The Hydro Politics of Living with Urban Wetlands in Zimbabwe: Pasts, Presents and Futures

by

Helen Tevedzerai Mupani MPN001

A [minor] dissertation submitted in [partial] fulfilment of the requirements for the award of the degree of

Master of Philosophy in Environmental Humanities South

Faculty of the Humanities

University of Cape Town

2025

SUPERVISOR: DR. NIKIWE SOLOMON

Declaration

I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.

I have used the APA convention for citation and referencing. Each contribution to, and quotation in, this thesis from the work(s) of other people has been attributed and has been cited and referenced.

This thesis is my own work.

I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

Signed by candidate

Signature .....

Table of Contents

Appendices

List of Tables

List of Figures

Abstract

Urban wetlands are important ecosystems that support both nature and people, but they are under threat from growing cities, climate change, and economic challenges. This thesis looks at how people interact with wetlands, focusing on the power, policies, and everyday actions that shape how wetlands are used, changed, and cared for over time. It examines the case studies of Borrowdale and Mbare in Harare to discover how communities living alongside wetlands, engage with them, the value they attach to these spaces – social, economic, spiritual, and cultural – and how they are impacted by management policies over time.

The research highlights how people have become increasingly disconnected from the natural environment, showing how changes over time – from pre-colonial traditions to colonial rule and modern policies – have reshaped the way people view and use wetlands, by extension how policies get imprinted in landscapes, and how they shift relationships over time. Borrowdale and Mbare tell different stories about who controls wetlands, who benefits from them, and who is left out. Drawing on personal experiences and history to the conversation about wetlands, the aim is to show how focusing only on one field, like conservation, economics, or anthropology, limits how we understand and live with wetlands. Instead, it calls for a broader, more connected way of thinking about these important spaces. In doing so we broaden how we manage and live with wetlands through co-generative and response-able approaches for more habitable futures.

Acknowledgements

This journey has been made possible through the guidance, valuable assistance, and encouragement of several individuals, communities, and institutions, for which I am profoundly grateful. To the Mbare and Borrowdale communities, thank you for being the inspiration behind this work. Your resilience and willingness to be vulnerable in complex contexts that often require stoicism act as a powerful reminder of the value of care and stewardship. I owe my deepest gratitude to the communities who call these spaces home. Thank you for sharing your lives, stories, and perspectives with me. Your voices are the very foundation of this thesis, and I have strived to honor them.

I am profoundly grateful to my supervisor, Dr. Nikiwe Solomon, for your steadfast belief in this project, thoughtful feedback, and patient guidance. Your insights have been instrumental in shaping this work, and I could not have completed this journey without your support.

To Professor Lesley Green and the UCT Environmental Humanities South Department, thank you for providing an academic environment where this research could grow, and providing the invaluable resources and facilities that made this work possible. I am deeply grateful to my peers Nasreen, Vanessa and Faith for their camaraderie, shared insights, and encouragement throughout this journey.

To Glen and Varie, your unwavering support has been my anchor, and your encouragement gave me the courage to embark on this path and to believe in its significance. Takudzwa, thank you for being my biggest cheerleader for always urging me forward and lifting me up. And to Nyasha, your faith in me has carried me through the hardest times. To my mum, family and friends, your patience, love, and encouragement have been my constant companions. To all who supported me, in both visible and quiet ways, thank you.

To my late Dad – this is dedicated to you.
"I have fought the good fight, I have finished the race, I have kept the faith." – 2 Timothy 4:7

INTRODUCTION TO HARARE'S URBAN WETLANDS

"Water is not a commodity, it is the very basis of life itself. The struggle over water is a struggle over who we are as people and who we will become as societies."

- *Vandana Shiva*

Urban wetlands are a complex network of relating, that bring together the social, political, environmental and economic, and play a particularly central role in sustaining the well-being of cities and their inhabitants (Khosravi, et al., 2018). Rapid urbanization and development in Zimbabwe and other parts the world, have led to the degradation and loss of these valuable ecologies. The challenges faced by urban wetlands, as changes in precipitation patterns, temperature, and sea levels can disrupt their delicate balance are further worsened by climate change. Pressures of urbanization, climate change, and socio-economic demands have placed significant strain on managing and conserving these wetlands in the context of Zimbabwe, highlight the need for a comprehensive understanding of the complex relationship between people and their urban wetlands.

The aim of this thesis, based on 16 weeks of ethnographic field work, desktop and archival research, is to critically examine the complex relationship between people and urban wetlands in Zimbabwe exploring the past events that shaped today, understanding how different people experience these changes and how they envision their futures with wetlands that they live with (Khosravi, et al., 2018). Zimbabwe's landscape has been influenced by a long and turbulent history of colonization, land reform, political instability, economic devastation and environmental change. How have these histories been imprinted in the landscape, and how do they filter into futures.

Wetland Mapping

Wetlands make up 3% of Zimbabwe's land, which is approximately 11,717 square kilometres. Of these wetlands, only 21% are in good condition. About 61% are partly damaged but not destroyed whilst 18% are badly damaged. (Ministry of Environment, Climate, Tourism and Hospitality Industry, 2020) In Harare alone, there are 29 recognized

wetlands *(see figure 1 below),* including important Ramsar sites like Cleveland and Monavale (EMA, 2016). Even though Zimbabwe has laws and policies that protect wetlands like the Environmental Management Act (Chapter 20:27) subsection 113, Zimbabwe Wetland Policy and Wetland Management Guidelines aimed at balancing wetland use for livelihoods/development and conservation – there is need for more recent research to show how much wetland is being lost, especially in urban areas like Harare.

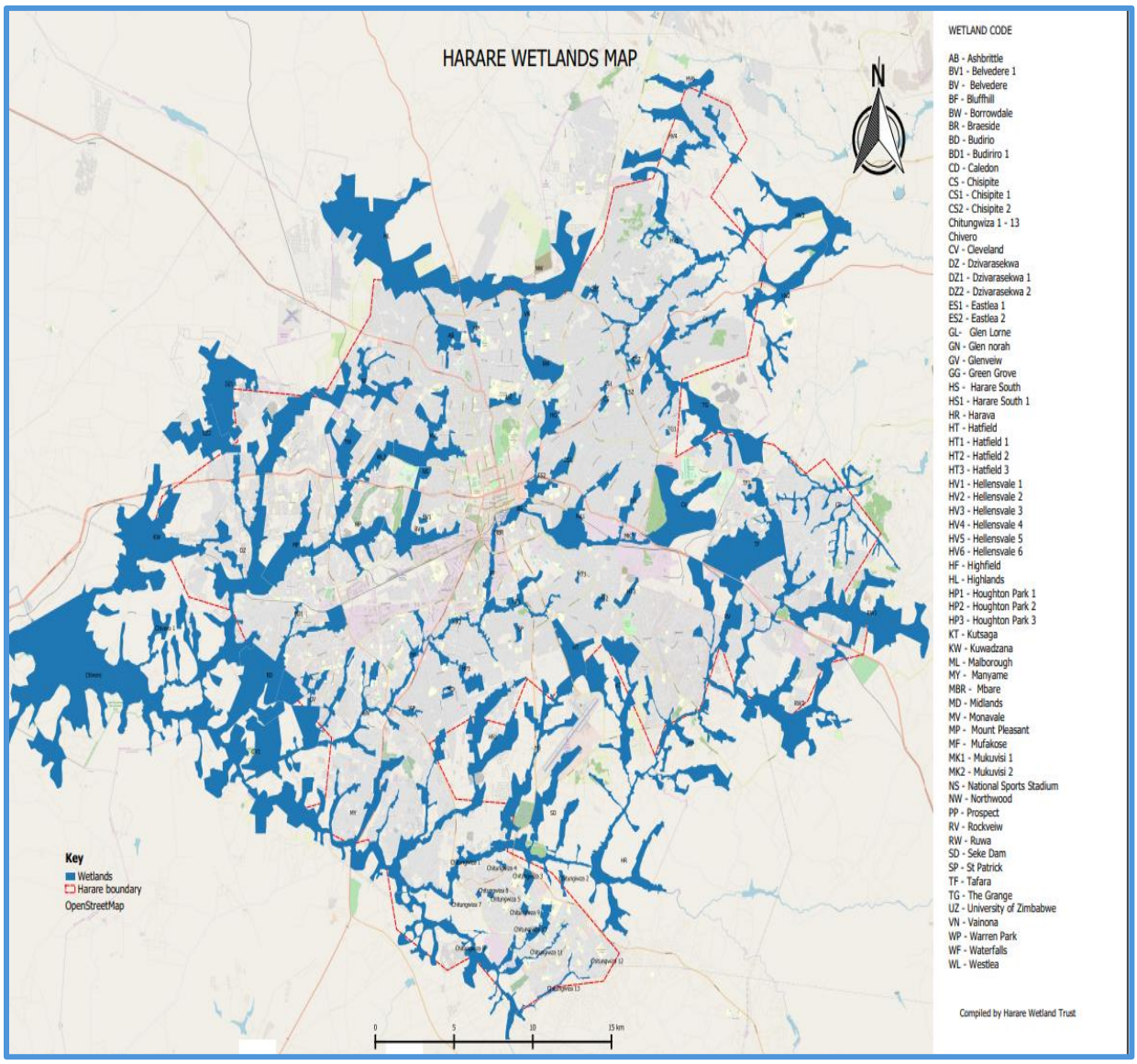


Figure 1: Harare Wetlands Map (Source: Harare Wetland Trust)

Types and classification of wetlands

Floodplains, pans, swamps, vleis, riverine systems and artificial impoundments are some of the main wetlands found in Zimbabwe (Matiza, 1994). The most common are vleis which are referred to as dambos locally (Muderere, 2011). These were described by the International Union for Conservation - IUCN (1994) as grass-covered depressions which are seasonally waterlogged and can be found in headwaters of rivers and along the banks of streams often. When it is the dry season, a variety of fauna and flora species are supported by vleis because they can retain high moisture (Houlahan et al., 2006; Dahwa et al., 2014).

Study Area

The research will focus on two specific urban wetlands, Borrowdale and Mbare, to understand the diverse relationships people have with these spaces. Borrowdale, a high-income/low population density area, and Mbare, a lower income/high population density area, present contrasting examples of how urban wetlands are valued and used by different communities including how they live with these wetlands. The study will examine the historical and present uses of these wetlands, including the ways they have been transformed by urban development, resource demands, and community needs. Additionally, the research will assess the effectiveness of existing wetland management measures and explore how these policies impact local communities and the sustainability of the wetlands.

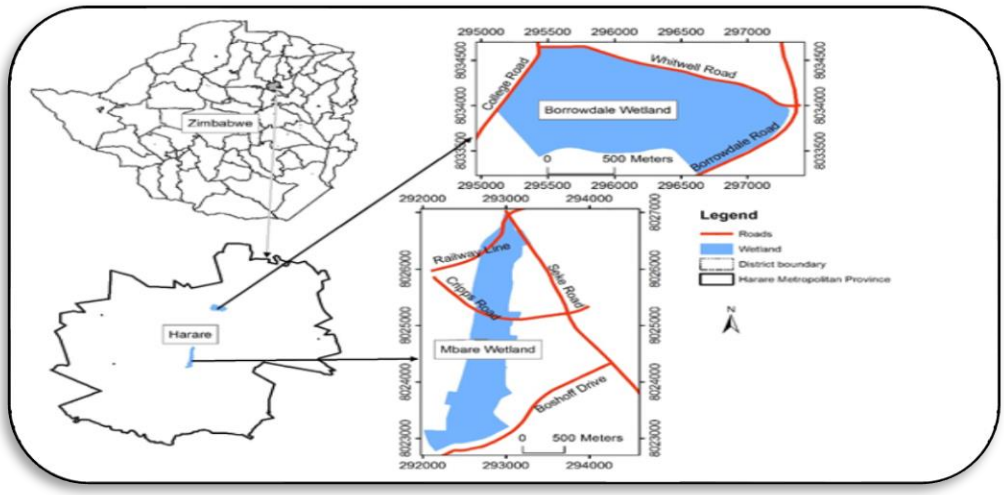


Figure 2 - Location of Borrowdale and Mbare wetlands. (Source: Plan Afric 2019)

Located 10.5 km to the north of the Central Business District (CBD) in the capital city, the Borrowdale Wetland is found within the low-density residential area of Borrowdale. As of 2013, the area covered by the wetland was about 1100 ha (EMA, 2013). The wetland serves as the headwaters of the Gwebi River which is among the many rivers that pour into Lake Chivero. (Mhlanga et al., 2014). It is situated to the east by Borrowdale Road and to the west by Groombridge, with Teviotdale Road marking its western boundary and Whitwell Road defining its northern edge. It is linked to the Vainona wetland and serves as the headwaters for a stream that flows into the Gwebi River[1].

Figure 3: Borrowdale Wetland (Source: EMA Google Hybrid Map 2024)

[1] Detailed coordinates of the Borrowdale wetland boundaries are available in appendices

According to EMA (2013), Mbare wetland is situated about 5km southwest of Harare's Central Business District and spans about 1,300 hectares It encompasses Magaba, which is an informal area for small and medium businesses, and goes on further past the flats of Mbare, the common vegetable market famously known as Mbare Musika going on to Mbare National (EMA, 2016). The Mukuvisi River, a significant tributary feeding into Lake Chivero[2], flows through this wetland. Enclosed by Cripps Road to the south and Seke Road to the northeast, with Siya-so Home Industries defining its western edge. Mbare[3] wetland drains into the Mukuvisi River and is situated downstream of the Braeside, Mukuvisi, Green Grove, and Cleveland wetlands.

The two wetlands are situated in distinct socio-economic zones of the city. Borrowdale, an affluent suburb in Harare, is well-serviced and easily accessible. Borrowdale began with Henry Borrow, who was part of a company called Johnson, Heany and Borrow. They started a business in Fort Salisbury (now Harare) in 1891 after helping guide the Pioneer Column. With the money they earned, they bought land and mining claims. One of these was the Borrowdale Estate, named after Borrow, which covered over 22,000 hectares. They grew vegetables there, using water from Zimbabwe's first man-made dam. Over time, the estate was divided into smaller farms, homes, and business areas, eventually becoming the wealthy suburb known today as Borrowdale. Today, it boasts of upscale commercial centres like Sam Levy Village, as well as modern office buildings that house leading companies and banks in Zimbabwe. The area also features notable landmarks such as the Borrowdale Racecourse, Celebration Centre Church & International School and Dandaro Retirement Village, making it a hub associated with wealth and affluence. According to ZIMSTAT (2022), approximately 3.2 million of the population in the working age were currently employed. Employment to Population Ratio (EPR) was 35 percent. Harare accounted for the largest share of employed people at 25 percent. In Borrowdale, most residents are formally employed in high-income jobs, while others primarily own their own businesses.

[2] Lake Chivero, formerly known as Lake McIlwaine was built in 1952 as the main water supply for the metropolitan area

[3] Detailed coordinates of the Mbare wetland boundaries are available in appendices.

In contrast, Mbare is one of Harare's oldest high-density suburbs, originally established for industrial workers who were employed in nearby industrial zones like Ardbennie and Graniteside. As a result, most of the housing in Mbare consists of core houses and flats. The suburb was once well planned to house single males who migrated from the rural areas to town for work. Due to urbanisation and population growth – as the single males married and had their families in the same spaces meant for single people, there was a significant increase in population and what has been deemed as the growth of unlawful housing (Chirisa, 2013).

Economically, Mbare is known for its vibrant home industrial area, including Magaba, Mbare Musika, the Mbare vegetable market, and the open market of Mupedzanhamo where second hand clothes and shoes are sold among other thrift items. In contrast to Borrowdale, Mbare predominantly houses low-income residents or the urban poor. A large portion of the population in Mbare is unemployed, with many relying on self-employment for their livelihoods. (Zinyemba & Changamire, 2020). Many of them do vending as a means to survive while others work in informal small to medium entrepreneurial businesses. The selection of the two wetlands was due to the two wetlands offering a diverse representation of urban wetlands, linking this to histories on colonial settlement, how these shaped landscapes and how relationships are shaped under neoliberal authoritarian governance in the contemporary moment.

In selecting the two wetlands as case studies from distinct areas, I aim to gain an understanding of inequalities in Zimbabwe caused by the social and economic conditions inherited through colonialism and explore how these disparities affect people's interactions with and use of the wetlands. Hamamouche, Fantini, Saidani, & Khouadja (2024) explains that "water is not just a physical resource, but a social substance" shaped by various factors, including capital and governance. Tracing the histories of the governance of these wetlands helps to understand how they have changed over time. It has become evident that there are multiple perspectives on the imagined futures of these wetlands, influenced by both local

communities and the government. Local communities tend to lay emphasis on sustainable livelihoods and inclusive management, whilst government plans tend to prioritize economic development hence the policies and laws of managing wetlands are geared towards the goal of economic development.

Although the study mostly focuses on the stories of Mai Tafadzwa and Mrs. Moyo, these are not the only people who were spoken to. Several others were engaged through informal conversations and observations, which helped shape the overall understanding of how people live with wetlands in Harare. I chose the two individuals because their experiences reflected the different ways wetlands are used and valued in low-income and high-income areas to give a deeper look into their everyday realities, struggles, and decisions people face when living with wetlands. This approach aligns with qualitative research practices that prioritize depth and context over numerical representation, allowing for a richer understanding of complex social phenomena (as cited in Christou, 2025).

Local authorities in association with the Environmental Management Agency (EMA) implemented policies and some measures to contain the encroachment of wetlands. The thesis aims to provide a deeper understanding of the factors that influence how wetland policies are created, making note of who is part of the process and who is not. It will also explore the various rationales behind these policies and how they impact the habitability of both humans and other species. Additionally, the research seeks to assess how policies which are often presented as objective truths based on scientific and economic reasoning influence over time the relationships between humans, wetlands, and multiple species. For example, current policies restrict unauthorized use of wetlands, banning activities such as drilling, farming, soil removal, and any development within 30 meters of wetlands or watercourses. Dumping of waste (solid and liquid), cultivation, commercial or residential development, and extraction of wetland resources without proper regulation or management and the pollution of wetlands through the discharge of effluent or other pollutants are some of the indiscriminate violations on wetlands (CoH, 2014). By criminalizing some people who use these wetlands for their livelihoods, whilst those who encroach on wetlands building residential areas are left to do so, is essentially an act of

environmental injustice. It also demonstrates the priorities of the state for economic growth and progress, positioning wetlands as useful insofar as they serve human needs. This further instils a separation of humans and nature, where the human has dominance over nature, commanding, controlling and predicting its ebbs and flows. Assuming that humans are not intricately connected to or responsible for the environment that they have been part of for a long time ignores the fact that humans are dependent on the environment for their own well-being and subsistence and therefore really do care about a healthy environment.

In this study, I focused on how people live with wetlands in their everyday lives, which is why I centred more on community members than on government or local authority officials who engage with wetlands through their jobs and tend to view them as part of their work responsibilities, rather than as spaces they live with or depend on directly. Because of this, their perspectives often reflect policy obligations rather than lived experience. Through archival research, I explored the policies they represent and how these have shifted over time. I recognise that officials hold important historical knowledge and insights, and in future research, I will include interviews with them to help link everyday experiences with formal policy perspectives.

Concentrating on the neighbourhoods of Borrowdale and Mbare, which represent Harare with its contrasting socio-economic groups, the study examines how changes in policy over time have shaped the habitability of wetlands for both human and multi-species communities. Pre-independence Mbare was designated for black people, close to industrial areas whilst the Borrowdale area was designated for the white people. Post-independence Mbare wetland is predominantly used as a dumping site and for food production and waste from the City of Harare whilst Borrowdale wetland represents beauty and recreational spaces for people based on the economic class (much less so on race after independence). The goal is to demonstrate how particular political and economic decisions and practices have environmental effects which last significantly into the future (Solomon 2022).

Research Question/Problem

The research question that emerged was therefore: What can we learn from the histories and presents that can inform generative policy for the future that centres habitability. For this research, I considered habitability as the conditions created by the complex interaction of systems (such as the atmospheric, hydrological, chemical, biotic, abiotic and more) within an environment that supports life (and its ability to thrive) for a significant period of time (NASA, nd). The key questions to understand the links between policy and habitability over time in relation to wetlands are therefore:

1. What are the histories of the wetland management policy development, how and why have these changed over time?
2. Who is involved in making these policies and who is not and why that is so?
3. How do these different communities live with and adapt to urban wetlands?
4. What are the imagined futures at local level and government level?

Rationale

Understanding the "hydro-politics" of urban wetlands in Zimbabwe requires an exploration of intersectionality, tracing how the social and environmental histories that have shaped their management and governance over time (Ferzoco, et al., 2023, Nhapi, Gijzen, and Siebel, 2003). How have historical and contemporary power dynamics had a geological impact and influenced the ways in which these ecologies are experienced, valued, and regulated? Land use changes affect the quality of wetlands in both direct and indirect ways. A direct impact happens when activities within the wetland area damage, fill, drain, or otherwise change the wetland. Examples of direct impacts include draining wetlands for farming by creating drainage ditches or installing underground drains or filling wetlands to create land for building. Indirect impacts occur when increased stormwater and pollution from nearby land development flow into the wetland's drainage area (Tiffany et al., 2006). This thesis will shed light on these complex issues by focusing on two contrasting urban

wetland sites in Zimbabwe - Mbare and Borrowdale - and examining how different actors, from residents to policymakers, have interacted with and understood these spaces.

Wetland management strategies have been influenced over time by legislation and management frameworks, including the needs and inclusion of people who use wetlands locally. During the 20th century (until 1980), using wetlands for certain purposes was forbidden by law, and communities were mostly excluded from wetland management decisions. (Mandishona & Knight, 2022). Although political, economic and social circumstances changed after 1980 when there was liberation from colonialism, the new government continued with the use of colonial legislation in the way wetlands are managed, at the same time that there was an increase in unmonitored use of wetlands. Essentially, the priorities of the government lay elsewhere, for instance in economic growth, education and healthcare, whilst the environment was deemed as the least of the country's priorities. The Zimbabwe Environmental Management Agency began regulating the use of wetlands by issuing permits for the use of wetland resources and through training wetland users from 2002. However, this has not been effective and wetlands throughout the country have continued to be exploited for agriculture and by the encroachment of urban infrastructure (Mandishona & Knight, 2022).

