

Rethinking relationships with nature: human-wetland connections in Marlborough, Harare, Zimbabwe



By

**Esther Sigauke
SGKEST001**

**Department of Social Anthropology
University of Cape Town**

Supervised by:

**Professor Lesley Green
Department of Environmental Humanities
University of Cape Town**

Co-supervised by:

**Associate Professor Frank Matose
Department of Sociology
University of Cape Town**

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DECLARATION

I declare that *Rethinking relationships with nature: human–wetland connections in Marlborough, Harare, Zimbabwe* is my original work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used have been cited and acknowledged.

Full name: Esther Sigauke

Date: 31.01.2022

Signed: E. Sigauke

DEDICATION

My husband

A source of love, joy, hope, inspiration, support and strength throughout my research journey.

My children

May you seek knowledge because it offers power, freedom, wisdom, maturity and intellectual growth.

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LIST OF ABBREVIATIONS

BLZ	Bird Life Zimbabwe
CBO	Community-based organisation
COSMO	Conservation Society of Monavale
CWA	Community Water Alliance
DFID	Department for International Development
EIA	Environmental impact assessment
EMA	Environmental Management Agency
ESAP	Economic structural adjustment programme
EU	European Union
FTLRP	Fast-track land reform programme
GDP	Gross domestic product
GIS	Geographical information systems
GNT	Good News Bible translation
GOZ	Government of Zimbabwe
HCC	Harare City Council
HRT	Harare Residents Trust
IIED	International Institute for Environment and Development
LEAP	Local environmental action plan
MEAG	Marlborough Environmental Action Group
NDS	National Development Strategy
NGO	Non-governmental organisation
PEA	Participatory ethnographic approach
PVC	Polyvinyl chloride
QGIS	Quantum Geographical Information Systems
RTGS	Real-time gross settlement system
UCT	University of Cape town
UN	United Nations
WHO	World Health Organisation
ZBC	Zimbabwe Broadcasting Cooperation
ZELA	Zimbabwe Environmental Lawyers Association
ZIMASSET	Zimbabwe Agenda for Sustainable Socio-Economic Transformation
ZIMLII	Zimbabwe Legal Information Institute
ZIMPREST	Zimbabwe Programme for Economic and Social Transformation
ZPP	Zimbabwe Peace Project
ZimStat	Zimbabwe National Statistics Agency

ABSTRACT

This thesis is an ethnographic study of the intricate relationship between humans and the wetland in Marlborough, Harare. It focuses primarily on poor urban farmers and the wetland environment in which their activities are criminalised. Data were collected by means of interviews, observations and design thinking-augmented focus group discussion. The thesis problematises the notion of criminalising urban agriculture on wetlands by exploring the underlying factors that push the farmers to engage in practices deemed illegal. The analysis is done in relation to other stakeholders, such as property developers – who, despite causing more harm to the wetland, navigate their way to implement their activities. This raises ethical questions on the selective application of the law, as the elite and those connected to the people yielding power use the wetland as they wish, but poor farmers striving to earn a living find themselves at the receiving end of the law. This invokes issues of democracy, capitalism, social justice and the legacy of colonialism.

It emerged in the study that the farmers are strongly connected to the wetlands as the source of their livelihoods. Although they have no property rights and take the risk of farming on the wetlands, they are not criminals. A harsh economic environment, characterised by unemployment and negligible income, makes them dependent on the wetland for their livelihoods. They use simple tools for farming that do not cause harm to the environment, and they apply farming methods that are compatible with conservation ethics. Their main challenge is that they do not contribute to economic development as measured by the gross domestic product, so their voices are not heard when decisions are made, and they fall into line with decisions made in a top-down manner. Accordingly, this thesis positions the conflict between the wetland farmers and other stakeholders as an interplay of power dynamics. When such a situation unfolds, the poor farmers bear the full brunt of the law in an uneven playing field, further condemning them to extreme poverty in an environment with no safety nets.

The study used an innovative and hybrid method of public engagement, using design thinking-augmented focus group discussion. Being human-centred and empathetic to the users, the method was instrumental in engaging poor farmers in the design and implementation of customised solutions to their problems. Several solutions were generated, tested and iterated to meet the underlying needs of the users and a win-win situation for the farmers and the wetland emerged, suggesting that a humanistic approach to environmental management has the potential to produce desirable results. The study recommends that future scholarship focus on how to disentangle capitalism and ensure that control and ownership of the environment is not left in the hands of private owners for profit, but that the state puts checks and balances in place to cater for marginalised and underserved communities.

PUBLICATIONS

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Sigauke Esther (2022). When law and policy fail to meet reality: Exploring environmental conflicts in the utilisation and management of wetlands in Harare. In Green, Lesley; Frank Matose, Anselmo Matusse. *Contested Ecologies 2: African Environmental Governance Struggles* (forthcoming).

Introduction - Setting the research agenda

Setting the scene

Located in the sprawling township of the oldest high-density suburb in Harare, Mbare Musika is Zimbabwe's biggest farm produce market, a hive of activity for both farmers and buyers. The market awakens from its peaceful slumber at dawn, when the first batch of farmers, "the early birds", arrive with their fresh vegetables. Noise can be heard everywhere as people bargain, with farmers striving for better returns on their hard labour and buyers hoping to negotiate a reasonable compromise. It is normal to hear farmers screaming prices at the top of their voices, as if they do not care about others, like auctioneers who have traded their hammer for bunches of onions, which they also use to drive away swarms of flies that want to feast on spoilt vegetables. Large, tattered push carts are the dominant form of transport, with many farmers coming by bus and needing to carry their produce from the bus terminus to the market. It is a chaotic and intimidating environment, but the freshness of the vegetables and the affordable prices drive people from all walks of life to the market.

Although I was born and lived in Harare, I had never visited the vegetable market because of the intimidating and chaotic environment was intimidating. But one day my family needed vegetables in bulk for a wedding function, and my friend suggested we go to the farm produce market. I was not enthusiastic since I had heard about pickpockets who frequented the market looking for easy targets, but my friend convinced me to go with her, arguing that the vegetables we bought from the grocery shops at exorbitant prices were procured from the farmers at the vegetable market, and that I would have someone to lean on should anything go wrong. She and I arrived at the market as early as possible, knowing that the early bird catches the fattest worm, but the market was already busy. Weaving and squeezing our way between people and carts, it was clear that the vegetables were fresh and being sold at giveaway prices.

I was curious about where the vegetables came from. A busy market did not seem like the most appropriate setting for an academic line of questioning, but it was a good opportunity to hear straight from the horse's mouth. After purchasing our vegetables (including extras, as the total cost was a fraction of what we would have spent in the grocery shops), I asked gogo Chidede, the old farmer who sold us the vegetables, a series of questions. She was quick to respond, saying, "*Moroora, chimbotishanyira kwedu KwaZvimba apa, padhuze dhuze uzvionere pamhuno sefodya*" ("My daughter-in-law, I invite you to come to Zvimba communal area where we grow the vegetables so that you can see for yourself, it is not that far away"). We exchanged contact information, and one weekend my friend and I made our way to her place of residence in Chikaka village, just a few kilometres from Murombedzi growth point.

We met several vegetable vendors along the main road on our way to Zvimba, selling to motorists and passersby. This made me even more curious, as it seemed that everyone was into the horticultural business. However, the Zvimba soil was poor and sandy and seemed like it could hardly support plant growth. Even the trees and grass in the area struggled to

grow in the inherently infertile soil. There was no diversity of tree species, as *mukute* and *muzhanje* were dominant. Sandy soils are prone to leaching and are not suitable for agriculture unless a lot of fertiliser is applied. But at Mbare Musika, the farmers' selling point was that their vegetables were tasty and healthy because they did not use organic fertilisers. So where were the vegetables grown when the conditions seemed so unsuitable for horticulture? I recalled my history lessons, where I had learned about unfair land distribution being one of the triggers of the war of liberation.

As I was pondering the answers to my questions, we arrived at Chikaka Shopping Centre, where we had agreed to meet gogo Chidede so that she could show us the way to her home. She was already waiting patiently there for us, and we headed to her house. As we chatted along the way, she jokingly said, "*Mapinda mapinda munyika yaGushungo, ndisu tiri panyanga*" ("Welcome to our land, where people of *Gushungo* totem reside, we are the leaders of this country"). We all laughed, for we knew what she meant. The name *Gushungo* was the totem for the founding president of Zimbabwe, Robert Mugabe, and by mentioning it she had provided me with a clue. Mention of the name *Gushungo* triggered memories of what I had read about the colonial struggle, where indigenous people were driven to marginal areas with little or no agricultural value. I began to connect the dots and the puzzle started to fit together as I found a clear link between poor, sandy soils and the war of liberation spearheaded by Mugabe. The history books that I had read about a decade ago began to come to life.

I still wondered where the vegetables came from, though, as the poor soils pointed to a hopeless situation. When we arrived at gogo Chidede's home, she wasted no time and quickly ushered us to her garden. As my shoes started getting stuck in the soil, I realised we were approaching the wetlands. Gogo Chidede was well prepared, putting on her gumboots, and she laughed at me, saying, "*Nhai muroora, kubindu hakusi kwokupfeka storeto, shangu dzako hadzite kuno*" ("My daughter-in-law, when going to the garden, you don't wear stiletto shoes, because they are not suitable for that"). I had brought no other shoes, however, so I removed them and walked barefoot. The soil became wetter as we moved towards the garden, and it became apparent that the garden was on a wetland, answering my question about how it was possible to grow such healthy vegetables in such conditions. Upon arriving at the garden, we were impressed by the healthy-looking vegetables, which did not show any signs of water stress. From my reaction, gogo Chidede knew that I was amazed, and she took the opportunity to take me down history lane to explain how she and her fellow villagers had resorted to horticulture on the wetlands. Here follows a summary of what she said.

Before the white settlers came to our beautiful country, our ancestors had vast tracts of fertile land. By the way, here in Zvimba was not our original place, but we were forced to relocate to areas that were not suitable for agriculture. The best land areas, which receive reliable rainfall, were taken for commercial agriculture. Even the Gushungo family was pushed to this area, and that is why he mobilised people to fight an unjust system. As you saw from many fields, the crops have stunted growth due to the sandy soils. Nothing comes from that land, even if a lot of fertiliser is applied. We struggled over a long period and ended up providing cheap labour to the white farmers, as we could not earn a living from farming. As human beings, every challenge gives us opportunities to learn and become innovative. With

droughts common in this country, we are the worst affected, as the sandy soil cannot hold moisture and the crops wilt. Instead of crying helplessly, we started encroaching into mapani [Shona name for wetland] to practice agriculture. As you can see, the soil is good, and it is deep grey clay soil that holds water and nutrients for a long time. Since we started farming on these mapani, we have become self-sufficient. During the rainy season, we grow various crops – maize, pumpkins, nuts, sweet potatoes – and after harvesting, we embark on horticulture. Agricultural activities keep us productive all year round. We don't use fertilisers, chemicals and other additives that interfere with the soil structure. We try as much as possible to maintain the productivity of mapani without disturbing them. We use manure from our animals, which acts as a sponge, holding water for extended periods. That is how we have been able to survive, and I have children whom I have sent to good schools from this thriving horticulture business.

I was touched by this story of colonial injustice and how the communities in Zvimba had found solace in the wetlands and created a source of livelihood. As I stepped into the garden, I felt a sense of tranquillity and peacefulness, at ease and alive in this new environment, so different from the polluted atmosphere I was used to in Harare. The wide variety of vegetables in the garden showed clear signs of vigorous growth, with firm leaves and well-developed flowers and fruits. I followed gogo Chidede around the garden as she explained her agricultural activities. As we moved around, my feet became heavy with the deep clay soil from the garden, and I seemed to be getting stuck in the mud. Gogo Chidede selected a tiny hoe from the garden tools and started to peel off the clay. To my surprise, there were earthworms in the clay she removed from my feet. Gogo Chidede was not at all surprised by the worms and held them in her bare hands, explaining that they were essential to terrestrial life. They were a good indicator that the clay soil in the garden was rich in nutrition, as earthworms are not found in poor soil. She delivered another masterful lecture about how earthworms increase soil aeration, infiltration, structure and water movement, resulting in healthy plant growth.

By the time we finished moving around the garden looking at the vegetables, I was tired, thirsty and hungry. As if gogo Chidede knew, she started picking produce – cucumbers, strawberries and carrots, which she put in a reed basket. She walked to the edge of the garden, where I could see water oozing out and, using a *mukombe* (gourd for drinking water), drew water and drank it quickly down. I wondered how she dared put her health at risk by drinking dirty water. When she offered me the water to drink, I was very thirsty indeed but did not want to drink unclean water. From the look on my face, gogo Chidede understood that I was sceptical about the quality of the water. She explained that the water was from *chisipite* (underground spring that never gets dry), which produces a little water at a time but can fill as many containers as possible. My mind recalled the bottled water we consume in the city, inscribed “Straight from the spring”, and I wondered if it was such a spring. Gogo Chidede allayed my fears, explaining that the water from the spring was clean and free from any contamination. I took a sip and realised that the water was not only fresh but had a pleasant taste. I asked for more until gogo Chidede reminded me not to fill my stomach, as fresh fruit and vegetables were waiting for me. We sat under a big mango tree and enjoyed the fruits of her garden. Then gogo Chidede packed a sack full of garden produce for me to take home and we went back to her home, where we bid each other farewell.

I had a lot to reflect on as I returned home. All I had learned about the colonial history of Zimbabwe started to make sense. I realised that we sometimes dismiss history, but for the first time in my life I began to appreciate the importance of knowing the past. The colonial system disadvantaged the villagers in Chikaka and, in their quest for survival, they began to practice agriculture on the wetlands, where the rich soils and water favoured agriculture. This became their source of livelihood, allowing them to insulate themselves from harsh economic conditions. Their children also practiced agriculture on the wetlands before migrating to urban areas such as Harare, educated and expecting white-collar jobs in independent Zimbabwe. However, things do not always turn out as expected, and some of them now apply the skills they acquired to growing crops in the urban wetlands, much like they did when they were growing up. The only difference now is that they are farming on wetlands in urban settings instead of in rural areas, because the population in the villages has outgrown the resources. Not all family members can access land, as it is a finite resource. The land reform programme helped decongest rural areas such as Zvimba, but not everyone benefited. Some were not allocated land even though they desperately needed it, while others did not want to relocate for cultural reasons.

Entry into Harare was restricted in the colonial period, and only those who were authorised could live in the city. In families, it was common for the father to be employed in town and the mother and children to live in the villages. This maintained ties with the villages, where agricultural activities were done. Most fathers did not grow crops in the city, because there was no land and they had no time due to work commitments. Jobs are now scarce in the country and there is high unemployment, especially among the inhabitants of urban areas, and it is no longer feasible for the father to live in the city while his family lives in the village. Families would rather be together in the city and find ways to survive. This has forced urban dwellers to encroach into wetlands for agriculture. Unlike many unemployed, these urban farmers are not resorting to criminal activities and are just trying to fend for their families, but they find themselves in conflict with other stakeholders, particularly the so-called "land barons" who want to use the wetlands for profit by any means. Who then is criminal: the farmers who use small tracts of land for subsistence, or the elite, who acquire vast tracts of land for commercial purposes? What does it mean when poor farmers are portrayed as abusers of the wetlands, yet their impact on the environment is negligible compared to the activities of the elites? Is this really the democracy, social justice and equality people yearn for in liberated Zimbabwe? This is the national conversation that this thesis sets out to engage, based on ethnographic research to offer a fresh angle on a vexed question.

Rega kuyera nyoka negavi iyo iripo (Do not measure a snake with a rope when it is there).

Urban wetland farming in Zimbabwe is illegal but is essential for livelihoods. Farmers explicitly choose to practice farming on the wetlands, so this thesis seeks to explore the logic behind their activities – why do farmers take up a criminalised practice? Presumably no one wants to be on the receiving end of the law, but circumstances push people to behave in

certain ways. On this basis, the research does not contemptuously dismiss as criminals the farmers striving to eke out a living. Instead, it attempts to understand the factors that pushed them into practising agriculture on the wetlands. To achieve this, the study is approached from the environmental humanities perspective as a way of understanding the intricate relationships between people and nature. Given the multiple uses of the Marlborough wetland, this study aims to reconsider prevailing relationships with the wetland and develop a fresh perspective on how urban activities can be understood, planned and designed without prejudicing marginalised groups.

After my encounter with gogo Chidede, many questions about urban wetland farming in Harare lingered in my mind, but nobody could offer any convincing answers. My preconceptions about urban wetland farming, had been wrong. My mind was working with a jigsaw puzzle whose pieces I could not fit together. Instead of thinking *for* the farmers, I had to avoid *kuyera nyoka negavi iyo iripo* [*Do not measure a snake with a rope when it is there*]. – a Shona proverb that reminded me not to imagine or make assumptions about the thoughts and perspectives of the farmers when I could instead talk to them directly to hear their stories of lived experience. This is reinforced by the Shona proverb *Kuziva mbuya huudzwa* [*You get to know grandmother by being told*], meaning that if you seek wisdom you must engage others to learn from their first-hand experiences and knowledge. This set the impetus for this study, focusing on the Marlborough wetland in Harare.

It took me a couple of months reflecting my first hand encounter with gogo Chidede. Her lecture on wetlands made me curious to learn more. It was that zeal for practical information that I became passionate about the state of wetlands in Zimbabwe. I started following news on wetlands in both print and electronic media. Nearly every week, there were topical stories on the exploitation of wetlands and I closely followed them. As I kept track of the stories, I was surprised that most of the reports on wetlands focused on Harare, the capital city of Harare. The discourse on the wetlands was different from what I had heard from gogo Chidede. In Harare, the main focus was on the excessive exploitation of wetlands resulting in degradation yet in the rural area of Zvimba, gogo Chidede talked about living in harmony with nature. I grappled to know what the missing link between the use of wetlands in the urban area of Harare and rural area of Zvimba was. The urban-rural divide in the exploitation of wetlands was wide with the former dominated by confrontation while the latter was on sustainability. The quest for knowledge on the underlying issues drove me to Marlborough wetland as a site for my study because it generated a lot of controversy from different stakeholders, particularly the farmers and real estate owners.

The Marlborough wetland has multiple users, ranging from housing developers, waste dumpers, resource extractors to farmers, but it is often the urban farmers who are blamed for destroying the wetlands. As a result, they are called “illegal” farmers. But the terms, words and labels used to describe others matter, as they influence decisions, attitudes, perceptions and opinions about that group of people (Szeto et al., 2013). What thoughts, assumptions and inclinations are stirred up in our minds when someone is labelled “illegal”? In Zimbabwe, individuals are given labels simply on the basis of their survival strategies, such as the so-called “illegal vendors” and “illegal miners” (*makorokoza*). These labels are not neutral

descriptions but embody tones of negativity, value judgment and derogation. Urban wetland farmers are considered “illegal” because they operate contrary to the laws and policies that govern wetlands in Zimbabwe. While, the farmers do not have land tenure and rights, which results in them being viewed as “trespassers”, “encroachers” or “intruders”; in other words, as “law-breakers” or “criminals,” they have rights of usufruct, which enable them to return the same piece of land each cropping season. However, these rights are limited because the farmers do not own the land. That is why they do their activities in fear of prosecution, sometimes their crops are slashed. What is interesting to note is that if the urban farmers really are criminals, why are they singled out from other users as if they are the only ones taking advantage of that environment? This requires a reflection on the larger national history of socio-economic environmental governance.

The government of Zimbabwe implemented various national programmes, such as the Economic Structural Adjustment Programme (ESAP, 1991 to 1995), the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST, 1996 to 2000) and the Fast-Track Land Reform Programme (FTLRP) of 2000, which resulted in high unemployment, hyperinflation and economic decline (Chaipa, 2001, Nyagumbo and Rurinda, 2012, Chitongo et al., 2020). Under ESAP, ZIMPREST and FTLRP, poverty increased such that urban agriculture became an essential survival strategy.

Urban agriculture on wetlands contributes significantly to food security for poor urban dwellers who can barely afford basic necessities (Mutavaviri, 2012). Farmers know that laws and policies prohibit their activities yet intentionally defy the legislation, viewing the laws and policies as dictatorial, unjust and colonial and being applied out of context. This has been the case with the Marlborough wetland, which is being used for urban agriculture, and for this reason this study focuses on the Marlborough wetland, a seasonally saturated area situated about 13 km north of Harare, the capital city of Zimbabwe (see Figure 1.1).

The Marlborough wetland: An overview

The wetland is 180 hectares in area and serves the hydrological function of regulating water flow. A stream flows from Mukwa Drive through the Marlborough wetland and into the Gwebi River, a tributary of the Manyame River that feeds the downstream lakes Manyame and Chivero. The Marlborough wetland is connected to numerous water courses, making it important in the movement, distribution and management of water in Harare. Generally, the Harare wetlands are the primary source of water for the streams and rivers that feed water into the Manyame and Chivero lakes downstream of the city, which is pumped into small reservoirs through a water reticulation system. According to Bird Life Zimbabwe (BLZ), Harare is situated on top of the watershed in the headwaters of its river systems (BLZ, 2020). Such a layout requires the sustainable use and management of wetland resources to ensure increased water supply, water flow regulation, flood control and pollutant filtration, making the Marlborough wetland critical to life-sustaining processes and systems in Harare.

Harare’s location high up on the Mashonaland Plateau is problematic, as the city is built within its own water catchment (BLZ, 2020). This has far-reaching implications in that all

land use in the city influences both the quality and quantity of water (Musemwa, 2021) since the headwater wetlands create the streams feeding downstream into the Manyame, Gwebi and Mazowe rivers. The Harare City Council (HCC) was in 2019 reportedly producing only 100 million litres against a daily average of 450 million litres of water due to a shortage of chemicals to disinfect water (Tapfumaneyi, 2019). Harare needs US\$40 million for water purification chemicals every month for its 2.5 million residents (Muchedzi & Chidhakwa, 2020; Chidavaenzi, 2019). In the absence of adequate municipal water supplies, residents drill boreholes, drink water from shallow and unprotected wells and rely on communal taps and boreholes. The Marlborough residential area is no exception, evidenced by women with buckets travelling to fetch water from communal taps and shallow wells in the wetland.

According to the Zimbabwe Peace Project (2019), most water sources in Zimbabwe are unsafe, as demonstrated by the 2008 cholera outbreak. The costs of water purification could be reduced if the wetlands were protected (Nhapi, 2004), because natural wetland systems serve as the “Earth’s kidneys”, filtering pollutants from the water that flows through it to downstream water sources like rivers and dams (Mitsch et al., 2015, Hategekimana and Twarabamenya, 2007).

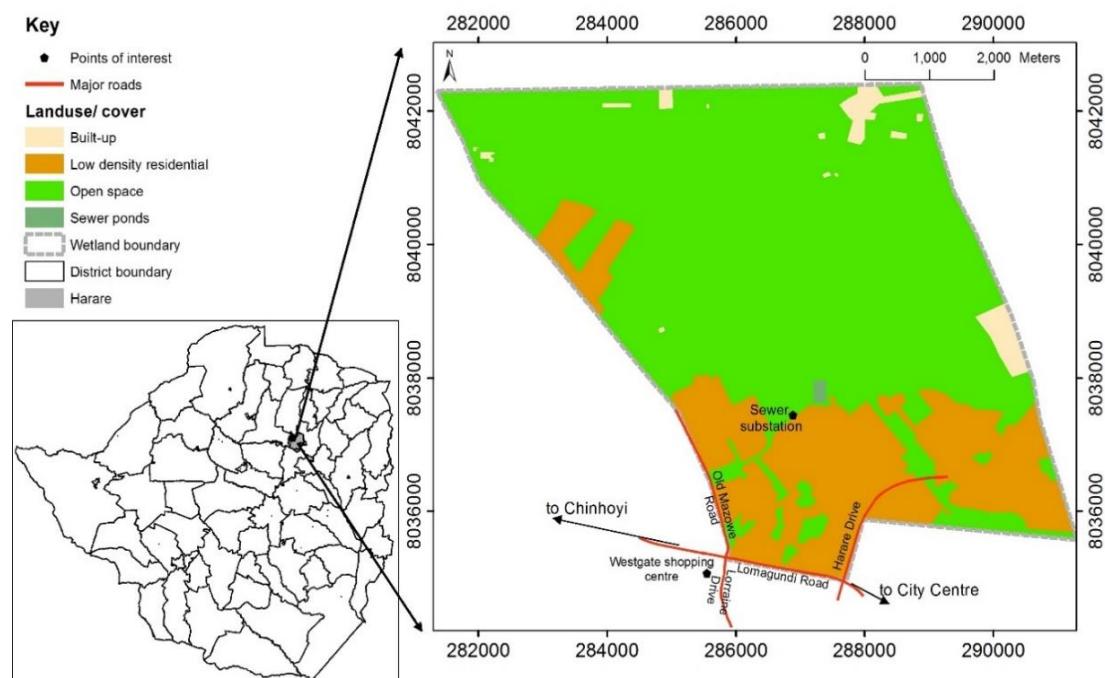


Figure 1.1: Location of the Marlborough wetlands in Harare, Zimbabwe.

