel R. Magweiga
Kny: **KATIBU TAWALA MKOA**
DAR ES SALAAM

Nakala: Makamu Mkuu wa Chuo,
Chuo Kikuu Huria Tanzania,
S.L.P 5429,
Dar es Salaam.

Ndg. Hamad Juma.