Some wetland users were allowed to use the wetland whilst others were charged for trespassing. For instance, the spokesperson for the Environmental Management Agency spoke on the invasion of the wetland on Monavale and stated that it was an illegal activity

> *"..... the invaders erected a wooden cabin at the wetland in a clear indication that the protected wetland is under real threat from invasion"*

He confirmed measures were in place to protect the wetland and that the law will take its course and stop "any form of development on the area" (263chat, 2017). In contrast, a housing development happening around the Borrowdale wetlands was given a permit to develop by Environmental Management Agency.

> *"Unfortunately, we have had so much corruption in this great nation of ours over the years such that when I drive around and see people building three story buildings on wetlands I am actually in shock and wonder which blind person from EMA allowed such development. What I have promised your minister is that from now on if there is a wetland that has been given an EIA certificate, to build on a wetland we should allow people to challenge that certificate." (263chat, 2021)*

The examples above show that the implementation of these laws, which often mean different things to different people in practice, be it political, economic, social or infrastructural clearly that there are gaps. As such, the need for sustainable wetland management and conservation and the political need to develop wetlands for economic development has caused broader tension at the national level.

The aim is to highlight important alternative considerations which can be made to address the legal gaps in wetland management, wetland inventory and monitoring, with the well-being of communities, both human and other-than-human, informing how wetland management should be done. Striking a balance with these issues is vital in addressing wetland management in Zimbabwe and beyond.

Conceptual Framework

The conceptual framework used in this research guided the analysis of the compound issues involved. It provided a strong theoretical perspective for exploring different viewpoints, beliefs, experiences, and historical influences that affect how people experience and live with urban wetlands in Zimbabwe (Elshafei, Y. et al., 2014). This framework brought together various viewpoints, including traditional knowledge, scientific understanding, and legal frameworks, to show how they impact wetland management (Elshafei et al., 2014) and also considered the historical context, especially the lasting effects of colonialism on both environmental practices and social relationships, particularly in communities like Mbare. This helps in having a better understanding of the power dynamics involved and look at ways to improve wetland management in the future, considering the different needs and values of

local communities (Mandishona & Knight, 2019). The conceptual framework used for this study included Latour's "An Inquiry into Modes of Existence (AIME)", urban metabolism, temporality, Donna Haraway's "Staying with the Trouble", and Steve Lerner's sacrifice zones.

Latour's An Inquiry into Modes of Existence

Latour's (2013) AIME provided a valuable entry point for unpacking the multitude of ways in which humans interact with and ascribe meaning to wetlands. Latour's framework explores how different modes of existence – such as scientific, legal, and political – construct different realities. The framework highlights the diverse ways people understand and manage these ecosystems. Instead of focusing solely on the Anthropocene[4] perspective, this approach allowed for a deeper exploration of the various viewpoints and understandings that exist about these changing ecosystems. In Zimbabwe, traditional knowledge views wetlands as living beings with spiritual importance and value. This contrasts with modern scientific or legal views that often see wetlands as a suite of ecosystem services, "natures atm", where the focus is on using and extracting resources from wetlands (Mandishona and Knight, 2019).

In the case of Mbare and Borrowdale wetlands, the different modes of existence create tensions between conservation, development, and cultural practices. Local communities in Mbare, for instance, view the wetland not only as a source of water and livelihood but as a sacred space with spiritual significance (Mandishona & Knight, 2019). These wetlands are seen as places of life, where water is not merely a resource, but a living force intertwined with local beliefs and practices. For the communities, wetlands are integral to their identity and worldview, representing more than just physical spaces – they are spaces of life, history,

4 The Anthropocene is a new, present day epoch, in which scientists say we have significantly altered the Earth through human activity. www.weforum.org/stories/2016/08/what-is-the-anthropocene-and-why-does-it-matter/ Limitations to using this approach are that it focuses only on humans changing the Earth, but many other species, like bacteria, plants, and termites, have also shaped the planet throughout history. It assumes all humans are equally responsible for the Earth's changes, but much of the impact comes from systems like capitalism, colonialism, and industrialization, not everyone's actions. It often separates living things from non-living processes, but science shows they are deeply connected.

and culture. Such views align with traditional ecological knowledge (TEK), which often attributes spiritual value to natural ecosystems (Berkes, 2018). TEK emphasizes the deep connection between people and the land, where environmental stewardship is grounded in spiritual beliefs and reciprocal relationships with nature (Galloway McLean et al., 2012).

This view is different from the scientific and legal perspectives that dominate urban wetland management in Zimbabwe. From a scientific viewpoint, wetlands in Mbare are often seen primarily as functional ecosystems that provide services such as water filtration, flood regulation, and biodiversity support (Mitsch & Gosselink, 1993). Policy frameworks and legal instruments often treat these wetlands as natural resources to be managed, regulated, and utilized for practical benefits, such as urban drainage and flood control (Nhapi, Gijzen, & Siebel, 2003). However, they often overlook the spiritual and cultural value that local communities attribute to the wetlands, resulting in policy solutions that fail to acknowledge the lived realities and needs of these residents.

Latour's (2013) framework helps to highlight how these differing perspectives – scientific, legal, spiritual, and political – create multiple "realities" of the wetland. In Mbare, the wetland's significance is shaped by the lived experiences of the community, while policymakers may impose regulations that prioritize urban development and economic growth over cultural and ecological concerns. This tension is also evident in the way power is distributed: policymakers and government authorities tend to have greater influence over the formal management of wetlands, while local communities may be excluded from decision-making processes that affect their own lived environments (Ferzoco et al., 2023).

In contrast, Borrowdale, a wealthier area of Harare, experiences a different relationship with its urban wetlands. Emphasis is on the aesthetic and recreational value of wetlands, such as bird watching or environmental tourism (De Groot et al., 2002). Residents in Borrowdale are also consulted about developments occurring around the wetlands, although their input often carries limited influence. For example, the Environmental Management Agency requires consultants to inform nearby residents about planned developments and collect

their feedback. These consultations do not really lead to real change but are more of a formality. The Environmental Management Act sets out the rules for involving the public in environmental assessments, stressing the importance of including the public in decision-making (Zimbabwean Government Gazette, 2022).

Environmentalists, developers, and policymakers in Borrowdale focus on preserving the wetlands as recreational green spaces that enhance the neighbourhood's aesthetic appeal and environmental sustainability. These perspectives tend to prioritize ecological and aesthetic preservation, especially given the social status of the area and the interest in maintaining the neighbourhood's reputation as a "green" part of the city (Tendaupenyu, 2012). While this view of the wetlands supports conservation and sustainable practices, it does not necessarily reflect the interests of the broader population, particularly those in informal settlements like Mbare, where economic and livelihood concerns take precedence.

Latour's framework also helps one to think about the emphasis on the role of multiple actors in shaping wetland management (Latour, 2013). Local communities, environmental activists, policymakers, and developers all contribute to the governance and future of these wetlands. Their actions are influenced by their respective modes of existence, whether driven by economic needs, political agendas, environmental concerns, or cultural practices. By analysing how these different actors interact, Latour's approach reveals the complex and often conflicting power dynamics at play. Residents in Mbare engage in practices of farming on the wetland, relying on it for subsistence. Authorities impose regulations that restrict these activities in favour of urban development or conservation efforts. Latour's framework encourages us to think about how these competing interests might lead to more inclusive management strategies that account for a variety of voices and values, rather than a top-down approach that favours one group over another.

Latour's (2013) framework also helps answer the critical research question: What are the imagined futures for urban wetlands, both at the local and governmental levels? Considering the multiple perspectives and competing interests of different actors, this framework opens

possibilities for more collaborative and inclusive management practices. In the case of Mbare and Borrowdale, it means integrating traditional ecological knowledge with modern scientific and legal frameworks, creating policies that not only protect the environment but also respect the cultural values of local communities (Berkes, 2018). This also involves encouraging community participation in decision-making processes, ensuring that policies are responsive to the needs and aspirations of those who live closest to the wetlands. The future of urban wetlands can be shaped by a broader range of voices and perspectives, leading to more equitable and sustainable outcomes for all stakeholders involved (Latour 2013).

Using Latour's AIME framework, this study provides a deeper understanding of how urban wetlands are valued and managed in Zimbabwe. The contrasting experiences of Mbare and Borrowdale illustrate how multiple realities – shaped by different actors, values, and histories – can create conflicts and opportunities in wetland governance. The framework's focus on power dynamics and competing interests allows for a more nuanced analysis of how urban wetlands can be managed in the future, emphasizing on inclusivity, sustainability, and respect for local knowledge.

Urban Metabolism

The concept urban metabolism helps us understand how people interact with their environment. It describes the flow of materials and energy in cities, shaped by social, economic, and environmental factors, forming a complex system (Thomson & Newman, 2018; Sanches & Bento, 2020). Urban metabolism provides a useful way to explore the hydro politics of living with urban wetlands by examining their historical, current, and future contexts. This approach helps us understand how wetlands interact with human activities, resource flows, and governance systems (Thomson & Newman, 2018; Sanches & Bento, 2020). As mentioned earlier, urban wetlands are vital to city life as they helped prevent flooding, provided freshwater, and supported biodiversity. However, as cities grow, many wetlands were drained or built over to make room for housing developments, malls and

factories. The shift from working with the flows of nature (in the particular case, with wetlands) to attempts to command and control it, have resulted in an imbalance of material flows and metabolic processes in urban contexts. This is made evident by the changes in the environment such as the rise of urban heat island effects, decreased air and water quality, unpredictable rainfall patterns and poor soil quality. This can be linked to the decrease in green spaces, which wetlands form a vital part of. Understanding these historical changes helps us see how past decisions have shaped the condition of today's urban wetlands, and in turn disrupted some metabolic process that make for liveable cities.

Presently, urban wetlands face pressures from urban planning, infrastructure, and climate change. Wetlands' health depends on how cities are designed. Urban metabolism framework helps us analyse these impacts and plan for healthier cities. Future plans could include practices like re-establishing natural water flows, boosting biodiversity, and using wetlands as natural water filters. Such approaches go beyond maintaining wetlands. Managing urban wetlands involves complex governance. Decisions about water use, access, and conflict resolution affect both people and ecosystems. Applying the urban metabolism framework can show how governance models influence wetland sustainability. Collaborative approaches that involve governments, communities, and environmental groups balances human needs with the health of wetlands.

Urban metabolism helps us to understand how society and the Earth's different spheres (the hydrosphere, pedosphere, atmosphere to name a few), – are deeply intertwined in shaping habitability for human and multispecies communities. Conversations with Mai Tafadzwa in Mbare revealed that the wetland is often seen by residents as a vital source of water, offering both physical and spiritual sustenance. The water from the wetland is not only used for daily needs such as drinking and gardening but is also rooted in cultural activities and is very significant, as it is viewed as a life force and a sacred entity by some community members (Strang, 2004). This is very different with Borrowdale, where wealthier residents view the wetland mainly as a recreational space, as shown by Mrs. Moyo's walks, or as an aesthetic feature of the city. They do not depend on the wetland for water, as they have access to tap

water provided by the City of Harare. Additionally, many residents have drilled boreholes on their properties, which they use as a backup when the municipal water supply fails.

In both cases, the way people interact with water shows a complex mix of beliefs and practices and therefore is not reduced to its sum parts of hydrogen and oxygen. It is more. The human-water-land nexus framework explored these various perceptions of water, as a source of livelihood in Mbare, to its symbolic meaning in Borrowdale. As Strang (2004) points out, water is not simply a resource to be used, but carries various meanings, from spiritual to emotional to practical. While communities in Mbare may push to protect wetlands for their water and livelihood needs, policymakers in Borrowdale often prioritize urban development, treating water as a scientific and economic resource rather than recognizing its social and ecological value (Linton, as cited by Schmidt, 2011).

The human – water – land relationship raises the question of how policies that manage wetlands often fail to account for the diverse experiences with ecologies. Scientific approaches to wetland management often treat water as separate from its surroundings, where the focus is more on measurement of water quality, counting species, flow rates and so forth. In this process of accounting, a political decision to build a mall or traditional healer's need to access sacred spaces, do not fit into the models that have been built to measure the health of the wetland. It is imperative therefore to consider alternatives that take into account the full human-wetland relationship, bringing in the voices of local people and incorporating both ecological and cultural knowledge (Strang, 2004). It is therefore imperative to consider the multiple meanings and experiences when developing sustainable management strategies of wetland ecologies in Zimbabwe.

Sacrifice Zones

Césaire's (Césaire & Pinkham, 1955) conceptualization of 'colonialism as thingification' and the notion of "sacrifice zones," introduced by environmental justice scholars (Lerner, 2010; Juskus, 2023) provides a crucial lens for examining the uneven distribution of environmental burdens and the marginalization of certain communities in relation to Zimbabwe's urban

wetlands. Colonialism reduces people and landscapes to mere objects, stripping them of their intrinsic value and reducing them to tools for economic exploitation.

> "My turn to state an equation: colonization = 'thingification'" (Césaire & Pinkham, 1955, p. 23).

'Colonialism as thingification' explains that both people and landscapes are turned into mere objects whose value is only what they can produce or provide. Césaire explains that colonialism destroys existing cultures, harms traditional ways of life, and replaces them with systems that exploit people and resources (Césaire & Pinkham, 1955). This idea is especially important when looking at how colonial history has shaped Zimbabwe's urban wetlands, where the misuse and degradation of these environments highlight deeper issues of environmental injustice. The use of urban wetlands in Zimbabwe for industrial and urban expansion mirrors this exploitation, leaving both landscapes and communities vulnerable.

Tracing colonialism's thingification of the landscape as well as the labour force that fuelled Harare's industries aids in understanding how socio-economic and political power created disparate ways of living and being with the two wetlands. The categorisation of landscapes, very much steeped in empire building, organises ecologies into life and non-life, "creating a distinction between matter as property (a thing that can be owned) and properties (characteristic of a thing)" (Solomon, 2022: p 14). As Yusoff (2018) argues, this creates an opportunity for the exploitation of land and dispossession of people and multi-species communities. A clear example was when the then Zimbabwe Tourism Authority Chief Executive Officer, ridiculed activists who opposed the development of a business complex in 2013. The minister scoffed at how the opposers of the development were more interested in protecting a frog than economic growth that would benefit the whole country. The project was a mall, and it went ahead at an estimated $300 million.

> *"So some people wanted us to sacrifice thousands of jobs and forgo these massive investments in order to protect frogs and 23 trees?" he asked. "Why did they not complain when the National Sports Stadium was built?" (The Standard, 2012).*

The statement reflects the prioritization of economic development (through large investments like the US$300 million project) over environmental concerns, as seen in the disregard for potential ecological impacts like the frog habitats). The polemic argument made by the minister reduced the importance of the wetlands to a mere consideration of frogs and trees, without the consideration of the multiple metabolic processes that create a healthy city linked to these same frogs and trees. It also demonstrated the importance for the government for short-term overt gains, rather than thinking of the long-term impacts in the context of climate change.

In this case, wetlands are viewed as "sacrifice zones," places that are expendable for development projects ignoring their environmental value or historical significance. Such areas are perceived as disposable in the pursuit of economic gain; a mentality deeply rooted in political and economic power dynamics.

Historically, Mbare has been subjected to significant environmental neglect, where its wetland has been overexploited for resources such as water, soil, and space for agriculture. This exploitation is intensified by poor urban planning and industrial activities, which prioritize short-term economic growth over environmental sustainability. The focus on immediate financial benefits as mentioned before, often through the eyes of influential elites and powerful political actors, reinforces a system where the broader population and the environment are left to bear the consequences. As Njoh (2002) discusses, the political and economic power structures marginalize poorer communities, leaving them with few options to safeguard their natural resources. In this case, the wetlands are not just sacrificed to development but are also systematically degraded due to a lack of protection for the people and places most vulnerable to environmental harm.

This exploitation is further continued through corruption by “illegal” partnerships between government officials, local authorities, and corporate or external developers. In these collaborations, the land, habitats and people are exploited for economic gain, as Cesaire (Césaire & Pinkham, 1955) argues that these partnerships and dynamics ensure that the degradation of the wetlands and the displacement of local communities are sustained,

prioritizing the interests of the few over the well-being of the environment and the majority of the population. The systematic erosion of both the ecosystem and the cultural ties of local communities illustrates how political and economic interests continue to shape development in ways that harm the most vulnerable, while reinforcing the power and wealth of a select few. This process reflects the broader issues of corruption and neglect, where environmental degradation is not only a consequence of misguided policies but also a deliberate result of partnerships that serve the interests of the powerful elite (Njoh 2002).

The wetland in Mbare, as a "disposable" entity, becomes the backdrop for this ongoing exploitation. This is a clear example of how short-term economic priorities lead to the loss of biodiversity, the displacement of local communities, and the degradation of historical connections to the land. The differing socio and economic circumstances in Mbare and Borrowdale influence people's ability to even engage with wetland protection activities. Mbare community's main and primary focus is survival. In contrast, Borrowdale residents might have more resources, connections and time to engage activities around wetland governance, thus contributing to more effective preservation (Dialogue Earth, 2024; Hardlife, David, Mutowo, Ndlovu, & Mazambara, 2014; Community Water Alliance & Combined Harare Residents Association, 2021).

Temporality

Thinking about and with time helps us to understand how the varied temporal rhythms of society and ecologies, and how they are shaped by or shape each other. Temporality emphasizes that time is not merely standardized or linear, as represented by clocks and calendars. Instead, it involves overlapping rhythms and cycles that are deeply tied to natural processes. Adam (1998:95) explains,

> "every action in the garden is past- and future-extended and marked by multiple, simultaneous time-horizons: day-to-day care; season-to-season involvement with planting, growing and harvesting; annual concerns about seeds and reproduction more generally; long-term plans and visions about fertility of the soil, as well as the

> growth and eventual sizes and shapes of plants, their long-term relationships to each other and their mutual interdependence”

The rhythms of urban wetlands, like those of gardens, are governed by natural cycles such as seasons, weather, and ecological processes, as well as by electoral and economic cycles which influence policies on how they are managed. In Mbare, where the wetland supports informal livelihoods, the temporalities of use and care are often shaped by immediate needs, such as access to water for urban agriculture, and longer-term concerns about land degradation and flooding. In contrast, the Borrowdale wetland, situated in a wealthier suburb, reflects a different set of temporalities. Conservation efforts are often linked to long-term visions of ecological restoration and urban planning, though these efforts sometimes overlook the wetland’s immediate importance to broader community needs.

Government temporalities in wetland management are influenced by various shifting regulations, policy initiatives and funding cycles, which affect resource allocation (Ramsar Convention Secretariat, n.d.). Economic pressures vary between Mbare, where immediate survival needs take precedence, and Borrowdale, where conservation efforts focus on long-term ecological restoration linked to property values (Díaz-Pinzón, Sierra, Trillas, & Verd, 2024). These different temporalities create a complex dynamic in managing wetlands, highlighting the need to balance short-term and long-term priorities for effective care and use. These varied temporalities underscore how urban wetlands are forced to operate within “invariable, standardized, universal time” while also embodying unique ecological, social, and hydrological rhythms (Adam, 1998). Just as each plant species in a garden has its unique time structure and interdependencies, the Mbare and Borrowdale wetlands demonstrate temporalities shaped by their specific socio-ecological contexts. Neglecting these temporalities can lead to degradation, as “order and chaos are always closely related” (Adam, 1998). Misaligned development in Borrowdale risks disrupting ecological cycles, while unregulated resource use in Mbare can accelerate ecological collapse.

Integrating into the study of urban wetlands, through historical, present and future oriented lenses, reveals the relationships between human governance and ecological rhythms. This

approach challenges short-term, extractive perspectives that prioritize immediate gains over long-term sustainability. By acknowledging the unique temporalities of Mbare and Borrowdale, we can foster practices rooted in patience, empathy, and a deep awareness of the interconnectedness of past actions, present conditions, and future possibilities.

Donna Haraway's "Staying with the Trouble"

Haraway's concept of "Staying with the Trouble" is a valuable framework for understanding the complex relationships between people, government, and urban wetlands given the complex politics in Zimbabwe. "Staying with the Trouble" deeply looks at the messy and interconnected relationships between wetlands, humans, and other species. Encouraging us that in disturbing times we should continue engaging with the mess. In this thesis, the idea of "trouble" reflects a history of disturbance and uncertainty, colonization and urging us to confront these complexities rather than avoid them. Donna Haraway highlights the importance of focusing on the present, where humans and nonhumans are deeply entangled in unfinished relationships through the concept of "Chthulucene,"[5] a term she uses to uses to think about here-elsewhere, the then and now, the else-then and else-now (Haraway, 2016).

In a world that is divided between society and nature, and different knowledge practices, Haraway encourages us to take up “tentacular thinking”, allowing us to make the connections between worlds that seem far apart (e.g. the political world, to the world of a frog). The approach calls for a rethinking and reimagination which represents a time and space where all beings coexist and work through ecological and social challenges together. In Zimbabwe, wetland management policies often apply broad rules that overlook the deep, local connections between people, water, and land. This framework encourages a shift towards specific, community-based strategies that address the unique needs and

[5] Chthulucene reimagines life on Earth as deeply interconnected, where humans are part of, not separate from, the Earth's systems. It emphasizes collaboration between humans, non-humans, and the environment, highlighting the importance of how we live and coexist within this shared web of existence. *https://www.e-flux.com/journal/75/67125/tentacular-thinking-anthropocene-capitalocene-chthulucene/*

challenges of each wetland, rather than relying solely on top-down, one-size-fits-all solutions. Haraway also emphasizes the importance of incorporating local and indigenous knowledge into environmental management, moving beyond purely technical or scientific solutions (Warren, 2017).