(Source: Author notes)

Research focus

The focus of this study was triggered by my observation that the wetland has been degraded by anthropogenic activities, and there is a risk that if contingency measures are not initiated to addressing these challenges, the fragile ecosystem may be destroyed. Through rich stories

and experiences provided by Marlborough residents and farmers prior to the study, I came to understand that my interactions with the residents and farmers provided a snapshot into the dynamics of history, cultures, nature, politics, society and economics governing the use of wetlands in the city. It is on this basis that the research focus for this study is anchored on the overarching theme of sustainability of urban wetlands with particular reference to the poor urban farmers.

The subsequent in-depth study recognises that human–nature relationships influence decisions, actions and ideas of environmental responsibility and awareness. It is widely acknowledged that better environmental protections and ecological behaviours are fostered by the understanding that the destruction of nature is akin to self-destruction (Frantz et al., 2005). Attitudes and behaviours develop through awareness of the interdependence between humans and the rest of nature (Zylstra et al., 2019), and the likelihood of damaging nature is reduced if people feel connected to their environment, perceiving the destruction of ecosystems as tantamount to self-injury (Frantz et al., 2005). Thus, by exploring the relationships between humans and nature, we can better understand the scope, extent and mechanisms of these interactions and map how ecological integrity can be fostered.

It is necessary to understand the character of human–nature relationships and to explore how underlying factors influence the unfolding of those relationships, for only by understanding the root causes of a problem can appropriate remedial action be taken. Economic, political, religious, educational, technological, scientific and cultural drivers play a critical role in shaping human–nature relationships on the Marlborough wetlands. In most cases, the human-centred systems adversely interfere with the natural environment by increasing human consumption and speeding up the degradation of life-supporting systems. When entanglements that sustain life vanish, “ghosts” and “monsters” emerge (Tsing et al., 2017), metaphors that illustrate the impact of wetland changes that are a result of anthropogenic activities. The transformations of wetlands can create “monsters” such as pests, weeds, alien plants and empty spaces, as well as the “ghosts” of e.g. increased flooding, poor water quality, water shortages and climate change. Wetlands worldwide continue to be destroyed and degraded despite being essential for the maintenance of ecological integrity and human well-being. Wetlands cover less than 9% of the global land area (Zedler and Kercher, 2005), with 50% of them having been lost since 1900 (Davidson, 2014). The magnitude of global wetland loss reveals the criticality of living in companionship with other species by promoting practices that protect, manage and restore ecosystems.

In studying wetlands, it is important to consider a multidisciplinary approach that considers various forms of knowledge. The project *An Inquiry into Modes of Existence* Latour (2013) emphasises numerous forms of truths in the realm of reason, and the Anthropocene compels us to rethink the divide between legitimate and illegitimate knowledge, as well as expert and non-expert (Green, 2019). As I examined human–wetland connections, I used ethnographic methods to unravel and understand how people in their cultural settings interact with one another and their environment. I worked closely with farmers practicing urban agriculture on wetlands and with the residents of Marlborough to facilitate dialogue and provoke them to think critically about their problems and potential intervention strategies. My role as a

researcher was interlocutory, participating in the dialogue merely as an expeditor of discourse and not as an imposer or dictator of knowledge. Farmers and residents were well informed by their experiences with wetlands, and the involvement of local people created a platform necessary to challenge existing theoretical rationales and rationalities that damage Earth's systems. Community participation proved to be a practical approach that fosters decision-making for the restoration and conservation of natural resources at the local level and was instrumental in ensuring an open dialogue and promoting transparency in the decision-making process (Gawler, 2002).

Status of wetlands in Zimbabwe

Wetlands contribute to water purification, ground water recharge, flood control, nutrient and waste absorption and mitigation of climate change. Given the wide-ranging benefits of wetlands to other life forms, losing wetlands poses the risk of forgoing all the services and benefits they provide, and there has been a pronounced loss of wetlands in the 20th and early 21st centuries (Davidson, 2014). A study by Msipa (2009) showed that in Harare, the total area of the Honeydew, Mabvuku and Monavale wetlands decreased by 88%, 63% and 36% respectively between 1972 and 2008. The major causes of the loss and degradation of wetlands in Zimbabwe are urbanisation, population pressure and construction activities (Mutisi and Nhamo, 2015, Muziri et al., 2019a), particularly through water abstraction, housing development and sewerage works (Msipa, 2009, Murungweni, 2013). Wetland loss and degradation in Zimbabwe has also been aggravated by inadequate policies that have given rise to institutional inefficiency, bureaucracy and corruption (Matiza and Crafter, 1994). Loopholes in the management of Zimbabwean urban wetlands have rendered the ecosystem susceptible to degradation due to poor management practices, and the loss of wetlands is regarded as one of the contributory factors to the massive growth of water hyacinths in Harare's main water supply, Lake Chivero (Brendonck et al., 2003). This wetlands scenario shows how human activities have destroyed symbiotic relationships with nature, causing species to mutate and/or disappear.

Despite ratifying the Ramsar Convention in 2011, wetland loss is occurring in Zimbabwe at unprecedented rates. The Ramsar Convention on Wetlands is an inter-governmental environmental treaty whose mission is to promote wetlands conservation and sustainable use through local, regional and national action and international cooperation. Although the Ramsar Convention has made a significant contribution to conservation and sustainable wetlands utilisation, the loss of wetlands is occurring more rapidly than other ecosystems (Reid et al., 2005). The Convention provides guidelines on reviewing and developing national policies, legislation and institutions that promote the conservation and wise use of wetlands (Ramsar Convention Secretariat, 2007), but it is not rigid and allows for adjustments tailored to meet local needs and circumstances (Rubec et al., 1999). The wise use of wetlands implies maintaining their ecological character by implementing ecosystem approaches that are compatible with sustainable development (Pritchard, 2016). The term "wise use" means different things to different people and is dependent to a large extent on one's priorities – for many, wise use means benefiting from wetlands by acquiring a

residential or commercial stand or a field for cultivation. However, such benefits are personal and have nothing to do with maintaining the ecological character of a wetland ecosystem. As argued by (Hjørland, 2007), definitions can be subjective, depending on one's interpretation in relation to a particular situation or context. When interpretations are made that advance an individual's agenda, they pose the risk of escalating conflicts, especially in circumstances where numerous users have diverse interests.

There is a growing realisation that community participation and engagement is important for sustainable use and management of natural resources (Shrestha, 2011, Helgegren et al., 2020, Miriti, 2016). For example, the success of the Green Belt Movement in the fight for environmental and social justice represents an innovative model that the international community can emulate (DeLap, 2013). The proactive approach taken by Wangari Mathaai, the late Kenyan environmental activist and Nobel Peace Prize winner for 2004, can similarly be applied to other natural resources such as wetlands, but requires the mobilisation and participation of communities. Unfortunately, community involvement and engagement in urban wetland management in Zimbabwe is limited. Harare's Monavale wetland is a successfully restored urban wetland managed by the community, with technical support from the Conservation Society of Monavale (COSMO), a community-based organisation, and Bird Life Zimbabwe (BLZ), a local NGO. The conservation of Monavale was triggered by the recognition that the Harare water supply would be doomed if wetlands were not conserved. While it is imperative that conservation efforts should be spread to other communities in Harare so that the remaining wetlands can be conserved, it is not a given that what works in one environment will be replicated in another context. However, it is crucial to engage the community, particularly users, as the involvement of local people as key actors in wetland management has been proven to be one way to ensure ecological integrity (Marambanyika et al., 2012). The effectiveness of community participation and engagement is not dependent solely upon the users of environmental resources but also on other stakeholders, such as the Environmental Management Agency, HCC and government ministries that are influential in governance issues. The major problem in Zimbabwe is that the legal and institutional system is designed to suppress and silence the voices of the weak, vulnerable and poor while favouring the elite. Stakeholders must not suppress the voices, needs and concerns of the local people whose livelihoods are dependent on the natural resources.

A capitalist economic system intended to maximise profits and generate revenue has emerged in Zimbabwe, resulting in an increased demand for land for industrial, commercial and residential development. This has led to property development being done in fragile ecosystems, such as the Long Chen Plaza Mall in Harare, which was constructed on a wetland. The decision to use the wetland was based on the commercial interests of the stakeholders at the expense of environmental management. While vast tracts of wetlands are being earmarked for use in constructing buildings by the elite, poor urban farmers dependent on wetlands for survival are paradoxically prohibited from practicing agriculture. The practice of commodifying environmental resources such as wetlands runs contrary to conservation ethics in which activities that could destroy ecosystems should be put on hold as a precautionary principle. Approaching environmental resources with profit motives is typical

of capitalist societies, which are known for being unfair and creating a metabolic divide between humanity and the environment, violating the fundamentals of sustainability (Foster, 2013). Given Zimbabwe's longstanding economic challenges, financial goals are increasingly prioritised and given precedence over environmental concerns, but the commodification of nature has far-reaching implications that will deepen both social and ecological injustices.

The context in which wetlands are used is important for providing insights into the underlying causes of degradation. I concentrated my research on the Marlborough residential area in Harare and interacted with residents and farmers engaged in agricultural activities there. Farmers explicitly choose to practice farming on the wetlands, so this thesis seeks to explore their experiences and why they take up a criminalised practice? It was a sense-making process in which I provided the farmers with a platform to give meaning to their collective experiences regarding the practise of agriculture on the wetlands. My intention was not to end the cultivation of wetlands but to facilitate rethinking and learning about how the underlying needs of the farmers could be differently met.

Situating wetlands in the African context

Since time immemorial, wetlands have played a critical role as a source of natural resources upon which many livelihoods depend. Geographically, much of Africa lies within arid and semi-arid climates; fresh water is scarce (Schuijt, 2002), and Africa is among the regions in the world facing severe water shortages (Du Plessis, 2019). Wetlands play a crucial role in ameliorating water stress in Africa, as they constitute about 16% of the continent's total area (Dixon et al., 2021). Apart from contributing immensely to the life-support services that sustain human livelihoods, wetlands also provide people with the means of earning a living (Wood et al., 2013).

In many cases, the poor depend directly on wetlands for their livelihoods, with the wetlands serving as a crucial source of water and nutrients for the biological productivity and survival of the people (Schuijt, 2002, Wilson and Primack, 2019). In addition, wetlands have multiple values in that they perform functions that define the African way of living. For example, wetlands have an ecological value as evidenced by the multiple indigenous fish species that live in African wetlands (Schuijt, 2002, Hails, 1996) and have socio-aesthetical value because many ethnic groups conduct their initiation rites in wetland areas (Verschuuren, 2016). Wetlands also have intrinsic value sustaining a significant portion of African households, as many people in rural areas exploit them to survive.

In northern Nigeria, wetlands are common in the form of seasonally flooded depressions called *fadamas*, which have supported the livelihoods of a significant number of smallholder farmers for generations (Dixon et al., 2021, Wood et al., 2013). Wetlands in northern Nigeria offer fertile soils with residual moisture, providing attractive opportunities for arable farmers to grow both seasonal and off-season high-value crops (Dan-Azumi, 2010). The wetlands make a huge contribution to agriculture in the country as food prices rise, climate change-induced droughts become common and environmental risks associated with modern

agriculture increase (Dixon et al., 2021, Babatunde et al., 2008). The *fadama* areas are thus of great benefit for the survival of rural inhabitants but also for their economic development. In Ethiopia, a largely arid country, wetlands provide relief from droughts to many local communities dependent on them for food and livelihood security (Dixon et al., 2021). The wetlands are commonly used for farming purposes, a practice known as *bone*, which takes advantage of residual moisture to grow crops during the dry period that often overlaps with the food-insecure period that results from the depletion of the upland maize supply (Dixon et al., 2021, Feyissa et al., 2019).

In South Africa, the KwaZulu-Natal province is dominated by sandy soils, and scattered wetlands provide pockets of productive soil critical to local agriculture (Dahlberg and Burlando, 2009). One such example is the Mkuze wetland, a massive area constituting a mosaic of different habitats and vegetation types, where abiotic, biotic and human influences have given rise to a high diversity of plants and animals (Ellery et al., 2003). Several households, particularly a growing segment of poverty-stricken female-headed households, rely on the resources derived from the wetland and profits generated from tourism (Dahlberg, 2005). The wetland was declared conservation land by the apartheid regime, restricting resource use to the detriment of the local population. Agricultural activities, collection of firewood and medicinal plants, fishing and hunting were declared illegal, which had far-reaching repercussions on local food security and the well-being of the inhabitants, who perceived it as unjust (Dahlberg and Burlando, 2009). In Kenya, valley bottom wetlands or freshwater marshes have been used over a long period for agricultural activities because of their superior productivity in relation to upslope areas, as the former can produce as much as eight times more than an average wheat field (Mironga, 2005). Across Africa, however, conserving wetlands to maintain their productivity while maintaining the agricultural resource base is proving to be a difficult task.

In Zimbabwe, wetlands ecosystems are referred to as *matoro* or *bani* in Shona and as *vleis* or *flood plains* in English. They are an important resource, capable of retaining excess water over a long period and influencing soil characteristics, land use and life forms (Mharapara et al., 1998). Before the arrival of colonial settlers, the indigenous people used wetlands for growing rice and other crops, such as yams and bananas, for subsistence. The Matopos wetlands became waterlogged in summer and dry during the winter season, enabling farmers to rotate crops and cattle grazing, giving them two harvests per year (Mapara, 2009). The indigenous people devised their own ways of maintaining the full functioning of wetlands, for example by cultivating with traditional methods and ensuring that only specific crops such as yams and sweet potatoes were planted on ridges, while rice was usually grown in the furrows (Brazier, 2020). The indigenous people adopted a sensitive and caring relationship with the environment.

However, with the arrival of white settlers in the colonial era, commercial farmers cultivated wheat, maize and tobacco on wetlands (Brazier, 2020, Whitlow, 1990), using mechanical ploughs and planting single crops instead of resilient indigenous ones, which were deemed inferior and less rewarding (Brazier, 2020). These modern farming methods interfered with the natural processes of the wetlands: the intensive cultivation of the wetlands, which

involved draining water to pave the way for agriculture, caused severe soil erosion and drying-out, leading to the Water Act and the Natural Resources Act that forbade the use of wetlands for agriculture (Tempelhoff, 2008, Whitlow, 1990). Since then, environmental arguments grounded in conservation ethics have been used as justification to prevent both urban and rural farmers from using the wetlands. Laws have remained a formidable barrier to wetland use, though permission may be granted in exceptional cases after a long and challenging process (Brazier, 2020). For example, Policy Statement 4 of the newly enacted Zimbabwe Wetland Policy draft (GOZ, 2020, Ministry of Environment, 2021) authorises agricultural activities on a wetland on condition that a valid permit is issued by the Environmental Management Agency. The issue of a permit is a barrier to poor farmers who engage in urban agriculture on small pieces of land, as they can already barely afford the costs involved.

Given this background, farming on wetlands is not a new phenomenon. Africans boast indigenous knowledge systems for sustainable utilisation and management of wetlands, but these systems were not considered valuable by the colonial rulers. New systems governing common resources were put in place, designed to marginalise black people by restricting their access to resources (Matose et al., 2019, Matose, 2009). The perpetuation of colonial perspectives has caused farming on wetlands to remain criminalised in many cases, intended to deter would-be offenders from encroaching on fragile ecosystems. However, the environmental laws that seek to criminalise local people earning a living from natural resources have been contested (Green, 2020).

Problem statement

There is no doubt that wetlands are an essential part of our natural environment, reducing the impacts of floods, absorbing pollutants and improving water quality (Moomaw et al., 2018, Tuladhar and Iqbal, 2019). Wetland ecosystems are both spatially and temporally dynamic due to environmental changes (Marambanyika and Beckedahl, 2016), which are particularly pronounced in urban areas as a result of anthropogenic activities (Mao et al., 2018, Dou et al., 2017). This is the case with the Marlborough wetland, where degradation is occurring because multiple users have conflicting interests, objectives, goals and values.

The Swahili proverb *Wapiganapo tembo nyasi huumia* (“When elephants fight, the grass gets hurt”) speaks to the situation occurring on the Marlborough wetland, because the powerless, voiceless and poor suffer most when conflicts occur. Property developers are allowed to construct houses on the wetland, while poor urban farmers are prohibited from practicing subsistence agriculture using simple tools that cause minimal damage to the wetland. They are regarded as “illegal”, “trespassers” and “encroachers”, while the property developers are viewed as “legitimate” because they have purchased their private property rights. This is exacerbated by the legal and institutional instruments that govern wetlands in Zimbabwe, which cater for the interests of the elite at the expense of the poor. Residents of Harare are aware of the biased laws and policies that prohibit agriculture on the wetlands but rarely abide by them because of the harsh economic environment.

The poor urban farmers who practice subsistence agriculture in Harare are conspicuous by their acts of resistance and their defiance of existing laws and policies that govern the use of wetlands (Mutisi, 2014, Matenga, 2019). An analysis of the laws governing the use and management of wetlands in Zimbabwe reveals a flawed and one-sided system that prejudices poor urban farmers who rely on the wetlands for a living through subsistence agriculture, even as commercial projects that cause irreversible damage, such as the construction of shopping malls, fuel stations and residential properties continue to be implemented. Zimbabwe gained its independence in 1980, but colonial practices, tyranny and environmental-governance partiality have been perpetuated in a seeming microcosm of neo-colonialism, with the continued exercise of both political and economic influence over the management of natural resources by the elite (Musasa and Marambanyika, 2020, Mandishona and Knight, 2022).

The adoption of capitalism as an economic and political system in Zimbabwe, in which resources are controlled by private owners for profit rather than by the state, has worsened the management of wetlands from an environmental standpoint. Capitalism has contributed to the destruction of wetlands, because as an ideology it promotes the commodification of natural resources for monetary gain, promoting commercial interests over conservation ethics. As articulated by Green (2020), capitalism is a system that facilitates brutal relations with nature and embodies aspects of slavery and mastery. In a capitalist understanding, poor farmers do not contribute to the economic development of the country because they produce for subsistence and thus do not contribute to the country's gross domestic product. The preferential treatment of the elites in the use of natural resources such as wetlands in this study has resulted in the continual and historic degradation of ecosystems that has long gone unabated. A lack of institutional and governmental support coupled with gaps in legislation make it difficult to address the situation (Matamanda et al., 2021b). When the existing systems for stemming the degradation of wetlands fail to yield desirable results, the relationship between humans and nature must be reconsidered by opening the "*black box*" for enquiry.

Previous studies on the management of wetlands in urban areas of Zimbabwe tend to focus on institutions such as the government, city council and environmental management bodies as the key stakeholders (Mwonzora, 2022, Sharai et al., 2020, Muziri et al., 2019b). The studies have contributed immensely towards understanding the complexities in the use of wetlands. However, the poor marginalised communities in the form of the farmers who eke out a living from the wetlands are rarely considered as stakeholders who are equally important. This has perpetuated the challenge in the management of wetlands as the city council, environmental management body and government ministries use coercion to drive the poor urban farmers from practising agricultural activities. They usually make decisions on their own and implement them using the top-down approaches. Such strategies have proved not to be working as the environmental resources remain degraded. There is paucity of studies that focus on the poor communities whose reliance on the environment is not not driven by profit

motives but the need for survival. This study fills the gap by focusing on different stakeholders with the poor farming being the key actors.

Research questions and objectives

Firstly, in order to address the conflicts surrounding the use and management of wetlands in Harare, this study firstly examines the conflicts surrounding the use and management of wetlands in Harare. Conflict occurs when there is a disagreement between individuals or groups with opposing interests, goals, needs, beliefs, values or ideas. In Harare, the conflicts over wetland utilisation and management encompass many stakeholders, such as residents, farmers, politicians, government, NGOs and CBOs with vested interests in the wetlands. The study focuses on the underlying sources of conflict in the use and management of wetlands, drawing insights from historical, cultural, social, economic, legal and political factors. These factors influence spatial and temporal transformations on wetlands, which in turn affect ecological flows that are key in symbiotic human–nature relationships.

Secondly, I explore ways in which the lived experiences of farmers shape their relationships with the Marlborough wetland by soliciting stories or narratives from farmers about their encounters with urban agriculture on the Marlborough wetland. The narratives are anchored in how the farmers acquire land for agriculture, why they cultivate on the wetland, the methods they use for farming, the challenges they encounter and the strategies they employ to deal with wetland problems. To unravel the lived encounters, the study revolves around culture, knowledge, choices, beliefs and values. It is envisaged that an analysis of the narratives will highlight the nature of the relationships between farmers and the wetland – in other words, the extent of companionship on the ecosystem and its users.

Thirdly, I focus on the extent to which the engagement of the local people in the governance of wetlands influences problem-solving in human–nature relationships. Local communities are a key stakeholder and play an essential role in the management and use of wetlands. The focus here is on exploring the different ways that residents and farmers can interact harmoniously with the wetland, with an emphasis on the active participation of local communities, which are integral to decision making about the environmental issues that affect them. On this basis, I consider local communities as the unit with which to analyse human–nature relationships on the Marlborough wetland.

Fourthly, the study seeks to engage local people when establishing ways of dealing with problems about the management and use of the wetlands. The current management of the Marlborough wetland has proven that the ecosystem is susceptible to degradation and that strategic measures must be put in place. Thus, this research question seeks to explore what can be done differently to achieve desirable results in the wetland. The study uses a bottom-up approach, so solutions do not trickle down from top management but are derived from the farmers and residents directly connected to the wetland. For easy implementation, the input of local users is vital to ensure ownership of the proposed solutions. The local communities possess both explicit and tacit knowledge and know what to prioritise by virtue of their lived experiences. To capture the rich knowledge base of the users, design thinking was used to

engage farmers who practice farming on the Marlborough wetlands, allowing those directly involved in farming there to generate and present solutions that resonate with their underlying needs.

Rationale of the study

The research is deeply embedded in exploring the complex relationships between humans and wetlands. The loss of a wetland is irreversible, as is the loss of the services and functions that the wetlands provide. Harare currently faces severe water shortages, and the situation may become insurmountable if the wetlands continue to be degraded. Various solutions have to date been unsuccessfully presented to address the deteriorating situation, but a different approach to environmental problems is needed to ensure a symbiotic relationship between humans and nature. By employing humanistic-oriented questions about meaning, culture, values, ethics and responsibilities, the environmental humanities offer new insights and ways of thinking about environmental problems. The approach has been used before (Stefano, 2021, Czerkawska, 2018, Kogstad et al., 2011), but this study presents a different context and setting.

This study is anchored in Global South environmental humanities scholarship, which challenges the human-centred perspective of nature and culture as dichotomised and attaches great importance to the connecting ecology and humanity as part of a larger living system. Building on the fundamental ontological presuppositions of environmental humanities that regards nature and humanity as a single system that cannot be separated, this study adopts a broad conception of ecological thinking built from a pluralistic, diverse and integrated approach. It challenges longstanding practices, policies, institutions and laws that have not produced desirable results. As I ventured into the research process, I moved away from traditional research approaches and adopted new methodologies. Environmental humanities provided a suitable platform as an interdisciplinary field of research, incorporating theories and concepts from numerous environmental sub-disciplines that have arisen in the humanities. As a human-centred discipline, this study required me to work closely with communities to facilitate dialogue about the problem and to develop strategies for intervention. Against this background, I adopted design thinking as a user-engagement approach that deviates from *thinking for* to *thinking with* people. The users of the wetlands constituted the key stakeholders in this study, as they have lived encounters and are familiar with the underlying problems associated with the management of the ecosystem. This is important in developing solutions that are not only environmentally sound but are also economically viable and socially acceptable. The active participation of users in solving environmental issues that affect them is more effective than prescribing solutions, as the former methodology takes into account local priorities, processes and perspectives. This study captures and brings under the spotlight the social, economic, political, cultural and environmental aspects peculiar to the African context from an environmental humanities perspective. This is important in showing that urban land uses are not only techno-scientific in their origins, as depicted by the classical models of land use, but are also deeply entrenched in socioeconomic systems.

By focusing on human–nature relationships, the study deviates from the notion of determinism inherent in some of the classical theories of urban development. Instead, it articulates the porous and changing nature of relationships between human and non-human entities. By acknowledging that both human and non-human entities are key actors and actants in wetland governance, the study explores their interaction as part of a complex, interwoven and connected system. To ensure a holistic and integrated approach, the study engaged different players, such as farmers, residents, former farmers and community-based organisations, who are agents of change in wetland utilisation and management. Studying different actors helped to understand the complexity of the underlying forces that shape the use of the Marlborough wetland.

In rethinking the Anthropocene, the study makes a deliberate attempt to shift from the singular truth of rationality to multifaceted approach using different lenses in a quest to explore human–wetland relationships. It takes cognisance of the claims levelled against postmodern theory, which challenges the objectivity of social research in adequately integrating the context of investigation to generate valid knowledge (Kellner, 1988). There is skepticism on ethnography and the resulting relativism which it engenders resulting in debates about the absence of true objectivity (Reed, 2010). This taps into the arguments by proponents of science as the only philosophical construct to determine truth with any degree of reliability. Being aware of these arguments, I approached the farmers differently, I did not regard them as “illegal” but instead attempted to understand the situation on the ground. I was interested in getting first-hand information about the factors that drove the poor urban farmers to engage in agricultural practices on the wetland. My approach was informed by the different relationalities described by Bruno Latour in his inquiry into modes of existence (Latour, 2013). In particular, I was inspired by the assertion that to transform relations that have created the Anthropocene, it is essential to challenge the existing gods and goddesses of reason catalysed by colonial systems (Green, 2015). This study, by combining unique frameworks from cognate disciplines yields insights into the human–environment connection and make a significant contribution towards policy and methodological analysis.

Outline of the thesis

The introduction has provided the research background and situated the problem of managing and utilising wetlands in the African context. By doing so, the unlawfulness and criminalisation of farming on wetlands has been problematised. The research questions, rationale and contribution of the thesis have been given as an introductory part of the thesis. The thesis consists of eight chapters.

Chapter 1 the conceptual framework for the study which is derived from a review of literature. The framework captures the key concepts or variables and explains the relationships between them for use as lens for analysing the findings of the study. The problem statement as well as the research questions and objectives formed the basis for developing the conceptual framework.

Chapter 2 is the research methodology which provides the techniques used in the study for data collection, handling data analysis. The methodology outlines how the research was conducted in a systematic and structured manner to ensure integrity of the results.

Chapter 3 is set to give a background and shed light on the underlying sources of conflict with regards to the use and management of Zimbabwe wetlands, paying particular attention to the interplay of historical, cultural, social, economic and political forces.

Chapter 4 is anchored on the land use changes that occurred on the Marlborough wetland in 1984, 1991, 2003, 2013 and 2017. It explores the causes of these changes and highlights the challenges posed by competing land uses on the wetland. It shows how land uses, particularly commercial agriculture and infrastructural development have contributed to the shrinkage of the wetland.

Chapter 5 assesses the relationship between urban farmers and the Marlborough wetland. It is motivated by the fact that understanding the relationship between humans and the environment can offer insights into what drives the farmers to practice agriculture within that ecosystem. It explores the reasoning behind the farmers' actions and behaviours as they interact with the environment.

Chapter 6 explores initiatives taken by Marlborough residents to address the “problem” of practising agriculture on the wetlands. It is based on the fact that the management of the ecosystem is a social process in which the local communities are better positioned than other decision-making stakeholders. The chapter investigates the challenges encountered by the residents of Marlborough when protecting the wetland.

Chapter 7 proposes participatory ways to connect Marlborough residents to the wetland. It outlines the importance of connecting humanity to nature and applies a pragmatic approach towards public engagement as a way of ensuring democratic governance of natural resources. It describes how design thinking can be used to complement focus group discussions and generate win-win solutions for humanity and nature.

Finally, Chapter 8 presents conclusions that emanating from the insights generated from the study on rethinking human relationships with nature. It highlights key findings from the study and provides recommendations and suggestions for further studies.

Chapter 1 - Conceptual Framework: A Literature Review

Conceptual frameworks are not merely collections of concepts but, rather, constructs in which each concept plays an integral role. They provide not a causal/analytical setting but, rather, an interpretative approach to social reality (Jabareen, 2009:51).

1.1 Urban planning and design: scripting, appropriation and translation

As with written manuals that accompany machinery, land use models prescribe interaction in a particular way, as land is set aside for recreational, commercial, residential and industrial purposes. In urban design, land use follows patterns and zones that determine how users will operate and interact with different actors. Scripting often prescribes specific modes of use while restricting other forms of services (Prout, 1996). Central to scripting is the script, which defines the actions and practices of the human actors who follow particular guidelines that are either binding or not (Ingram et al., 2007). The scripts are intentionally designed to achieve a specific goal and can be relatively open (flexible) or closed (prescriptive). The designers have the role of scripting the actions and practices of those who use and consume the products they make, and they have the prerogative to draw the boundaries of what is expected and not expected of users. Scripting is considered to be explicit when a deliberate effort is made to ensure that objects are designed to configure or shape the behaviour of the users in specific and practical ways. For instance, Latour (1992) cites the design of bulky hotel key fobs as a deliberate act to make them an encumbrance that reminds guests to return them to the desk.

In this study, scripting is embedded in land use planning issues, including the institutional and regulatory frameworks that influence ongoing changes in the land uses of the wetland. The concept of scripting fits well in the study, because the Marlborough residential area was designed using a legal framework that dates back to the colonial era. During that period, the natives (blacks) were restricted from living in or entering the city of Harare, and the land, infrastructure and services were sufficient to cater for the few colonialists and natives who resided in the city at that time. The restrictions on entering the city meant that only a few blacks lived in Marlborough, which was by then an affluent suburb. The blacks who lived in the neighbourhood were mainly general workers, such as gardeners and cooks. With such a demographic, the wetland was left pristine and was not utilised for subsistence agriculture. Harare was initially designed to cater for a small population of 32 000 inhabitants (Matamanda and Chirisa, 2014), and the colonial design of the city did not accommodate the culture of the local people, so no spaces were allotted explicitly for the practice of urban agriculture. Those with an interest in agriculture were expected to be in the rural areas where there was easy access to land. An analysis of the current population in Marlborough reveals that the population has outpaced the carrying capacity of the original city plan. The concept of scripting was thus applied in the study to provide an analytical lens through which to scrutinise how the original script on land use designed in the colonial period has evolved to the present day.

The second concept that informs this study is *appropriation* (Lie and Sørensen, 1996), which refers to the process whereby natural resources, particularly land that is not yet owned, become the property of a person or group of persons. In this study, appropriation consists of practices by which stakeholders make use of land for their own benefit after it has left the world of designers (in this case, the city planners), with users taming and domesticating the land according to their needs. In appropriating, users may follow the designers' scripts but may also counteract them. What is explicit is that the concept of *script* emphasises the role of designers (town planners), while the concept of *appropriation* treats the design as an ongoing and interactive process throughout the life cycle of urban development. Rather than being passive recipients or neutral intermediaries, users who constitute one of the key stakeholders are seen as active mediators of changes in urban land use. Although the law prohibits wetland utilisation, massive land use changes have taken place over time, rendering the concept of scripting and appropriating suitable for the study.

During the colonial period, the wetlands were out of reach of users and were thus kept in their pristine state, but Zimbabwe's recent economic hardships have caused people to encroach on the wetlands for agricultural activities. The original plan for Harare has been altered, resulting in changes in land use. The concept of appropriation fits into the study against this background, because it illuminates the changes and adjustments in land use that occurred when the urban population started to increase, particularly after independence in 1980.

In the processes of scripting and appropriating, tensions between competing land uses are bound to arise. In the process between scripting and appropriating, that is between designers and users, *translations* or changes are bound to occur. According to Latour (1987), translation entails changes that inevitably take place – which in this study are changes in land use as a result of the varying needs of the users, such as farmers and property developers. Many changes occur during the process of translation, with some things getting lost while others remain intact. The concept of translation helps us understand change as an assemblage of human and non-human actors connected over time and space (Dwiartama and Rosin, 2014). Interactions between human and non-human actors lead to change, as is the case with the Marlborough wetland. Translation illuminates the changes that take place over time; it is not enough to simply know of the changes, we must unravel the underlying factors to map the way forward.

1.2 Multispecies perspectives: companion species—companion ecosystems

Multispecies perspective reflects moving beyond an isolated emphasis on humans to consider other life processes and forms as research participants. The study adopts the multispecies ethnographic perspectives, which dwell on the effects of human entanglements on other living beings by focusing on how a multitude of organisms shape and are shaped by political, economic, and cultural forces. In an attempt to understand these entanglements, I draw insights from Donna Haraway uses the concept of *companion species* to illustrate how humans live in the company of significant others (Haraway, 2006). The term *companion* reflects elements of friendship, oneness, closeness, togetherness and communion, and

Haraway's concept offers a constructive way of framing environmental politics by focusing on how humans relate to other species. While Haraway focuses on dogs, her concept can be used to study different species and ecosystems. I adopted her concept of companion species to study how poor urban farmers relate to the Marlborough wetland, focusing on how the lived experiences of urban farmers play out in their *companionship* with the wetland. To establish whether there was harmony or dissonance in relations with the wetland, I was attentive to the kinds of companionships that are exhibited. Haraway (2006) argues that "animals are not just good to think about or more instrumentally good to eat but are also entities and agents to live with."

This study uses the concept of companion species to demonstrate that wetlands are not just objects or providers of material benefits but are companions that humans can live with harmoniously. "Living with" can take a variety of forms, as demonstrated in the relationships between human and non-human in laboratories (Haraway, 2008, Haraway, 2006), agricultural ecosystems (Satsuka et al., 2014) and even forests (Kohn, 2002). In this regard, I looked at how the farmers and residents "live with" the wetlands. Tsing (2013) demonstrates that the interaction between humans and nature is an interspecies relationship characterised by dependency and interdependency, meaning humans and non-humans are mutually dependent. Tsing (2010) describes a forest as a city consisting of a web of interactions between fungi, nematodes, roots, trees, soil, rocks and other living beings (Tsing, 2010). This is also true for the web of connections that occurs in wetlands.

Furthermore, the concept of slow violence as espoused by Nixon (2011) describes the violence that occur gradually and invisibly in the management of environmental resources. Due to the non-violent nature of the conflict, it does not draw much publicity, thus it can unfold over a relatively long period of time. It is a threat to the environment as the violence remains under the radar and may not attract the attention of stakeholders such as policy makers. However, slow violence has far reaching implications as it affects disproportionately affect people who are poor, disempowered, often involuntarily displaced and dependent on the environmental resources for their livelihoods (Nixon, 2015). Furthermore, Nixon (2011) refers to the loss of the land and resources leaving the communities stranded in that space. Thus, the farmers and residents of Marlborough wetland might face future displacements and catastrophes if the wetland ecosystem in Marlborough is not protected. Nixon reveals that the drivers of slow violence include neoliberal approaches that have widened the gap between the rich and poor thereby causing environmental catastrophes that steadily occur overtime. Such forces perpetuate inequality, cruelty and corruption as occurring in Harare. Thus, slow violence requires that we focus beyond immediate by also thinking and imagining about the future.

1.3 Analysis of the frameworks

The stated framework addresses the relationship between Marlborough wetland ecosystem and human systems as depicted on Figure 1.2. It provides an analytical tool for studying

complex issues on land use changes related to Marlborough wetland with particular focus to the interactions between humans and non-humans. In applying the concepts of scripting, appropriation and translation, an analytical lens is provided for examining how strategies, structures and policies in urban planning and design influence the sustainability of natural resources (wetlands). These same concepts have been applied in the study of technologies that are subjected to changes both spatially and temporally as they travel from one environment to another (Müller-Rockstroh, 2012, Rohrer, 2003, Gjøen and Hård, 2002). The previous studies generated interesting insights on the social, economic, political and cultural aspects that shape technologies. Taking a cue from these studies, the concepts are useful in understanding the environmental changes of which wetlands as presented in this study provide a rich context of how natural resources are shaped. The concepts cascade and link up closely with multispecies perspectives which explore the human and non-human entanglements. Multi-species entanglements as argued by Rock (2016) open opportunities for bringing different perspectives into deeper dialogue, through discussions of social justice which acknowledge the presence and absence of non-human animals in shared environments. This resonates with the case study of wetlands in Marlborough where different stakeholders have vested interests on the use of the environment resulting in conflicts, typical of what Nixon (2011) describes as slow violence. Therefore, the combined use of the different but overlapping conceptual frameworks in this study offer a hybrid analytical lens to frame environmental politics from a human and non-human perspective, paying attention to the interplay of numerous factors which are either exogenous or endogenous. This affirms the scholarship embedded in Environmental Humanities (Hubbell and Ryan, 2021) that reconceives the relationship between nature and society, which is essential in understanding and resolving the complex dilemmas created by the competing needs of the stakeholders involved. Failure to acknowledge that both human and non-human entities are key actors in the management of the environment can be detrimental and lead to harm, which can be very sluggish (slow violence), inexplicit and intergenerational. For example, although the Chernobyl nuclear catastrophe occurred some 36 years ago, the effects are still felt by the birth of children suffering from deformities. Since we live in deep mutual dependence with other species, it means that if one structure collapses, then the others may follow suit. It is on this basis that the adoption of the combined frameworks in this study provides the toolkit to rethink and reconfigure human-nature interactions.

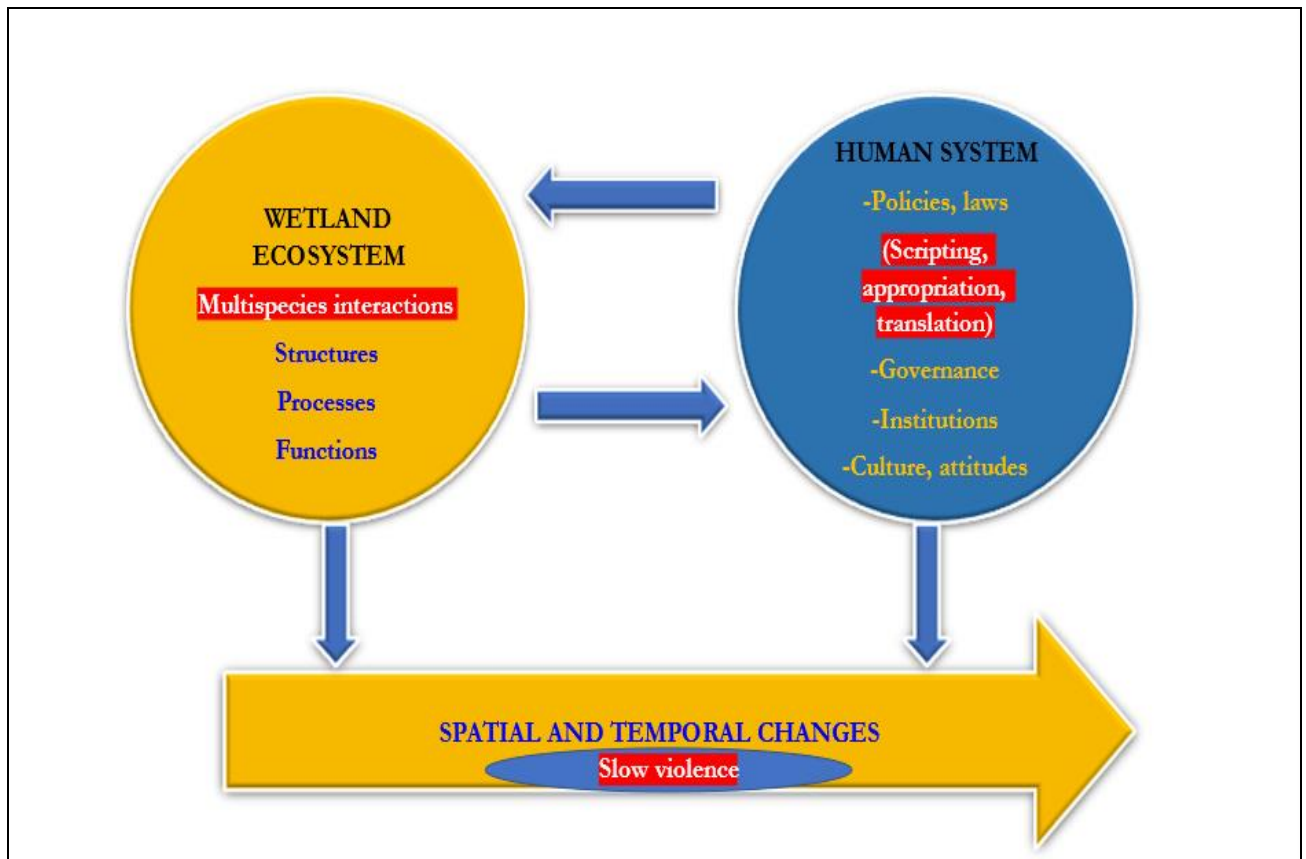


Figure 1.2: Linkages of conceptual frameworks

(Source: Author notes)

1.4 Conclusion

This chapter has presented the conceptual framework which has been derived from scholarship in urban geography and environmental humanities to serve as an analytical lens for the study. The framework was carefully developed to make conceptual distinctions and organise ideas on the study. The conceptual framework as applied in the subsequent chapters of the study sets the stage for analysis guided by the research questions and problem statement of the study.

Chapter 2 - Research methodology

“...Conflicts over natural resources present a different form of result than traditional warfare – there is no winner, especially when these resources have been exploited or plundered during the conflict. Thus, when we think of methods to resolve such disputes, we must look beyond standard options and embrace both formal dispute settlement mechanisms and informal dispute settlement mechanisms...” (Segger, 2010:19).

2.1 Methodological approach to the study

The extract from a keynote speech by Marie-Claire Cordonier Segger during the conference “Resources of Conflict – Conflicts over Resources” (7-9 October 2010) in Göttingen, Germany reveals that resolving problems in the use and management of natural resources requires a shift from traditional approaches where the stakeholders who are directly affected are silenced due to their low status in society towards innovative and integrative approaches. In view of this, the research involved active engagement with various stakeholders to ensure that no voice was suppressed. It involved immersion into the culture of the local inhabitants, speaking the vernacular language and interacting in a non-hierarchical way. The research participants were Shona speakers and as Shona speaker myself, I understood the vernacular language used for communication, as it is my mother tongue. Sometimes the research participants used deep Shona language with a rich vocabulary of *madimikira* (metaphors) and *tsumo* (proverbs), but I grasped everything that was said.

I combined ethnography with a participatory approach in which the wetland residents and farmers contributed pragmatic solutions to their problems. This was accomplished using the design thinking approach as part of a participatory ethnographic approach (PEA). The PEA approach involved the systematic collection and analysis of data for the generation of solutions that drew on practical life experiences, going beyond enquiry to propose solutions for action. Applying the PEA approach required a recognition of the capacity of people living in Marlborough to actively map their future interactions with the wetland. By adopting PEA, I acknowledged from the onset that communities are not ignorant about their challenges but are highly knowledgeable as a result of their lived experiences. They present a rich pool of tacit knowledge that is sometimes dismissed as irrational and unscientific but is the underlying foundation of explicit knowledge. Tacit knowledge is valuable, as it is an embodiment of vast unspoken, unwritten, uncodified knowledge derived from observations, experiences, intuition, insights and internal information.

Elmusharaf et al. (2017) argue that PEA brings with it the advantage of establishing a contextualized understanding of the complexity in which different behaviors occur which in this study is essential in understanding the human nature relationships. Although the method can be intensive and time consuming due to its long-term character, it is worthwhile to use it as it straddles the domains of lived experience and recollected memory which is essential in providing a thick description of the study (Tedlock, 2005). The advantages of the PEA method outweighed the disadvantages in this study hence it was chosen. However, measures were put to minimise the intensity of the disadvantages, for example time was saved during the process of transcribing interviews by using a software that converted audio into text.

The PEA consisted of four stages as shown in Figure 2.1.

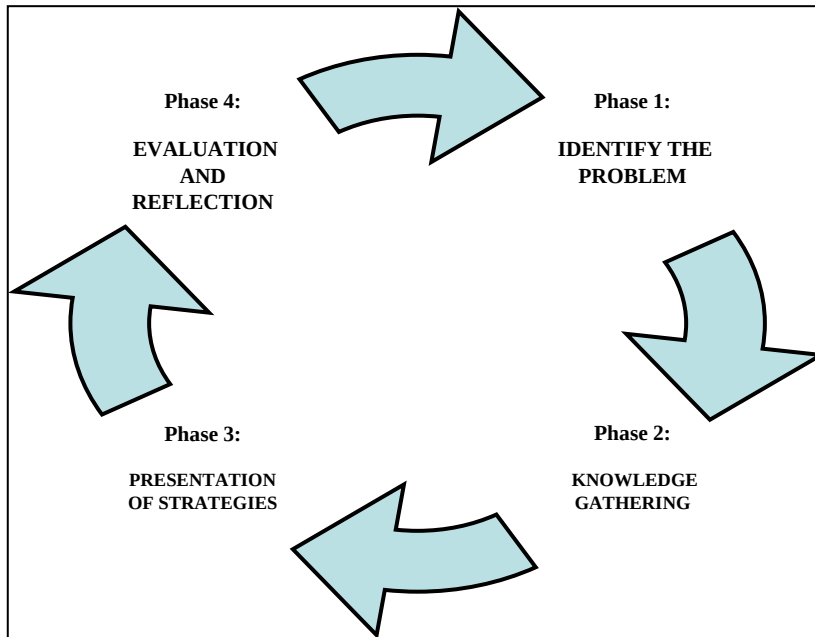


Figure 2.1: PEA research design stages

Phase 1- Problem identification: This stage involved developing relationships with farmers and residents and identification of the problems or their needs. Some of the questions addressed are as follows. What is the challenge or problem? Why does the problem exist? How do you feel about the challenge or problem? What are the consequences of the problem? In order to answer these questions interviews were used.

Phase 2- Knowledge gathering: When the farmers and residents had identified the wetland problems they were facing, they shared their experiences in relation to the problem identified. In order to answer these questions, interviews and FGD facilitated through design thinking were used.

Phase 3- Presentation of strategies: When the farmers and residents had gathered knowledge about the wetland problem, they suggested some strategies or solutions to the problem identified. They farmers and residents designed a prototype which was presented through a FGD (see section 7.6.5).

Phase 4- Evaluate and Reflect: The presentation is a platform to help improve the strategies and add any missing information. Therefore, this stage involves assessment of the strategies which gives the participants a platform to reflect carefully on the processes and the outcomes.

2.2 Data collection methods

2.2.1 Face-to-face interviews

Using snowball sampling to identify research participants, I conducted twenty in-depth face-to-face interviews with urban farmers to understand how they interact with the wetlands, and I conducted twenty-five interviews with residents of Marlborough. The interviews were chosen for this study as they ensure that the targeted participants are the respondents and they provide a platform to ask complex questions and solicit detailed answers through the use of probing techniques which go beyond the basic facts of who, what, when, and where (Guest et al., 2013). Adapting to ethical challenges is a setback in conducting interviews especially when it involves safeguarding participant privacy, dealing with disengagement and managing the data (Carter et al., 2021). With this in mind, the researcher was proactive in ensuring that mindful and consultative choices were discussed with the participants to ensure that they were informed about the interviews and use of data generated.

Finding farmers to interview was difficult, because practising agriculture on urban wetlands is regarded as illegal. Some farmers feared exposing themselves to the danger of prosecution and treated strangers around the wetlands with suspicion. One sceptical farmer warned colleagues who had agreed to participate that “*Sisi ava vachakukandai mukanwa meshumba*” (“This sister will throw you in the jaws of a lion”), suggesting I could cause trouble by exposing them to the authorities. To build trust, I engaged the Marlborough Environmental Action Group (MEAG), a community-based organisation formed in that suburb. MEAG consisted of Shona speaking people who include various dialects such as Zezuru, Korekore, Manyika, Ndau and Karanga dialects. The use of multiple data collection methods enabled identification of those who fell outside of the network. The Focus Group Discussion also enabled to further identify populations that could have been missed.