The capitalist system is designed to intensify the disparities in how communities engage with and benefit from environmental resources, including urban wetlands. However, broad policies often fail to address these local needs, leading to issues like pollution and overuse of resources. Organizations like the Conservation Society of Monavale (COSMO) have played an important role in wetland conservation in Harare, focusing on protecting wetlands like Monavale Vlei (Gabay n.d.) and they should use their expertise and resources on wetlands in areas that are not so affluent like Mbare Wetland specifically. By drawing on indigenous perspectives, communities can envision more inclusive and sustainable futures for wetlands like those in Mbare and Borrowdale, encouraging collaboration between residents, government, and environmental groups. This aligns with the multifaceted framework developed in this research, combining ideas from Latour, Césaire, Haraway, and environmental justice scholars, to reveal the complex "hydro-politics" of Zimbabwe's urban wetlands. This framework uncovers how people, water, and land interact, shaping both current realities and future possibilities by considering different perspectives, historical influences, and power dynamics in Zimbabwe’s wetlands.

Structure of the Thesis

Introduction: The introduction provides a foundation for understanding the importance of urban wetlands in Harare, Zimbabwe, where they face significant threats from urbanization, climate change, and socio-economic pressures. It highlights the need to explore the complex, evolving relationships between people and wetlands in urban areas, focusing on two contrasting cases: Borrowdale and Mbare. The rationale for the study points to the importance of examining the “hydro-politics” of these ecosystems, tracing historical and policy influences that have shaped their current state. The research questions aim to

address how these wetland management policies are developed, who is included and excluded, and the differing perspectives on the future of wetlands held by local communities and government entities. The introduction also outlines the study's aims to provide insights into how policies affect human-wetland interactions and to propose approaches for more inclusive, sustainable wetland management in the future.

Chapter 1: This chapter introduces urban wetlands, highlighting their crucial roles in biodiversity, and human well-being, particularly in Zimbabwe, where rapid urbanization and climate pressures threaten these ecosystems. The focus on two contrasting wetlands and comparison sets the stage for discussing socio-economic inequality, governance, and environmental justice in wetland management. It introduces "hydro-politics" to frame wetland governance as politically charged and impacted by power dynamics that shape both current experiences and future possibilities, emphasizing the importance of sustainable development, social equity, and ecological preservation.

Chapter 2: This chapter examines historical and modern approaches to managing Zimbabwe's urban wetlands, showing how past practices shape today's challenges. This section builds on the previous chapter as it explores the socio-political and the ecological aspects of wetland governance, highlighting the importance of wetlands in water supply, biodiversity, and culture in Zimbabwe. It describes the types and classification of wetlands, while noting how gaps in data and policy make sustainable management difficult. It also sheds light on issues like confusion around the laws and poor cooperation between organizations by looking at pre-colonial, colonial, and post-independence uses. This chapter reveals how current policies have been influenced by historical governance, and socio-economic pressures.

Chapter 3: This chapter explores the complex and multifaceted relationship between urban communities in Harare and the city's wetlands, focusing on Mbare and Borrowdale. Through the personal stories of people living with urban wetlands in Mbare and Borrowdale, it highlights how these wetlands serve as crucial spaces for food production, spiritual practices, and cultural traditions, while also facing threats from environmental degradation,

urban expansion, and conflicting land uses. The different perspectives from the two communities reveal the shaky balance between the needs for livelihood, preservation, and development. Ultimately, the chapter underscores the wetlands' role as both a resource and a symbol of resilience, while also pointing to the challenges that arise as urbanization encroaches upon these vital ecosystems.

Chapter 4: This chapter analyses the role of institutional actors in urban wetland governance in Zimbabwe, specifically examining how power, authority, and policy influence the management and use of wetlands in Harare. It investigates which stakeholders are included in decision-making processes, who is marginalized, and how policies reflect historical legacies, including colonial frameworks. The chapter argues that urban wetland management is not only about environmental protection but is deeply entwined with issues of governance, power, and social justice.

Conclusion: This chapter synthesizes the findings from earlier chapters to propose strategies for managing urban wetlands in Zimbabwe in ways that prioritize sustainability, inclusion, and habitability. It looks at the history, social factors, and environmental issues to suggest a more inclusive and thoughtful approach that prioritizes the needs of local communities, protects nature, and helps fight climate change. Policy ideas are offered with the aim to create reasonable relationships between people and wetlands to improve life in cities. It emphasizes the importance of addressing historical injustices and socio-economic disparities in wetland governance while promoting shared, inclusive care and stewardship of wetlands to create sustainable futures that benefit people, organisms and the environment.

Chapter 1: Methodology

(Beneath the Surface: *Methods and Approaches to Wetland Exploration)*

Introduction

This chapter outlines the methods used in investigating the hydro-politics of urban wetlands in Zimbabwe, specifically focusing on the Mbare and Borrowdale wetlands. The purpose of this chapter was to put into practice "tentacular thinking" as proposed by Haraway (2016). Only recently have wetlands been thought of and researched outside of the realm of "hard sciences", and therefore the goal of this thesis is to contribute historical data and lived experience to the discourse on wetlands. The narrow focus on particular disciplines, for instance in conservation, economics or anthropology, in understanding wetlands "limits ways of seeing and being" with wetlands. If we only know the wetlands through datasets (i.e. science and technology), then the enactment or the way the wetlands are interacted with are through "matters of fact" instead of "matters of concern" (Latour, 2004). Latour asks us to shift from the current obsessions "on modes and technologies that produce more facts", and to consider what matters (ibid). This entails a consideration of the politics of how research and management, in this case, of wetlands," is done – the accounts (who and how stories are told)", what is being measured and how it is done and what are the concerns (what are the motivations behind the diverse interactions with the wetlands) (Solomon, 2022). For this study, tracing these histories is paramount. This chapter shows that methods employed in the study were both suitable and applicable to the thesis argument and they also made an important input to the discourse on wetlands in the Global South.

Methods

To understand the "hydro-politics" of Zimbabwe's urban wetlands, it is important to examine their management and governance history (Ferzoco et al., 2023; Nhapi, Gijzen, and Siebel 2003). It is crucial to understand the historical and existing power dynamics that have

influenced the ways in which these ecosystems are seen, valued, and regulated. This thesis studied two different urban wetlands in Zimbabwe, Mbare and Borrowdale, looking at how various people, from residents to policymakers, have interacted with and understood these areas and this has shed light on these multifaceted issues.

A key aspect of this research was to unpack the policy and legislative frameworks that have guided the management of urban wetlands in Zimbabwe (Mandishona and Knight 2019; Matamanda et al., 2018). What are the drivers behind the development and evolution of these policies, and how have they been implemented (or not) on the ground? How have different actors, including local communities, been involved (or excluded) from these processes? By exploring these questions, this study will investigate the complex power dynamics that support the governance of urban wetlands.

The methods used in this study which are oral history, field observations and archival research, provide valuable insights into the historical and socio-political contexts and surrounding the management of urban wetlands. These methods allowed us to have a comprehensive understanding of how various communities and those who make policies have interacted with and shaped how wetlands have been governed. The chapter also emphasized the importance of frameworks such as Latour's modes of existence, Césaire's conceptualization of colonialism, and Haraway's staying with the trouble and sacrifice zones in interpreting these dynamics. By exploring these frameworks, the study contributes to the broader understanding of the "hydro-politics" of urban wetlands and addresses the key research question on how historical power structures, cultural values, and policy frameworks influence how people live with wetlands, the management and future of urban wetlands in Zimbabwe. This research used qualitative methodologies to explore the lived experiences of families interacting with urban wetlands in Borrowdale and Mbare. Using thematic analysis, I discovered how personal stories, and historical records connect to offer valuable insights into the social, economic, cultural, and environmental importance of wetlands. I focused on women because they are deeply involved in managing household needs linked to wetlands, offering rich insight into everyday hydro-politics. As a woman

researcher spending extended time in the field, it felt natural and safer for myself and the participants to engage with other women. While they spoke from their own experiences, their insights reflected broader community realities, including those of both women and men. In addition, it was important to consider ethical issues, making sure that the rights, privacy, and well-being of the participants were upheld throughout the study. To track land use changes over time, I used satellite images and Google Earth for visual comparison in 4-year intervals (2016-2020-2024). This helped to show how buildings and open spaces around the wetlands have shifted - allowing me to observe and document the progressive reduction in wetland coverage.

Meeting the wetland people

Building genuine relationships with the people of Mbare and Borrowdale was foundational to understanding their experiences of living with urban wetlands. People in Mbare are generally cautious about outsiders because of past experiences of exploitation, such as being misrepresented or let down by unfulfilled promises. For many, the presence of an outsider asking questions or showing interest in their lives can raise concerns about ulterior motives, especially when their stories and struggles have been used for others' benefit without any tangible returns to the community. This caution is not just a defence mechanism but a reflection of wisdom from past interactions where trust was misplaced. To gain their trust, I needed someone from their community to introduce me and assure them that I came with respect and genuine intentions. This approach was essential to ensure that their voices could be shared authentically and that they felt respected and valued throughout the process. My dear friend Tinashe and former colleague grew up in Mbare and still had family members residing in Mbare. Although he had moved, every Sunday he still attended church in Mbare. I discussed with him my research and the desire to have several people in the community who interacted and lived with Mbare wetland so that they could share their stories. Tinashe introduced me to Mai Tafadzwa, a family acquaintance from his childhood, who had long supplied their family with vegetables from her garden on the wetland. This introduction created opportunities to connect with the community. These initial

introductions were just the beginning. To foster meaningful connections, I immersed myself in their daily lives, listening to their stories, working alongside them in their gardens, and even helping with tasks like weeding. These moments of shared labor and conversation allowed me to see their interactions with wetlands through their eyes, on their terms over a period of time.

In Borrowdale, the process started more formally, with introductions arranged by my former colleagues. I had previously worked at an environmental consultancy and made many connections. When I shared my research with one of them, they knew Mrs Moyo would be ideal since they had worked with her when they had a project in the area. Mrs. Moyo's husband had bought a stand across from the wetland where they had built their home. Mrs. Moyo then introduced me to the Borrowdale community. Though these connections were initially structured, they grew into meaningful relationships as I made an effort to be open, friendly, and grateful for the hospitality I received. By joining conversations and being invited into their homes, I learned more about their connection with the wetlands. Through these relationships, I saw the different ways people in Mbare and Borrowdale experience, value, and rely on their wetlands.

Qualitative Research Methodology

In this research, I used qualitative research methodology. Bryman (2016:375) describes qualitative research as "a research strategy that typically focuses on words rather than numbers in both data collection and analysis." This method incorporates various "attitudes and strategies" to explore how individuals "perceive, experience, interpret, and construct the social world" (Sandelowski, 2004). I opted for this approach because it emphasizes understanding how people live, interact with and experience urban wetlands, as well as how they make sense of the events and changes they encounter within these spaces.

The importance and value of using qualitative research methods is that they offer deep accounts of multifaceted events (Sarkies et al. 2015). This provides an opportunity to highlight these stories and shed light on the experiences of those who are sharing. By putting

their perspectives at the forefront, it ensures that their voices are heard, and their experiences understood. A qualitative methodology was the most suitable approach for this research, as it allowed for an in-depth understanding of the personal stories and lived experiences of individuals like Mai Tafadzwa and Mrs. Moyo who have lived with urban wetlands. Their narratives provided valuable insights into their histories, challenges and realities they face while living with urban wetlands and also the future they envision for these spaces. I did this by posing open-ended questions during our conversations about their experiences living with wetlands and how policies on wetland management affected or impacted their everyday life. This approach allowed me to explore a variety of experiences and perspectives, shaped by themes that emerged throughout the ongoing analysis of my data.

Oral History

In my research, I made use of oral history interviews with families residing in and utilizing Borrowdale and Mbare wetlands to gain insight into historical and current wetland uses. The focus was on their knowledge and experiences regarding living with the wetlands and their envisioned futures. Glassberg (1996) states that oral history is particularly useful for understanding how stories about the past are transmitted within families and among friends, thereby contributing to a community's collective memory. This collective memory can then be contrasted with historical representations that circulate more broadly in society, such as those found in mass media or public discourse. The narratives of these families contribute to the collective memory of their families and communities living alongside urban wetlands. Oral histories provide a platform for diverse voices and perspectives to emerge. In my research, this diversity arose from capturing the experiences of families from contrasting socio-economic backgrounds, whose ways of living with and understanding these wetlands varied significantly. I therefore used this approach as it aligns with the idea of "collected memory," where differing and sometimes conflicting memories converge in public spaces (Glassberg 1996).

Hesse-Biber (2014) highlights how exchanges between researchers and narrators enrich data by capturing the complexities of oral histories. Conversations with families in Borrowdale and Mbare revealed their connections to the wetlands, diverse ways of interacting with these spaces, and the importance of water in their activities. I also gained insight into their views on wetland policies, their impacts on daily life, and their hopes for the wetlands' future. By drawing on these lived experiences, this study used oral history to uncover the cultural, spiritual, and livelihood significance of wetlands and how these relationships have evolved over time.

Archival Data Research

To complement the oral histories and situate them within a broader historical context, this study undertook an in-depth examination of archival materials, such as colonial-era land use records, government reports, and newspaper articles. These archival sources offered insights into the historical trajectories of wetland management, resource allocation, and development decisions that have shaped the current state of Zimbabwean urban wetlands (Matamanda et al., 2018 and Hranova et al., 2002).

This was achieved by examining a variety of sources, including policy documents, Local Development Plans, archival materials, images, reports, newspapers, and policies, with a focus on the evolution of wetland management practices. Archival images of Borrowdale and Mbare wetlands were analysed over time to track changes. This analysis was cross-referenced with oral histories provided by two families about these wetlands. The goal was to see if these oral accounts matched the historical and policy records and to explore any discrepancies and their reasons.

Field Observations

I also spent time on the ground observing how people use and interact with the wetlands in their everyday lives. These field observations were important to see first-hand how people move through the space, and to connect the stories being told and maps or satellite images. Being present in the field allowed me to understand the wetlands not just as land, but as

lived and cared-for spaces. This helped connect what I saw in the images to the realities of the people who depend on these wetlands.

Analysis of Data

Thematic analysis was used in this research. Thematic analysis is a method used in qualitative research for organizing and identifying main themes in data that has been collected for research systematically, paying special attention to meanings and various patterns (Braun and Clarke, 2012:57). I applied this approach to stories shared by the families who use the wetlands, whose histories, experiences and challenges living with urban wetlands offered rich qualitative insights. Additionally, archival data provided historical context, enabling the identification of recurring patterns and themes across both personal narratives and documented evidence. The thematic analysis is adaptable and can be conducted in numerous ways. The other reason for using the thematic analysis is that it suggests a step-by-step method which makes the analysis easier and provided a framework on how to come up with patterns and codes to use when analysing data that is going to be collected using the deductive and inductive approach to data coding. Braun and Clarke (2012:58) proffers that using thematic analysis will offer accessibility and flexibility through the following six phases: “a) familiarizing with data. b) generating initial codes, c) searching for themes, d) reviewing potential themes, e) defining and naming themes and f) producing report.”

Ethical Considerations

Mama (2011) stresses the importance of understanding one’s biases and position, including factors like gender, class, and ethnicity, while conducting research. Positionality refers to the researcher’s worldview and how their background, beliefs, and assumptions influence the study (Holmes, 2020). Reflecting on my own positionality, I realized my views on wetlands and water could unintentionally shape how I interpreted participants' perspectives. This awareness helped me adopt a reflexive approach, constantly checking how my background and authority might affect the research process and participants' responses. By prioritizing

respect and creating a safe space for participants, I aimed to minimize bias and ensure their voices were genuinely valued.

Conelly (2014) explained that researchers must carefully consider ethical responsibilities before, during, and after conducting a study. The founding principles for this research were built on a commitment to care, concern, and accountability. As part of my ethical obligations, I prioritized obtaining informed consent from the families contributing oral histories. I provided participants with a detailed explanation of the research, outlining its purpose, potential risks, anticipated benefits, and the process involved. Additionally, I emphasized their right to ask questions and assured them that they could withdraw from the study at any time without consequences. This approach ensured transparency and fostered trust between the participants and me as a researcher. Babbie (2014) describes rapport as "an open and trusting relationship between the researcher and research participants that is built on the researcher's genuine interest in understanding the participants' experiences". I recognized that participants might hesitate to share their experiences of living near urban wetlands, particularly given the potential legal ramifications. This was especially relevant for Mai Tafadzwa, who depended on the wetland for her livelihood, which could be perceived as an "illegal" activity. The sensitivity surrounding the nature of these issues needed me to approach these conversations with care, creating an environment of trust and making sure that the participants felt comfortable and secure so that they shared their stories without fear of repercussions or judgment. I informed the families of their right to participate voluntarily without being coerced and their privacy and confidentiality during participation. I protected the identity of the families by using of the pseudonyms.

No monetary compensation was given to participants and all who participated in this study did so voluntarily. I, however brought and offered small tokens of appreciation to show them my gratitude for sharing their experiences and welcoming me into their spaces. Informed consent was obtained to record and transcribe the discussions, with participants granting unconditional permission to proceed. In addition, I communicated clearly that the findings

of this research might be presented at conferences or published in academic journals and the data collected would be owned by the University of Cape Town (UCT). I made sure that throughout the research process, full compliance with the ethical standards and guidelines established by UCT.

Conclusion

Zimbabwe presents a particularly complex landscape and interesting case, given the political instability, what many consider as a failed state, and how this gets imprinted on geologies and ecologies. While wetland scientific studies have focused on biodiversity, water and soil quality issues, it is important to pay attention and trace how political decisions have altered the different spheres of wetland ecologies and shaped the well-being of people and species reliant on them. The overall goal is to explore how these wetlands are managed, valued, and interacted with by various stakeholders, and how these interactions have shaped both the present and future of urban wetlands in the country. Through a combination of oral history interviews and archival research, historical satellite imagery and observation, this chapter seeks to unpack the complex power dynamics, historical legacies, and various perspectives that influence wetland management. It responds to the central research question by offering a thorough exploration of how wetlands in Zimbabwe have been governed over time, the implications of different perspectives on their management, and how local communities envision the future of these ecologies.

Chapter 2: History of Wetland Management

(Echoes of the Past, Challenges of the Present: *Historical and Contemporary Perspectives on Wetland Use)*

When the well is dry, we know the worth of water. (Benjamin Franklin, 1846)

Introduction

This chapter argues that urban wetland management in Zimbabwe is influenced by a combination of historical, socio-economic, and legal factors, that intersected shaping the impact on the ecological health of these wetlands. Despite their critical roles in water quality, biodiversity, and urban cooling, wetlands have faced significant encroachment due to imperial logics that often saw nature, particularly on the continent as simply a resource for exploitation. Wetlands have an interesting and complex history where there were seen as a vital resource for the growth of economies, at the same time seen as a hindrance to growth of cities, which led to their infilling. Colonial-era policies viewed them as wastelands for development, a mindset that persists today. Rapid urbanization, population growth, and insufficient legal frameworks further exacerbate wetland loss. Although there are laws and a national wetland policy in place; inadequate enforcement, and fragmented institutional roles hinder effective protection. By looking at the histories that shaped contemporary policies for wetland management, the chapter calls for a coordinated approach to wetland management, integrating research, better legal frameworks, and community involvement to ensure sustainable conservation of these important ecologies.

Wetland Management

Chuma et al., (2008) created a guide outlining a strategy for the sustainable use and management of wetlands, focusing on their role in supporting livelihoods through agriculture, water provision, resource harvesting, and livestock grazing. The guide makes the point that wetlands *“have to be used and managed”*. This carries an implicit assumption that wetlands must be utilized in some way, which could prioritize exploitation rather than conservation. The idea of "use" could reinforce the commodification of wetlands, where the

focus shifts to extracting resources for immediate human benefit rather than long-term environmental health and sustainability

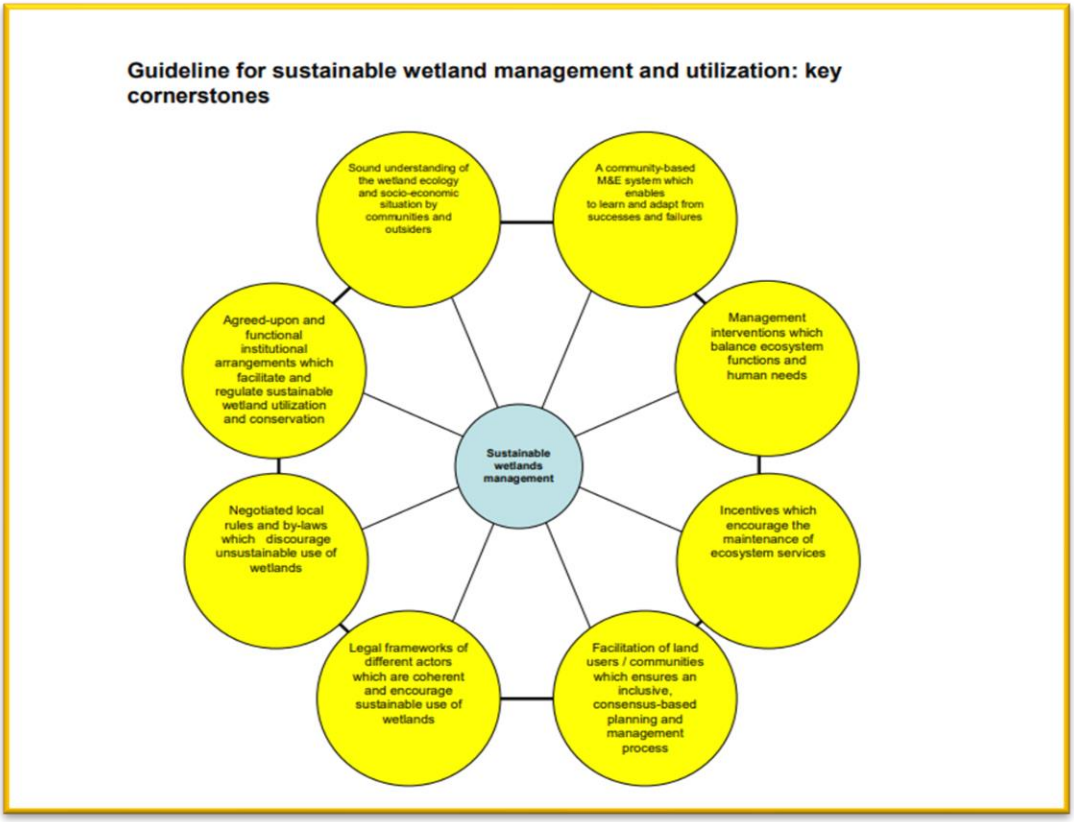


Figure 4: Key cornerstones (Source: - LearningWheel Methodology (Hagmann 2005) cited in Chuma et al., 2008)

Wood and van Halsema (2008) argued that the management of wetlands often suffers from a lack of interdisciplinary approaches, which leads to significant gaps in both understanding and practice. The management of wetlands involves various stakeholders that include policymakers, environmental scientists, and local communities and each of these stakeholders have their own priorities and expertise. Wetland management strategies can become fragmented with no collaboration across various disciplines such as sociology, hydrology, economics, and ecology. This fragmented approach results in policies that do not address the full complexity of wetland systems and the different needs of people who rely on them.