Because MEAG is opposed to cultivation on the wetlands, the farmers remained suspicious of me, working on the assumption that MEAG had hired me as an undercover officer to spy on their activities and build a case for their removal from the wetlands. When I first visited the wetland area, farmers in Marlborough were wary of my presence because they thought it was more than just an academic study. As a resident of Harare, I was not surprised, as I knew that the use of land in the area was generally politically charged. When I engaged MEAG to help me gain access to the study area, my challenge was to get farmers to share their first-hand experiences, but the farmers remained evasive. After trying to locate the farmers with the help of MEAG, I realised that my strategy was not working, and it dawned on me that approaching farmers in the company of MEAG members, infamous for advocating against wetland agriculture, greatly diminished my chances of engaging them. I thus approached the farmers on my own and explained my research to them. Describing myself as a student conducting research to advance the body of knowledge worked to my advantage, as the farmers now viewed me as a neutral person who did not harbour ulterior motives. Only after several interactions and showing the farmers my student profile on the University of Cape Town website where they convinced that I was a genuine scholar seeking knowledge for academic purposes. When the farmers realised that I was not a threat to their agricultural

practices and that I just wanted to collect first-hand information about their experiences, things became much easier.

Talking to the farmers about their activities was a great experience for me, as I realised that they had a lot to share but were being dismissed as criminals. Using snowball sampling to identify the research participants, the first participant referred me to the second participant, who provided the name of the third participant, and so on. Some participants were reluctant to take part in the research, as they regarded themselves as less educated and having nothing to contribute. I put effort and time into explaining that the knowledge I sought could not be found in scientific books but was embedded in their day-to-day farming practices. I reassured the farmers that their experiences were valuable and that I had chosen to focus on them because of their status in society. Many of the farmers chose to participate in my research project, and the few who had reservations opted out. Through snowballing, I had the advantage of discovering participants I might otherwise have missed. I developed a relationship based on trust with the farmers and residents, who shared profound, deep-seated stories about the wetlands. The stories revolved around the complex and antagonistic relationship between the farmers and the wetland upon which they depended for their livelihoods. Interview questions were open-ended to allow for further probing and follow up of the generated insights. For validity of the interviews the interviewer would probe for a deeper understanding, ask for clarification & allow the interviewee to steer the direction of the interview. For reliability of the interviews, I used a structured interview guide. The guide was pretested before use.

I conducted interviews with representatives of stakeholders such as the Harare City Council (HCC), Environment Africa, Environmental Management Agency (EMA), Bird Life Zimbabwe (BLZ) and Community Water Alliance (CWA). As wetlands management in Harare has become topical over the past decade, academic institutions have seized the opportunity to conduct research on the subject, and it was on this basis that I approached researchers from the University of Zimbabwe, Zimbabwe Open University and Midlands State University to interview them. By focusing on how environmental, legal, social, economic, cultural and political forces shape the temporal and spatial changes on the Marlborough wetland, the interviews revealed the factors that influenced land use transformations.

2.2.2 Design thinking and focus group discussion

The study used a six-step design thinking methodology (Figure 2.1) to establish what kind of intervention mechanisms were needed by the community to promote sustainable use of the Marlborough wetlands. Table 2.1 offers a brief explanation of the six stages.

Table 2.1: Explanation of design thinking steps

PHASE	DESCRIPTION
1. Understand	Understanding the Marlborough wetland problem.
2. Observe	Observing the problems of the wetland users (farmers).
3. Point of view	Identifying the needs of the farmers.
4. Ideate	Generating creative ideas to meet the needs of the farmers.
5. Prototype	A representation of ideas developed to meet the users' needs.
6. Test	Alterations and refinements based on the users' perspectives.

All stages were followed meticulously, with a lot of iteration in the testing phase. Figure 2.2 illustrates the design thinking steps and shows that the method is non-linear, going back and forth depending on how the process unfolds. A detailed application of the method is discussed in Chapter 6.

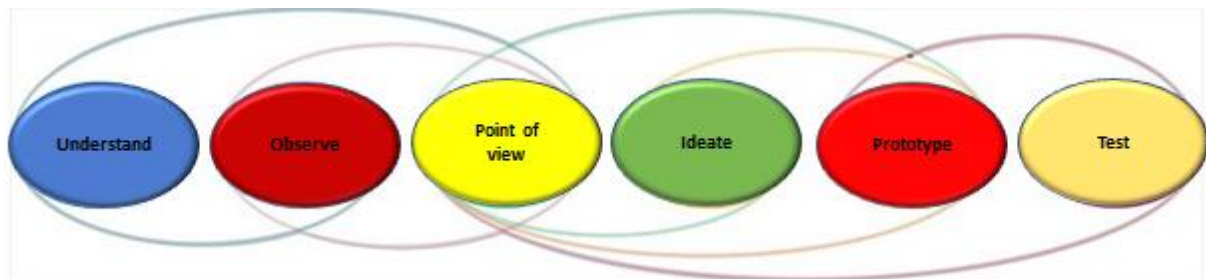


Figure 2.2: Steps in design thinking for solving problems.

(Source: Stanford School, 2009)

The results of the design thinking formed the basis of the focus group discussions, after which semi-structured interviews were conducted with the participants to solicit their views on the generated solutions. The farmers and residents constituted the focus group discussion. Design thinking was used in this study because it delves deep into the needs of the users from a human centred perspective (Siricharoen, 2020). The reliability of FGDs was ensured by hiring of a trained and neutral moderator to avoid bias. To ensure validity the moderator made sure that the discussion did not go off topic and solicited views from as many participants as possible.

2.2.3 Document analysis

During the fieldwork, I seized every opportunity to collect brochures, handouts and pamphlets related to the study. In addition, I read and reviewed several newspaper articles related to my research that helped me conduct fieldwork from an informed and current perspective. I also regularly checked the websites and Facebook pages of various

organisations, such as EMA, CWA, HCC and BLZ. To keep abreast of developments in the management and use of the wetlands, I followed these websites and Facebook pages even after the completion of my fieldwork. I also systematically reviewed legal and policy documents, including sections of the Administrative Court Act of 1979 as amended in 2002: chap 7:01; Regional, Town and Country Planning Act of 1976 as amended in 1998: chap 29:12; Urban Councils Act of 1995 as amended in 2001: chap 29:15; Statutory Instrument 7 of 2007 (EIA and Ecosystem Protection Regulations) and Environmental Management Act of 2002 as amended in 2005: chap 20:27. I also analysed bylaws about buildings, vegetation and waste management and land protection in Harare. I used qualitative content analysis to determine the presence of certain words, themes, or concepts within the documents to establish meaning and relationships. The steps involved in content analysis were as follows:

- 1) I selected the content that I wanted to analyse from various documents such as newspapers, legal documents and websites as mentioned earlier focusing on matters that affect wetland management in Harare.
- 2) I defined the categories for analysis being guided by the objectives of the studies. Therefore, I came up with themes emanating from the various documents.
- 3) I coded the with the aid of NVivo to sped up the process of categorisation of words and phrases.
- 4) I analysed the result and draw conclusions.

The choice of document analysis in this study was mainly due to the fact that it complements interviews as argued by Morgan (2022) that in analysing pre-existing texts, it is useful in conducting research projects that might otherwise be difficult to complete due to time constraints for field work. The major setback with document analysis is that in some cases, one has to rely on documents provided by organisations which can provide access only to content aligned to its values resulting in biased selectivity (Bowen, 2009). To counteract this bias, the researcher relied on documents from different sources and conducted fieldwork to test validity through the convergence of information. This ensured triangulation as the use of multiple methods to address the research questions enhanced the validity and credibility of the findings.

2.2.4 Direct observations

Direct observations facilitated the detection of physical and human phenomena in their natural state without any distortions. During the field observations, I took photographs and videos of crops, fields, farming methods, placards, the state of biodiversity (flora and fauna), waste dumps, houses and other interesting events on the Marlborough wetland. The major challenge I faced was that I could not take photographs of the farmers in action, because most of them did not want to be photographed because their activities were prohibited. The photos were taken in both the wet and dry season. My field observations complemented the farmers' stories, and I could easily draw out the existing connections.

2.2.5 Geographical information system (GIS)

I used GIS as a mapping strategy to show land use changes on the Marlborough wetland, working closely with a GIS expert who helped map the changes. We downloaded files archived high resolution Google Earth imagery for 1984, 1991, 2003, 2013 and 2017 covering the study area. We then geo-referenced the image files based on current Google Earth imagery accessed in QGIS 2.18 software through the Web menu. The images were georeferenced based on the Universal Transverse Mercator Grid on the Arc 1950 datum. A root mean square error of less than 0.5 was achieved for all files. The georeferenced files were mosaiced and land-use classes were screen digitised. The same method was used by Malarvizhi et al. (2016).

Google Earth imagery is open source and provides a clear view of geographic features such as buildings (Malarvizhi et al., 2016) and is accordingly ideal for urban studies. Landforms were defined as wetland, sewer ponds, residential properties, isolated buildings and agriculture. Dry season imagery was used, because wetlands are distinct in that they are conspicuous by lush green vegetation unlike the surrounding dry area where grass and herbaceous matter would have dried and trees shed leaves (Sibanda and Murwira, 2012). The area of each land-use class was computed with GIS software to determine the trend of changes over time. The use of mapping techniques is important, in that it facilitates the visualisation of features in a location while making it easier to illustrate spatial, temporal and attribute relationships (Persson, 2020). Land use changes in the years 1984, 1991, 2003, 2013 and 2017 on the Marlborough landscape were made visible using GIS mapping techniques, showing the extent of damage that had taken place over time. GIS enabled the calculation of changes in hectares and percentages so that one could establish whether there had been a decrease or increase in land cover on the maps.

2.3 Data analysis

All the data obtained from interviews and observations were transcribed, after which the coding and categorisation of relevant and valid data were developed, guided by the research questions. Verification was done to ensure the reliability of the coding systems. The main rule for coding that I used was focusing on issues that affect wetlands in Harare. This was an important rule for the study as I had gathered a lot of information and some of it was irrelevant as it had nothing to do with Harare. Triangulation was used to check the validity of data. Triangulation requires the cross-validation of data obtained from various methods, namely interviews, field observations and document analysis. Although data triangulation increases credibility and validity of the results it is time consuming and can be limited by financial constraints. A statistical package called NVIVO was used to ease the process of data analysis and allowed the researcher to classify, sort and arrange data and examine existing relationships. It involved coding the interviews thematically following a systematic approach. The approach was embedded in general coding of open data using Gioia methodology (Gioia et al., 2013). The first codes were generic and covered broad aspects of the study and they were further refined to specific ones in line with the research aims and objectives. Through a series of coding, patterns emerged which were tied to concepts from

the literature review and conceptual framework. The final round of coding formed the basis of the narrative of the study.

2.4 Ethical considerations

The research participants were able to withdraw from the research at any stage. I sought permission from the Marlborough police and informed the ward councillor about the purpose of the academic research. I carried my national identity card, UCT student card and study introduction letter every time I went for data collection. I received tips from several colleagues on how to cope with the challenges of conducting fieldwork in Zimbabwe, so I felt well prepared for any issues that might interfere with the process. I observed the ethical principles of doing good (beneficence) and not causing harm (non-maleficence) in all my decision making.

As I interacted with research participants, I avoided political innuendo and discourse to guard against jeopardising my research. I remained apolitical, which helped me navigate the potentially explosive subject of the management and use of the wetland. All the participants granted their permission to carry out the research via verbal consent. I ensured that participants understood the study's purpose, benefits and risks to ensure that they contributed to the study from an informed perspective. This minimised situations in which participants might withdraw at a later stage citing lack of awareness of the study's goals. I sought informed consent to record, transcribe and archive the interviews and was granted permission without reservation. As the study was anchored in participatory approaches, I ensured that the environment was conducive to freely asking questions and interacting with and informing the research process as it unfolded. The data obtained from all participants were treated in strict confidence and the participants remained anonymous. The research was conducted in conformity with the UCT ethics for Anthropological research whereby a research proposal is submitted to the Research Ethics Committee for approval before fieldwork is conducted.

The participants were informed that they were free to withdraw from the research any at given time. The participants were informed that the information they provided was confidential and their participation would not inflict harm. The research explained the purpose of the research from the onset so that the participants can understand. The report back of the findings of the research was discussed on the final FGD when the built a prototype (Page 120) and they had an opportunity to share their views.

2.5 Conclusion

This chapter has presented the research methodology of the thesis. The methodology combines different approaches namely interviews, document analysis, field observations and geographical information systems. The combination of different methods was a deliberate attempt to ensure triangulation which increases not only the credibility, but also the validity of research findings. It also lays out the ethical considerations that were made to ensure that the study was voluntary, informed, and safe for research subjects who participated. The

chapter presented the methodology of the thesis, which is grounded in ethnographic fieldwork started in 2018. The research process involved working closely with Marlborough residents and farmers practicing agriculture on the wetland. The goal was to develop a deeper understanding of the entanglements at play in the use and management of the wetland. Particular attention was paid to the stories and narratives that the farmers and residents presented, because it was from these narratives that the connections of the users to the wetland were deduced. Insights about urban farming on the Marlborough wetland were solicited from the lived experiences of urban farmers and residents to get an understanding of the reasons behind their actions, a sense-making process that involved immersing myself in their day-to-day lives to build empathy.

Chapter 3 - A literature review on Conflicts in the use and management of Harare wetlands

“Conflict itself is not a negative phenomenon; indeed, well-managed conflict can be an essential component of social change, democracy and development. However, where local and national institutions lack the capacity to resolve disputes over the degradation or depletion of natural resources, violent conflicts can and do emerge” (EU-UN, 2012:8)

3.1 Key stakeholders and their interests in wetlands

Conflicts are bound to occur in the management of natural resources, but what matters most is whether they turn to be constructive for sound management of the environment or degenerate into disputes that disrupt responsible practices as indicated by EU-UN (2012). The management of wetlands is a contentious issue fraught with conflicts of interest from different stakeholders, particularly as regards maintaining their ecological character and promoting sustainable use (Van Dam et al., 1998). Conflicts often emerge between individuals, groups or social actors with opposing needs, beliefs, values or goals (Diez and Pia, 2010), and when there are differences in the use and management of resources (Matiru, 2000). In essence, conflicts are a reflection of incompatibility of goals among stakeholders due to differences in motives, pursuits, understanding, preconceptions and priorities (Adams et al., 2003). The use and management of Zimbabwe wetlands has numerous stakeholders with vested interests (Figure 1.1) who do not share common goals and motives, resulting in conflicts and tensions. Property developers want to use the wetlands for housing developments, because they are one of the few remaining urban spaces that have not been developed for other purposes; the urban farmers want to practice cultivation on the wetlands to supplement their food supplies, as wetland crops can withstand droughts experienced elsewhere in the country caused by climate change. Politicians often promise residential stands on wetlands as a campaigning strategy, because city residents are desperate for cheap accommodation. On the other hand, CBOs advocate for the conservation of the wetlands.

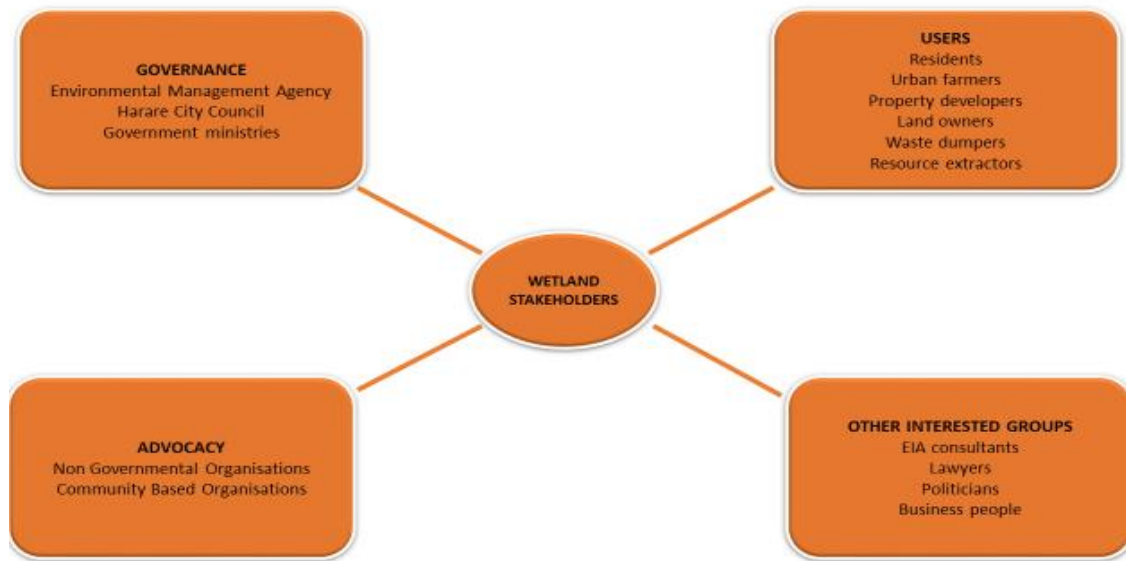


Figure 3.1: Stakeholders in wetland use and management.

(Author notes, 2019)

The stakeholders identified in Figure 3.1 perform different roles managing and using the wetlands. With reference to governance, the Environmental Management Agency (EMA) is a parastatal established in terms of the Environmental Management Act of 2002 as amended in 2005: chap 20:27 (“the Environmental Management Act”) to promote the sustainable utilisation and protection of environmental goods and services in the country (GOZ, 2002). In executing its role, the EMA is guided by the Environmental Management Act and Statutory Instrument 7 of 2007 on Environmental Management (EIA and Ecosystems Protection Regulations). Its mission is anchored in a socially responsive environmental service delivery system, with the overarching goal of promoting the sustainable management of natural resources and protecting the environment through stakeholder participation. Stakeholders who work with the EMA include industrialists, farmers, NGOs, miners, government departments, parastatals, traditional leaders, law enforcement agencies, the judiciary, school children and communities at large. The composition of the stakeholders is diverse to represent the societal and economic spectrum of the country and ensure that all concerns are considered. By and large, the structure of the EMA is inclusive, because the parastatal is organised to bring different stakeholders on board. However, the role of the parastatal in protecting the wetlands is adversely affected by conflicts of interest among the stakeholders. As a result, the EMA is well-positioned to oversee the management of wetlands in Zimbabwe in principle, but in practice is compromised by the contending actors involved.

The establishment of the EMA was widely received as a positive development meant to promote efficiency, equity and transparency. It was perceived as a departure from the post-colonial era, in which the country inherited outdated laws that favoured the settlers (Rajah et al., 2012). The environmental laws promulgated under colonialism were discriminatory and asymmetrical in terms of access to resources. The laws made prejudicial distinctions between whites and blacks, being biased towards the former, who claimed vast tracts of land.

Environmental legislation favoured the colonial masters and was presented in more than eighteen statutes administered by separate but overlapping ministries, resulting in a duplication of duties (Chinamhora and Ruhukwa, 1995). The legal instruments were driven by punitive measures and did not promote intersectoral or participatory environmental planning approaches. White-owned commercial farms and state land were prioritised in terms of environmental protection because of their high economic returns (Moyo and Crafford, 2010). In this regard, the enactment of the Environmental Management Act was seen as a legal tool to remedy colonial laws and policies.

The Harare City Council (HCC) is the local planning authority and operates under the Ministry of Local Government, Public Works and National Housing. It administers land allocation for different uses in the city and ensures that development plans conform to sustainable development practices. In executing its functions, HCC is guided by the Regional, Town and Country Planning Act of 1976 as amended in 1998: chap 29:12, the Urban Councils Act of 1997 as amended in 2002: chap 29:15, and the Administrative Court Act of 1979 as amended in 2002: chap 7:01, which provide a framework for regulating the use of natural resources (Feltoe, 2012). As many wetlands in Harare are exploited through infrastructural developments by private individuals, the City of Harare's capacity to protect the environment has been a source of controversy. In making decisions, HCC relies heavily on environmental impact assessments (EIA) conducted by independent consultants (hired by property developers) and development certificates issued by the EMA. However, the process of generating EIA reports and developmental certificates has proved not to be objective, as it is susceptible to abuse to advance the interests of particular actors. Conducting an EIA does not serve the purpose it is intended for and is merely a formality, and HCC wantonly issues permits for housing and property development on the wetlands (ZLHR, 2021). The encroachment of different land uses on the wetlands is driven by corruption and greed among council officials, who sideline conservation ethics to advance their own economic interests (Mandishona and Knight, 2019a). HCC has not surprisingly come under criticism from residents and environmental action groups such as the Harare Wetlands Trust.

Several government ministries in Zimbabwe are responsible for wetland management. The Ministry of Local Government, Public Works and National Housing has the mandate to run local governments in Zimbabwe, and all local authorities, including HCC, are controlled by the ministry, which has the power to make final decisions. The physical planning department executes the management of natural resources by formulating spatial planning policies and standards. It also administers and reviews the Regional Town and Country Planning Act (chapter 29:12), prepares, appraises and conducts surveys on the layout of plans on state land and guides land use management and the processing of applications. While the ministry is expected to work with HCC, dissonance stems from the fact that the former is run by the government in power, while the latter is dominated by members from the main opposition party. Furthermore, the duties of different ministries overlap and are duplicated, notably the Ministry of Environment, Climate Change, Tourism and Hospitality Industry, responsible for planning, researching and developing environmental and natural resources policies and legislation. The lack of harmony in how ministries and local authorities operate in the

management of natural resources interferes with the use of the environment and creates loopholes that other stakeholders can exploit to pursue their own interests.

The stakeholders who champion advocacy in the management of wetlands are mainly NGOs. Some of the leading organisations actively involved in conserving the wetlands in Zimbabwe are Environment Africa, Harare Wetlands Trust and Birdlife Africa, working in close collaboration with communities to raise awareness on the importance of wetlands. According to Ibrahim and Aziz (2012), non-governmental organisations cover the entire range of human interests, as they are committed to addressing social needs and improving human conditions. Their function is not limited to advocacy, as they also serve as crucial sources of information on issues such as human rights abuses and environmental management in general. The NGOs identified during the study work with schools, residents and political leaders.

The users of the wetland are diverse and pursue different interests. For example, some residents are interested in managing wetlands, as they are the custodians of the environment. They live in close proximity to the wetland and are aware that changes to the ecosystem may have far-reaching implications. Ideally, the residents are expected to jealously guard the use of the wetlands to ensure sustainability, but residents have been forced to use the wetlands for their livelihood as a result of the harsh economic environment in the country, with cities being the worst affected. In light of climate change, wetlands are regarded as productive for agriculture by poor urban farmers because of the moisture they retain. The use of wetlands by the residents to eke out a living conflicts with the property developers, who claim to have acquired the land from HCC. Mandishona and Knight (2019b) argue that the presence of stakeholders with conflicting interests gives rise to a situation wherein competing wetland uses such as agriculture and residential property development are not compatible. The property developers claim ownership and earmark the wetlands for residential purposes, while residents have on several occasions engaged the law courts to stop property developments – though with limited success.

A visit to Marlborough wetland also reveals that household waste is not regularly collected by the City of Harare, resulting in the wetland being used as a dumpsite, perhaps a subtle way of expressing dissatisfaction with the erratic service delivery. Other small groups of users extract reeds for making baskets and mats or collect worms for fishing purposes. A growing number of religious groups gather for their weekly prayer sessions in open spaces provided by the wetlands, which they see as idle land open to public use. The resource extractors and religious groups cause minimal environmental damage, but that may change if they scale up their activities in the future.

The other stakeholders are the experts in EIAs, who generate reports that greatly influence what uses the wetlands should be put to. When an EIA is professionally done, it gathers input from all affected parties, including residents, and thereby helps to conserve the environment. However, activities in Harare are authorised that have the potential to cause harm to the wetlands, casting doubt on the validity of local EIA reports. The development of many properties for commercial purposes has been allowed to proceed in fragile ecosystems, such as the wetland in Belvedere (Mandishona and Knight, 2019b). Although the public raised concern about the sustainability of the Belvedere wetland, the dissenting voices were muted

and the project continued to completion. There is speculation that EIA experts produce reports that give approval to wetlands projects to keep their businesses running. This could be true, as the property developers pay the EIA experts, creating an opportunity for the report to be manipulated by corrupt individuals for financial ends. At issue is whose interests are served by the EIA experts if they do not incorporate input from all concerned stakeholders.

Some environmental lawyers engage with the management of wetlands from a legal perspective. The Zimbabwe Environmental Law Association (ZELA) is a group of lawyers whose mandate is to spearhead legal and policy research, advocacy, impact litigation, conflict resolution and civic education. The organisation represents poor communities in their quest to assert and claim environmental, economic, social and cultural rights within the natural resources and environmental sector. ZELA is interested in harmonising ecological laws to ensure that environmental and natural resources management policies, strategies and legal frameworks are aligned to serve the interests of marginalised communities vulnerable to being manipulated and outpaced by other stakeholders. Similarly, Zimbabwe Lawyers for Human Rights represents residents of Harare when their wetlands interests are infringed by stakeholders such as property developers, who use their financial advantage to influence decisions. The lawyers provide legal support to communities who can be quickly silenced due to their lack of capacity to mobilise resources to protect their environment.

As the management and utilisation of wetlands in Harare is politically charged, the influence of politicians cannot be overemphasised. Some ministers, members of parliament, mayors and councillors have vested interests in the allocation of wetlands for various land uses. Such politicians often tilt decisions about the use of wetlands in their favour for personal gain, as evidenced by the proliferation of land barons connected to politicians. The land barons serve as intermediaries between the politicians and the public and enjoy protection from prosecution. Not surprisingly, the land barons continue to parcel out vast tracts of residential stands in the wetlands to desperate home seekers, even without legal entitlement to the land. In Harare, the gravity of the situation is compounded by the fact that the political environment is highly polarised, with the ruling party having an influence at the ministerial level and the opposition being in control of the local authorities. Such a dispensation creates loopholes, as contending politicians rarely work together but try to outmanoeuvre each other to the detriment of the environment. For example, it is not unusual that a politician loses a court case on the illegal occupation of a wetland but continues to act against the law regardless. Politicians have rendered environmental laws irrelevant, as some break the law and go scot-free. The wetlands bear the effects of the conflicts, and some of the damage is irreversible.

The complexity of the conflicts in the management of natural resources is aggravated by a lack of transparency, which according to Matose and Watts (2008) emerges when there are diverse users, particularly when local people are constrained by biased formal institutions. With power struggles, the control of wetlands becomes the “survival of the fittest”, and the interests of stakeholders with a strong political backing tend to prevail.

3.2 Factors shaping urban land use changes in Zimbabwe

The varying interests in the use and management of wetlands and the wide range of services and functions provided by them generate interest from multiple stakeholders and consequently create conflicts (Darradi et al., 2006). When conflicts arise, a compromise that satisfies all parties is often hard to achieve. The type and intensity of conflicts among stakeholders depends on many variables, such as power or authority, historical contexts, legislation and socio-cultural relations (Darradi et al., 2006). The kind of relationship humans have with one another will affect their interaction with nature either positively or negatively. When stakeholders have different goals, motives and interests, their relationships with wetlands may be marred by clashes (Polajnar Horvat and Smrekar, 2021, Smrekar et al., 2020, Bernard et al., 2009). Understanding the conflicts and factors that shape the use of wetlands in Zimbabwe is vital in understanding the intricate relationship between humans and the environment.

3.2.1 Regulatory and institutional framework

An effective regulatory framework can facilitate the sound management and utilisation of wetlands. In Zimbabwe, the Environmental Management Agency (EMA) is the statutory body established to manage natural resources under the Environmental Management Act. In the Act, the protection of wetlands is governed by section 113, which states:

no person shall, except in accordance with the express written authorisation of the Agency given in consultation with the Board and the Minister responsible – reclaim, drain, disturb (drilling, tunnelling in a manner with adverse effect impact on animal or plant there in) or introduce any exotic animal or plant species into the wetland. (GOZ, 2002)

The legislation advocates for ecological integrity within the wetlands by prohibiting harmful activities, but it lacks a comprehensive framework to guide the protection of wetlands and has some weaknesses that hinder its effectiveness. For instance, loopholes in the wording can be exploited by stakeholders to evade meeting requirements – the use of the word *except* (section 113) implies that conditions exist under which wetlands can be used subject to the approval of the EMA and Minister, but the nature of those conditions is not specified. Doubts are also cast over the credibility of the assessment procedures for wetlands utilisation. Such grey areas in the legislation leave the wetlands susceptible to abuse and give unfettered power to the Minister, and if the Minister is corrupt, wetlands are likely to be exploited for financial and political gain. When the power to make decisions is centred on one individual, the system is open to abuse and can result in damage being inflicted on the environment. These loopholes have resulted in infrastructural developments by individuals claiming to have private property rights on the wetlands. Property developers forge ahead with construction projects that are prohibited by law; even as poor farmers who cultivate on the wetlands are regarded as criminal.

Section 113, paragraph 1 of the Environmental Management Act stipulates that “the Minister may declare any wetland to be an ecologically sensitive area and may impose limitations on

development in or around such area.” However, the phrase *ecologically sensitive* is not defined in the Act. According to a court proceeding setting a property developer against the Minister of Environment, Water and Climate and EMA, a lawyer argued that ecological sensitivity of a wetland should be determined scientifically (ZIMLII, 2015). Some terminology used in the Act is thus subject to different interpretations based on the interests at stake at given points. Furthermore, the Environmental Management Act (chap 20:27) specifies that the drainage of wetlands requires an EIA, as stipulated by Statutory Instrument 7 of 2007 (EIA and Ecosystems Protection) (“Statutory Instrument 7”). However, this legal requirement is often overlooked or applied after a project has already taken place on a wetland (Masara, 2012). Sections 97, 98, 99 and 100 of the Environmental Management Act (chap 20:27) stipulate that that EIA should focus on project description, impacts, mitigation measures and certification issues, but there is no political commitment to follow the whole process, as evidenced by projects destructive to wetlands.

Although EIA certificates are issued for some projects, they are often politically and not environmentally motivated, as reflected in the approval of projects like the Long Chen Plaza mall on a wetland (DFID, 2015). Such legislative shortcomings are a source of conflict and tension and reflect the interplay between human interests and political power, to the detriment of wetland ecosystems. The legal framework expected to protect the wetlands is rendered irrelevant and alters the human–wetland relationship.

According to EIA procedures, the project developer must engage a registered independent consultant to prepare an EIA report in accordance with section 98 of the Environmental Management Act (chap 20:27). However, the developer can choose an EIA consultant that can be manipulated to produce their desired outcome, and EIA consultancy in Zimbabwe has become a thriving business driven by property developers’ requirements at the expense of nature. If EIA consultants do not meet a developer’s needs, they risk losing business. According to Statutory Instrument 7, consultants should address environmental issues, but again, the level of knowledge required is not stipulated (Chimhowu et al., 2010). Failure to define competence requirements can promote corruption, poor quality EIA reports and a lack of professionalism.

In reporting on a proposal to build a shopping mall on the Borrowdale wetland, *The Herald*, a leading national newspaper and EMA whose the decisions are influenced by the government reported that an EIA by Plan Africa stated that “a river or a river source is not a wetland, implying that calling the construction site a wetland is a misuse of the word wetland” (Chideme, 2012). In fact, the mall site was declared a wetland in the Government Gazette of July 27, 2012, but the EIA report did not reference that pronouncement (Ruwende, 2015). This illustrates how EIA consultants choose to please their masters, taking advantage of the lack of enforcement of environmental laws. Lack of harmonisation and coordination in legal procedures causes conflict (Matiru, 2000), and Statutory Instrument 7 is filled with ambiguities, such as unclear criteria for EMA accreditation of EIA companies, because it was developed without stakeholder consultation (Chimhowu et al., 2010). Clearly, the design and interpretation of legislation can have a profound effect on human–nature relationships, either positively or negatively.

EIA regulations stipulate that communities should be consulted for their opinions about a project, but these communities are subject to abuse, exploitation and oppression in the negotiation process and can be forced into subordination. In many instances, the communities are poor and can be bribed into accepting projects that will harm their environment. Despite being important stakeholders in decision making, communities are often overlooked and, when they do speak out, their voices often go unheard. For example, residents of Kambuzuma, Ward 14 in Harare, tried to stop the construction of a fuel station on a wetland located less than 10 meters from a residential area. Their efforts came to nothing, and the developer was allowed to construct the service station on the wetland (Manzvanzvike, 2018). When local communities discover that their efforts to protect wetlands are futile, they may give up and use the environment for sand extraction, waste dumping, agriculture and other practices, driven by the fact that the community members consider their activities to be less harmful to the environment than the big construction projects. They are also more susceptible to bribery, as they do not believe that the law will support them anyway.

The EMA's implementation of the Environmental Management Act is constrained by financial issues. As the EMA is not a government department but a parastatal, it is under pressure to raise funds for its operations, including employee salaries. While the EMA is a powerful state entity with the capacity to enforce its legal mandate, the withdrawal of state funding adversely affects its operations and puts it in a conflicting and challenging position with regards to the management of natural resources. EIA projects are a major source of revenue for the EMA, as it gets 1,5% of the total project costs. When the EMA receives money from a project developer, that project is likely to be approved regardless of its anticipated effects on the environment. This kind of practice can be referred to as "official corruption", the approval of wrongdoing for capital accumulation, and shows the extent to which EMA funding strategies can interfere with the management of natural resources. Once the capital flows in, everything else, including protection of the wetlands, becomes subsidiary. Such a set-up, which values activities that contribute to the creation of new capital, is a threat to environmental protection, as it treats ecosystems such as wetlands as commodities that are exchangeable on the market to maximise profits.

According to Aguilar-González et al. (1998), legislation that is practically aligned to the prevailing conditions of a country is essential to achieve equilibrium between development and environmental protection. In Zimbabwe, the effectiveness of the Environmental Management Act in ensuring the conservation and sustainability of wetlands is questionable, as it leaves many regulatory and implementation gaps. The precursor to the EMA was the Department of Natural Resources, which also fell under the Ministry of Environment but did not have to raise funds for its operations, as the government financed all employee salaries and operating costs. The EMA mimics a Canadian model (Beath et al., 2021) but lacks the same levels of direct state support to execute its mandates. The dilemma the EMA faces in raising funds and protecting the environment is similar to that experienced by the HCC in implementing by-laws to conserve the environment. (Chidhakwa and Karengwezeka, 2019) reported that HCC used residential stands to offset employee salary backlog, resulting in the invasion of wetlands. The city authority is supposed to uphold the laws, but in this instance

was found to be breaching them by seeking rent. The EMA and HCC are both confronted by contradictory situations, as they are expected to conserve the environment while also needing to raise money to fund their operations. The need for financial resources tends to override ecological goals, reflecting that humans prefer to dominate and exploit instead of living in harmony with nature. While the HCC and EMA may have a vision for conserving the wetlands, they are incapacitated by the burden of revenue generation – and with limited options, it is easiest to sacrifice the environment for financial benefit. The commodification of nature intensifies natural resources management conflicts, deepening social and ecological injustices. The economic challenges faced by the EMA and HCC in executing their duties render their efforts to manage and conserve wetlands less effective.

The recently enacted Zimbabwe Wetland Policy draft (Ministry of Environment, 2021) acknowledges the need to integrate the wetlands into national economic planning for sustainable development, wealth creation and environmental management because of their significant contribution to the livelihoods of the communities. Policy Statement 4 explicitly states that agriculture is only permissible on a wetland with a permit from the EMA. However, citizens who engage in urban farming on wetlands use very small pieces of land, such that the effort and time needed for authorisation are not worth the bureaucratic process. There is also no guarantee that the farmers will be issued permits, as many stakeholders have vested interests in the wetlands. The law does not serve the interests of the poor, and the absence of effective laws and policies to govern the utilisation and management of wetlands intensifies conflicts among stakeholders.

3.2.2 Political controversies in wetlands management

The political hierarchy in Zimbabwe (Figure 3.2) shows that the executive, legislative and judiciary are the main pillars of Zimbabwe's political system. The executive consists of the President of Zimbabwe, who appoints a cabinet to lead different ministries. The legislative consists of the parliament, composed of the Senate and the National House of Assembly, with 80 and 270 members respectively. The judiciary administers justice and settles disputes according to law. The Constitutional Court is the highest court, introduced by the Constitution of Zimbabwe in 2013. It is the final court of appeals for all matters, rendering its decisions binding on all other courts in Zimbabwe. Many courts at lower levels form a hierarchy.

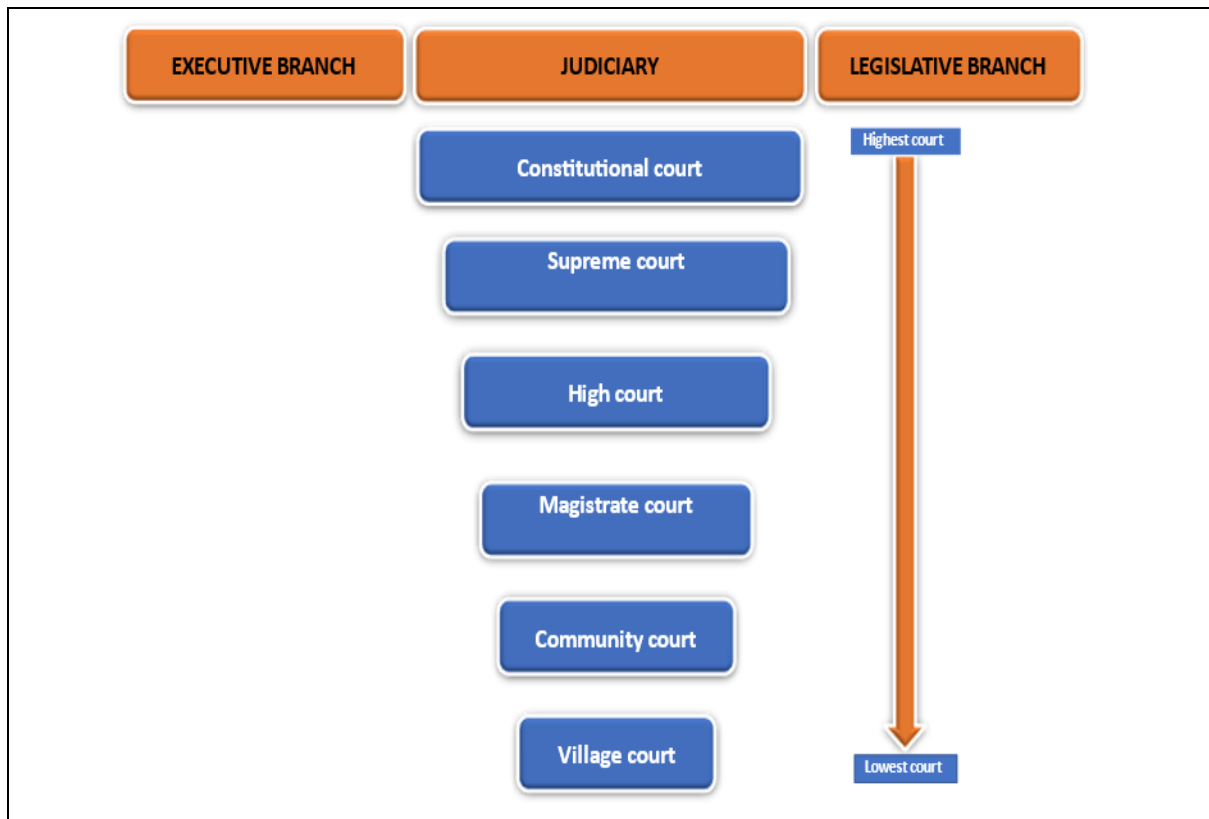


Figure 3.2: Zimbabwe's political hierarchy.

(Author notes, 2019)

The executive, legislative and judiciary branches have a key responsibility to manage wetlands, and the success or failure of wetland management issues is deeply rooted in the roles played by the three arms of government. For example, politicians in Zimbabwe have been blamed for weakening the ability of the EMA to enforce environmental legislation but are known to pursue policies that appeal superficially to voters during elections, while overlooking their environmental effects (Marambanyika, 2015, Mutisi, 2014). According to Glass (2007), politicians can be a stumbling block in the conservation and management of wetlands, as they may promote activities that cause degradation out of self-interest. The sale of cheap residential stands on wetlands to low-income groups illustrates how political interests can subsume environmental concerns.

Various irregular land deals involving high-profile people, including ministers, have been reported in Harare (ZimOnline, 2010), buying and selling land in a manner inconsistent with the country's laws and policies. MPs, councillors, town clerks and commissioners have also been involved in controversial land allocations. Anomalies in the land allocation process were discovered by which some councillors illegally acquired land between 2007 and 2008 through a practice termed *kubhena mari*, which literally means "money burning" (Matshazi, 2010). In *kubhena mari*, money is exchanged on the parallel or black market through dubious electronic transfers (Gukurume, 2015).

Political elites use their power to lure the votes of the urban poor, who desperately need land. Housing cooperatives mushroomed during the era of President Mugabe, as that was part of the ruling party's strategy to solicit votes from the urban areas, normally a stronghold for the opposition party. In this way, cheap land in urban areas became a political commodity accessible through party-oriented housing schemes (Mutondoro, 2018). Most housing cooperatives were owned by politicians who illegally issued residential stands on wetlands and other undesignated sites. A report by the Parliamentary Portfolio Committee on Local Government listed land barons as the main culprits (Langa, 2017). This demonstrates that the political system shown in Figure 1.2 can be marred by corruption, abuse of power, bribery and nepotism, which consequently affects the implementation of laws governing the use and management of wetlands and other natural resources.

Corruption in the allocation of land was also evident in March 2008, when the HCC pegged the price for a piece of land and it was sold to the former Minister of Local Government, Public Works and Urban Development on the same day (NewZimbabwe, 2016). The Director of Urban Planning Services influenced the land commission to sell the stand without going through the tender system stipulated by the policy. Three days after the Minister bought the land, the HCC applied for a land use change to allow the Minister to use it for residential purposes; the minister literally applied to himself for a change of land use (HRT, 2010, NewZimbabwe, 2016, HCC, 2017) – and granted it. This particular transaction raised many questions, because a request to change the land use to residential had been made in 1990 but was rejected in 1994, because the residents of Budleigh Park wanted it to remain a natural reserve area. In 2008, the minister used his position to acquire the land despite its status as a natural reserve area (Matshazi, 2010), illustrating what Campbell (1996) refers to as property conflict arising from competing claims on land use by different users. This example shows the depth of corruption and reveals how dire a situation can be when people use politics to gain control over nature. Fraudulent and corrupt practices by those in power reflect imbalanced relationships between humans and nature, where the needs of the few are fulfilled at the expense of nature and the poor.

The Environmental Management Act gives the minister the authority to make decisions about wetland use and management, which compromises all initiatives to protect the environment by the EMA. However, the Environmental Management Act overrides all other Acts in the case of conflict. In essence, the EMA Board wields enormous power to make influential decisions and, under normal conditions, the board's position is as binding as a ruling made by the high court, but bullying by politicians weakens the Board's transparent and impartial execution of its duties.

Unjust practices have permeated the judiciary system, because appointments made by the executive are based on allegiance. In most cases, judges favour politicians from the ruling party despite overwhelming evidence against them, as reflected in the Ballantyne Park Conservancy Trust court case (ZIMLII, 2011), where a politician was given land on a wetland by HCC and wanted to construct a wedding venue on it. However, residents took the case to the High Court, which ruled in favour of the politician. Battles over wetlands are sometimes fought unfairly in the courts, giving rise to more conflicts and an increased loss of

wetlands. A court verdict that is not fair can escalate disputes to the extent that negotiations become necessary to settle an issue, as with the case of Ballantyne Park, where the residents ignored the court ruling and refused to surrender their land to the politician. HCC intervened and offered the property developer a piece of land elsewhere. In this instance, residents showed unity of purpose anchored in good stewardship, taking a bold stance to defend the integrity of their environment. In the exceptional cases where corruption, bribery or political interference do not influence rulings, judges tend to adhere to the statutes that protect wetlands – as when a High Court judge stopped all construction work on a University of Zimbabwe campus wetland because there was no EIA certificate (Kadirire, 2018).

The main challenge in managing wetlands is thus the lack of political will to conserve them, and it is difficult to plan effectively when the political climate is characterised by corruption. Regulations are designed to protect wetlands, but people take advantage of the corrupt system that allows them to break laws and acquire resources illegally. Furthermore, the prohibition of cultivation and the demolition of houses on wetlands indicates a failure to resolve conflict amicably, leading to social injustice, particularly against marginalised and vulnerable members of society.

3.2.3 Urbanisation

Harare has experienced high population growth and urbanisation over the last few decades (Figure 1.3), resulting in high demand for land (Kamusoko and Gamba, 2015). The increased demand for agricultural, residential and commercial land has led to an encroachment on green spaces (Kamusoko et al., 2013) such as wetlands, which were previously left pristine. Such anthropogenic alterations have had devastating effects on humans and ecosystems.

According to census data, the Harare population rose from 828 567 in 1982 to 2 123 132 in 2012 (ZimStat, 2012) and is projected to rise from 2 430 800 in 2017 to 2 715 322 in 2022. The population growth rate and rapid urbanisation have given rise to demand for urban land, making it a profitable economic and political commodity (Chiweshe, 2020). The demographic transition from rural to urban brings a lot of challenges to local and national governments, with population growth outpacing municipalities' capacity to provide land for development. An increase in population growth leads to competition over land and conflicts related to accumulation and resource access (Berry, 2002), which often leads to land use encroachment onto wetlands (Ngundu, 2013), resulting in ecosystem changes (IIED, 2006). Wetlands are developed because they remain one of the few undeveloped areas and are amongst the least expensive sites to develop (Kentula et al., 2004), and local authorities have begun to target wetlands as areas of potential infrastructural development (Cai et al. (2013).

Many people from rural areas continue to migrate to Harare, as it is the only city in the country with better employment prospects. It has grudgingly been termed *Bambazonke*, meaning “winner takes all” in *isiNdebele*, as all the major industries and government services are located in Harare. The failure of authorities to decentralise services has resulted in many people flocking to Harare, and wetlands are being targeted for residential stands. However,

the low-income groups who are allocated the stands have limited resources and capacity to construct houses that can endure hazards such as floods. The national broadcaster, Zimbabwe Broadcasting Corporation (ZBC, 2014) reported that several houses built on wetlands in Harare and Chitungwiza were vulnerable to floods from regular rains. The allocation of residential stands in wetlands disturbs the ecosystem's ecological integrity and exposes the occupants to hazards and water-borne diseases like cholera. In such cases, humans dominate nature to the extent that they put their own lives at risk.

In the new residential areas, the provision of basic services such as water, electricity and sewerage is no longer the responsibility of HCC but is left to the residents, which has weakened the operations of city authorities, particularly in controlling standards. The residents provide themselves with services based on affordability, and the new residential areas are characterised by an increase in borehole drilling, digging of shallow wells and the construction of septic tanks in the absence of reticulated water and sewer services (Matshazi, 2012, Herald, 2017). Septic tanks should meet specific standards before being deemed fit for use (Herald, 2017), ideally in low-density suburbs with stands greater than 2000m², but because HCC has not connected houses to the sewer system, people use septic tanks and soak-away systems in high-density areas with stands smaller than 300m². Soil percolation tests should also be conducted to establish the efficiency of septic tanks in the treatment of liquid waste on stands less than 2000 m² (Mawonde, 2018). The uncontrolled installation of soak-aways and septic tanks results in leakages and contamination of underground water. On small stands, the septic tanks or soak-away systems contaminate boreholes or wells used for drinking water. Poor urban planning has transformed Harare into a city with poor service delivery, adversely affecting human livelihoods and fragile ecosystems such as wetlands. This again demonstrates that lack of proper management in the management of the environment can be a source of conflict and have far-reaching implications for wetlands.

3.2.4 Land allocation problems

The demand for land in Harare has soared over the last decade, while government capacity to provide housing has declined, resulting in a proliferation of housing cooperatives (Makunde, 2016). Low-income home-seekers join housing cooperatives to pool their resources so they can be allocated residential land. This has created loopholes in terms of access to land for housing, as many home seekers have been duped, while others are allocated land on undesignated areas such as wetlands (Chirisa et al., 2014). However, the practice runs contrary to the Urban Councils Act of 1995 as amended in 2001: chap 29:15, Section 199 (Government of Zimbabwe, 2008), which stipulates that:

subject to this section, a council shall have a duty to do all things necessary to ensure that the conditions of the establishment of any township within the council area and the conditions of title to any land in the council area are properly observed and, without derogation from the generality of the foregoing may, for such purposes, inter alia (a) without compensation, cause any building wilfully erected in contravention of any such condition to be demolished and recover from any person responsible for the contravention the expenses incurred by the

council in connection with such demolition; (b) prohibit the use of any building or land which contravenes any such among other provisions.