Building on this idea, Wood et al. (2013) emphasize that existing research on wetlands often operates in silos, with limited communication between disciplines. This lack of interaction can prevent the sharing of knowledge and insights that are crucial for understanding wetlands in their entirety.

> *"What is needed to take forward our understanding of how to achieve sustainable wetland management is more interdisciplinary approaches to wetlands" (Wood et al., 2013).*

Fragmented approaches not only hinder effective wetland management but also contribute to the ongoing challenges in developing sustainable, integrated strategies. The need for managing wetlands effectively becomes increasingly critical as climate change and the growth of population continue to exert pressure on these ecosystems (Wood et al., 2013). Conserving the environment is not about managing it properly but it is about ensuring that wetland resources are sustainable to those who depend on them.

Historical Context of Wetland Management in Zimbabwe

From the colonial era to date, wetlands' management and legislation in Zimbabwe has undergone substantial transformation. According to Mandishona and Knight (2022), during the colonial period, which lasted until 1980, wetland use was heavily regulated by laws that often-excluded local communities from accessing these vital resources. This created a disconnect between the needs of indigenous populations and the legal frameworks governing wetland management, leading to tensions among various stakeholders. Following independence, although there was a shift in political power, many of the colonial-era laws remained in place, perpetuating existing conflicts over wetland usage and conservation. Understanding this historical context is crucial for addressing current challenges in wetland conservation and management.

Precolonial Era

Although not much data is available about the direct protection of wetlands during the pre-colonial era, one can infer from practices of overall biodiversity conservation during that era.

The first people known to inhabit the Zimbabwe region where of the San tribe (dating back 100 000 years ago), a largely nomadic group who mainly hunted and gathered food, moving from place to place (South African History Online, n.d.). This meant that when food availability was low, they would move to another area, leaving the land to recover. In the later Iron Age around 1000AD, cattle herding Bantu linguistic people migrated from further up north of the African continent and settled in the area now known as Zimbabwe (ibid). A description of the landscape by Bouchier (as cited in Chigonda, 2018) stated that the area was "a wilderness of bush and native timber, teeming with game of every variety which found ample feeding ground rich in valleys and grasslands that abound in all parts of the country". However, access to the resources on the landscape was not uncontrolled, but was governed by customs, beliefs and taboos (Chigonda, 2018). For Murombedzi (2003), the notion of "sacredness" played a great role in conservation practices. Sacred forests, groves, pools and wetlands represented the different levels of conservation, i.e. who could access these spaces, how and when. For instance, some sites were believed to be hosts of spiritual entities, and therefore a disturbance of the site would result in calamity for the person, family and village of those that caused harm to the area. In many Bantu-speaking cultures, stories of the water snake that resides in sacred water bodies and interacts with humans in multiple ways is common. The water snake was/is believed to be symbolic of water's life-giving force and its ability to destroy. The water snake was believed to be the source of springs, fountains and waterholes, in other words, always in naturally occurring water sources (Rusch, 2016). Anyone who desecrated the site where these beings lived, by indiscriminately exploiting the resources, or harvesting at the wrong time would have several years of hardship, unless cleansing rituals were performed.

Other ways that conservation was practised was through totemism, where one was not allowed to eat their totem animal or plant. Breaking such a customary law resulted in illness for the offender. This was deemed as an effective way of conserving biodiversity as different people were charged with the protection of their totem species and therefore prevented the over exploitation of a preferred species (Chigonda, 2018). These beliefs were not just superstitions but a way to conserve wildlife and plant species. Another way of conserving

was strictly forbidding the killing of young animals or premature harvesting of edible caterpillars. Doing so was believed to bring bad luck or loss of eyesight. (ibid). To protect endangered species like the pangolin and python, traditional taboos were used. For example, it was believed that killing a python would cause a drought, which helped the community protect it (ibid). The harvesting of certain plants, like Muzhanje and Mutamba trees which were important for both food and the ecosystem were restricted by the community (ibid).

Colonial Era (1890s - 1980)

Inequality and exploitation of both natural resources and people was prevalent during the colonial period in Zimbabwe. Laws that restricted how wetlands could be used were introduced by the colonial government despite the fact that local communities had long relied on them for farming. Before colonization, farmers used wetlands, called dambos, in sustainable ways to grow crops like maize and yams, using traditional knowledge to manage them effectively (Mandondo, 2000). Wetland management in Zimbabwe during this period had legislative and practical challenges because of the complex interplay between colonial policies, local practices, and the environmental realities of wetlands. The colonial government, established in the 1890s, had various laws in place to restrict wetland use. The implementation of these laws was These laws were said to be for environmental protection, but there was no scientific evidence to support this (Bell et al., 1987; Kuppe & Potz, 1996). Key legislation included the Water Act of 1927, the Land Apportionment Act of 1930, and the Public Stream Bank Protection Regulation of 1952, and collectively aimed to control land use and protect resources, but mainly favoured European settlers (Mandishona & Knight, 2022). The Land Apportionment Act of 1930 was a very important legislation in Southern Rhodesia (now Zimbabwe) that essentially altered how land was owned between the African population and the white settlers. This Act was the result of earlier colonial policies whose main aim was segregating land use and ownership, reflecting the broader context of colonial rule and racial discrimination (Wikipedia contributors, n.d.).

Before the enactment of the Land Apportionment Act land ownership in Southern Rhodesia was not legally restricted for black people although there were practical barriers existed. The colonial government had allowed some native land ownership, but this was challenged as white settlers pushed to take more land for farming (Mandishona & Knight, 2022). Land was primarily communal and different tribes managed resources as a group. The British South Africa Company started restricting land sales to Africans, especially after the Southern Rhodesia Privy Council's rulings in the 1910s (Mujere & Mseba, 2019). This Act formally segregated land ownership by designating specific areas for white settlers and restricting African land ownership to designated Native Purchase Areas. Approximately 19.9 million hectares were allocated to white settlers, while only 3 million hectares were initially set aside for the African population, which was later expanded to 8.8 million hectares (Laurie, 2016). White settlers controlled about 50% of the land a small minority, while the majority African population was limited to 29.8%.

Africans were prohibited from purchasing land outside designated areas, which were often of inferior quality and poorly located (Machingaidze, 1991). The act reinforced a system of customary tenure, where most Africans were forced to rely on communal land within overcrowded Native Reserves (Mafa, 2015). The act worsened existing inequalities, leading to overpopulation in Native Reserves and limiting access to quality land for agricultural production (Laurie, 2016). Majority of Africans resorted to subsistence farming and were struggling with economic marginalization and food shortages (Moyana, 1975). The Native Land Husbandry Act of the 1950s deepened the cycle of inequality. (Mafa, 2015). In addition, the act laid the groundwork for ongoing land disputes and tensions between the white minority and the black majority, which would come up again in the late 20th century during land reforms led by Robert Mugabe (Gregory, 1980).

The Land Apportionment Act of 1930 was a pivotal moment in the history of land ownership in Zimbabwe, reflecting the broader colonial strategy of segregation and control. Its legacy continues to influence land reform discussions and policies in contemporary Zimbabwe, highlighting the enduring impact of colonial legislation on social and economic structures. Local communities were largely excluded from wetland resource management, as colonial

laws prohibited traditional practices such as wetland cultivation (Bell & Hotchkiss, 1989). This exclusion created tensions between local needs and colonial interests. Traditional practices, such as dambo cultivation, were sustainable and integral to local food security, yet were undermined by colonial regulations (Whitlow, 1990). The colonial legislative framework was marked by fragmentation where environmental laws were scattered and often contradictory, leading to ineffective management of wetland resources (Bowyer-Bower, 1996). The National Resource Board (NRB), which later became the EMA, enforced these laws without adequate consideration of local stakeholder input (Mandishona & Knight, 2022).

Postcolonial Era (1980 - Present)

With the independence of the country in 1980, the Zimbabwean government inherited laws from the colonial period and these continued to shape how wetland management practices were shaped. The Environmental Act (Chapter 20:27), along with Statutory Instrument 7 of 2007 and the Environmental Management and Ecosystem Protection Regulation, sets the rules for wetland use. However, many wetlands in Harare face threats from unchecked development due to the city's shortage of open spaces (Nhapi, 2008). EMA was established in 2002, so that it would regulate wetland use and promote sustainable practices (Mandishona & Knight, 2019). EMA oversees wetland management.

Though EMA was established there continued to be legislation and policy gaps. The Environmental Management Act (2007) was formulated to provide a framework for wetland conservation but is fragmented and not being properly enforced (Marambanyika & Beckedahl, 2016a). Not having a coherent national wetland policy has hampered management efforts (Mandishona & Knight, 2022). Although Zimbabwe is committed to the Ramsar Convention that emphasizes sustainable use of wetlands and has since introduced the Wetlands Policy (2022) and the Wetland Use guidelines (2022) to provide a much clearer framework, challenges remain. Engaging local stakeholders continues to be difficult and has led to further encroachment and degradation of wetlands for urban development (Matamanda et al., 2018). The centralized decision-making process more often than not

always prioritizes political and economic interests over local environmental considerations. This has resulted in tensions between government authorities and local communities regarding wetland use (Bell & Hotchkiss, 1989). The top-down approach has limited the effectiveness of wetland management, as local needs and traditional practices are frequently overlooked (Mandondo, 2000). Recent studies continue to emphasize the importance of involving local communities who live with the wetlands in making decisions about how they are managed (ibid).

Despite the existence of legislation aimed at protecting wetlands, challenges persist - increased exploitation and lack of resources. Urban encroachment and agricultural expansion continue to threaten wetland ecosystems (Musasa & Marambanyika, 2020). EMA faces significant resource restrictions which then hinders and limits its ability to monitor and enforce wetland regulations effectively (Mandishona & Knight, 2019).

Institutions Governing and Managing Urban Wetlands in Zimbabwe

Institution	Roles and Responsibilities
Ministry of Environment Water and Climate (MEWC)	- Oversees environmental management, including wetlands. - Aligns with the Ramsar Convention of 1971 to promote sustainable development. - Addresses ecosystem services such as food security, climate stabilization, and tourism.
Department of Environment and Natural Resources	- Ensures best practices in environmental management. - Plans and coordinates policies for sustainable development and wetland conservation.
Environmental Management Agency (EMA)	- Statutory body for sustainable natural resource management. - Implements policies, promotes wise wetland use, conducts public education. - Engages stakeholders with transparency and professionalism.
City of Harare (CoH)	- Governs local development and environmental conservation. - Manages land use through local development plans and reserves wetland areas from development.
Civic Environmental Organizations	- Includes groups such as the Harare Wetland Trust, COSMO[6], and BirdLife[7] International advocating for wetland conservation. - COSMO facilitated the conservation of Monavale Vlei, leading to its Ramsar Site designation in 2013.

Table 1: (Source: Adapted from Matamanda, A. R., Chirisa, I., Mukamuri, B. B., Kaduwo, P., & Mhlanga, M. (2018). *Harare's deteriorating wetlands: Why sound policies and legislations are not enough*. *Case Studies in the Environment)*

[6] Conservation Society of Monavale (COSMO). (2020). *Protecting the Monavale Wetland: Community-Based Conservation Approaches*. COSMO Publications.
[7] BirdLife Zimbabwe. (2013). Wetland conservation and community engagement: A case of Monavale. BirdLife Zimbabwe

An Analysis

The appearance and growth of various trees and plant species, not only stabilises the soil, reducing soil erosion, attraction of different species (insects and small animals), it also provides the city with the aesthetic value which supports the restoration of the city's sunshine city status (De Groot et al., 2002; Tendaupenyu, 2012). Cleveland, Mukuvisi, and Monavale wetlands are popular for recreation, bird watching, and providing breeding areas for birds, fish, and other animals (Murungweni, 2013; Birdlife Zimbabwe, 2013). They also provide excellent sites for educational studies of biology and ecology.

The colonial era had a profound impact on urban wetlands in Zimbabwe. Wetlands were often seen through the lens of Victorian ideas of "progress" and "development," and were frequently labelled as "wastelands" for agricultural or urban use (Rogerson, 1989). This perspective led to widespread drainage, alteration, and encroachment, with lasting consequences. Colonialism shapes societies through exploitation and domination (Césaire, 2000). Colonial histories and practices have influenced the management and perception of urban wetlands in Zimbabwe and these colonial policies and land use have impacted wetlands and their management. Césaire highlights the power imbalances inherent in colonial relationships. By analysing the power dynamics between different stakeholders involved in wetland management – such as local communities, colonial legacies, and current government policies this thesis examined how historical power structures continued to affect decision-making processes and resource allocation.

Borrowdale and Mbare wetlands reflect the lasting impacts of colonial exploitation and the influence it continues to have on current management practices. In Borrowdale, a historically affluent area, colonial land-use systems prioritized the needs of elites, leading to structured, controlled wetland utilization. Colonial policies targeted wetlands for "reclamation" to support agriculture and urban growth (Rogerson, 1989). This led to uneven development, pushing marginalized communities to the remaining wetland areas and increasing their exposure to environmental risks.

The legal and institutional frameworks of the colonial period laid the groundwork for contemporary challenges in wetland management. Although some protective measures existed, they were often undermined by the colonial focus on resource extraction and land appropriation (Rai & Raleng, 2011; Matamanda et al., 2018). These early frameworks influenced post-independence approaches, which have struggled to address the legacy of colonial wetland policies (Nhapi et al., 2003; Mandishona & Knight, 2019; Matamanda et al., 2018; Rogerson, 1989).

The colonial legacy in Zimbabwe has significantly shaped the current challenges in wetland management. These challenges stem from historical exploitation, inadequate institutional frameworks, urban expansion, and socio-economic pressures. The complicated challenges on the management of wetlands was created by the enduring legacy of colonialism in Zimbabwe. In order to tackle these issues a holistic approach that strengthens institutional frameworks, incorporates local knowledge, and prioritizes sustainable land use practices while recognizing the socio-economic realities faced by communities who rely on these ecosystems is needed.

Post-Independence Challenges: Navigating Competing Demands

Various socio-economic and political factors have undermined wetland sustainability during the post-independence period in Zimbabwe. Inadequate infrastructure, resource planning, and rapid urban growth have placed great pressure on wetlands. Informal settlements have encroached on wetland areas, while industrial and agricultural activities have led to pollution and degradation (Nhapi et al., 2003). The overlapping and often unclear legal and institutional frameworks for wetland management have further complicated conservation efforts.

Multiple government agencies and local authorities with different mandates struggle to coordinate and enforce regulations, resulting in ineffective wetland management strategies. Economic and livelihood needs of urban communities often clash with conservation goals thereby creating competing demands and complex trade-offs. In order to address these

challenges innovative solutions are required so as to balance social, ecological, and economic considerations. Research indicates that effective wetland management requires a nuanced understanding of colonial legacies, contemporary socio-economic pressures, and diverse community needs (Rai & Raleng, 2011; Matamanda et al., 2018; Nhapi et al., 2003). Future research should focus on the integration of local knowledge and international policies to create a comprehensive and context-specific approach to wetland conservation (O'Gorman, 2021; McInnes, 2016; Moomaw et al., 2018; Davidson et al., 2020; Kakuba & Kanyamurwa, 2021; Mandishona & Knight, 2022).

Key Challenges in Wetland Management

Inadequate Institutional Frameworks

The institutional arrangements for wetland management in Zimbabwe are fragmented and poorly coordinated, leading to conflicts among stakeholders, including local communities, government agencies, and traditional authorities. Marambanyika & Beckedahl (2017) further explain that the fragmentation partly comes from a governance system that has been influenced by policies of colonialism that do not value indigenous knowledge and practices thereby weakening the capacity of local institutions to effectively manage wetlands. Lack of a unified approach complicates conservation efforts and accelerates wetland degradation.

Urban Expansion and Development Pressures

Rapid urbanization presents a significant threat to wetlands in Zimbabwe. In cities like Harare, so-called illegal settlements have increasingly encroached on wetland areas (PreventionWeb 2024). This preference for urban development over environmental conservation reflects historical attitudes that undervalue natural resources. Reports indicate that large portions of wetlands are being converted into residential and commercial areas, further diminishing their ecological integrity.

Unsustainable Agricultural Practices

Economic hardships and food insecurity have intensified the use of wetlands for agriculture. Communities often rely on these fertile areas for crop cultivation, but such practices lead to significant degradation of wetland ecosystems (Matiza, 1994; Mutepfa et al., 2010). Historical land-use practices focused on resource extraction have left a legacy of unsustainability, which persists today. Furthermore, traditional, sustainable methods of wetland use have been largely replaced by centralized policies, exacerbating overexploitation (Whitlow, 1990).

Climate Change Impacts

Climate change is amplifying vulnerabilities in wetland management. Erratic rainfall patterns have pushed communities to exploit wetlands for agriculture, hoping to secure better harvests during drought periods (PreventionWeb, 2024). Although this approach offers short-term benefits, in future it will cause serious long-term threats to wetlands and the people who live and depend on them.

Policy Implementation Gaps

Although Zimbabwe has policies like the National Wetlands Guidelines and the Environmental Management Act, significant gaps in implementation hinder their effectiveness.

> *"Zimbabwe is good at formulation of policies, but we have serious challenges when it comes to implementation"* said Christopher Gohori, senior programmes officer for Community Water Alliance (as cited in PreventionWeb, 2024).

These laws often fail to consider the practical realities and needs of local communities. Top-down management approaches have excluded local voices, reducing the policies' relevance and impact (Bell & Hotchkiss, 1989). This disconnect between policy design and execution

continues to obstruct wetland conservation efforts, with criticism aimed at the government for failing to turn policy into meaningful action.

To enhance wetland management in Zimbabwe, several recommendations can be made.

- Strengthening legislation by updating domestic laws to align with international standards, ensuring comprehensive protection for wetlands (Marambanyika & Beckedahl, 2016b).
- Community involvement through establishing local wetland committees to facilitate stakeholder engagement and incorporate traditional knowledge into management practices (Bell & Roberts, 1991).
- Develop a cohesive strategy that balances ecological sustainability with the economic needs of local communities especially with the face of climate change (Junk et al., 2013).

Conclusion

The history of wetland management in Zimbabwe reveals a complex relationship of colonial legacies, socio-economic pressures, and insufficient legal frameworks that have contributed to the ongoing degradation of these ecosystems. Urban wetlands have been undervalued and exploited, particularly in marginalized communities. The lack of comprehensive data and inconsistent classification further hampers effective management and protection efforts. Effective wetland management requires the involvement of local communities, who possess valuable indigenous knowledge about sustainable practices (Mbereko et al., 2007). Stakeholders can foster sustainable practices that will benefit both the environment and local communities through coordinated efforts. Wetland management in Zimbabwe has evolved from colonial restrictions to modern legislation, yet challenges remain. EMA's effectiveness is hindered by a lack of community involvement and inadequate enforcement of laws. This chapter emphasizes the need for a coordinated and inclusive approach that addresses the historical injustices and current challenges in

wetland management. Integrating scientific research, strong legal frameworks, and active community participation is essential to reversing the loss and degradation of wetlands.

Chapter 3: Living with Urban Wetlands

(Voices from the Marsh: *Living Stories and Struggles of Mbare and Borrowdale Wetlands)*

Introduction

Harare, Zimbabwe's capital, is struggling with the effects of rapid urban growth and a population of about 2.1 million. Harare has rapidly urbanized and is currently dealing with a major housing shortage (Sithole & Goredema, 2013; Matamanda et al., 2018). As a result, most of Harare's wetland areas are at risk of being turned into residential zones. However, not all wetlands are being developed for housing. Some have been turned into busy commercial areas, with gas stations, residential communities, and other business-related establishments (Ruzvidzo, 2020). This chapter explores the personal stories of residents from Borrowdale and Mbare wetlands in Harare. The experiences shared by these individuals illustrate the complex balance between economic needs, environmental sustainability, and urban development, revealing how wetlands have become both a source of survival and a site of struggle. Due to economic challenges, many residents rely on wetlands for survival, causing pollution and encroachment that degrade these ecosystems. Through these narratives, the chapter highlights how different communities perceive and interact with wetlands, showing how these spaces are vital yet threatened by urbanization, pollution, and conflicting land uses.

Versions of wetlands in Harare

Living with Mbare Wetland: Mai Tafadzwa

I remember the first time I met Mai Tafadzwa. It was in the afternoon, and she was standing in the shallow water barefoot, with her hands pulling out weeds from the soil. She smiled when she saw me approaching. She wiped her hands on her 'zambia' wrap and signalled me to come closer. *"Titambire Mauya,"* (welcome). I removed my shoes and made my way towards her, also sinking my feet into the soil. After admiring the beautiful green vegetables, she had and how big her *'muboora'*(pumpkin leaves) 'covo' (kale variation), rape and 'tsunga'

(mustard greens) leaves where she said to me that they were not as big as her grandmothers who had essentially passed the land to her mother then to her. While talking to her I soon discovered that for Mai Tafadzwa, this wetland was not just a patch of land to cultivate vegetables; it was a living, breathing entity woven into the fabric of her family's story. She talked about the wetland fondly as if it were a member of her family, and perhaps, in some ways, it was. Generations before her, had worked this wetland. Her grandmother, Mbuya Mashoko had taught her how to read the subtle signs of the wetland – the way the reeds bent in the wind, the texture of the soil after a good rain, and the sound of frogs that indicated the beginning of a new season. I noted that only women in their family worked on the wetland.

"The wetland has always been here for us," she said. *"Through droughts, through floods, through good times and bad, it has provided."* To her, the wetland was a silent provider of food and water. She had learned the knowledge about the seasons, about resilience and harmony with the natural world from the wetland. While we continued walking along the muddy paths between the vegetable patches and pulling out weeds, she pointed out her crops: tsunga, covo, and muboora, flourishing under her care. Her children and grandchildren had played in the same fields where she once played, as did her mother and her mother's mother.

"Look over there," Mai Tafadzwa pointed, her finger signalling the edge of the wetland where men moulded clay into bricks. *"People have turned parts of the wetland into places for bricklaying."* It was hard not to notice the irony – while Mai Tafadzwa's family struggled to maintain their way of life through small-scale farming, others were digging up the very earth to bake bricks that would soon become part of the city's expansive growth. I then asked what she thought about the various activities, especially bricklaying being done on the wetland. She said though she understands the need for livelihood she was aware of the harm bricklaying had on the wetland.

I asked her how the wetland was protected, and she said there were laws criminalizing bricklaying and farming activities within the wetland. *"They say it is to protect the wetland,"* she said with a wry smile. *"But how do you protect something by punishing those who have lived with it for generations?"* The irony is not lost on Mai Tafadzwa. While her family's

subsistence farming is deemed illegal, she points to another section of the wetland where heaps of garbage lie rotting – plastic, paper, and even chemical waste. *"And yet, the city itself dumps its waste here,"* she added, with frustration. *"They are poisoning the soil, ruining the water, doing more harm than our farming ever could."* The wetland, she explained, is resilient, but only to a point. The dumping has spoiled the soil in parts, leaving behind patches where nothing grows. *"We have seen the frogs disappear, the water darken,"* she said sadly. *"Things have changed. I remember my grandmother always telling me that if I take good care of the land, it will also take care of me. The wetland is more than just land."*

Despite the challenges, Mai Tafadzwa's spirit remains unbroken. She continued using her hands to work on the soil removing weeds from her vegetables. I also joined her though I was not sure whether I was doing the right thing. Later on, after some time had passed she said to me, "*Wozotanha muriwo waunoda usati waenda*", (make sure you get some vegetables before you leave). As I left the Mbare that day, with my hands full of vegetables that I had received from Mai Tafadzwa, I felt a deep sense of understanding – of how land and people are bound together, not just by history, but by survival and was looking forward to my next visit.

****

My interaction with Mai Tafadzwa highlights difficult relationship that exists through history. The wetland that is very fundamental to her family's livelihood, really reflects urban metabolism, showing water, soil, and energy flow through urban systems, creating tensions between sustainability and exploitation. The wetland sustains life through her cultivation at the same time it is being exploited for activities like bricklaying, waste dumping and land for construction. Her knowledge of farming seasons which have been passed through generations, contrasts with the short-term economic temporality of brickmaking and the detached bureaucratic temporality of laws that criminalize her subsistence farming while ignoring more harmful practices like waste dumping by the CoH. Sacrifice zones are created on parts of the wetlands which have been degraded for urban expansion. Through Mai Tafadzwa's perspective the wetland is a living entity woven into her family's identity and survival. Her question, *"How do you protect something by punishing those who have lived*

with it for generations?" confirms Haraway's call to *"stay with the trouble,"* urging us to rethink governance that embrace the entangled relationship of people and landscapes.

Living with Borrowdale Wetland: Mrs. Moyo

I met Mrs. Moyo in the afternoon at her home, which was situated across from the Borrowdale wetland. The house was very modern and beautiful and one had a clear, beautiful view of the open wetland across which had many indigenous trees. She welcomed me with a warm smile and invited me to sit with her on the veranda. After exchanging greetings, I asked her how long they have been staying at their house. *"You know, I've been here for a long time - maybe twenty or so years. Baba got this land, and we immediately felt it was where we needed to build our home. I know all my neighbours, because we all sort of started building around the same time."* She began, showing me the wetland before us. *"This place, it's like a little escape. It is not noisy buy very serene and peaceful. We used to take walks there when my children were younger, and breathing the fresh air and watching birds was always fun."*

I asked her if she still takes walks, and she described the changes she'd seen over the past few years. *"No, I do not take walks. People have started coming here, setting up places for praying, while others have even planted their own little gardens – turning the wetland into their personal space. It's supposed to be a place of nature, not a free-for-all. I want the authorities to step in, to remind people that this is not their backyard."* I thought she might oppose the new housing projects that have been initiated in the area, expecting her to lament the loss of the natural beauty she so loved. But Mrs. Moyo surprised me. *"No, I actually think the development is a good thing,"* she said, *"It might sound strange, but those houses - they'll keep the misfits away, the ones who don't respect the land. I really wished they had allowed that mall to be constructed there. I was in support of it not sure who stopped that development."* Mrs. Moyo stated that once there's proper development, there will be clear rules and boundaries. It will be safer, more controlled. *"I know it'll change things, but at least the wetland won't become a place where anything goes. It'll be protected in a different way,*

with people who understand how to look after it." As I listened to Mrs. Moyo, I realized that her perspective on the wetland was a mix of love for its natural beauty and a desire for order. She wanted the peace she had known for so long to be preserved, even if that meant welcoming change that others might see as a loss. For her, the new development wasn't a threat. It was a step towards protecting the wetland. As I left her place, I thought of Mai Tafadzwa in Mbare and how different their experiences of living with urban wetlands were.

****

> *"You know, I've been here for a long time - maybe twenty or so years. Baba got this land, and we immediately felt it was where we needed to build our home. I know all my neighbours, because we all sort of started building around the same time."*

Mrs. Moyo's statement reflects a sense of shared temporality, how her personal history with the land is connected to her neighbours, all of whom moved in and built their homes around the same time, creating a shared sense of community over the last twenty years. Unlike Mai Tafadzwa, whose relationship with the wetland is rooted in generational knowledge and sustenance, Mrs. Moyo prefers structured, regulated development around the wetland as a means of preserving it. This is seen in her preference for developments like malls and housing as protective, reflecting deeper colonial ideas. The ideas equate progress and order with control which has shaped how environmental management has been perceived.

This highlights economic priorities where wetlands are valued primarily for their material or economic benefits (e.g., land for construction) rather than their ecological functions, such as water filtration, flood control, and biodiversity support. Wetland farming, which has sustained generations from Mbuya Mashoko to the present with Mai Tafadzwa, is deemed "illegal," while urban expansion, which often causes irreversible ecological damage to wetlands, is legitimized as a form of preservation. Unlike Mai Tafadzwa whose immediate relationship is based on survival, Mrs. Moyo's framing of the wetland as a site for leisure, peace, shows the inequalities that exist where she can detach from the wetlands' deeper ecological and socio-economic functions like farming and viewing it as a sacred place. Mrs.

Moyo's perspective reveals the influence of socio-economic privilege and government temporality in shaping her relationship with urban wetlands.

Living with Wetlands: The Urban Struggle

Several human-related activities and land uses were noted on Borrowdale and Mbare wetlands. These wetland uses were noted from the oral interviews done with Mai Tafadzwa and Mrs Moyo. Wetland uses on Borrowdale and Mbare wetlands are shown in Table 1 below. Among these land uses, agriculture is the most dominant, followed by residential (both formal and informal) use. Previous studies have highlighted wetland uses such as cultivation, housing and industrial development, for example, Sithole and Goredema (2013). However, this study has identified that religious and cultural practices are an important wetland use as indicated by a high number of people using wetlands for religious and cultural practice.

Wetland uses	Borrowdale	Mbare
Cultivation	✓	✓
Religious	✓	✓
Squatter settlements	✓	✓
Residential	✓	✓
Industrial use		✓
Waste Dumping	✓	✓
Brick moulding		✓
Tree nursing		✓
Laundry		✓

Table 2: Borrowdale and Mbare wetland uses (*Source: Fieldwork data - Researcher 2024)*

As Cultivation spaces – livelihood

Wetlands serve as crucial sources of food for local communities in Harare, particularly during periods of water scarcity. The use of wetlands for cultivation affects the ecological functions of wetlands as vegetation is destroyed when people cleared land for cultivation (Rebelo et al., 2010). Marambanyika and Beckedahl (2016b) revealed that some wetland

values were being lost as pressure due to agriculture was exerted on the wetlands. These wetlands provide fertile soil and a consistent water supply, allowing for the cultivation of crops like spinach, tomatoes, and traditional vegetables. As Mai Tafadzwa shared,

> "During the dry season, we come here to grow vegetables because the soil is always moist, and we don't need to rely on irrigation. *Vana vangu havamboshaye chekudya nekuti ndinowana chekutengesa* (My children will not go hungry as I have to sell my vegetables to get money for food)."

Mai Tafadzwa relies on wetlands as a safety net for subsistence especially as rainfall patterns become increasingly unpredictable in urban areas. Verschuuren (2016) echoes this stating that wetlands are viewed as areas of natural abundance, providing both plant-based foods and opportunities for fishing. These findings align with the historical role of wetlands globally, where fertile floodplains have long been used for food production (Strang, 2004). Urban farming in Harare's wetlands has become a critical source of fresh produce for low-income families, particularly during dry spells when access to other water sources is limited.

Figure 5: Vegetable farming on Mbare wetland. (Source: Fieldwork – Researcher, 2024)

Mrs. Moyo expressed her concern about the negative impacts of this cultivation:

> *"We have had more incidents of robberies as thieves take shelter in the maize crops. I can no longer take my usual walks as it is not safe to do so."*

Cultivation on wetlands is significantly influenced by economic conditions, particularly among low-income groups who depend on these areas for subsistence. In Mbare, many residents engage in wetland farming as a means to produce food for their households and to generate income through the sale of their crops, as purchasing food may be beyond their financial reach. Wetland use here is directly tied to the economic challenges faced by the broader community. Feresu (2010); Sithole and Goredema (2013) noted that the rate of wetland use for subsistence agriculture in urban areas has increased due to food insecurity, unemployment, and poverty as people are finding it difficult to cope with the high cost of living. The current economic problems Zimbabwe is facing have resulted in increased unemployment rates since most people were retrenched from their jobs. As a result, a lot of people have turned to urban agriculture on wetlands to produce food to sustain their livelihoods.

Figure 6: People tending to their fields within the Mbare wetland (Source: Fieldwork – Researcher, 2024)

In contrast, wetland use in the more affluent Borrowdale area serves different purposes. The individuals who practice cultivation in these wetlands are generally low-income workers, such as maids and gardeners employed by the area's wealthier residents, seeking to supplement their incomes. However, for the residents of Borrowdale themselves, the wetlands hold a different meaning. They are more often seen as spaces for recreation and

natural beauty, providing a place for leisure activities, walking, and appreciation of the natural environment as alluded to by Mrs. Moyo rather than a source for cultivation. This contrast highlights how socio-economic status shapes the way different communities interact with and utilize the wetlands around them as they represent an important link in the cycle of water, nutrients, and food. Over time, economic pressures, such as those seen in subsistence farming in Mbare, changes the use and value of wetlands as the needs of the city changes.

As Sacred Spaces – worship and cultural

Water has been honoured in many religions and cultures with rituals like the 'blessing of the waters' being a common practice (Papayannis & Pritchard, 2008). Wetlands have also earned respect in these traditions as they are key sources of water hence closely connected to human survival. Both Borrowdale and Mbare Wetlands have been used as places of worship especially by the Vapostori religious sect. Mrs Moyo raised her concerns about the Borrowdale wetland being used as a place of worship. She states,

> "People have started coming here, setting up places for praying, but there are no proper sanitation facilities, and their litter is everywhere. .... *Vari kushatisa panhu pange pakanaka* (they are damaging a place that was once beautiful)".

This reflects a growing trend among religious groups who view the wetlands as accessible spaces for spiritual gatherings. By utilizing these natural environments, they not only enhance their worship experience but also foster a sense of community and connection with nature. Marambanyika et al. (2012) noted that wetlands were being used for cultural practices as they support a unique type of vegetation used during cultural events hence Mbare wetlands was being used by the Nyau people (*Zvigure*) cultural ceremonies due to the presence of reeds. Reeds hold spiritual significance as they symbolize fragility, resilience, and transformation, and the use of reeds in ceremonies signifies respect for the environment, as it reflects a deep understanding of the interconnectedness between natural resources and cultural practices. Verschuurenn (2016) highlight this and states that

wetlands often hold deep spiritual significance, serving as sites for pilgrimages and rituals, which reflect their importance in both mainstream and indigenous spiritual traditions.

Mai Tafadzwa explained that apart from religion many people use the wetland for cultural and traditional purposes.

> "Broken calabashes, clothes and chicken feathers are a sign that someone used the traditional healer *(kushandirwa)*. *Mazuva ano nenyaya dzemanjuzu vasikana havachabvi kuno kutsvaka mari*. (These days many young women flock the wetland to get powers for money)

The idea of water being "sacred" appears in many religions throughout history. Cultures living near rivers and floodplains often made offerings to their river gods. Water is important in many rituals, such as baptisms, pouring drinks for blessings, washing away sins, fertility ceremonies, protecting against bad luck, and funeral rites (Strang, 2004). By using wetlands as sacred places and places of worship, they are essentially showing the different meanings that they attach to them. While they are drawn to these areas because they offer a sense of tranquillity and connection to nature, which enhances their spiritual experience, Mrs Moyo is worried about damaging the image of the wetland. Hence, she points out that they do not have proper sanitation and littering. In her case, Borrowdale Wetland offers beauty and recreational spaces.

Figure 7: Cultural shrine on Mbare wetland. (Source: Fieldwork – Researcher, 2024)

This is better explained by Latour's (2015) AIME which brings together different ways of living – across sectors, disciplines, and perspectives – that can help us accept many values. Using wetlands as sacred places means various actors come into play, including religious groups and local community members who gather in these natural spaces. Their interests are different - where religious communities seek spiritual fulfilment and a connection to nature, while local residents aim to maintain their cultural practices. de la Cadena (2015) emphasizes that the line between humans and nature is not so clear and non-human entities like mountains, rivers, wetlands are considered living beings with their own personalities and the ability to engage in relationships with people and communities. Wetlands in urban areas are a shared resource, where open land is free to be used for activities that align with their spiritual needs and practices. As a result, wetlands become informal yet valued spaces for gathering, prayer, and reflection. Strang (2004) emphasizes the dual role of water both as an essential resource and a cultural symbol impacting identity and community dynamics.

As Housing Spaces – squatter settlements and residential developments

> *"Here at Salisbury the altitude is about forty-seven hundred feet, and in coming inland from the ocean I have crossed land more than a mile above the sea. Most of Rhodesia is a rolling plateau, and I see no reason why much of it should not some day be covered with the homes of white men. All the land that is three thousand feet above the sea has a climate suitable for Europeans, although it is only at more than four thousand feet that white children enjoy the best of health" (Carpenter, 1924)*

During colonial conquest Carpenter (1924) described how parts of Zimbabwe, especially higher areas like Salisbury (now Harare), were seen as ideal for European settlers because of the climate. This attitude encouraged the expansion of housing, often at the expense of wetlands and natural landscapes, which were overlooked or damaged. The belief that these lands were better suited for Europeans led to a pattern of land use that disregarded the needs of local communities and the environment. This colonial mindset still affects how urban areas are developed today, creating challenges in balancing the need for housing with

the preservation of wetlands. Hofmeyr (2022) states that in examining the historical and contemporary governance of urban wetlands it is important to investigate how colonial legacies impact current water management practices and policies i.e. how urban wetlands have been appropriated, regulated, or neglected due to historical power dynamics and how these practices continue to shape contemporary urban environments. These historical power dynamics have left enduring legal and institutional frameworks that continue to influence the management, neglect, or degradation of urban wetlands today, often sidelining more holistic, community-centred approaches.

Césaire's explains this through the conceptualization of colonialism which provides critical insights into the historical exploitation of natural resources, including wetlands, during the colonial era. The imposition of European land tenure systems, resource management practices, and development agendas inherently disrupted existing human-environment relationships, often with devastating consequences for wetland ecosystems and the communities that depended on them (Rogerson, 1989). The historical exploitation and disruption of local cultures and institutions, as described by Césaire (2000), have long-lasting effects on how communities interact with and govern their natural resources, including wetlands. In examining these colonial impacts, we can better grasp the complexities of the hydro-politics surrounding urban wetlands and propose more equitable and informed management strategies for the future.

This legacy continues today, as wetland use is driven by modern development pressures like real estate expansion, often disregarding the environmental and social costs (Rogerson, 1989). Whereas in Mbare – a historically marginalized and densely populated area – colonial policies forced people to live in less desirable and fragile wetland areas, leading them to use these spaces in informal ways just to survive. The uneven distribution of power and resources which was rooted in colonial hierarchies still persists with local communities in Mbare often excluded from meaningful participation in wetland governance (Césaire, 2000). These cases show how colonial histories shape not only the physical landscapes but also

the governance and socio-economic dynamics of urban wetland management in Zimbabwe today.

The increase in need of housing space in the city has led to people encroaching on wetlands for housing purposes. The use of wetlands for infrastructure development purposes increases the number of resistant surfaces which will prevent rainfall from percolating into the soil thereby affecting the hydrology of wetlands (Kometa et al, 2017). It will also impact soil stability, water purification function of the wetlands and result in siltation of lakes downstream as well as destroying habitats for a diverse range of organisms (Muziri, Banhire, & Matamanda, 2019).

Developments threaten the natural state of wetlands, damage the flora and fauna in wetland areas as well as disturbing the hydrological system (Southern African Development Community, 2008). These developments besides the physical buildings have supporting civil works such as roads, sewer and storm drains which further damage wetlands (Kometa et al, 2018). For example, as roads (figure 8 & 9 below), buildings and parking lots are constructed, the number of resistant surface increases. These prevent rainfall from percolating into the soil thereby affecting the hydrology of wetlands. For Borrowdale wetland, this means that there is now reduced water infiltration, which is disrupting the natural hydrology, and which potentially leads to issues like decreased groundwater recharge and the drying out of wetland areas.

Figure 8: New road on Borrowdale wetland (Source: Fieldwork – Researcher, 2024)

Figure 9: Residential developments on Borrowdale wetland. (Source: Fieldwork – Researcher, 2024)

Mrs. Moyo expressed a preference for development on the wetland, believing that building houses or even a mall could prevent misuse of the land by individuals who do not respect it. She even went on to state that she was supportive of the mall project and unclear about why it was halted. This view is often driven by the assumption that formal developments come with more robust infrastructure, including sewage systems and waste management facilities, which could apparently mitigate environmental damage. However, this perception overlooks the reality that large-scale developments also pose significant if not more threats to wetland ecology through activities such as land clearance, drainage, and the sealing of soil surfaces.

Figure 10: Informal (squatter) settlements on Mbare Wetland (Source: Researcher, 2024)

This preference for formal developments over informal ones also highlights a double standard in how threats to wetlands are perceived. This is also a product of colonialism. Chirisa (2013) emphasized that informal settlements are often seen as major threats because of their disorderly expansion and lack of services, yet formal developments can have equally damaging impacts due to how huge and permanent they are. While informal settlements are often criticized for being "unplanned" and lacking regulatory oversight, resulting in pollution and encroachment, formal developments are sometimes viewed as inherently more sustainable or orderly, despite their larger ecological footprint.

The tendency to regard formal projects as more acceptable may reflect broader social biases around what constitutes "proper" land use, prioritizing modernity and economic growth over the preservation of traditional ecological relationships. This is what (Césaire, 2000) termed "*progressive dehumanization"* referring to the systematic process by which colonial powers strip colonized peoples of their humanity, dignity, and cultural identity. This dehumanization occurs through various means, and in this case the imposition of foreign values and systems that undermine the existing social structures and ways of life of the colonized.

The presence of infrastructural developments on Borrowdale and Mbare wetlands is against the dictates of the Local Development Plans which guides development on the two wetlands. According to the Borrowdale Racecourse Local Development Plan, Number 44 of 2000 and the Mbare North Local Development Plan Number 12 of 1991, the local development plans covering Borrowdale and Mbare wetlands respectively, these areas are of ecological importance. They are supposed to remain open and untouched for development since they are the primary sources of water for the city. In this regard, the authorities who approved a residential development on Borrowdale wetland went against the provisions of the Local Development Plan for the area. This move by authorities shows a lack of consistency and misplaced priorities as noted by Mushamba (2010), who blamed CoH for prioritizing revenue generation by allocating people stands on wetlands at the expense of wetland protection.

The city's focus on generating income from land sales overlooks the long-term environmental costs, such as the degradation of water sources and loss of biodiversity, which are crucial to the sustainability of the urban environment. Solomon (2022) emphasized that certain political and economic choices and actions can have lasting geological impacts, shaping the environment for many years to come. In this case the prioritization of short-term financial gain over the protection of wetlands has far-reaching consequences that extend beyond the immediate economic benefits, compromising the integrity of urban environments for future generations.

As Waste Dumping Spaces – sacrifice zone

Both Mai Tafadzwa and Mrs Moyo lamented the issue of waste on the wetland by residents and the City of Harare. While walking both the wetlands, I noticed that waste dumpling was common and exacerbated by the irregularity of municipal waste collection services.

> According to Newsday (2024), *"Although solid waste management is a pressing problem in Harare, it is not a new one. It has persisted over the years. The challenge has, however, worsened due to the increase in population of the city and the sprouting of illegal settlements, which have strained the city's limited capacity to manage and control solid waste in the province."*

Residents can go for months with uncollected waste hence they end-up looking for open spaces to dump their waste. According to Feresu (2010), CoH does not have sufficient resources to cater for the growing population. Thus, it lacks the capacity to collect waste generated by residents. Piles of waste will cause pollution and will become an eyesore, thereby degrading the aesthetic value of wetlands.