The constitution of Zimbabwe states that Parliament can make it a criminal offence for any person who, without lawful authority, possesses or occupies land referred to under the Urban Councils Act of 1995 as amended 2001: chap 29:15. Although local urban governments are charged with controlling development within their jurisdictions, the allocation of land in cities and towns such as Harare is driven by a group of developers who are colloquially called “land barons” (Cirolia and Berrisford, 2017). According to Makunde (2016), the land barons are politically powerful individuals who claim stewardship over large tracts of land and render the efforts of urban councils to regularise urban housing and development difficult.

It is criminal for land barons and housing cooperatives to allocate land in undesignated areas or state land and has led to the demolition of houses in Harare and even in some cases the arrest of the land barons involved. Allocation of urban land by land barons demonstrates how political power can be abused to promote access to resources by the elite (Chiweshe, 2020). The allocation and subsequent use of urban land can take place in many ways, with some being illegal, informal or ad hoc, as in the case of the land barons (Cirolia and Berrisford, 2017). The land barons are renowned for being corrupt, and many home seekers have lost their hard-earned money to these illicit land dealers, who take advantage of their positions of influence to subvert regulations and procedures. The claims to land by the land barons are underpinned by their political credentials and reinforced by their recognition as leaders of state-registered cooperatives with responsibilities to drive development (McGregor and Chatiza, 2019). Through their corrupt practices and extortion from desperate residents, the land barons are one of the key drivers of illegal urban settlements in major Zimbabwean cities and towns.

The involvement of land barons in the allocation of land shows the weakening of state institutions such as municipalities and urban councils by the involvement of parallel structures such as cooperatives and political parties (Chavunduka and Chaonwa-Gaza, 2021). This weakening of urban councils seems to have been deliberately planned by making it difficult for the poor to get land through official channels. Politicians emerge as the main actors in land allocation through the activities of land barons in cities and towns (McGregor and Chatiza, 2019, Matamanda, 2021). Local authorities mandated with the task of urban planning and development seem to have ceded their roles as architects of urban housing delivery to become onlookers and occasional referees (Mhlanga et al., 2021), opening the door for the land barons. This is not ideal, as the state and its institutions should be the major actors, while private developers should play a complementary role as needed (Kamete, 2009). In the prevailing situation, the urban poor look up to the land barons instead of the urban councils for residential stands, exacerbating the illegal occupation of land and creating a massive shortage (Makunde, 2016).

Land barons exploit the gross inefficiencies in Harare’s land delivery system by expropriating vast tracts of land in the city, including undesignated sites reserved for other land uses (Matamanda, 2020). They do this deceptively, invading state land and selling it to desperate home seekers (Mbiba, 2017). While city authorities do not recognise these land allocations,

the buyers develop their stands in the absence of basic services such as roads, sewer and water reticulation systems (Murray and Myers, 2007). Low-income earners are the most vulnerable to land barons, who form cooperatives that siphon their cash, which is paid in monthly instalments. The land barons are infamous for flouting town planning regulations and procedures and for contravening safety and health standards, allocating stands in fragile ecosystems such as wetlands (Muchadenyika, 2015, Stewart et al., 2018).

3.2.5 Government policies and programmes

The adoption of the Economic Structural Adjustment Programme (ESAP) between 1991 and 1995 and the Zimbabwe Programme for Economic and Social Transformation (ZIMPREST) from 1996 to 2000, Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) and the National Development Strategy (NDS) 1 (2021-2025) were intended to encourage growth, create employment, improve access to foreign exchange and reduce the budget deficit (Brett and Winter, 2003). Despite their noble goals, the programmes manifested high unemployment, price increases for basic commodities and a widening gap between rich and poor (Chaipa, 2001). ESAP was characterised by massive changes in land use as the struggle for survival under harsh economic conditions intensified (Moyo, 2000). Only those who disproportionately owned and controlled prime land and natural resources benefited from ESAP (Moyo, 2000). Poor residents in urban areas resorted to urban agriculture (Brown, 2001) to alleviate poverty, improve food security, generate income and utilise unused urban land. Residents encroached on unused land set aside for future development or considered unsuitable for building purposes, being on wetlands or green belts intended for conservation.

ESAP and ZIMPREST were superseded by the Fast-Track Land Reform Programme (FTLRP) of 2000, which was intended to address injustices and the problems of inefficiency that characterised the agrarian structure (Moyo and Mushayavanhu, 2004). However, the FTLRP was marred by chaos, violence, underutilisation of land, loss of productivity, destruction of natural resources and food insecurity (Moyo, 2011) and accelerated social-economic decline (Moyo and Mushayavanhu, 2004). Moreover, the FTLRP increased land pressure and gave rise to degradation through commercial agricultural expansion into fragile ecosystems (Matondi, 2012, Mandizadza, 2009).

The way the FTLRP unfolded demonstrates that land can be a source of violent conflicts as a result of competition for access, but both nature and humans become victims in violent conflicts. The FTLRP worsened social and ecological injustices in Zimbabwe despite being created to address the inequities of its colonial legacy. The FTLRP was followed by another controversial programme, Operation Murambatsvina, which was intended to remove all buildings in undesignated places. The implementation of the programme resulted in over 700 000 people being evicted from their homes (Tibaijuka, 2005) and was regarded as a temporary, unjust and unsustainable solution to urban problems (Vambe, 2008). The Tibaijuka report indicated that some people evicted from their homes went to live in informal settlements on the wetland in the Dzivarasekwa Extension of Harare (Tibaijuka, 2005). These

informal settlements in the wetlands threatened the natural state of the ecosystems (Mutisi, 2014) and resulted in the indiscriminate dumping of waste in the wetlands (Mandishona and Knight, 2019b). The cumulative impact of ill-informed policies and programs affected both humans and non-humans, and wetlands were adversely affected in ways difficult to reverse.

In an endeavour to chart a new trajectory of accelerated economic growth and wealth creation, the Government of Zimbabwe came up with a plan termed the Zimbabwe Agenda for Socio-Economic Transformation (ZIMASET) which was implemented from October 2013 to December 2018 (Bonga, 2014, Mapuva and Makaye, 2017). Although ZIMASET was meant to attain sustainable development and promote social equity in the country driven by locally based solutions namely indigenisation, empowerment and employment creation anchored on the utilisation of the country's abundant natural and human resources (Bonga, 2014), it did not achieve the intended goals. The government of Zimbabwe crafted another agenda meant to usher the country to an upper middle-income economy by 2030 and it is operationalised under the First National Development Strategy (2021-2025) and the Second National Development Strategy (2026-2030) (Chitongo et al., 2020). Covid-19, low awareness level of sustainable development goals and inadequate resources are blamed for the failure of the first NDS (Masanga, 2022).

3.2.6 Economic situation in Zimbabwe

For the past two decades, Zimbabwe's harsh economic environment has obstructed the effective conservation of wetlands, turning it into a survival of the fittest. Many people have lost their jobs in the formal sector, while those in the informal sector struggle to sustain their businesses. Unemployment statistics vary, with conservative estimates putting the figure at 70% ((Murisa, 2010), though Richardson (2013) has argued that unemployment peaked to alarming levels of more than 90%. Jones (2010) describes Zimbabwe's economic situation as *kukiya-kiya*, which in local parlance refers to multiple forms of "making do" and is summed up in the following statement:

Straight transactions carried out in accordance with enduring, jointly-held rules and morals have given way to "zigzag" "deals" seen to be limited to a particular time and place and directed at individual survival.

A prolonged period of economic hardship stretching over more than two decades has brought plenty of suffering, especially among residents in urban areas such as Harare. Although urban areas have historically been associated with economic development and relatively greater prosperity, the poor communities in high density Harare suburbs are the worst affected (Manjengwa et al., 2016). The challenge is aggravated by widespread corruption and patrimonialism, in which people with powerful connections fare better than those who are not linked at all (Jones, 2010). Urban dwellers tend to experience different forms of poverty and deprivation than rural inhabitants. For instance, rural inhabitants are dependent on their own

food supply for consumption, while urban dwellers must buy food or practice illegal agriculture. In many cases, poor urban households can hardly afford a staple diet, even when available in shops (Manjengwa et al., 2016). This speaks volumes about the magnitude of urban poverty, which forces desperate residents to find ways of survival through whatever means possible, or *kukiya kiya*.

Unemployment is one of Zimbabwe's most pressing problems, as the labour market has been weakened by several economic and political factors. The core challenge for Zimbabwe is to generate new employment opportunities for urban residents and improve the quality of jobs available. The exponential rate of unemployment in independent Zimbabwe can be traced back to the early 1990s, when the country embarked on economic reforms (Potts and Mutambirwa, 1998). For example, ESAP led to deteriorating economic conditions as a result of massive retrenchments and business closures, while social services were no longer provided to help the urban residents in need (Matamanda et al., 2021a). In the absence of safety nets, urban poverty soared, especially in major cities. The gap between the rich and poor widened, mainly due to the privatisation of social services, while the recession caused by political instability between 2000 and 2008 further exacerbated the situation.

With high unemployment in Zimbabwe in general and in Harare in particular, urban poverty has manifested in many different ways, with food security being the most visible. Food insecurity and poverty were long viewed as largely rural problems, but they became common in cities and towns (Redwood, 2012). While many cities in the Global North are adopting a raft of measures to ensure that their expanding cities are food secure, very little has been done to address the challenge in the Global South (Toriro, 2021). Despite being one of the basic needs for survival, food has received inadequate attention in spatial planning, as the focus has been on providing housing, transport, recreation, water and sanitation services (Battersby and Watson, 2018). With a deteriorating economic situation and increasing unemployment in Harare, food security has become a topical issue. According to Bakker et al. (2000), the four pillars of food security adopted by the Food and Agriculture Organization revolve around urban planning and city management. With high levels of unemployment and poverty, it is not surprising that poor urban residents encroach on open spaces such as wetlands for their agriculture.

3.2.7 Inflation in Zimbabwe

Zimbabwe experienced a decade-long period of hyperinflation from 1999 to 2008, one of the worst macro-economic performances in the world (Nhavira and Pindiriri, 2011). During this period, the country posted continuously negative real GDP growth, currency depreciation, persistent droughts, record hyper-inflation (which reached over 2 000 000%), an unemployment rate over 60%, and money supply growth in excess of 100 000% by 2008 (Pindiriri, 2012). Several factors affected Zimbabwe's economic performance, including rising production costs, cash-flow difficulties, foreign exchange shortages, weakening demand due to declining real incomes, and shortages of raw materials and spare parts for

machinery and equipment (Besada and Moyo, 2008, Coomer and Gstraunthaler, 2011). The economy contracted to alarming levels due to high inflation levels, while the price of basic commodities was distorted as the government implemented extensive controls on product and foreign exchange markets (Kavila and Le Roux, 2017). The situation was worsened by a lack of external financing and a massive loss in investor confidence as a result of policy inconsistencies and human rights abuses by the government.

Inflation had a bearing on employment, as many companies closed down citing viability problems, and some employees opted out of their jobs as their salaries were massively eroded (Pindiriri, 2012). Those in formal employment had to wait for month end for their salaries, which were worthless (Luebker, 2008). Many people found employment to be less beneficial, being better off in the informal sector in the period of high inflation, where they could get money on a daily basis and use it when it had value. At this time, the informal sector thrived and people were not motivated to look for formal work. The informal economy was typical of the *kukiya kiya* (Jones, 2010), which was based on an individual survival strategy. The proliferation of the informal economy in Zimbabwe during hyperinflation was in sharp contrast to the informal economy when the country gained independence from colonial rule in 1980 (Chagonda, 2016).

People capitalised on the unstable rates of the Zimbabwean dollar during the time of hyperinflation, exchanging foreign currency for profit (Pindiriri, 2012, Chagonda, 2016). In addition to illegal foreign currency trading, survival strategies included informal cross-border trading and “money burning” (*kubhena mari*). According to Kabonga (2020), the economic crisis of the high-inflation era dragged the country a century back, with average Zimbabwean purchasing power in 2005 equivalent to that of 1953. Inflation reached its peak between 2007 and 2008, with figures as high as 231 000 000% towards the end of 2008 (Shumba, 2017), causing prices to increase by over 50% each month and giving rise to massive food shortages, particularly in cities and towns, as industries struggled with high production costs (Kabonga, 2020). Shop shelves were empty and basic commodities became available on the black market, where they fetched higher prices. Shumba (2017) described the peak of the “Zimbabwe crisis”: “with empty shelves in the supermarkets, unprecedented fuel shortages, yet another drought, food insecurity, and a valueless currency, the year 2008 marked the peak of the Zimbabwean crises.” 2008 turned out to be the most challenging year for Zimbabwe’s urban inhabitants. Many people lost their livelihoods and turned to activities they would never have considered during periods of economic stability. In Harare, residents encroached on open spaces, including wetlands, to grow their own food (Matamanda et al., 2021a).

3.3 Conclusion

This chapter has shown that implementation gaps spanning the regulatory framework, political system, urban planning and government policies can adversely affect the management and use of environmental resources such as wetlands. Due to the power they wield, politicians are key stakeholders who can influence land use changes, but they tend to abuse their power to advance their own economic interests to the detriment of the

environment. Highly volatile economic systems have caused hunger, conflict and instability in Zimbabwe and led to land use changes that have negatively affected wetland ecosystems. It emerged that humans have taken mastery of the environment by controlling the changes on Harare wetlands. City authorities are compromised and must decide whether to protect the environment, foster economic growth or advocate for social justice. There is no one-size-fits-all approach to the conflicts around wetlands use in Harare, but the process requires an understanding of the broader relationships and contexts that affect wetlands (as presented in the chapter). This chapter has also shown that the relationship between humans and wetlands is often affected by capitalist approaches that commodify the natural environment, making Harare less liveable because of problems such as water shortages and flooding risks caused by a loss of functions and services offered by the environment.

Chapter 4 -Dynamics of land use changes

We abuse land because we regard it as a commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect (Leopold, 1968: 224-225).

4.1 The dynamics of land use changes

The commodification of land is a contentious issue as it limits access to the few elites thereby depriving the local communities of the resource upon which their livelihoods depend on as articulated by Leopold (1968). Treating land as a commodity alters property rights, thwarts the ability of local people to access land and natural resources, while triggering the collapse of sustainable ways of managing resources (D'Odorico et al 2017). Most land use changes emanate from complex political processes that are closely linked with attaching a monetary value to the natural resources (Zhang & Wu, 2017). The impact humans have had in land use changes is especially evident when there is modification from the natural state, for example in the conversion of a wetland to a residential area (Paul and Rashid, 2017). Some changes, such as urban expansion, bring permanent change and damage, while other changes can be reversed, as in wetland or forest restoration.

Urbanisation has been criticised for its long-lasting spatio-temporal alterations on land use and land cover changes (Wiatkowska et al., 2021) and has contributed immensely to the expansion of built-up areas in fragile ecosystems that trigger environmental degradation. A study by Marondedze and Schütt (2019) revealed that urbanisation modified cropland, water bodies and vegetation in Harare, while another study found that built-up areas in Harare increased from 12.6% to 36.3% of total land area between 1984 and 2013 (Kamusoko et al., 2013). Bare surfaces and grasslands reduced by 9.514 hectares of total land area in Harare between 1976 and 2000, while the built-up area expanded by 12.161 hectares (Olawole et al., 2011). A comparable Nigerian study showed that built-up areas in Katsina increased by 1.83% between 1995 and 2008, while water bodies decreased by 24.68% and open space reduced by 25.32% (Abbas et al., 2010). A Chinese study conducted between 1988 and 2008 noted that the conversion from non-built-up areas to built-up areas affected the Yangtze River between 1988 and 2008 (Yao et al., 2015).

Land cover changes modify interception, infiltration, overland flow and evaporation processes and, subsequently, run-off flows and patterns (Hundechea and Bárdossy, 2004, Gumindoga et al., 2018, Busari et al., 2021). These studies demonstrate that changes in land use significantly affect ecological functions and hydrological processes (Chen et al., 2009, Dwarakish and Ganasri, 2015), negatively affecting water resources such as wetlands. Therefore, mapping land-use changes over time and space, and for strategic planning for the future (Abbas et al., 2010) and assists in decision making (Busari et al., 2021, Kamusoko et al., 2013). Understanding these dynamics of land use changes in a particular area over time

and space can bring about lasting solutions to cope with environmental changes and facilitate sustainability.

4.2 Land use changes on the Marlborough wetland

In this section, maps present vivid images of the changing landscape of the Marlborough wetland. Mapping techniques facilitate the visualisation of features in a location while making it easier to illustrate spatial, temporal and attribute relationships (Balram and Dragicevic, 2006). Figure 4.1 reflects land use changes in the years 1984, 1991, 2003, 2013 and 2017 across the Marlborough landscape. To ensure the validity and reliability of the data generated by mapping techniques, ground truthing was done where information was collected on the study site to allow images that were generated digitally to be related to real features and materials on the ground. The images depict changes during the dry season as that was the strategic period considering that crops were dry therefore, infrastructural developments could easily be identified .

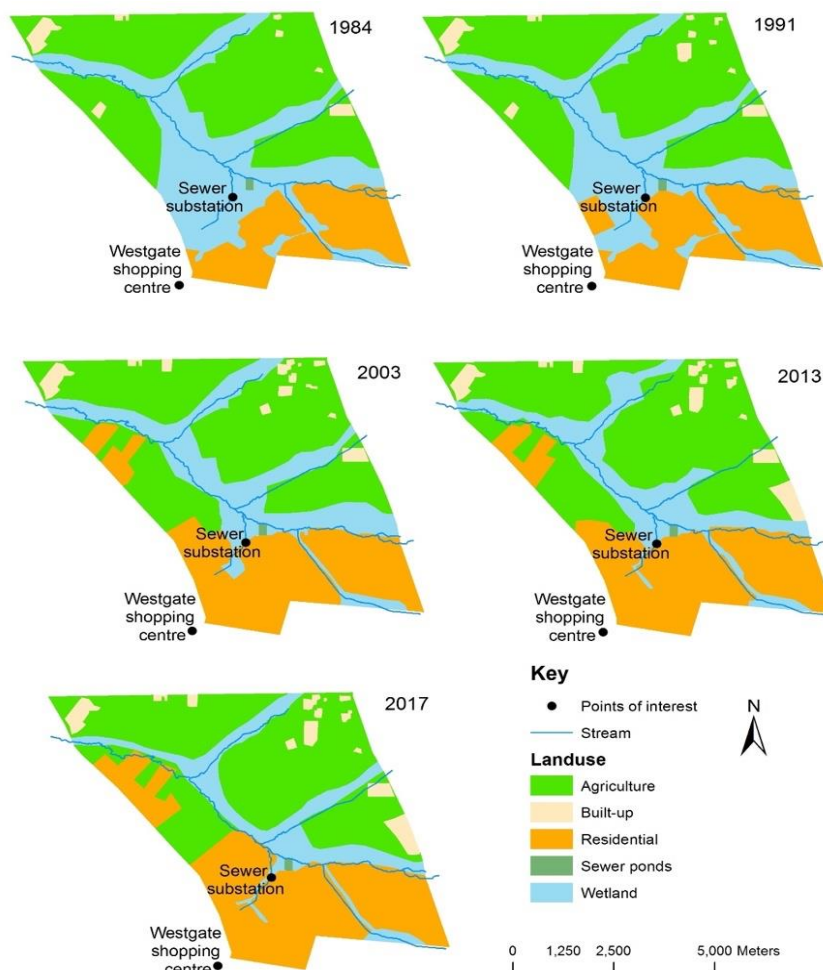


Figure 4.1: Land use changes in Marlborough, Harare

(Author notes, 2018)

Table 4.1 shows patterns of land use in 1984, four years after Zimbabwe attained independence. Commercial agriculture constituted the highest land use of 20 705 014.75 m², followed by the wetland area, which took up 14 590 426.88 m², with the residential and built-up area occupying 7 815 102.494 m² and 812 542.249 m² respectively. The 1984 land use sizes provide the baselines for all the assessments conducted for the purposes of this study. As shown in Figure 4.1, there were few residential spaces and infrastructural developments in Marlborough in 1984, and much of the land was utilised for commercial agriculture. The wetland area was still extensive relative to the current situation, with minimal encroachment by human activities on the ecosystem.

Table 4.1: Land use change m²

Land use class	1984	1991	2003	2013	2017
Built-up area	812 542.249	1 030 936.929	1 217 481.683	1 761 379.843	1 769 947.677
Residential	7 815 102.494	8 946 527.108	13 145 500.76	14 550 075.3	14 916 162.52
Wetland	14 590 426.88	13 417 017.04	10 378 287.84	7 109 432.598	6 500 063.659
Agriculture	20 705 014.75	20 528 529.65	21 610 044.45	20 502 785.79	20 737 522.56

Table 4.2 shows that there was an increase in built-up area and residential area by +26.8% (218 394.68 m²) and +18.0% (1 131 424.614 m²) respectively in 1991. However, the area used for agriculture and that occupied by the wetland decreased by -8.5% (-1 173 409.84 m²) and -8.04% (-176 485.1 m²) respectively. The wetland area was consumed mainly by residential developments, while the agricultural area was largely comprised of built infrastructure such as roads, schools, colleges, police stations, swimming pools, clinics and other facilities. Though the percentage of shrinkage of the Marlborough wetland in 1991 was not significant (-8.04%), it marks the start of the ongoing deterioration of the area as a result of human activities.

Table 4.2: Land use change (%)

Land use class	1984	1991	2003	2013	2017
Built-up area	0	+26.8	+18.0	+44.6	+0.5
Residential	0	+14.4	+46.9	+10.6	+2.5
Wetland	0	-8.04	-22.6	-31.5	-8.6
Agriculture	0	-8.5	+5.3	-5.12	+1.14

There was a noticeable increase in 2003 in the residential, built-up and agricultural areas, by +46.9% (419 897.3652 m²), +18% (186 544.754 m²) and +5.3% (1 081 514.8 m²) respectively. Table 4.2 shows the significant -22.6% decrease in wetland area as a result of agricultural activities and infrastructural developments between 1991 and 2003. The

shrinking wetland area can also be attributed to the Fast-Track Land Reform Programme (FTLRP) of 2000 (Fakarayi et al. (2015); Zembe et al. (2014), which can be regarded as the genesis of the land-grabbing activities that have extended into green spaces.

The most significant decrease in wetland area was by -31.5% (-3 268 855.242 m²) in 2013, when agriculture decreased by -5.12% (-1107258.66 m²). There was a massive increase in buildings from 2003 to 2013, by +44.6% (543 898.16 m²), with the residential area increasing by +10.6% (1404574.54 m²) in the same period. As the wetlands decreased, Marlborough's infrastructural developments increased, illustrating the human failure to stop destructive activities on the environment. The capitalist philosophy that advocates for selfish gains and sees nature as a commodity has survived to the present day, as evidenced by the land barons, who continue to allocate residential stands on wetlands (Sithole and Goredema, 2013, Mashingaidze, 2015, Muchadenyika, 2015, Chiweshe, 2017, Chiweshe, 2020). The crooked activities of the land barons seem to always be in the newspaper headlines, but no action appears to be taken to halt their activities.

In 2017, there was a marginal increase in built-up, residential and agricultural area, by +0.5%, (8 567.834 m²), +2.5% (366 087.22 m²) and +1.14% (234 736.77 m²) respectively. The wetland area decreased slightly, by -8.6% (-609 368.939 m²). The slight decrease may be attributable to the efforts of various organisations that work in Marlborough to conserve the wetlands, such as Bird Life Zimbabwe, Marlborough Environmental Action Group and Harare Wetlands Trust, whose combined initiatives educate and raise awareness about the importance of wetlands.

The developments on the Marlborough wetland are similar to those around the globe. Li et al. (2010) found that intensive industrial and infrastructural construction caused China's salt wetlands in Lianyungang to decrease more than other land-cover types, by 54.4km² between 2000 and 2006. In the Kollam district of India, wetlands were subjected to acute pressure by rapid development, with most government-sponsored projects being built in wetland areas (Jayadev, 2012). A study by Campion and Owusu-Boateng (2013) revealed that urban land prices in Kumasi, Ghana were very high, leading the poor to opt for cheaper land, often in wetlands. Clearly, wetland degradation and loss in urban areas is a global concern. Figure 4.1 shows that the Marlborough wetland has been shrinking as residential and built-up areas encroach on the wetland. This deterioration started in 1984, and little preventative action has been taken since then. Many of the activities that have destroyed the wetland area are regarded as development, but environmental damages are not factored into cost. Although infrastructural developments are critical for supporting economic growth, they can be environmentally detrimental in fragile environments like wetlands (Forsyth et al., 1998).