Figure 11: Waste dumping on Borrowdale wetland (Source: Fieldwork –Researcher, 2024)

While walking I noticed raw sewage flowing through sections of both wetlands, creating an unpleasant odour and further contaminating the area. This untreated wastewater not only threatens the ecological health of the wetlands but also poses serious risks to the surrounding communities, highlighting critical gaps in the maintenance of sanitation infrastructure. The CoH is discharging raw sewer in wetlands.

Figure 12: Sewer flowing on Borrowdale wetland. (Source: Fieldwork – Researcher, 2024)

Figure 13: Sewer flowing on Mbare wetland. (Source: Fieldwork – Researcher, 2024)

Seeing raw sewage flowing into the wetlands was a shocking experience, filling me with anger and disappointment. It makes me wonder how we can create a safe and liveable environment when raw sewage contaminates the areas where people grow food for their families and for resale. This situation is concerning because not only does it pose serious health risks to those consuming vegetables from these wetlands, but it also damages the ecosystem that supports these food sources. Although Haraway (2016) encourages us to engage with the "trouble", the messy, entangled realities of our existence rather than succumbing to despair or retreating, this “trouble” was not comfortable to stay with. Wetlands have turned into sacrifice zones – places where the environment is harmed for quick economic benefits, like urban development or agriculture.

As Brick Production Spaces

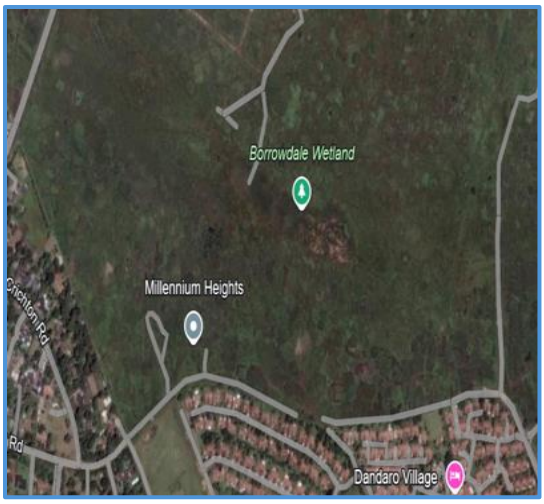
The Mbare wetland in Harare has become a crucial site for brick moulding, which Mai Tafadzwa pointed out. Local residents extract clay-rich soil from the wetland, which is then moulded into bricks and left to dry in the sun before being sold to nearby communities thereby providing cheaper alternatives for building. This practice provides a source of income for many residents, yet it has significant environmental implications.

Figure 14: Brick moulding on Mbare wetland. (Source: Fieldwork – Researcher, 2024)

According to Verschuuren (2016), such activities can disrupt the ecological balance of wetlands, altering their water retention capacity and contributing to their degradation. Strang (2004) also notes that the commodification of natural resources like wetlands can lead to conflicts over land use, as different groups compete for access and control over these areas. As the Mbare wetland faces increasing pressures from urban expansion and informal economic activities, the sustainability of brick moulding practices remains a critical issue for both the local economy and ecological conservation.

Insights from Borrowdale and Mbare: Extent of Wetland Use in Harare

From the various wetlands uses expanded above it is quite clear that there has been an increase in the wetland area occupied by buildings. The findings regarding changes on Borrowdale wetland use and development can be seen in *figure 15 and 16 below*. From 2000 to 2019, network booster occupied 0.069 hectares. Urban development increased from 64.675 hectares in 2016 to 64.912 hectares in 2019. In 2019 buildings occupied 1.923 hectares from zero in 2000.



2016

2020

2024

Figure 15: Spatial expansions around Borrowdale Wetland (Source: Google Earth)

The results indicate an insignificant change in wetland size from 2000 to 2012 where the wetland was an open space and mainly used for agriculture. However, from 2016 the results show a decrease in the size of the wetland as parts of the wetland were now occupied by roads and other civil infrastructure. A further decrease in wetland area was also recorded in 2019 as more wetland area have been taken up by buildings.

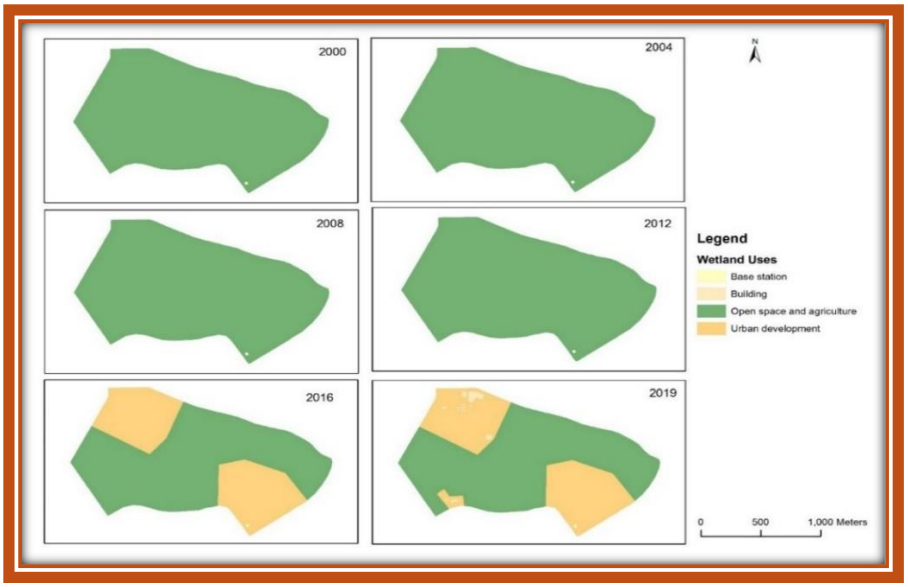
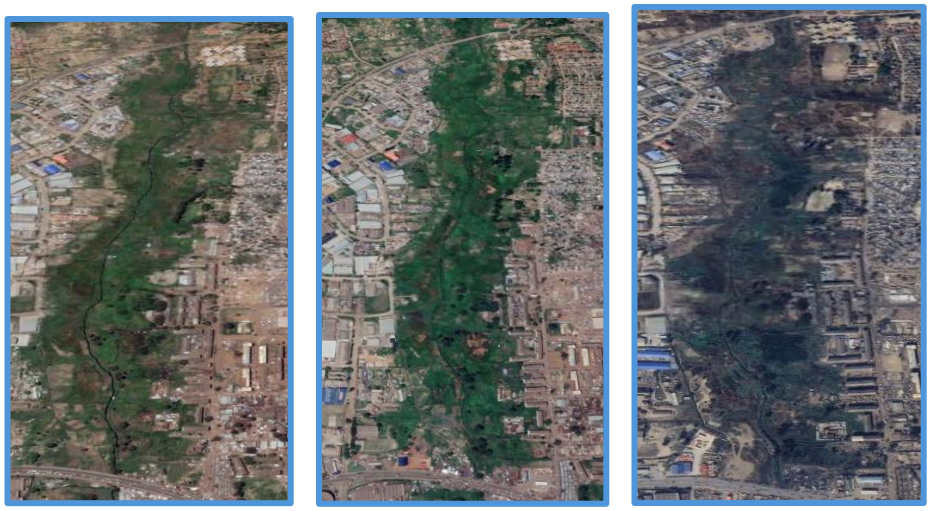


Figure 16: Digitized Borrowdale Wetland Maps (Source: Fieldwork Data – Plan Afric 2019)

On Mbare wetland, the results show also an increase in the area occupied by buildings. Figure 17 and 18 shows the area of Mbare wetland covered by each land use from 2000 to 2019. The results show a progressive decrease in wetland area. The area under buildings increased from 26.172 hectares in 2000 to 49.198 hectares in 2019. Consequently, the area under open space and urban agriculture decreased from 181.859 hectares in 2000 to 158.83 hectares in 2019. The encroachment of buildings on Mbare wetland started way before 2000, resulting in a decrease in the wetland area or open space. Most of the buildings noted on wetlands by the study were illegal and unplanned for, save for a residential development on Borrowdale wetland.



2016 ***2020*** ***2024***

Figure 17: Spatial expansions around Mbare Wetland (Source: Google Earth)

The increase of buildings on wetlands was attributed to population increase and urban growth which resulted in pressure for land for housing and commercial developments. The massive population increase in Harare has caused serious pressure on land resources and as a result, the remaining open spaces which tend mostly to be wetlands, being invaded by people for various developmental purposes, whether formal or informal (Chirisa, 2013).

Figure 18: Digitized Mbare Wetland Maps (Source: Fieldwork Data – Plan Afric 2019)

Comparative Analysis

Mbare wetland, for instance, has long supported small-scale agriculture, offering a lifeline to residents for whom it provides food security and supplemental income. These activities are often informal, driven by generational knowledge of sustainable farming practices that utilize wetland soil and water resources. In contrast, the Borrowdale wetland is more often valued for its aesthetic and recreational contributions, as residents enjoy the natural scenery and the environmental quality it sustains (Moyo, 2022). This wetland supports local biodiversity, with species of birds and plants that attract both residents and visitors, creating opportunities for eco-tourism. The Borrowdale community's appreciation of the wetland's ecological significance is reflected in local initiatives to maintain green spaces and limit pollution. However, these values are sometimes at odds with informal land use by those who come to the wetland for religious or agricultural activities (The Herald, 2023).

In Borrowdale, cultural values around the wetland focus more on preserving the tranquillity and beauty of the area, which align with middle-class aspirations for maintaining quality of life and property value (Moyo, 2022). The support for new housing projects by Mrs. Moyo during our meetings and also the approval of developments on the wetland reflects a desire to maintain the aesthetic value of the wetland while embracing changes that promise better regulation and control over how space is used. This perspective illustrates how cultural beliefs can shape support for policies that might be viewed as restrictive in other contexts. The differences between Mbare and Borrowdale reveal broader social and economic disparities in how wetlands are valued and managed in urban Harare. While Mbare residents seek policies that recognize their reliance on the wetland, Borrowdale residents are more likely to support formal interventions that limit access in the interest of maintaining ecological and aesthetic integrity of the wetlands.

Conclusion

This chapter examined Borrowdale and Mbare wetlands to reveal how socio-economic contexts shape the meanings and uses of urban wetlands in Harare. Despite these

contrasting perspectives, both areas grapple with issues like informal settlements, waste management, and pressure from urban expansion, reflecting broader tensions between development and environmental conservation. Agriculture remains the dominant activity, essential for subsistence and economic survival, especially in Mbare, where it serves as a safety net for low-income families. At the same time, cultural and religious practices have gained prominence, particularly in Borrowdale, where wetlands are increasingly seen as sacred spaces for worship. The encroachment of urban development on these wetlands poses significant ecological risks, disrupting water retention and biodiversity, while raising concerns over long-term sustainability.

Chapter 4: Urban Wetland Governance

(**Bridging Waters**: Governing Urban Wetland Spaces)

Introduction

The management of urban wetlands in Zimbabwe is shaped by power, policies, and history. Gaps in decision-making often result in the exclusion of local communities from important decisions that directly affect their lives. National laws, like the Environmental Management Act, regulate wetland use and to balance development with protection of wetlands expect Environmental Impact Assessments (EIAs). Local laws, such as the Harare By-laws, restrict activities in wetlands to support conservation and urban planning. However, wetland degradation continues due to weak enforcement, limited public awareness, and conflicting policies. International environmental frameworks are sometimes disconnected from local realities. Their success depends on how well they are adapted to local conditions, cultures, and community needs. Hettiarachchi, Morrison, and McAlpine (2015) explains that Ramsar guidelines alone cannot address the challenges of urban wetland challenges, unless gaps are identified and urban-specific tools, strategies, and institutions are developed. This section explores these issues and suggests the need for policies that better include local communities and consider local contexts.

Wetland Legislation and Its Implications

McInnes (2016) conducted previous research on wetlands management that focused on the fundamental relationship between society and nature, and the definition of sustainable development is still widely used. This reflects a common belief that humans have the knowledge, technology and ability to make sure that the needs of the current generation without compromising the ability of future generations to meet their own needs. This is important to this research as it highlights the importance of the relationship between society and nature. However, the challenge this research has is on the use of “sustainable development” in examining how wetlands should be managed. The word development here

can cause separation of people with nature in the name of modernity and "progress", thereby reinforcing the dualism/divide between man and nature as western man sees that mastery/domination as a sign of advancement. De la Cadena (2015) calls for the processes that question the universality of dividing the sensible into two categories, humans and universal nature. This division between humans and nature forms the foundation of much of modern science, politics, and how we manage the environment, and this way of thinking misses other ways of seeing and living in the world, especially those from indigenous cultures.

In light of climate change Moomaw et al (2018) also looked specifically at the recent policies and strategies for managing wetlands. Emphasis was on how these international policies and strategies had an influence in how wetlands were protected and managed, including adaptation/resiliency benefits, climate mitigation and using examples from climate policy setting (IPCC Wetlands Supplement, Paris Climate Agreement, UN Framework Convention on Climate Change, Secretariat of the Pacific Regional Environment Programme (SPREP), The European Union Water Framework Directive, and North American Action plan. These policies relied heavily on the REDD+ mechanism for climate change. The reliance on international policy as a basis for coming up with local wetland management policies has the potential universalizing nature thereby creating a flattening of existence where we see nature as one generic thing that has to be mastered instead of viewing nature as diverse giving it more agency.

This research is important to my study because Zimbabwe does not have its own original definition of wetlands. It uses a version of the Ramsar definition that has been adapted to include local wetland types like dambos, which are common in the country. Zimbabwe also follows the Ramsar Convention's approach to managing wetlands (Chiweshe, 2016).Given that there is an on-going discussion about heavily relying on international policy in looking at wetland management, it is important that Davidson et al (2020) assessed the importance of evaluating the appropriateness of reporting on changes in the ecological character of

wetlands to the Ramsar Convention for countries who are signatories to it. The research highlighted that the descriptions of change in the text are frequently vague, and it is unclear whether the changes being reported are positive or negative and also that additional information on ecological character change was only provided in other RIS information fields (Davidson et al 2020).

The issues highlighted in this research reflect some of the real challenges in wetland management on the ground. While Zimbabwe does have an official definition of wetlands which was adapted from the Ramsar definition, it is not the definition itself that is unclear, but rather the lack of a wetland inventory that is current and consistent enforcement. The problem is not in defining wetlands but rather on how wetland areas are managed and protected for example in some cases, land is allocated in known wetland areas by other authorities, not because they are unaware, but due to other factors such as political interests, corruption, or disregard for the law. This means there is a gap between the existence of legal frameworks and their enforcement. Strengthening enforcement and regularly updating wetland maps may be more urgent than redefining what constitutes a wetland in the Zimbabwean context.

Regionally, research was done investigating how wetland's management, implementation, and control practices affected its capacity to provide long-term employment opportunities (Kakuba and Kanyamurwa 2021). The study revealed that there were links between planning, implementation and control of wetlands and livelihood opportunities. It is clear that more was needed to bridge the gap between those who came up with policies, those who implemented and also the general public regarding the management of wetlands. In addition, well-managed wetlands have the potential to support livelihoods of vulnerable communities (Omagor and Barasa, 2018 cited in Kakuba and Kanyamura 2021).

Mandishona and Knight (2022) did an analysis on the historical changes in wetland management legislation and practices in Zimbabwe. The analysis revealed that from around the colonial era to independence (around 1980) the use of wetland was not allowed for some

purposes, and the community was prohibited from using wetland resources. When Zimbabwe gained independence in 1980, despite the changed political and social situation, laws inherited from the colonial era for example the 1976 Ramsar Convention, to which Zimbabwe is a signatory (Ramsar, 2007) were still enforced, resulting in tensions between different wetland users (Mandishona and Knight 2022).

The Environmental Management Agency (EMA) in Zimbabwe, since 2002 has allowed use of wetlands through offering licenses allowing wetland encroachment and also by offering training to wetland users. The biggest challenge with these policies is that they heavily rely on science only source of knowledge. Science on its own only classifies things and fails to grasp in this case how wetlands have connections with the soil, humans and other multispecies. Wetlands are treated as separate from their collective setting. This is very problematic because there are other forms of knowledge, for example how art informs knowledge, as posited by Césaire (2000) stating that science provides a perspective on the world, but it is often a broad and surface-level understanding. There exists another form of understanding—one that is deeper and more enriching alongside this limited scientific knowledge (ibid).

Global Level

Legislation at a global, national and local scales have been drawn up to manage the use of wetlands. At global scale, the 1976 Ramsar Convention, to which Zimbabwe is a signatory, advocates for the protection and wise use of wetlands among member countries to ensure sustainable utilization and that wetlands are planned for (Ramsar, 2007). It recognizes the economic, cultural and scientific and recreational importance of wetlands and does not ban their use but advocates for their wise use (Shaw et al, 2004; McInnes, 2010). The concept of "wise use" promoted by the Ramsar Convention is ambiguous and lacks clarity on what constitutes acceptable use, especially under different socio-economic pressures. Also, it is important to question whose wise use definition is being used. This can lead to inconsistent

interpretations, allowing some stakeholders to exploit wetlands under the guise of "wise use" without accountability for long-term ecological impacts.

National Level

At a national level, the Environmental Management Act (EM Act) (Cap 20: 27), Statutory Instrument 7 of 2007 (SI 7) on Environmental Management (Environmental Impact Assessment and Ecosystems Protection) Regulations and Government Gazette 380 of 2013, regulate the use of wetlands. Further to this, seven wetlands were designated as Ramsar Sites, these are Victoria Falls National Park, Mana Pools, Chinhoyi Caves Recreational Park, Lake Chivero, Driefontein Grasslands, Cleveland Dam and Monavale Wetland (Ramsar, 2016). Developments on or use of wetlands is permitted but must be mandated by a permit which is issued after conducting an EIA study (Marambanyika and Beckedahl, 2016). Section 4 of the EM Act and Section 72 of the Constitution of Zimbabwe of 2013 gives every citizen of Zimbabwe, the right to a clean environment, access to information, protection of the environment to the benefit of future generations (Constitution of Zimbabwe, 2013). However, it seems most citizens are not aware of these environmental rights and responsibilities as witnessed by the continuous loss of wetlands in the country due to unsustainable utilization (Madebwe, (2015).

The law prohibits the use, development, disturbance, or introduction of any exotic plant species into wetlands without a permit. (EM Act, 2002). It further restricts or prohibits activities such as the drilling of boreholes, reclamation and draining of wetlands (EM Act, 2002). The law requires all developments such as major infrastructure and housing developments as well as mining projects that are known or predicted to have serious environmental impacts to undergo an EIA process before commencement (EM Act, 2002). The EIA enables impact identification, development of mitigation and monitoring measures. It also enables EMA "the agency" to decide either to reject or approve the development, thus an opportunity to regulate the use of wetlands by rejecting developments which can lead to wetlands degradation (Marambanyika and Beckedahl, 2016a).

This system for getting permits to use wetlands in Zimbabwe often favours big developers over small farmers like Mai Tafadzwa, who don't have the money or official recognition to go through the formal process. While laws like the Environmental Management Act are supposed to protect wetlands, they often end up allowing permits for big projects that could harm these areas. Small farmers and local communities who depend on wetlands to survive are often overlooked because they aren't seen as "official." This creates unfairness and limits local people's ability to care for the environment they rely on.

Local Level

At a local level, the Regional, Town and Country Planning Act (Chapter 29: 12) and the Urban Councils Act (Chapter 29: 15) gave local authorities the mandate to manage wetlands through designating certain areas for urban agriculture and conservation of natural resources (Mushamba, 2010). Wetlands and streams should be left open and untouched for infrastructure development (Harare Combination Master Plan, 1994). The Harare (Protection of Marginalized Land) By-laws of 2014 makes it illegal to develop or temper with wetlands including cultivation without a permit. It prohibits cultivation or development within a 30m radius from the stream (CoH, 2014). Despite the existence of these laws, the country is witnessing a progressive loss of wetland areas (EMA, 2016). The 30-meter radius rule for protecting wetlands doesn't fully consider how important wetlands are for the environment. Wetlands are connected to everything around them, and their effects reach far beyond a set boundary, so even small disturbances can harm them. By limiting protection to just 30 meters, this rule overlooks the fact that wetlands play a much bigger role in the local ecosystem, such as purifying water and supporting wildlife. Deciding to develop permanent structures within this space is particularly harmful, as it disrupts the natural processes of the wetland, potentially leading to long-term environmental damage.

Mukamuri et al (2018) highlighted that poor wetland management in Zimbabwe stems from the absence of a clear and unified legal and institutional framework, along with overlapping roles and responsibilities among various institutions and laws. Therefore, there is a need for the harmonization of the legal and institutional framework and the development of a national

wetland policy which will guide the use and management of wetlands (Noble et al., 2011; Marambanyika and Beckedahl, 2016a). This will help in ensuring effective management of wetlands thereby helping in retaining ecosystem functions.

The development of wetland management policies in Zimbabwe reflects a broader shift from centralized, colonial-era governance to a more fragmented and locally-driven approach post-independence (Zhou & Tol, 2021). During the colonial period, wetlands were often viewed as wastelands, suitable for drainage and development just as any land. The view of the land as ideal for settlement encouraged colonial settlers to acquire and build to suite their lifestyle needs (Carpenter, 1924). Policies like the Land Apportionment Act (1930) facilitated this perspective by allocating large tracts of land for European farming, often at the expense of indigenous ecological practices (Maconachie et al., 2020). This legacy has persisted, influencing contemporary attitudes toward wetlands as spaces for potential economic gain rather than ecological preservation.

In recent decades, Zimbabwe has seen the development of policies that recognize the importance of wetlands, such as the Environmental Management Act (2002) and the National Wetlands Policy (2013). However, the shift from colonial to contemporary management approaches has not been linear. The economic crises of the 2000s saw a push back of environmental regulations, with local authorities often turning a blind eye to unregulated development in places like Mbare. Neighbourhoods like Mbare have effectively become “sacrifice zones,” areas where environmental protection is often overlooked in favour of unchecked development. As Klein (as cited in Farrier, 2019) describes, these are places where the rights of residents are disregarded, and the land is treated as expendable due to socio-economic marginalization. In Mbare, the lack of regulatory enforcement reflects this dynamic, with wetlands degraded for urban expansion and informal activities. In contrast, areas like Borrowdale have been able to leverage their socio-economic status to demand better enforcement of conservation policies (Mtei et al., 2020).

There has been change in wetland management over time to focus more on the sustainable development of various wetlands across landscapes (O'Gorman 2021). Research suggests that wetland management policies have been carried along and shaped not only by decisions made elsewhere, but also by decisions that may have been motivated primarily by other places and agendas. This history of wetlands has been influenced by actors at various scales and locations, including international organizations (ibid).

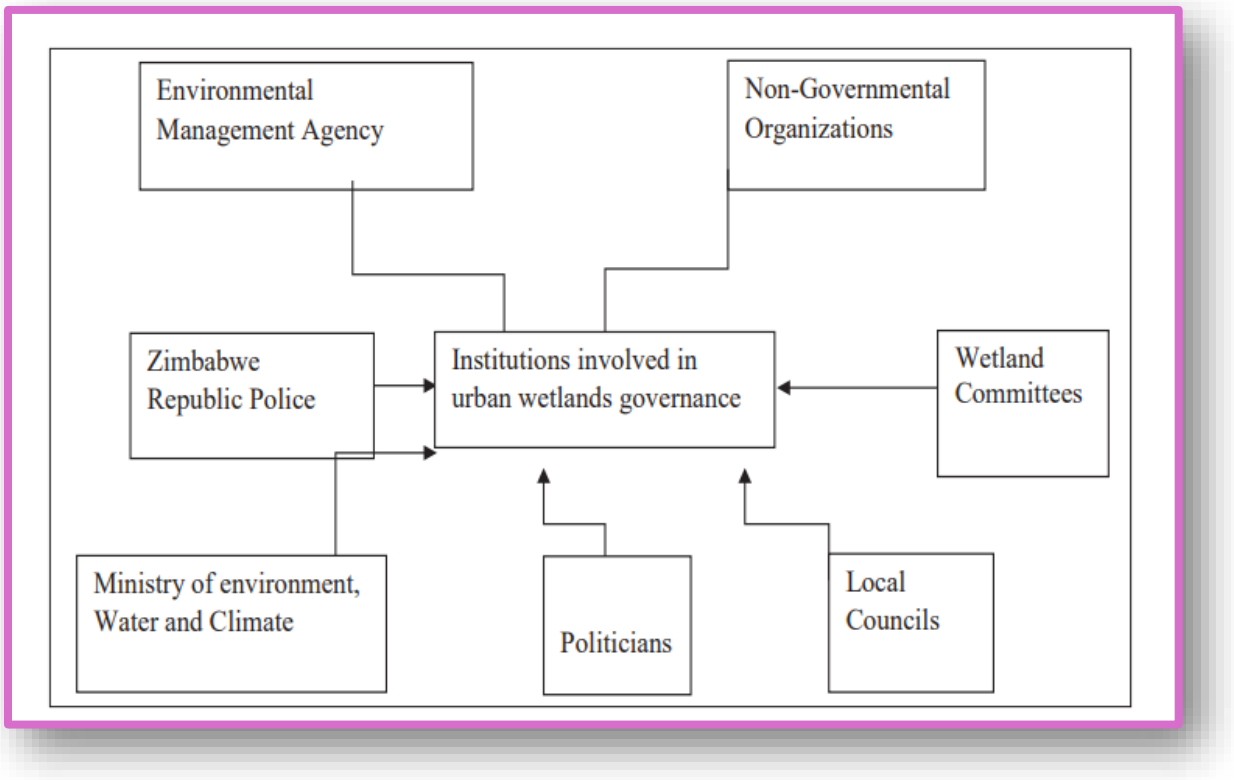


Figure 19: Institutions involved in urban wetlands governance (Source: [JEMZ] Journal of Environmental Management in Zimbabwe)

The main actors shown above contribute to wetland management and they include the Environmental Management Agency, Zimbabwe Republic Police, Ministry of Environment, Water and Climate, local councils, politicians, and non-governmental organizations. However, their involvement appears to be top-down, with decision-making power centralized among governmental agencies and officials. This diagram illustrates the various

institutions involved in urban wetland governance in Zimbabwe, yet it lacks a critical component: the voices of the local communities who live near and rely on these wetlands.

The community members themselves, who interact with these wetlands daily and whose livelihoods are often directly impacted by wetland policies, are excluded in how they are managed. The contemporary model of water governance inhibits cooperative management strategies and exacerbates tensions between different water users, ultimately threatening both social cohesion and environmental sustainability (de la Cadena & Blaser, 2018).

Community engagement is essential in effective environmental governance because local people possess firsthand knowledge and vested interest in sustainable practices (Adams & Hulme, 2001). By excluding the community from the decision-making process, this model overlooks valuable insights that residents could provide regarding the social, economic, and cultural significance of wetlands. This lack of inclusion may lead to policies that are out of touch with local realities and potentially harmful to both the environment and community welfare.

By overlooking those who live with and depend on these wetlands daily, policy and governance may fall short in creating conditions that sustain these habitats in a way that supports long-term habitability. The question becomes: what lessons from past and current governance approaches where there is exclusion of people who live with the urban wetlands.

Conclusion

This chapter highlighted the historical, legal, and socio-economic factors that shape wetland management. It also examined the governance of urban wetlands in Zimbabwe. Limited public awareness, weak enforcement, and conflicting policies have led to continued wetland degradation although there are national and local laws that exist whose aim is to protect wetlands, such as the Environmental Management Act and the Harare by-laws. Effective wetland management has been further undermined by how local communities have been excluded from making decisions and the top-down nature of governance. Through various case studies, it was established that integrating community participation in policy

design and implementation and fostering local knowledge can lead to more sustainable and inclusive outcomes. In order to safeguard the future of wetlands, Zimbabwe needs to prioritize community engagement, harmonize its legal frameworks, and socio-economic realities.

Conclusion: Future Directions

(Tomorrow's Waters: *Envisioning the Future of Urban Wetlands)*

Introduction

This chapter combines findings from earlier sections to suggest future directions for managing urban wetlands, focusing on creating sustainable, inclusive, and liveable spaces. By examining historical, social, and ecological perspectives, it proposes a comprehensive approach that benefits local communities, safeguards biodiversity, and builds climate resilience. It looks at how past policies have evolved, identifying who influences these policies (and who doesn't), and exploring future visions at both the local and government levels. Through this, it offers policy recommendations aimed at balancing human-wetland interactions to enhance urban life in Zimbabwe.

Challenges in Wetland Management

Managing urban wetlands in Harare faces major challenges due to the city's growth, with many wetlands being partially or fully turned into residential or commercial areas. Studies show that around 43-49% of Harare's wetlands have been damaged by human activities, including housing and business developments (Mwonzora, 2022). Corruption, poor management, and weak governance by the Harare City Council and other local bodies make these problems worse, allowing land grabbing and illegal settlements to spread. Local environmental groups and government reports highlight this ongoing crisis, as influential people take advantage of wetlands for their own benefit. New infrastructure projects also threaten wetland survival, showing a gap between existing laws and their actual enforcement (Mwonzora, 2022).

Envisioned Futures in Wetland Management

Wood et al. (2013) underscore the necessity for a paradigm shift in how wetlands are perceived and managed, advocating for a more people-centred approach that prioritizes the livelihoods of local communities alongside environmental sustainability. One of the central themes is the importance of integrating ecological, social, and economic perspectives into

wetland management strategies. Wetlands should not be viewed merely as environmental resources but as vital assets that contribute significantly to the livelihoods of many households. This perspective is crucial in addressing the challenges posed by population growth, climate change, and poverty (Wood et al., 2013). There is a need for flexible management practices that can respond to the changing nature of wetlands and the needs of the communities who rely on them. This means learning and adjusting as we go, allowing everyone involved to review their actions and adapt to new conditions (Wood et al., 2013).

Given these issues, it is clear that current wetland management policies often ignore the importance of local communities and their indigenous knowledge. Instead, they rely on top-down, technical methods, which have proven less effective in ensuring the sustainable use and conservation of wetlands (Marongwe, 2017). However, there are several case studies have shown that including local knowledge in managing wetlands can lead to better and more sustainable results. For example, in Uganda's Lira District, a participatory approach that incorporates indigenous knowledge, such as recognizing sacred sites and employing seasonal restrictions on resource use, has led to successful wetland restoration and less illegal encroachment (Nabwire et al., 2021).

Another example is the East Kolkata Wetlands in India, where they have maintained ecosystem health and sustainable livelihoods through the inclusion of traditional farming and wastewater management practices in official management plans (Ghosh & Das, 2019). One successful example within Zimbabwe that demonstrate the benefits of integrating local knowledge into wetland management is the Mutirikwi Sub-Catchment where traditional wetland management practices have been used effectively to maintain ecological balance and ensure sustainable use of resources. Local communities in the Mutirikwi area use methods like rotational grazing, seasonal limits on fishing and harvesting, and sacred taboos to protect certain wetland areas. These practices are based on a deep knowledge of the local ecosystem, passed down through generations (Marongwe, 2017).

The incorporation of these local management strategies has led to improved wetland health and reduced conflict over resources. The success of the Mutirikwi Sub-Catchment and

similar cases shows the need to move away from rigid, one-size-fits-all policies. Instead, there should be more flexible and inclusive management that values local knowledge. This change could lead to better wetland management in Zimbabwe, especially with growing environmental and social challenges. Urban wetlands, like those found in Mbare and Borrowdale in Zimbabwe, provide essential services, from water filtration to biodiversity support. The stories of individuals like Mai Tafadzwa and Mrs. Moyo from these areas provide a deeper understanding of how these principles can be applied in practice.

Ecological Integrity

This emphasizes maintaining the natural functions of wetlands, such as water filtration, habitat provision, and biodiversity support. Both Mbare and Borrowdale wetlands face threats from urban sprawl, pollution, and unsustainable development. Mai Tafadzwa shares how the wetland has changed over the years. "……the wetland was a place of abundance," she recalls. "Now, it's filled with waste, and the water is polluted." This change in the wetland's condition highlights the loss of ecological integrity, as pollutants and human activity disrupt the wetland's natural functions (Mitsch & Gosselink, 2000).

To restore ecological integrity in these urban wetlands, policies must limit pollution, manage waste disposal, and protect natural habitats. This can be done through controlling industrial activities near the wetlands and introducing green infrastructure in surrounding urban areas to reduce stormwater runoff (Capon et al., 2013). Additionally, local communities like the one in Mbare, people who use the wetland like Mai Tafadzwa, can play a role in conservation efforts by engaging in wetland clean-up projects or advocating for better waste management practices (Dudgeon et al., 2006).

Habitability

Habitability, as defined in this thesis, refers to the conditions that allow both humans and ecosystems to thrive over time. To enhance habitability of wetlands, it is important to develop policies that prioritize both human well-being and the ecological health of these areas. Policies should focus on creating sustainable living conditions by ensuring clean

water access, promoting green spaces, and managing urban growth in a way that does not harm the wetlands. In Mbare, where residents like Mai Tafadzwa farm and collect water from the wetland, this support is essential. Mai Tafadzwa explains, “I sell vegetables grown in the wetland to buy food and pay school fees.” However, her work has become harder as the wetland suffers from pollution and damage. To keep wetlands economically useful, policies should promote sustainable practices, like using organic fertilizers, to protect the soil (Turpie, 2000). Activities like ecotourism could also bring income while preserving these areas. Local people should be part of these decisions, so their needs are met and their knowledge is valued (Silvius et al., 2000). As the wetland degrades, the economic benefits diminish, affecting the livelihoods of the community. Therefore, policies that encourage eco-friendly practices while supporting local economies can help ensure long-term socio-economic viability for urban wetlands (Mitsch & Gosselink, 2000).

To improve the habitability of urban wetlands, specific recommendations include investing in infrastructure that supports sustainable water management and pollution control. In areas like Mbare, better waste management systems could reduce pollution, ensuring that wetlands remain functional for water purification and agriculture. Additionally, restoring damaged wetlands and creating buffer zones between urban developments and these areas would help protect both human and ecological health. Mrs. Moyo, living near the Borrowdale wetland, highlights how the wetland not only serves as a space for worship but also as a cooling zone during hot months. Maintaining these benefits requires strong policies that support habitat restoration, like replanting native vegetation and reducing urban runoff, to improve the overall habitability of urban wetlands in Harare (Ramsar Convention Secretariat, 2010).

Cultural Sensitivity - Respecting Local Knowledge and Practices

Cultural sensitivity is essential in managing urban wetlands because these areas often hold deep cultural and spiritual value for local communities. The longstanding relationship between humans and wetlands underscores the need for sensitive management that honours these ecosystems' value and their contributions to human society (Mitsch 2005). In

both Mbare and Borrowdale, the wetlands serve not only as resources for economic activities but also as culturally significant spaces and places of worship. Mrs. Moyo, for instance, mentioned that the Borrowdale Wetland is used by the Vapostori sect for worship, while Mai Tafadzwa noted that broken calabashes on the Mbare wetland indicate that sacred and cultural practices are taking place. This cultural connection to the wetland shows the importance of management approaches that respect and honour local traditions and values (Ramsar Convention Secretariat, 2010).

Incorporating cultural sensitivity into wetland governance involves acknowledging and respecting the spiritual and cultural roles that wetlands play in the lives of local communities. Policies should support the preservation of areas deemed culturally significant, while also integrating traditional knowledge into conservation efforts (Adams & Mulligan, 2003). Involving community members like Mai Tafadzwa and Mrs. Moyo in decision-making processes can help ensure that cultural values are respected and protected (Silvius et al., 2000).

Policy and Governance: A Vision for Mbare and Borrowdale Wetlands

To put these sustainability principles into action, it's important to make them part of both policies and everyday local practices. Matose and Watts (2010) call for a more structured approach that not only secures land and resource rights but also facilitates meaningful local participation in decision-making processes. In places like Mbare and Borrowdale, urban planning could include zoning rules to protect wetlands from being built on or polluted. Local leaders could also work closely with community members like Mai Tafadzwa and Mrs. Moyo to create conservation plans that meet the needs of the people while also caring for the ecosystem (United Nations Environment Programme, 2018).

Adaptive governance is especially helpful in urban areas because it allows for flexible responses to changes. Regularly checking wetland health and gathering feedback from residents would allow policymakers to adjust their approaches as needed. Community-led

projects, like clean-up events or education programs, can support government efforts and build local ownership and care for the wetlands (Holling, 1978).

Potential Solutions and Future Pathways

To manage wetlands sustainably in Zimbabwe, there are several promising strategies to consider. These include creating a clear and unified legal and institutional framework (Mazvimavi et al., 2007; Matamanda et al., 2018; Rai & Raleng, 2011). Combining community-based management with scientific monitoring and flexible governance models can be effective (Matamanda et al., 2018). Involving local communities in decision-making can help make conservation efforts more relevant to those who rely on wetlands (Rai & Raleng, 2011).

Innovative funding options, like paying for ecosystem services or setting up wetland banking schemes, could encourage more protection and restoration of wetlands. Public awareness campaigns are also crucial to change how people view and support wetland conservation (Matamanda et al., 2018; Mandishona & Knight, 2019). By addressing the complex issues of urban wetlands, policymakers and stakeholders can work toward a more sustainable and fair future for these vital ecosystems (Matamanda et al., 2018; Xu et al., 2019; Omolo et al., 2018). With well-designed policies, inclusive governance, and community-driven efforts, Zimbabwe's wetlands can be managed more sustainably.

Chapter 1 outlined the methods used to investigating the hydro-politics of urban wetlands in Zimbabwe, focusing on Mbare and Borrowdale wetlands. The main purpose as proposed by Haraway (2016) was to implement “tentacular thinking” instead of the scientific and traditional ways to wetland studies. This was achieved by using a multidisciplinary approach of embracing different methodologies to explore wetlands as more than scientific objects. In this chapter, an in-depth analysis of the history, legal and socio-economic factors that influencing urban wetland management in Zimbabwe was discussed. This history showed how colonial policies treat wetlands as sacrifice zones and land for development. And this colonial extractive way of thinking still exists. Using literature and stories from the

community who live with wetlands showed the complex relationship between historical legacies and modern pressures.

Chapter 3 was about listening to the lived experiences of Mbare and Borrowdale Residents. Capturing these personal stories from Borrowdale and Mbare wetlands' residents showed how different socio-economic needs impact how residents interacted with the environment. The chapter documented residents' reliance on wetlands for survival through qualitative and narrative analysis. Chapter 4 examined the governance of urban wetlands in Zimbabwe, focusing on the intersectionality of power, policy, and history in shaping wetland management practices. This was achieved through reviewing the national and local laws, such as the Environmental Management Act and Harare By-laws. Gaps in enforcement and the exclusion of local communities were highlighted. The final chapter combined findings to propose future pathways that may be used in managing urban wetlands sustainably and inclusively. Policy recommendations focused on balancing human-wetland interactions to enhance urban life, safeguard biodiversity, and build climate resilience. This included fostering community participation and aligning policies with local contexts.

In my view, sustainable wetland management means caring for wetlands in a way that respects people, organisms and nature. It involves shared responsibility between the communities who live with wetlands and the government that creates the rules to protect them. These rules should fit local ways of life and the meaning people give to wetlands, not work against them. Policies should be fair, open, and made with the people, not for them. To manage wetlands well, we need up-to-date information, strong political support, and real teamwork between government, communities, and organisations.

Conclusion

Sustainable wetland management in urban areas like Mbare and Borrowdale requires a balanced approach that integrates ecological integrity, socio-economic viability, and cultural sensitivity. Through the stories of Mai Tafadzwa and Mrs. Moyo, it becomes clear that local knowledge and lived experiences are invaluable in shaping policies that are both effective and inclusive. By respecting these principles and involving local communities in

governance, urban wetlands can be preserved as vital ecosystems that support both human well-being and environmental health. Through such a framework, we can ensure that urban wetlands in Zimbabwe continue to provide benefits for generations to come.

References

263Chat (2017) Monavale Vlei East invaders remain defiant despite directive to vacate.

Adam, B. (1998). *Timescapes of modernity: The environment and invisible hazards*. Routledge.

Adams, W. M., & Mulligan, M. (2003). Decolonizing Nature: Strategies for Conservation in a Post-Colonial Era. Earthscan.

Adams, W. M., & Hulme, D. (2001). *If community conservation is the answer in Africa, what is the question?* Oryx, 35(3), 193-200

Alexander, J. (2006). *The Unsettled Land: State-making & the Politics of Land in Zimbabwe 1893-2003*. Oxford: James Currey.

Babbie, E. (2014). The basics of social research. International edition, 6th edition. Canada: Wadsworth Cengage Learning

Bell M, Faulkner R, Hotchkiss P, Lambert R, Roberts N, Windram A (1987) The use of dambos in rural development with reference to Zimbabwe. Final report of ODA project. Dambo Research Unit, Harare

Bell M, Hotchkiss P (1989) Political interventions in environmental resource use. Dambos in Zimbabwe. Land Use Pol 6:313–323

Bowyer-Bower, T. A. S. (1996). Criticism of environmental policy for land management in Zimbabwe. Global Ecology and Biogeography Letters, 5, 7–17.

Braun, V. & Clarke, V. 2012. Thematic Analysis APA Handbook of Research Methods in Psychology: Vol. 2. Research Designs, H. Cooper (Editor-in-Chief) DOI: 10.1037/13620-004

Bruce, J W., & Knox, A. (2009, August 1). Structures and Stratagems: Making Decentralization of Authority over Land in Africa Cost-Effective. Elsevier BV, 37(8), 1360-1369.

Bryman, A., 2016. Social research methods. International Edition. Oxford: Oxford University Press.

Carpenter, F. G. (1924). Uganda to the Cape; Uganda, Zanzibar, Tanganyika Territory, Mozambique, Rhodesia, Union of South Africa [PDF]. Garden City, NY

Capon, S. J., Chambers, L. E., Mac Nally, R., Naiman, R. J., Davies, P., Marshall, N., & Pittock, J. (2013). Riparian Ecosystems in the 21st Century: Hotspots for Climate Change Adaptation? Ecosystems, 16(3), 359–381.

Cesaire, A. (1996) 'Poetry and knowledge' in Michael Richardson, Krzysztof Fijałkowski (eds) Refusal of the Shadow: Surrealism and the Carribean, pp.134-146. London: Verso.

Césaire, A., & Pinkham, J. (2000). Discourse on Colonialism. NYU Press. (Original work published 1955)

Chatterjee, K., Bandyopadhyay, A., Ghosh, A. & Kar, S., 2015. Assessment of environmental factors causing wetland degradation, using Fuzzy Analytic Network Process: A case study on Keoladeo National Park, India. *Ecological Modelling*, 316, pp.1-13.

Chenje M. Sol L. & Paleczny D. (1998). The state of Zimbabwe's environment. Ministry of Mines Environment and Tourism.

Chiweshe, K., (2016). The effectiveness of the Zimbabwean Environmental Impact Assessment (EIA) Policy in protecting wetlands potentially threatened by major developments. A case of Harare city. BSc (Hons) in Geography and Environmental Studies Dissertation, Midlands State University, Zimbabwe.

Connelly, L.M., (2014). 'Ethical considerations in research studies', MedSurg Nursing, 23(1)

Chigonda, T. (2018). More than just storytelling: A review of biodiversity conservation and utilisation from precolonial to postcolonial Zimbabwe. *International Journal of Biodiversity*, 2018, Article ID 6120266.

Chimhowu, A. (2019). Community Perspectives on Urban Wetlands in Harare. Journal of African Urban Studies, 5(2), 45-58.

Chirisa, I. (2013). Housing and Stewardship in Peri-urban Settlements in Zimbabwe: A Case Study of Ruwa and Epworth.

Christou, P. A. (2025). Looking Beyond Numbers in Qualitative Research: From Data Saturation to Data Analysis. *The Qualitative Report*, 30(1), 3088–3100. https://doi.org/10.46743/2160-3715/2025.7560

Chuma, E., Masiyandima, M., Finlayson, M., McCartney, M., & Jogo, W. (2008). *Guideline for sustainable wetland management and utilization: Key cornerstones* (CPWF Project Report). CGIAR Challenge Programme on Water and Food

City of Harare. (1998). Local Development Plan for Borrowdale. Harare City Council Archives.