4.3 The complexity of competing land uses

It has been established above that infrastructural developments for residential and commercial purposes are the most widespread activities on the Marlborough wetland. It is common for a portion of land marked for development to be left unexploited as a strategy to protect the wetland from the adverse impacts of development. For example, a project

developer who allocated 9.7 hectares out of 18.34 hectares in an Ashbrittle wetland area to develop a residential property and shopping mall (GOZ, 2018) was directed by the Minister of Environment, Water and Climate to leave a small portion of the wetland as a measure to safeguard negative impacts to the Vlei, and 8.64 hectares of the wetland remained unused as a buffer. In many cases, the whole wetland is not subjected to infrastructural developments but just a fraction of it. Many people feel entitled to utilise those portions that are left due to the precedent set by the other land uses.

Figure 4.2 shows maize cultivated on the Marlborough wetland near a residential stand. To residents from the surrounding areas, the property developer set a precedent, and they feel justified in using the remaining wetland for farming, regarding it as more sustainable than the destruction caused by construction. The urban dwellers who cultivate in open spaces see themselves as engaging in the productive utilisation of idle or underutilised land (Moyo, 2013). An urban wetland farmer argued that:

Practicing urban farming on wetlands is better than construction activities. This is because building on wetlands induces permanent damage and loss and there is no hope for recovery. But if ever urban farming causes harm, it is only momentary, and restoration can be done. Moreover, we apply conservation farming methods that are good for the wetland. So, if the wetland still exists, there is hope for restorative activities to be done to recover processes that would have been damaged. (F001)

The prioritisation of human needs at the expense of the environment can be detrimental if conservation ethics are not factored into decision making. The activities of the farmers and the property developers epitomise translation in land use for personal benefit. Considering the fragility of wetlands, some of the translation in land uses may not be compatible with conservation and sustainability practices. For example, the translation of wetlands into residential stands has far-reaching effects that adversely impact surrounding communities and future generations. When such land uses continue unabated, environmental resources such as wetlands may be destroyed, in itself a form of environmental violence. This violence can occur gradually and invisibly, typical of what Nixon (2011) describes as slow violence, in which little attention is paid to the attritional lethality of an environmental crisis that unfolds over a relatively long period of time. Due to its nature, slow violence can be easily disregarded by a hard-charging capitalist system, as with wetland property development, which aggravates the vulnerability of ecosystems and the poor, who depend on the environment for their livelihoods. The delayed causes and effects of environmental degradation readily fade from view, making it easier to see a disaster later than to see it unfolding daily. Property developers who build or support infrastructural development on wetlands may well witness catastrophe in the future.



Figure 4.2: Agriculture and construction on the Marlborough wetland.

The proliferation of housing developments in Marlborough can be attributed to the suburb's strategic location, surrounded by amenities such as major roads, shopping centres, schools and health facilities. The part of the wetland that has not yet been developed for housing is used by the farmers for agriculture. Figure 4.3 shows houses built on the wetlands, which ten years down the line are cracking and collapsing. A resident homeowner described water backing up after flushing the toilet, waking up in a flooded house, minor electrocutions and property damage – worrying issues for the longer-term future if our relationship with nature is not fixed.



Figure 4.3: Cracking houses built on the Marlborough wetland.

With urbanisation in Harare having outpaced the capacity of the municipality to provide adequate services such as garbage collection, waste dumping has become rampant around wetlands and other open spaces (Figure 4.4). Targeting the HCC's wetland as a dumpsite could be intended to raise the issue of garbage collection with the responsible authorities.

When interviewed, a farmer asked:

Who is the worse culprit, the house builder, the waste dumper or the conservation farmer? By farming on the wetland, I am protecting the ecosystem from pollution by waste dumpers; when people see cultivation, they will hesitate to use the wetland as a dumpsite. (F002)

Some Marlborough residents use the wetland as a green space for recreational purposes. Studies have shown that urban green areas can be instrumental in promoting neighbourhood social interactions, places for children's play and recovery from stress (Kabisch and Van Den Bosch, 2017). Marlborough residents are connected to the wetland in many ways, going for walks, watching birds and enjoying fresh air there. Residents had various views about their positive connections to wetlands:

The air we breathe in the wetlands is fresh compared to the dirty one we breathe, particularly in the city centre. (R001)

Wetlands provide natural healing of stress, anxiety and mood disorders through viewing and appreciating the beauty of nature. (R002)

When I feel angry, I have a walk inside the wetlands and I experience peacefulness and calmness. (R003)

Residents who use the wetland for recreational purposes are annoyed when the wetland is *translated* into other functions, such as garbage disposal and agriculture. A farmer who was frustrated by residents whose houses were built on a wetland, yet they were opposed to agriculture on the wetlands said:

The residents who want to stop us from ploughing in the wetland forget that their houses were built on the same wetland. If they call me illegal, what are they? It seems we are sailing in the same boat. Moreover, residents are practicing the unlawful dumping of waste in the wetlands.



Figure 4.4: Waste dumping on the Marlborough wetland.

In the initial design of the city of Harare, peri-urban areas were mainly used for commercial-scale farming devoted to intensive crop production, livestock production and the processing of agricultural products, but the FTLRP resulted in settlements developing in both urban and peri-urban areas, mainly for residential purposes (Marongwe, 2003). Peri-urban settlements generally accommodated the growing demand for low-cost housing (Chirisa et al., 2014), and government also settled the victims of Operation Murambatsvina on peri-urban land (Chirisa et al., 2014). These new residents noted the commercial farming activities already taking place on the land and emulated them with their illegal cultivation on unused open spaces. They cultivated wetlands or land that was regarded as marginal and unsuitable for agriculture (Brazier, 2012), defying the original *scripts* that governed the land and domesticating it to serve their interests, a form of *appropriation*. The *script* served as a guide in the city planning and zoning system, but the urban farmers and property developers did not realise (or care) that the commercial farming activities and construction of infrastructure in the wetlands were legal. An HCC official stated:

It is difficult to stop the peri-urban farmers cultivating on wetlands, because they will tell you: “Look, my portion is very small compared to that commercial farmer who is practicing agriculture on huge tracts of land. Since my portion is very small, the damage that I cause to the environment is also very insignificant as compared to the damage caused by the commercial farmer. I use less fertilisers, pesticides and light machinery in contrast to the commercial farmer. Therefore, if you really want to protect the environment, first stop the commercial farmer from practicing agriculture activities, then I

will also follow suit.” And what these farmers are saying makes sense, because the damage caused by these wetland farmers is marginal in comparison to what the legalised commercial farmers are doing. (E001)

The Marlborough wetland also contains a sewer pond and a sewer sub-station strategically located on the wetland as a waste stabilisation facility that discharges into the Gwebi River. In 1996, the system served around 35 000 people (Nhapi, 2004), but the population has increased as new residential areas have been developed. The population growth is problematic, as they cannot be sustainably supported by the pond system. A study by Mabhumbo (2016) revealed that the expansion of Marlborough and the increased effluent discharge has resulted in the deteriorating water quality of the Gwebi River.

4.4 Conclusion

This chapter has shown that the wetland is shrinking and that competing land uses make it difficult to manage the Marlborough wetland ecosystem sustainably. The encroachment on the wetlands by property developers is a source of contention, especially as poor urban farmers consider their small-scale subsistence farming activities less destructive. The *translation* of the wetland takes various forms, but residential development is dominant and has the effect of causing irreparable damage to the environment. This chapter sets the stage for Chapter 5, which explores in detail the nature of the relationship between poor urban farmers and the wetland.

Chapter 5 Lived experiences of urban wetland farmers

Certainly, the humanities can communicate new insights into how an individual experiences a given social issue and, as a result, foster understanding useful in shaping social action and the provision of assistance in ways that are informed by a biography and responsive to the narrative of a lived experience (Washington and Moxley, 2008:155).

5.1 Profile of urban wetland farmers

Drawing on the insights of Washington and Moxley (2008), the chapter begins by detailing the profile of the farmers to provide background information that defines their characteristics. The profile of the farmers helps to understand and get an appreciation of the connections that the farmers have with the wetland. It is important to know who the farmers are before one can have deeper insights of their lived experiences with Marlborough wetland. The group of farmers are heterogenous in nature as presented on table 5.1. The heterogeneity of the farmers implies that they have different experiences with the wetland, affected distinctively by wetland problems and cope with the problem in a unique manner.

Table 5.1: Profile of wetland farmers

VARIABLES	NUMBER OF RESPONDENTS	% OF RESPONDENTS
GENDER		
Female	13	65
Male	7	35
AGE GROUP (YEARS)		
23–30	5	25
31–39	8	40
40–49	4	20
50+	3	15
LEVEL OF EDUCATION		
Primary	0	
Secondary	12	60
Tertiary	8	40
OCCUPATION		
Full-time farming	13	65
Part-time farming	7	35
PLACE OF RESIDENCE		
Resident of Marlborough	9	45
Non-resident	11	55
YEARS FARMING		
Less than 3 years	5	25
4–7 years	9	45
8 years +	6	30

N=20

The majority of farmers interviewed were women (65%), with the balance (35%) being men. The results depict that women play an important role in wetland agriculture. While the researcher intended to achieve gender balance, it happened organically that females outnumbered the males. This could be also attributed to the fact that in patriarchal societies, the management and subsequent use of the environment is relegated to women. Men prefer other activities such as gold panning which they deem more profitable. In Africa, 80% of agricultural production comes from small farmers, mostly women (Njobe and Kaaria, 2015) – *musha mukadzi* (“It’s the woman who makes a home thrive”). Women have multiple roles in African culture, ranging from household chores to raising children and toiling for them. Women are key to household food security (Akinola, 2018, Quisumbing et al., 1996, Agesa and Agesa, 2019). In South Africa, women represent 61% of people involved in farming and produce more food for household consumption than men do (Altman et al., 2009). Although women are fundamental to household food security, they face many challenges, including lack of land (Njobe and Kaaria, 2015, Nadasen, 2012, Glazebrook et al., 2020). They resort to ploughing in urban wetlands, where they have no land security or tenure, jeopardising their access to credit, extension services and training (Adeniyi, 2010, Ben-Ari, 2014, Njobe and Kaaria, 2015). These challenges are also faced by women practising agriculture in the Marlborough wetland, who lack land security and tenure and cannot access resources that would enable them to boost their farming activities. When free fertilisers and maize seeds are distributed, for example, they cannot get any because they have no title deeds or offer letters.

Most wetland farmers in Marlborough are in the economically active population, ranging from 23 to just over 50 years old. The 31–39 age group had the highest percentage (40%) of research participants, followed by the 23–30 age group (25%) and the 40–49 age group (20%).

Interviews revealed that 60% of the participants had reached secondary school education and 40% had reached tertiary education, so in a more favourable economic situation in Zimbabwe they might have been employed or running their own businesses. As farming is viewed as a key to solving unemployment among the youth, wetland farming could have been their source of employment (Naamwintome and Bagson, 2013). The situation in which the unemployed are engaged in farming activities for their livelihoods is not unique to Zimbabwe. Saxena (2012) found that farming in India is a primary source of livelihood, particularly among youths who are unable to find employment in urban areas. Similarly, South African unemployment is increasing such that youths resort to farming despite having attained levels of education that would prepare them for better jobs (Banerjee et al., 2008).

As shown in Table 5.1, the wetland farmers are made up of local Marlborough farmers (45%) and those from nearby high-density suburbs such as Dzivarasekwa, Highfields, Glen View and Glen Norah (55%). Prior to my own interactions with the farmers on the Marlborough wetland, I had assumed that only residents of Marlborough farmed there. I had not expected that farmers would travel from surrounding suburbs that have their own wetlands. One interviewee explained:

We come to cultivate here *kumadale dale* [“low density”], where we can easily find many empty spaces. I stay *mughetto* [“high density”], where buildings have exhausted wetlands. The few wetland spaces left

are already occupied by the first residences. So we come here because there are vast empty spaces that we can exploit. The residents here are not interested in farming, possibly because they are rich or fear authorities. (F009)

Generally, urban farmers cultivate near their homes, ideally just a short walking distance away. As with a rural lifestyle, there is rarely a need to travel to another residential area to cultivate crops. This can be explained by Haraway (2008) concept of *companion species (ecosystems)*, which highlights that human beings do not exist in isolation but in the company of significant others. In this understanding, wetlands can be viewed as part of a historical relationship dating back to the pre-colonial period, when humans were dependent on them for survival. Farmers cannot practice agriculture in their locality in contemporary urban areas, as open spaces, including wetlands, are being encroached on by infrastructure. The farmers must thus cultivate further away. While wetlands are not always nearby in the urban areas, poor urban farmers still have a relationship with them as *companion species (ecosystems)*, just not as close as they used to be. An interviewee said:

I practice farming together with my wife. We cannot afford to use *kombi* [a form of public transport], so I use my bicycle to travel to our field and my wife comes to the field using *kombi*. One person needs \$US2 to \$US3 per day to travel to our field, which is too expensive for us. In fact, my wife negotiates with *hwindi* [bus conductor] to sit on the *pakadoma* [improvised seating], so the transport cost becomes cheaper. If you don't negotiate, you pay more than US\$3. I leave home first, as early as 6 a.m., and my wife follows me later, because first she must do some household duties and prepare our two daughters for school. The little boy she is carrying does not go to school; he is only two years old. She can work carrying him on her back, and when he is asleep, she puts him down... So, cycling from my home to our field takes about two hours; I use some shortcuts. Then, cycling from our field to our home takes three hours, because I will be tired. We start working at 8 a.m. and knock off at 4 p.m. and we have our lunch here – we pack *chimunya* [leftover sadza]. The major challenge is that cycling is very painful to my body and much of my time is wasted travelling. So I must reduce my travelling frequency to at most three times a week by maximising my working hours per day. (F010)

Practising agriculture away from their own neighbourhoods presented new challenges in the form of costs, time and health. The interviewee used his bicycle instead of public transport as it was more affordable, but he had to ensure that he travelled just three days a week and worked more hours on those days. Cycling for five hours a day and performing hard labour such as ploughing can be exhausting and compromise the farmer's health. Similarly, sitting on the *pakadoma* (improvised space in a small bus where one pays half the fare) and doing hard labour while carrying a baby is tiring. These long hours cause fatigue, loss of concentration and lack of alertness and can lead to severe wounds or cuts while using tools (Copuroglu et al., 2012). Rana et al. (2005) argue that farming for long durations can lead to severe pain in the lower back and knees. Musculoskeletal disorders can lead to reduced work capacity, reduced productivity, work disability and early retirement (Oliv et al., 2017).

As shown in table 5.1, 65% of the Marlborough wetland participants farm full-time and 35% part-time. In part-time agriculture, farmers allocate time and labour to activities other than farming, meaning it is a combination of farm and off-farm activities. The interviews revealed that some part-time wetland farmers had other forms of employment, working as security guards, housemaids and gardeners, among others. They farmed during lunch hours, after

work or over weekends to supplement their income and cushion themselves against the harsh economic environment. The poor urban farmers displayed ingenuity and creativity in *appropriating* the wetlands, and their determination – driven by the need to survive – made the farmers adaptive and, in some cases, resilient.

Some farmers were formally employed as teachers and nurses and farmed over weekends, after work or when they were off duty, and sometimes hired local people to cultivate on their behalf, even employing other full-time wetland farmers. HCC personnel in Marlborough also farmed on the wetlands, with a member of the Marlborough Environmental Action Group noting that:

Some people practicing urban agriculture on Marlborough wetlands are Harare City Council workers. They are not being paid on time, so they complement their salaries. (R008b)

While the HCC workers are supposed to be exemplary in abiding by the laws, they clearly breach them to address internal payment grievances with their employer. Of course, this allows other farmers to justify their own activities without fear of the law. One interviewee said:

Nobody will prosecute me. If they come, I will tell them first to prosecute the HCC workers, because they are the ones who know the wetland laws. As for us, we are just copycats, imitating those who know the law. (F030)

The HCC employees use the wetlands to supplement their overdue salaries, but also as a platform to vent their frustrations about their working conditions. A HCC employee said:

It is a tough situation for us as we have gone for over 3 months without a salary so to meet ends meet we have to find supplementary activities like farming on the wetlands. (E007)

Like many other wetland farmers, they understand that farming on the wetlands is not an approved method of subsistence, but circumstances have pushed them.

Full-time farmers are made up mostly of the unemployed, who commit much effort to agriculture because their families depend on it. Other part-time farmers may be self-employed; for example, one farmer indicated that she is a tailor who conducts her business at home, while two other farmers are vendors and another is a white garment prophet. The prophet, vendor and the tailor made the following remarks respectively:

I am *madzibaba* [prophet], *ndinoshandira ndiri pakirawa iro* ["I help clients from that shrine"]. When I have no clients, I will be working on my maize plot. If a client comes, I go to help them. I also repair shoes and umbrellas. I have a busy schedule, and my wife helps me do some of the work. (F011)

I have my market stall over there. I sell zap nacks, *jiggies* [chips], sweets, tomatoes, onions and leafy vegetables. I work on my plot when I have no customers. When customers come, I run to serve them. Most of my customers know where to find me; they call out if I am not on my stall. (F012)

I am a tailor. I am my own boss and have a flexible schedule. I choose the time when I want to work. I am more energetic and productive in the morning, so that is when I do farming. The morning weather is perfect for farming. (F013)

These remarks reveal that self-employment is flexible, as each individual is in full control of how and when he or she engages in farming activities. Because they are in control, they can switch from one activity to another as needs dictate.

5.2 The scramble for wetland spaces

Farmers cultivate on small plots ranging in size from approximately 100 m² to 800 m², which are manageable and easy to fully utilise. Plot size depends chiefly on when the land was acquired, with those who acquired land first having bigger plots. Some farmers who have been farming on the wetland for more than eight years have plots bigger than 500 m². Farmers reported that land is usually self-allocated on a first come, first served basis.

Some spaces are too swampy for agriculture, and other parts are privately owned by Dawn Properties Limited, a real estate company that controls access and use of that part of the wetland. However, farmers have continued to cultivate on the private property without the approval of Dawn Properties. The signs in Figure 5.1 serve as a *script* advising that occupying, cultivating and dumping waste on the wetland is illegal. Although the *scripts* are intended to deter would-be offenders, the farmers are defiant, as they have nowhere else to plough.



Figure 5.1: Private property billboards restricting use.

The cultural background, adopted from the rural areas, prompts some of the Marlborough residents to acquire land where they can farm, particularly in vacant areas such as wetlands. The urban land acquisition process is different from in rural areas, where the decision to allocate land lies with the headman, which seems an easy and straightforward process. One interviewee recalled the process of land allocation in the rural areas:

My mother went to see *Sabhuku* [headman], who had the land. *Sabhuku* wanted people who could recommend her, and she had to bring reliable people from the local area who knew her. Then *Sabhuku* gave her a plot. *Sabhuku* was looking for people to occupy the land because the village was supposed to be joined with a bigger one due to few households in the area. So *Sabhuku* feared losing his position by being absorbed into a big village with its own *Sabhuku*. My mother was given *munda* [a field] and a small garden on a wetland, and she started agricultural activities. She proved that the garden was small and requested an expansion, and later *Sabhuku* gave her a large piece of land. (F009b)

However, it can be difficult for urban farmers to follow the formal procedures of urban land allocation, which are long and bureaucratic and have no guarantee of success; hence, they resort to self-allocation, which is fast and convenient. Furthermore, in the few cases where land is allocated, the chances of it being on a wetland are very low.

Self-land-acquisition on the Marlborough wetland is a source of conflict, as latecomers continue to seek access to the resource. Disputes are inevitable but are not taken to authorities, because they involve the illegal activities of urban farming on a fragile ecosystem. To resolve such conflicts, residents sub-divide plots to accommodate others. During interviews, farmers provided information about the land allocation process.

I moved from one place to another, looking for vacant places to practice agriculture. I carried out some investigations and fortunately realised that the plot had been vacant for two years without any agriculture taking place. I discovered that the previous landowner had moved to Botswana for greener pastures. (F018c)

I stay in Dzivarasekwa. Before I got retrenched from my work in 2012 as a security guard, I would pass by the wetland area every day. When I got retrenched, I decided to start farming on the wetland plot since I realised that it had been vacant for about two years. When I started working the land, a man approached me to tell me that the land belonged to him and that he needed it back or simply a subdivision. We had an intense argument about the land, but I could not give the land back or subdivide it. The matter was resolved after he went to farm in Mabvuku. (F010b)

The man who ploughs next to me sub-divided his wetland plot and gave me this small piece of land. I desperately needed land to supplement my earnings. Unlike the others, however, when I requested a subdivision of land he was very generous, as he did not turn down my request. (F014)

I started ploughing on the wetland in 2010; the land was being used as a dumpsite by residents. I cleared all the waste and started a farming business. Now people are jealous of me, because they realise that I am making money from the place they used to call a waste dumping area. Some people want me to share the land with them, but I cannot do that because the space is small. About two weeks back, another wetland farmer burnt my vegetables and I asked the person to compensate for the damages and he refused, and he even made threats of reporting me to police for cultivating on wetland. (F020)

Based on interviews with these farmers, conflicts related to the allocation and use of agricultural land were common in the Marlborough wetland, because land in urban areas is scarce and many actors compete for access.

The farmers said that they divided the land haphazardly using rough estimates, with some farmers willing to subdivide the land and others reluctant to do so. Because there are no ownership rights and no security, a farmer failing to maintain land for about two years risked losing that land to others in need who were waiting for their chance. Conflicts were increasing with the growing population and demand for finite resources.

5.3 Beyond growing crops: the significance of urban wetland farming

5.3.1 Survival strategy

The growing economic challenges and lack of food in Zimbabwe affected the inhabitants of urban areas worst, and cultivating on wetlands was done to ensure household food security. Scholarship on urban agriculture has reported that the practice addresses household needs and supplements income (Poulsen et al., 2015, Nugent, 2000, Binns and Lynch, 1998), reducing food expenditure as families consume food grown in urban fields. However, there is a lack of

data on the profitability and sustainability of urban farming, as most assessments are based on short time frames (Van Veenhuizen, 2006).

The farmers who were not otherwise gainfully employed did not factor labour in as a cost, which is common among self-employed Zimbabweans, as everyone is expected to provide labour at the family level as part of their non-monetary contribution. This can be traced to the Shona metaphor *Simba mukaka unosinira*, which literally means “Energy is like milk from the cow”, which is constantly replenished. Even if one is tired on a particular day, one should never give up, as the person will have a lot of energy on another day. It encourages people to work hard, because energy, like milk, will always return.

Some farmers were able to pay school fees, water bills, electricity bills and accommodation rentals through their urban farming activities. Farmer F10c shared his joy at purchasing a bicycle through his wetland activities, saying: *Kurima kuri kubhadhara. Handidi hangu kushora. Ndakatotenga chokufambisa ichi* (“Farming is profitable. I don’t want to scorn it. I managed to buy a form of transportation”).

In their quest to survive without relying on handouts (which are difficult to get, because the social welfare department is overwhelmed), the urban dwellers farm the wetlands. While environmentalists see wetlands as protected areas, poor urban dwellers perceive the wetlands as their source of livelihood. To them, the wetland is productive land that they put to good use to cushion themselves against hunger and poverty, and criminalising wetlands farming seemed to lack empathy, as they are just trying to make use of the resources available to them – for subsistence, not profit.

The urban wetlands farmers are helping themselves and the government, the latter being incapacitated to provide for those in need. This reflects the notion of interpretive flexibility (Pinch and Bijker, 1984) among the stakeholders, as they attach different meanings to the wetlands. Many poor, unemployed urban residents are hardworking by nature and find it difficult to remain idle when there is vacant land nearby that could be used for farming. With few prospects of gainful employment, the residents have nothing to lose and much to gain by using the wetlands for farming. They know there is a risk of their crops being destroyed by law enforcement agents, but they hope that they will be able to harvest their crops.