City of Harare. (2021). Wetland Management Policies in Urban Harare. Harare City Council Reports.

City of Harare. (1991). *Mbare North Local Development Plan Number 12*. Harare: City of Harare.

City of Harare. (1994). *Harare Combination Master Plan*. Harare: City of Harare.

City of Harare. (2000). *Borrowdale Race Course Local Development Plan Number 44*. Harare: City of Harare.

City of Harare. (2014). *The Harare (Protection of Marginalized Land) By-laws of 2014*. Harare: City of Harare.

Community Water Alliance & Combined Harare Residents Association. (2021, February 2). *Water, wetlands and life: The inseparable triplets*. Kubatana. https://kubatana.net/2021/02/02/water-wetlands-and-life-the-inseparable-triplets/

Davidson, N. C., Dinesen, L., Fennessy, S., Finlayson, C. M., Grillas, P., Grobicki, A., McInnes, R. J., & Stroud, D. A. (2020). A review of the adequacy of reporting to the Ramsar Convention on change in the ecological character of wetlands. *Marine and Freshwater Research, 71*(1), 117–126. https://doi.org/10.1071/MF19180

de la Cadena, M. (2015). *Earth Beings: Ecologies of Practice across Andean Worlds*. Duke University Press. https://doi.org/10.2307/j.ctv11smtkx

de la Cadena, Marisol, and Mario Blaser, eds. *A World of Many Worlds*. Durham: Duke University Press, 2018.

Dalu, T., & Tafangenyasha, C. (2020). Challenges of Wetland Conservation in Urban Zimbabwe. Environmental Sustainability, 3(4), 33-47.

Dialogue Earth. (2024, November 13). *The struggle to save Zimbabwe's dying wetlands*. PreventionWeb. https://www.preventionweb.net/news/struggle-save-zimbabwes-dying-wetlands

Díaz-Pinzón, L., Sierra, L., Trillas, F., & Verd, J. M. (2024). The social-ecological system framework of urban wetlands: The role of collective management at local level. *International Journal of the Commons*, *18*(1), 649–669.

Dudgeon, D., Arthington, A. H., Gessner, M. O., Kawabata, Z. I., Knowler, D. J., Lévêque, C., & Sullivan, C. A. (2006). Freshwater Biodiversity: Importance, Threats, Status and Conservation Challenges. Biological Reviews, 81(2), 163-182.

Eidt, C M., Pant, L P., & Hickey, G M. (2020). Platform, Participation, and Power: How Dominant and Minority Stakeholders Shape Agricultural Innovation. Multidisciplinary Digital Publishing Institute, 12(2), 461-461

Elshafei, Y. et al. (2014) "A prototype framework for models of socio-hydrology: identification of key feedback loops and parameterisation approach," Copernicus Publications, 18(6),p. 2141-2166.

Environmental Management Agency. (2013). Annual Records, Environmental Management Agency, Harare.

Environmental Management Agency. (2016). Annual Records, Environmental Management Agency, Harare.

Environmental Management Agency (EMA). (2021). *Journal of Environmental Management in Zimbabwe, Vol. 1, No. 1, June 2021*.

Farrier, D. 2019. Introduction in Anthropocene Poetics: Deep Time, Sacrifice Zones, and Extinction. Minneapolis; London: University of Minnesota Press. (vula)

Ferzoco, C, M, I. et al. (2023) "Freshwater insect communities in urban environments around the globe: a review of the state of the field," Frontiers Media, 11.

Gabay, A. (n.d.). *Community-led restoration in Zimbabwe's wetlands*. GroundTruth. Retrieved October 27, 2024, from https://groundtruth.app/community-led-restoration-in-zimbabwes-wetlands/

Galloway McLean, K., Nakashima, D., Castillo, A., Thulstrup, H., & Rubis, J. (2012). *Weathering uncertainty: Traditional knowledge for climate change assessment and adaptation*. UNESCO.

Ghosh, D. & Das, S. (2019). Sustainable wetland management through traditional knowledge: The East Kolkata Wetlands case. *Wetlands Ecology and Management*, 27(2), pp. 145-158.

Glassberg, D. (2001). *Public History and the Study of Memory*. The Public Historian, 23(3), 7–19.Harare Planning Archives. (1985). Mbare Wetland Mapping. Harare Archives.

Government of Zimbabwe., (2002). Environmental Management Act Chapter 20:27. Harare: Government Printers.

Green, L. (2020). *Rock | Water | Life: Ecology and humanities for a decolonial South Africa*. Duke University Press.

Gregory, M. (1980). Rhodesia: From Lusaka to Lancaster House.

Hamamouche, M. F., Fantini, E., Saidani, M. A., & Khouadja, M. (2024). Participatory Video on Groundwater Governance with Youth in the M'zab Valley, Algeria. *International Journal of the Commons*, *18*(1), 490–506. https://doi.org/10.5334/ijc.1363

Hardlife, Z., David, C., Godfrey, M., Somandla, N., & Proud, M. (2014). The implications for loss and degradation of wetland ecosystems on sustainable rural livelihoods: Case of Chingombe community, Zimbabwe. *Greener Journal of Environmental Management and Public Safety*, 3(2), 43-52.

Haraway, D. (2016). Tentacular thinking: Anthropocene, Capitalocene, Chthulucene. *e-flux Journal*, (75). https://www.e-flux.com/journal/75/67125/tentacular-thinking-anthropocene-capitalocene-chthulucene/

Hettiarachchi, M., Morrison, T. H., & McAlpine, C. (2015). Forty-three years of Ramsar and urban wetlands. *Global Environmental Change, 32*, 57–66. https://doi.org/10.1016/j.gloenvcha.2015.02.009

Hesse-Biber, S. N., & Leavy, P. (2006). *The practice of qualitative research*. Thousand Oaks, CA: Sage.

Hofmeyr, I. (2022). *Dockside Reading: Hydrocolonialism and the Custom House*. Duke University Press.

Holling, C. S. (1978). Adaptive Environmental Assessment and Management. John Wiley & Sons.

Holmes, A. G. D. (2020). Researcher positionality: A consideration of its influence and place in qualitative research—A new researcher guide. *Shanlax International Journal of Education, 8*(4), 1–10. https://doi.org/10.34293/education.v8i4.3232

Junk, W. J., et al. (2013). Current state of knowledge regarding the World's wetlands and their future under global climate change: a synthesis.

Juskus, R. (2023). Sacrifice zones: A genealogy and analysis of an environmental justice concept. *Environmental Humanities, 15*(1), 3–24.

Kakuba, S. J., & Kanyamurwa, J. M. (2021). Management of wetlands and livelihood opportunities in Kinawataka wetland, Kampala-Uganda. *Environmental Challenges*.

Kakuru, W., Turyahabwe, N., & Mugisha, J. (2013). Total economic value of wetlands products and services in Uganda. *Hindawi Publishing Corporation*, *2013*, 1–13. https://doi.org/10.1155/2013/192656

Khosravi, S., et al. (2018). Impact assessment of urban physical development on hydrogeomorphological systems of Tehran metropolis (Case study: Darband catchment). *Journal of Environmental Studies, 33*(3), 185–201.

Kotze, D., (2002). Wetland cultivation and rural poor in South Africa. Harare: FAO.

Kuppe, W., & Potz, J. (1996). Environmental law in Zimbabwe: The role of the National Resource Board. Environmental Law Review, 1(2), 123–145.

Laurie, C. (2016). Overview of the land seizure era. In *The land reform deception* (pp. 1–20). Oxford University Press.

Latour, B. (2013). *An inquiry into modes of existence: An anthropology of the moderns*. Harvard University Press.

Latour, B. (1996). On actor-network theory: A few clarifications. *Soziale Welt, 47*, 369–381.

Latour, B. (2014). Agency at the time of the Anthropocene. *New Literary History, 45*(1), 1–18. https://doi.org/10.1353/nlh.2014.0003

Latour, B. (2005). *Reassembling the social: An introduction to actor-network-theory*. New York, NY: Oxford University Press.

Madebwe, T. (2015). A rights-based approach to environmental protection: The Zimbabwean experience. *African Human Rights Law Journal, 15*(1), 110–128. https://doi.org/10.17159/1996-2096/2015/v15n1a5

Mafa, O. (2015). Gender, Politics and Land Use in Zimbabwe, 1980-2012.

Mama, A., (2011). 'What Does it Mean to Do Feminist Research in African Contexts?', Feminist Review, 98(1_suppl), 4–20. DOI: 10.1057/fr.2011.22

Machingaidze, V. E. M. (1991). Agrarian Change from Above: The Southern Rhodesia Native Land Husbandry Act and African Response. The International Journal of African Historical Studies.

Maconachie, R., et al. (2020). Wetlands and the Land Apportionment Act: The legacy of colonial land policies in Zimbabwe. *Environmental History Review*, 39(4), 32-50.

Mandishona, E. and Knight, J. (2019) "Users' perceptions and understanding of two urban wetlands in Harare, Zimbabwe," Taylor & Francis, 101(3),p. 326-348.

Mandishona, E. & Knight, J. (2022) 'Historical changes in wetland management legislation and practices in Zimbabwe, and their implications', *Wetlands Ecology and Management*, 30, pp. 1197–1211.

Marambanyika, T., & Beckedahl, H. (2016). Wetland management in Zimbabwe: Challenges and opportunities. African Journal of Ecology, 54(3), 345–356.

Marongwe, D. (2017). Traditional wetland management practices in the Mutirikwi Sub-Catchment, Zimbabwe. *African Journal of Environmental Science and Technology*, 11(6), pp. 311-321.

Matamanda, R, A. et al. (2018) "Harare's Deteriorating Wetlands: Why Sound Policies and Legislations Are Not Enough," University of California Press, 2(1),p. 1-11.

Matose, F., & Watts, S. (2010). Towards community-based forest management in Southern Africa: do decentralization experiments work for local livelihoods? *Environmental Conservation*, *37*(3), 310–319.

Mazvimavi, D., Madamombe, E. and Makurira, H. (2007) "Assessment of environmental flow requirements for river basin planning in Zimbabwe," Elsevier BV, 32(15-18),p. 995-1006.

McInnes, R., (2010). Urban Development, Biodiversity and Wetland Management: UN-Habitat, Expert Workshop Report 16 to 17 November 2009, Kenya Wildlife Service Training Institute, Naivasha, pp 3- 21.

McInnes, R. J., (2016). "Management and Sustainable Development of Wetlands."

Mhlanga, B., Maruziva, R., and Buka, L., (2014). Mapping wetland characteristic for sustainable development in Harare: The case of Borrowdale West, Highlands, National Sports Stadium and Mukuvisi Woodlands wetlands. Ethiopian Journal of Environmental Studies and Management. 7, 488-498.

Ministry of Environment, Climate, Tourism and Hospitality Industry. (2020). *Zimbabwe Wetland Policy*.

Mitsch, J, W. (2005) "Applying science to conservation and restoration of the world's wetlands," Pergamon Press, 51(8),p. 13-26.

Mitsch, W. J., & Gosselink, J. G. (2000). Wetlands. John Wiley & Sons.

Mlambo, A. S. (2014). *A History of Zimbabwe*. Cambridge: Cambridge University Press.

Mosse, D. (2008) "Epilogue: The Cultural Politics of Water – A Comparative Perspective," Taylor & Francis, 34(4),p. 939-948.

Moyana, H. V. (1975). Land and Race in Rhodesia. African Review.

Moyo, P. (2022). Interview on Borrowdale Wetland Dynamics. Oral History Project.

Mtei, G., et al. (2020). Socio-economic drivers of wetland policy enforcement in Zimbabwe: A comparison of Mbare and Borrowdale. *Environmental Policy and Governance*, 30(2), 105-118.

Mwonzora, G. (2022). Local governance and wetlands management: A tale of Harare City in Zimbabwe. *Urban Forum, 33*, 309–328

Mugabe, T., & Hughes, D. M. (1994). *Environmental Struggles in Zimbabwe: The Battle for Sustainable Development*. Harare: Zimbabwe Environmental Society.

Mujere, J., & Mseba, A. (2019). The politics of African freehold land ownership in early colonial Zimbabwe, 1890–1930. *African Economic History, 47*(1), 32–53.

Mukamuri, B., Abraham, R., Matamanda, A., Chirisa, I., Kaduwo, P., and Mhlanga, M., (2018). Harare's Deteriorating Wetlands: Why Sound Policies and Legislations Are Not Enough. Case Studies in the Environment October.

Murombedzi, J. C. (2003). *Pre-colonial and colonial conservation practices in southern Africa and their legacy today*. ICCA Consortium.

Musasa, M., & Marambanyika, T. (2020). Wetland degradation and its implications for local communities in Zimbabwe. *Wetlands Ecol Manage*, 28, 1–15.

Muziri, C., Banhire, T., & Matamanda, A.R. (2019). Wetlands under the Impact of Urban Development in Zimbabwe. The Sustainability Ethic in the Management of the Physical, Infrastructural and Natural Resources of Zimbabwe.

Lerner, S. (2010). Sacrifice zones: The front lines of toxic chemical exposure in the United States. MIT Press.

NASA Goddard Space Flight Center (2020). What Makes a Planet Habitable? [online] Available at: https://seec.gsfc.nasa.gov/what_makes_a_planet_habitable.html.

Nehanda Radio. (2013, December 18). *Chinese mall opens despite warnings from environmentalists*. Nehanda Radio. https://nehandaradio.com/2013/12/18/chinese-mall-opens-despite-warnings-from-environmentalists/

NewsDay. (2022, July 18). Waste Dumping in Mbare Wetlands Raises Community Concerns. NewsDay Zimbabwe.

NewsDay. (2022, June 15). *High Court orders protection of Mbare wetland*.

NewsDay Zimbabwe. (2024, August 15). *Borrowdale land invasions irk residents*.

Newsday. (2024). Dealing with Harare's solid waste management crisis. *The Standard*.

Ntali, E. (2021) Borrowdale Housing Developments on Wetlands Annoy Muguti, 263Chat, 23 November.

Nhapi, I., Gijzen, J, H. and Siebel, A, M. (2003) "A conceptual framework for the sustainable management of wastewater in Harare, Zimbabwe," Pergamon Press, 47(7-8),p. 11-18.

Njoh, J, A. (2002) "Development implications of colonial land and human settlement schemes in Cameroon," Elsevier BV, 26(3),p. 399-415.

Nabwire, A., Omara, T. & Ekere, W. (2021). Integrating local knowledge in wetland management in Uganda: A case study of Lira District. *Journal of Environmental Management*, 287, 112281.

O'Gorman, E., (2021). Wetlands in a dry land: more-than-human histories of Australia's Murray-Darling Basin. University of Washington Press.

Omolo, D. et al. (2018) "Living Off Wetlands: A Case Study of Mara Bay and Masirori Wetlands, Tanzania," Scientific Research Publishing, 06(12), p. 43-60. Available at: https://doi.org/10.4236/gep.2018.612003.

Papayannis, T., & Pritchard, D. E. (2008). *Culture and wetlands: A Ramsar guidance document*. Ramsar Convention. pp. 16–24, 137.

Rai, S. and Raleng, A. (2011) Ecological Studies of Wetland Ecosystem in Manipur Valley from Management Perspectives.

Ramsar Convention Secretariat. (n.d.). *Good practices for urban wetlands: A handbook*. Ramsar Convention. Retrieved from https://www.ramsar.org/sites/default/files/documents/library/good_practices_urban_wetlands_handbook_e.pdf

Ramsar Convention Secretariat. (2010). Wise Use of Wetlands: Concept, Practice and the Challenges in the 21st Century. Ramsar.

Ramsar Convention Secretariat, (2007). Wise Use of Wetlands: A Conceptual Framework for the wise use of wetlands. Ramsar handbooks for the wise use of Wetlands. 3rd ed. Vol.1. Switzerland: Ramsar Convention Secretariat.

Rogerson, C. (1989) "Managing The Decolonizing City In Southern Africa," Taylor & Francis, 71(3),p. 201-208.

Rusch, N. (2016). Sounds and sound thinking in |xam-ka !au: “These are those to which I am listening with all my ears.” *Cogent Arts & Humanities*, *3*(1), 1233615.

Sandelowski, M., (2004). ‘Qualitative Research’, in Lewis-Beck, M., Bryman, A., and Liao, T. (eds) The Sage Encyclopedia of Social Science Research Methods, Thousand Oaks CA, Sage

Sarkies, M. et al., (2015). Data collection methods in health services research hospital length of stay and discharge destination. Applied clinical informatics. [Online] 6 (1), 96–109.

Schmidt, J. J. (2011) What is water? The history of a modern abstraction. Canadian geographer 55 (4) p.513–514.

Sharai, S., Tarakini, T. and Chibememe, G. (2020) "Threats and Conservation Strategies on Urban Wetlands: A Case of Monavale and Surrounding Areas in Harare, Zimbabwe," Science Publishing Group, 9(2),p. 36-36.

Silvius, M.J., Oneka, M. and Verhagen, A., (2000). Wetlands: Lifeline for people at the edge. *Physics and Chemistry of the Earth, Part B: Hydrology, Oceans and Atmosphere*, 25(7-8), pp.645-652

Sithole, A.K., & Goredema, B. (2013). Building in Wetlands to Meet the Housing Demand and Urban Growth in Harare. Built Environment eJournal.

Solomon, N. (2022). The Kuils Multiple: An Ethnography of an Urban River in Cape Town. PhD dissertation, University of Cape Town.

South African History Online. (n.d.). *Zimbabwe*. Retrieved January 24, 2025, from https://www.sahistory.org.za/place/zimbabwe

Strang, V. (2004) The meaning of water. Oxford: Berg.

Sultana, F., (2007). Reflexivity, positionality and participatory ethics: Negotiating fieldwork dilemmas in international research. ACME an international e-journal for critical geographies. 6 (3), 374–385.

The Herald. (2023, February 10). New Housing Projects Spark Debate over Wetland Conservation in Borrowdale. The Herald.

The Standard. (2012, February 18). *Frogs won’t stop US$300 million investment—Kaseke*. The Standard. https://www.thestandard.co.zw/2012/02/18/frogs-wont-stop-us300-million-investment-kaseke/

Turpie, J. K. (2000). The Use and Value of Natural Resources of the Rufiji Floodplain and Delta, Tanzania. International Institute for Environment and Development.

United Nations Environment Programme. (2018). Green Infrastructure Guide for Water Management: Ecosystem-Based Management Approaches for Water-Related Infrastructure Projects.

Verschuuren, B. (2016). Religious and spiritual aspects of wetland management. The wetland book, 1-11

Warren, S. (2017). [Review of *Staying with the Trouble: Making Kin in the Chthulucene*, by D. J. Haraway]. *Environmental Philosophy*, *14*(1), 157–159.

Wikipedia contributors. (n.d.). *Land Apportionment Act of 1930*. Wikipedia. Retrieved January 25, 2025, from https://en.wikipedia.org/wiki/Land_Apportionment_Act_of_1930

Williams, P. A., Sikutshwa, L., & Shackleton, S. (2020). Acknowledging Indigenous and local knowledge to facilitate collaboration in landscape approaches—Lessons from a systematic review. *Sustainability, 12*(9), 331.

Whitlow, R. (1990). The role of wetlands in Zimbabwean agriculture. Zimbabwe Agricultural Journal, 87(2), 123–135.

Whitlow R (1990) Conservation status of wetlands in Zimbabwe: past and present. GeoJournal 20:191–202

Wood, Adrian P. et al. “Wetland Management and Sustainable Livelihoods in Africa.” (2013).

Xu, T. et al. (2019) "Wetlands of International Importance: Status, Threats, and Future Protection," Multidisciplinary Digital Publishing Institute, 16(10), p. 1818-1818.

Zhou, M., & Tol, R. S. (2021). The evolution of wetland management policies in Zimbabwe. *Journal of Environmental Management*, 45(3), 567-580.

Zimbabwe National Statistics Agency. (2022). *2022 first quarter labour force survey report*.

Zimbabwean Government Gazette. (2022, October 7). *Environmental Management Act [Chapter 20:27]*. General Notice 2119 of 2022. Vol. XCX, No. 118, p. 1. Published by Authority.

Zinyemba, A. Z., & Changamire, T. (2020). *Challenges and survival strategies for women in small-scale catering business: A case study of Siyaso Magaba, Mbare*. Department of Business Studies, University of Zimbabwe.

APPENDICES

Appendix 1

Detailed coordinates of the wetland boundaries are provided with an accuracy of up to 3 meters below (Zimbabwean Government Gazette, 2022).

Coordinates	
X	**Y**
292983	8026643
293210	8026263
293102	8025959
293021	8025952
293067	8025819
293084	8025421
293000	8025023
292815	8025149
292738	8025362
292763	8025477
292840	8025700
292770	8025805
292843	8026036
292958	8026168
292920	8026217
293063	8026395
293028	8026476

Mbare Wetland Boundaries (Source: Zimbabwean Government Gazette, 2022)

Appendix 2

Detailed coordinates of the wetland boundaries are provided with an accuracy of up to 3 meters below (Zimbabwean Government Gazette, 2022).

Coordinates			
X	**Y**	**X**	**Y**
295330	8034054	296308	8033353
295498	8033894	296082	8033255
295595	8033836	296012	8033294
295677	8033797	295884	8033279
295829	8033746	295825	8033368
295926	8033762	295619	8033329
296028	8033727	295545	8033388
296121	8033739	295537	8033462
296230	8033696	295412	8033606
296293	8033707	295323	8033676
296452	8033657	295214	8033816
296577	8033793	295102	8033805
296721	8033774	294650	8034420
296846	8033629	294706	8034471
296932	8033579	294650	8034582
297025	8033579	294675	8034598
296998	8033376	294640	8034867
296768	8033333	294883	8034867
296678	8033392	294888	8034775
296651	8033357	294939	8034760
296554	8033361	294944	8034537
296499	8033392	295026	8034420
296371	8033322	295305	8034140

Borrowdale Wetland Boundaries (Source: Zimbabwean Government Gazette, 2022)