By virtue of being able to retain moisture, the wetlands are valued for their unique ability to sustain good crops even in the recurrent droughts caused by climate change. Most farmers who practice farming on the wetland are poor and cannot afford fertiliser, and the wetlands offer prime land that guarantees a good harvest. The dark, rich wetland soil is fertile and does not require fertiliser. Most farmers use organic manure and mulch, which acts like a sponge that gradually releases nutrients to the soil. Only heavy rains that flood the wetlands and lead to water logging and leaching stunt plant growth.

When the economy was thriving and employment was high, husbands would often provide seeds and fertiliser for their wives to farm in the villages, and the wives would return to the cities and towns after harvesting, providing a reliable supply of food throughout the year. Urban residents had no need to look for urban agricultural spaces, but as the economic situation worsened, they could no longer afford to travel to the villages or buy the inputs.

Without fertiliser, a lot of rural soils were poor and could not sustain healthy crops. This can be traced to the land apportionment laws of the colonial era that drove local farmers to poor farming areas, while the settlers kept the prime land for themselves.

5.3.2 *Chivanhu chedu: the Shona culture explored*

It is part of African culture in general and the Zimbabwean tradition in particular that one should own a piece of land for agriculture. Land is regarded as a *companion*, such that an individual without land is viewed as incomplete; something is amiss if an able-bodied person does not have a piece of land. Farming traditions are passed from generation to generation, especially among the different ethnic groups in Zimbabwe, and land is a crucial part of an inheritance. It is difficult to be separated from culture even if one migrates to another area, and many urban residents have deep-rooted ties to their rural backgrounds by owning land in their villages of origin, maintaining links with farming as a livelihood. In *chivanhu chedu* (“our Shona custom”), the concept of *pamusha pangu* (“my homestead”) is linked to having a place of residence and *munda* (a piece of land to plough). Without *munda*, one cannot proudly say “*pamusha pangu*”. So *pamusha* is incomplete in the absence of *munda*, because farming is the primary source of livelihood in rural areas. The concept of *pamusha pangu* is transferred when one migrates from the rural to the urban area, as one feels the need to own land to be complete. One urban farmer pointed out:

I cannot be separated from my cultural background because I am now staying in an urban setup. Farming is in my blood; it is an inborn practice that reminds me of where I came from. Failing to practice farming is synonymous with *kurasa tsika maune* [deliberate dumping of culture]. According to *pachivanhu chedu* [Shona custom], one should have *munda* for farming activities. According to *chivanhu chedu*, farming must be practiced despite one's employment status. Some people mock us, saying *tiri kuita chiruzevha, chipurazi* [acting as if from the rural areas or farms]. Let them mock, but I will never quit farming – *ndiri mwana wevhu* [I am a son of the soil]. (F003)

Culture plays an important role in how poor urban farmers approach wetlands farming. Despite migrating to other locations, some people value their culture and do whatever they can to preserve it. Many farmers continue to cultivate crops despite being mocked by other people, who use derogatory terms like *chiruzevha* or *chipurazi*, as cited by the interviewee. The use of the affix ‘chi’ is derogatory and insulting. *Purazi* refers to a big farm where agricultural activities take place. Both words reference the use of land for agricultural purposes, so when *chiruzevha* or *chipurazi* is sometimes used to ridicule those practicing urban farming, it is sarcasm directed at bringing the rural agricultural practices into an urban setting.

Chiruzevha is also a reminder of the colonial era, when the land was grabbed from the Africans under the Native Land Husbandry Act of 1951, the Rhodesian government evicting Africans from fertile land and resettling them in the communal lands, known as “native reserves”, to pave the way for white settler farmers (Nyandoro, 2019, Machingaidze, 1991). *Chiruzevha* thus also reminds people of the land struggles that started in the colonial era and continue into the post-colonial period, and “illegal” wetland farming in urban areas reflects historic struggles for land ownership that have their roots in the colonial era.

The interviewee referred to himself as *mwana wevhu* (“son of the soil”), meaning that land (soil) is of great importance to him for agricultural purposes. As in a typical child-parent relationship, *mwana wevhu* depicts a close connection with the soil, typical of *companionship*. The term embraces togetherness, unity and closeness, suggesting an *interspecies relationship* characterised by dependency and interdependence (Tsing, 2013). The failure to acquire land for farming disconnects farmers from their cultures, beliefs and relations with the natural environment. Land is of great cultural significance in Shona culture – for example, a child’s *rukuvhute* (umbilical cord) is usually buried in the *muvhhu* (soil) in their home area, possibly as a symbol of identification (Mapanzure, 2018, Sande, 2021), a sacred representation of a lifetime connection to the soil in that area (Mabeza, 2016). It could even be a signifier of soil as life and a recognition that we come from the soil and return to the soil: “You will have to work hard and sweat to make the soil produce anything, until you go back to the soil from which you were formed. You were made from soil, and you will become soil again” (Genesis 3: 19, GNT). Farmer F003 spoke of *chivanhu chedu*, indicating that he was proud of his Shona culture.

5.3.3 Leisure and pastime activities

A different Marlborough demographic farms not out of need but passion. Van Veenhuizen (2006) writes that urban farming is sometimes done by the middle and upper classes for the purpose of leisure. When interviewed, a farmer who practiced out of passion said:

I have an A1 farm in Mhangura, but I have not started practicing large-scale cultivation there, because it is far away. Nowadays travelling long distances is very expensive. I also come from Masvingo, we have a piece of land where I can cultivate but, again, it is too far. So I decided to acquire a small piece of land near my home on this wetland. I am passionate about farming, so I fulfil my desire for farming by cultivating locally on this wetland. It is incredible planting seeds, watching them sprout and grow; I love it. It keeps me busy, and I am relieved from stress. In most cases, I hire people to help me do the tough jobs like land preparation and weeding. (F006)

These farmers enjoy farming but do not want to go to the villages or rural areas, as they enjoy being close to their urban homes. They do not have to toil in the fields themselves and can benefit from cheap labour, negotiating a low rate with their poor neighbours.

5.3.4 More than wetland farming: socialisation

Urban farming goes far beyond growing crops in cities and towns, as it presents opportunities for socialisation and relationships through meetings and social events. Socialising is essential for psychological and mental health, as it helps mitigate fatigue, facilitates recovery from stress and reduces aggression. Some farmers have a club for money or groceries, called *mukando* (savings group). A farmer explained:

We have a club for *mukando* consisting of eight farmers at the moment. Each month every farmer contributes US\$10, which is loaned to one group member. If there is a lot of money accumulated, more group members can borrow the funds. The person who has borrowed money that month should bring it back with 5% interest. The idea is that borrowed money should be used for income-generating activities such as selling *freezits* [frozen drink in plastic packaging] or *maputi* [popped maize grains] to profit and pay back the loan. We also contribute US\$5 every month for buying basic groceries such as rice, soap, flour and sugar. So we choose what we will be buying in that particular

month. The groceries and the money accumulated are shared at the end of every six months. In this club, we have a constitution by which we abide related to when we meet, who borrows, how often and how we deal with offenders – that is, borrowers who don't want to return. We also have our leadership, consisting of a chairperson, treasurer and secretary. (F009c)

Mukando schemes depend on existing trust, relations, mutual agreement and social networks (Chivasa, 2018). The farmers on the Marlborough wetland are bonded by the fact that they practice agriculture in the same area, so forming a club was easy. Such groupings help individuals work together, creating social networks and collectively resolving group problems and conflicts (John, 2011, Murithi, 2006). The savings groups are based on mutual consent, openness and accountability, as the members design the rules and regulations themselves. The Marlborough farmers said that the savings clubs helped them improve their household incomes and pay school fees, utility bills and rent.

Some farmers said that belonging to a group helped them relieve stress: the groups are open and accommodative, such that when one has a problem and seeks advice, members are willing to discuss and share ideas. Because the savings groups are anchored in companionship and trust (Chivasa, 2018), the members share moments of happiness or grief. A farmer in Marlborough said:

Together, we celebrate special occasions such as birthdays. Suppose a group member loses a spouse, child or parent, *tinobvisa chema* [contribute condolence money]. Every deed is based on our constitution book. (F10d)

This remark shows that the *mikando* is not only a club for saving money and buying groceries but is also a social gathering. Other farmers indicated that they also have a prayer group to uplift each other spiritually. One farmer said:

We have our prayer group of four members, where we meet every Wednesday to pray. Anyone in the group can give us a prayer request and we pray about it. There is also *Madzibaba vanondishandira* [Prophet who assists]. Any problem, you can inform *Madzibaba*. He will never divulge to anyone; all he does is give advice and *mvura yemuteuro* [prayer water]. (F015)

Farmers require a healthy mind to be effective in their work, as challenges with mental health may result in absenteeism, lack of concentration and fatigue and can impact crop production. Figure 5.2 shows an apostolic church in the wetland, where some farmers go for prayers and to find spiritual solutions for their problems. Farmer F015 remarked that they confided in and shared their problems with the prophet, showing that the church plays an important role in dealing with issues of psychological health and wellbeing.



Figure 5.2: An apostolic sect shrine in the wetland.

5.3.5 Farmer-resident connections

The interviews revealed that farmer-resident connections are created in many ways, and the wetland serves different functions as a meeting place and as a source of water and cheap labour. While some farmers are not Marlborough residents, they are nonetheless part of that community as a result of their farming activities.

When the city council disconnects the tapped water supply, residents without boreholes may utilise the wells dug by the poor wetland farmers (Figure 4.3). Residents come to fetch water for household duties and to utilise the treadle pump (Figure 4.4). However, there are no community boreholes in low-density areas like Marlborough, so individual households drill their own boreholes. Those who cannot afford to drill boreholes must ask their neighbours. Resident R012 said: “The water is always disconnected, so requesting water every day from the neighbours is embarrassing. So we go to the wetlands. Farmers have dug wells that we can freely use.”

Water service delivery studies in Harare (Zingoni et al., 2005); Hove & Tirimboi, 2011; Matsa, 2012; Ncube, 2014; Godebo, 2015) found that water service delivery is unreliable due to unexpected water cuts that last from one to six days. The study samples revealed that residents had different perceptions on the water quality, with most responding that the Harare water quality was not good. The evidence synthesised in the studies also revealed that due to the erratic supply of municipal water, many residents used alternative sources as their main domestic water source. The quality of these water sources is a major concern, as most people depend on these sources for their livelihoods and daily activities. In the study samples, 85% of the boreholes and 96% of the wells sampled did not meet the World Health Organization’s total and faecal coliform standards of zero per 100ml.

To mitigate the erratic supply of municipal water, residents use alternative sources such as boreholes and wells (Matsa, 2012). Most Marlborough residents have open boreholes or wells in their yards, as motorised drilling to tap underground water is costly (Kurebwa, 2016). These open wells are dangerous, as children have been known to drown in them, and the wells and boreholes can become contaminated with faecal deposits (Zingoni et al., 2005, Dalu et al., 2011, Kurebwa, 2016). In many cases, people with neither well nor borehole (because of safety issues, health concerns or affordability) go to the wetlands for water.



Figure 5.3: An open well in the wetland.

Another farmer-resident connection is that farmers can sell their excess crops to the residents. The residents benefit by getting fresh crops, while the farmers benefit by earning some income. A resident said:

I prefer to buy from these farmers, because they sell fresh foods, straight from the field. Most importantly, they don't use fertilisers and pesticides, so the vegetables or crops we buy are not contaminated. On the other hand, the vegetables and crops purchased from the supermarkets may be contaminated by cancer-causing chemicals, because those crops are grown by commercial farmers who use a lot of pesticides and fertilisers to boost their produce. (R013)

This statement shows that wetland farmers are important to ensuring a supply of fresh and healthy food to the residents that is not contaminated by pesticide residue. This resident's knowledge about the potential effects of agrochemicals was their main motivation for buying from the wetland farmers.

Another connection between farmers and residents manifests when residents get cheap labour from wetland farmers. The farmers know that by conducting farming activities, they are also strategically positioned to be seen and hired by wealthier farmers. The unemployed people also consider wetland farming as a way to keep themselves busy rather than being idle at

home; there is a positive externality in farming on the wetland, in that they may be hired to provide labour on other people's plots. Residents who require gardeners or labourers for part-time jobs also employ the wetland farmers. In this regard, farming on the Marlborough wetland is rewarding in that it can open opportunities for extra income.

5.4 One rotten apple spoils the whole barrel

While most wetlands farmers use simple hoes to till the land, I saw a piece of land cultivated by a tractor, which resulted in soil clods (Figure 5.4).



Figure 5.4: Soil clods after land preparation.

The huge clods were an indication of soil disturbance and compaction, interfering with pore spaces and adversely affecting infiltration, aeration and plant growth and disturbing the functionality of the wetland ecosystem. Other farmers referred to this farmer as *ndururani*, meaning a wayward and stubborn person who makes decisions without considering future consequences. A farmer emotionally explained:

That farmer *indururani*, he hired people to come and cultivate his land. We even tried to stop the hired people without success because they said *mutumwa haana mbonje* ["the messenger ought not to have scars", so exempted from attack]. Using a tractor is harmful to the wetland, as you can see what has happened to the soil [referring to huge clods]. Remember, cultivation is prohibited here. If one uses a tractor, it becomes the centre of attraction, because everyone wants to see what is happening there. It raises suspicion, because authorities may think someone wants to build. So that is when authorities will come and displace us from the wetland. Imagine! That farmer is stubborn, because he was even seen with a knapsack sprayer last year. He also gave his friend who ploughs next to him the knapsack sprayer. These people *vanoda kukonzeresa nyonga nyonga* [cause chaos or problems] in this wetland.

The other farmers showed their deep connection and attachment to the wetland, and its importance to their livelihoods, by trying to stop the practice. However, the tractor was used clandestinely to avoid being noticed.

The tractor farmer also sprayed chemicals, but excessive use of chemicals, pesticides and fertilisers is detrimental to the soil and interferes with the natural processes upon which the wetlands depend. Farmers who engage in practices that interfere with the functioning of the wetlands set a bad precedent and may encourage other farmers to do the same; one bad apple can spoil the whole barrel.



Figure 5.5: Fire started for land preparation.

I also observed the burning of wetland vegetation as a land preparation method, and the farmers ran away on seeing the researcher and her assistants, thinking we were authorities from the EMA or HCC. The farmers were aware of the dangers of starting fires, but did it to burn the crop residues and weeds that make land preparation demanding and to kill pests that might damage their crops. They believed that the ash would act as fertiliser and boost soil productivity. The problem with fire, however, is that it is difficult to control and does not respect boundaries. For example, this particular fire spread beyond the targeted area and destroyed wetland reeds (Figure 5.6), which are used by other people for weaving baskets, mats and hats. The reeds are also an important habitat for many varieties of species of microbes, insects and reptiles and can help improve water quality by removing excess nutrients from the water.



Figure 5.6: Wetland reeds destroyed by fire.

Another example of the adverse effects of burning can be seen in Figure 5.6, which shows vegetables, a hosepipe and a make-shift plastic shelter destroyed by fire. The farmer whose field was burnt by other farmers said he felt lucky to be alive, because the fire could have burnt him while he slept in his shelter. He also said he was relieved that he had managed to rescue a hosepipe, buckets and other equipment, but he lost the vegetables he would have sold for profit.



Figure 5.7: Fire damage on the Marlborough wetland.

The slash-and-burn method of land preparation was traditionally used, where the farmers would cut and burn all the vegetation in the field and leave the ash to add nutrients to the soil. After two to five years, the land is left to recover, and a new piece of land is opened up for farming (Brazier, 2020). However, the farmers who practice this method in the Marlborough wetland burn the land every year with no fallow period, because there is a shortage of agricultural land in urban areas. If a farmer fails to cultivate for just one year, another farmer may take over the field.

In these examples, starting fires illustrates an anthropocentric viewpoint that fails to appreciate and respect the wetland and does not consider long-term ecological consequences. The farmers are only concerned about the material benefits they can derive from the wetland, but wetlands are sensitive ecosystems, and fires affect flora (vegetation structure, composition and diversity) and fauna (habitat, biodiversity) and can lead to weed invasions.

Imposing harm on the Marlborough wetland demonstrates an attitude of mastery, whereby humans dominate the wetlands and, in so doing, adversely affect the potential for sustainable companionship with nature. This highlights the concept of human exceptionalism, which regards humanity as superior due to its consciousness and capacity to communicate directly, think abstractly and transmit knowledge through culture (Srinivasan and Kasturirangan, 2016). However, this worldview has been challenged by observations that such attributes are not in fact limited to humans, and that non-humans have different kinds of sociality (Tsing, 2013) and exhibit these attributes in unique ways (Hedeager, 2010).

5.5 Innovative farming technologies

The Marlborough wetland farmers adopted innovative farming technologies to increase yields while simultaneously conserving soil and water. The farmers had not received any conservation training but drew on their knowledge and experiences in the rural areas. The farmers used simple hand-operated tools such as sticks, hoes, shovels and harrows to prevent soil clods when preparing land. These farmers did not use pesticides, fertilisers or chemicals, because they could not afford them and they were aware of their dangers. Through their innovation, the farmers ensured that their agricultural activities were done sustainably. They used modest but effective methods to promote *interspecies relationships* and mutual coexistence between humans and the wetland. The methods used by the farmers included contour ploughing, mixed cropping, using plants as pesticides and mulching.

5.5.1 Mulching

Mulching is the practice of covering the soil's surface with various materials, such as crop residue and grass, to minimise moisture loss, increase infiltration, suppress evaporation and reduce soil disturbances (Thierfelder et al., 2015, Mupangwa et al., 2016). Figure 5.8 shows a farmer's vegetable field mulched using residue from a maize crop. Mulching is practiced by some urban farmers on the Marlborough wetland, most of whom learned the practice from their rural background, where it is commonly practiced. In an interview, a farmer said:

I didn't receive any training on mulching. I learnt the practice from *kumusha* [rural home]. My grandmother never allowed anyone to burn maize crop residues, because she would use them to reduce moisture loss and enhance soil fertility in the vegetable garden. The practice works wonders, because we had a healthy garden which people admired. Some jealous people in our village would gossip about my grandmother, accusing her of using *divisi* [charms to enhance crop yield], but that was not the case. The secret for the flourishing garden was mulching; that is why I am practicing it today. (F020b)

One can never be suspected of using *divisi* without a bumper harvest. Many success stories have been documented about the effectiveness of mulching: a study by Kodzwa (2020) revealed that mulching improved maize and soya bean yield by 14-42%.

Mulching in urban areas can be problematic. On the Marlborough wetland, farmers who practised mulching had to gather, heap and store their maize crop residue in their fields for use at a later stage (Figure 5.9). However, people would come and collect the residue, thinking that the farmer did not need it. Another farmer noted that due to severe electricity shortages in Harare, some residents collected crop residue as fuel for cooking, and the crop residue was also at risk of being burnt by the farmers who use fire for land preparation.



Figure 5.8 : Crop residues used as mulch.



Figure 5.9: Heaped crop residue stored for future use.

The process of mulching requires great commitment and effort to be successful. David Suzuki (2021) observes that: “In nature there is no such thing as waste. In nature, nothing is wasted; everything is recycled.”

Farmers in Marlborough are aware that “there is no waste in nature” and also use thatching grass for mulching (Figure 5.10). The farmers first cut the grass and then dry it before using it as soil cover. The use of grass as mulch has been proven to be helpful in increasing yield; a study by (Nyajeka et al., 2017) revealed that okra yield increased with a mulching rate of 1.5 kg grass mulch/m².



Figure 5.10: Thatching grass used as mulch.

The farmers who practice mulching view it as a viable option for boosting crop productivity, with one farmer observing:

I use mulching because I realised that it enables me to have a bumper maize harvest. My crops don't dry up, even during prolonged drought. The mulch helps to retain moisture content. Weeds that may compete with my crops are subdued. Over time, the mulch will rot and help improve soil fertility. It involves laborious work, but it is worth it. You can never go wrong with mulching, unless *wakaroiwa neakafa* [bewitched by a dead person]. (F020c)

Farmer F010e supported this view, saying:

Unenge une twekumusha kwako [You will be having curses from your rural home] if you fail to have a bumper harvest after perfect mulching. When mulching, ensure that the whole field is covered, no *zvigamba* [patches]. Our elders used to say, *unokohwa chawadyara* [you reap what you sow]. Therefore, if you perform improper mulching, you will get a poor harvest. (F010e)

The farmers concurred that mulching enhanced crop yield only if done appropriately. For effectiveness, the mulch must cover the whole field evenly. These initiatives reveal the farmers' acts of *appropriation* of the wetland to create suitable conditions for agriculture.

5.5.2 Mixed cropping

Another innovative method used by the farmers is mixed cropping, or intercropping, where two or more crops are grown in the same field. The colonial system favoured monoculture (single cropping) over intercropping, but the success of monoculture depends on excessive use of fertilisers, pesticides, herbicides and hybrid seeds (Brazier, 2020). Apart from the high costs of purchasing these inputs, soil health is adversely affected by fertilisers, pesticides and herbicides, which may cause “soil fatigue”, whereby soil is exhausted and loses essential nutrients, causing a gradual decrease in yields. Monoculture also threatens pollination, an essential ecosystem function for plant reproduction and agricultural production (Marshman et al., 2019, Aizen et al., 2019, Rhodes, 2018), and is vulnerable to pests, weeds and diseases. Ben Watts (2018) described monoculture as “in essence, a system working against the farm’s natural ecological process”. Monoculture interferes with ecology flows and robs the landscape of its most vital elements, and some farmers on the Marlborough wetland practice intercropping (Figure 5.11).



Figure 5.11: Maize and pumpkins in the same field.

In Marlborough, I saw farmers intercropping roundnuts, groundnuts, pumpkins, beans and maize. It is common practice to intercrop maize with pumpkins, because the latter provides additional benefits, as explained by a farmer:

We grow the pumpkins because they have multiple uses. The pumpkin leaves are vegetables that are a source of nutrients. The leaves are a source of iron, especially for women's health. The seeds can be roasted or boiled and eaten as nuts. The pumpkin itself is nutritious; it can be boiled, fried or baked. If you boil and mash the pumpkin and then add peanut butter, you make a delicious traditional meal called *nhopi*. If you feed children with *nhopi*, they will never have malnutrition or kwashiorkor. The leaves can be dried up to be eaten in the future. If the pumpkins are too many, they can also be boiled and dried and eaten in the future. The pumpkin pulp is used to cure stomach problems. (F014b)

This narration shows how neatly the farmer's knowledge fits with contemporary nutritional knowledge about pumpkins: pumpkin seeds are a source of oil and nutrients, while the pumpkin itself supplies minerals and the pulp is rich in amino acids and proteins (Khan et al., 2019). A study by (Ndoro et al., 2007) shows that pumpkins have a high nutritional value, boasting iron, calcium, vitamin A, proteins and amino acids. Farmers in Marlborough also grow legumes such as groundnuts, roundnuts and beans as intercrops, which fix nitrogen in the soil and improve crop productivity (Rusinamhodzi et al., 2012, Jensen et al., 2020), so farmers do not have to apply nitrogen-fixing fertilisers that alter the soil, water, air and biodiversity. This is an act of *appropriating* the wetland to ensure that its productivity and source of human livelihoods is enhanced without compromising its ability to renew and sustain itself. A farmer said:

Intercropping is a way of ensuring that the small fields that we have are maximised. We harvest nutritious foods such as maize, pumpkins, beans or groundnuts in the same field through intercropping. Moreover, if one crop fails, we will harvest another in case of drought, unlike in monoculture, where you will have total losses. I may fail to have a good harvest of my maize crop, but with beans, I will never go wrong. I will certainly harvest. So with mixed cropping you will never go hungry. (F009d)

The farmer raises an important issue about maximising land, meaning that it is not the size of the land that is important, but how it is utilised. This was made explicit in another interview:

Mixed cropping is helpful because I get high yields. I do not use any fertilisers and pesticides, because I cannot afford to buy them. However, I plant maize together with beans or groundnuts with the mixed cropping method, which help boosts soil fertility. I also use farming methods that reduce incidences of pests. For example, *kumusha kwedu* [at our rural home], we plant *zumbani* [*Lippia javanica*], onions, garlic and pepper in between crops, and they drive away pests. (F018b)

Mixed cropping has wide-ranging benefits, controlling pests, increasing soil fertility and increasing yields on small plots. This illustrates the magnitude of *companionship* that farmers have with the wetland, creating a symbiotic relationship that is mutually beneficial for both humanity and the environment. The farmers benefit through improved crop productivity, while the wetland ecosystem benefits through improved soil fertility and enhanced soil productivity. This kind of *interspecies relationship* promotes the mutual existence between human and non-human entities, essential for enhanced connections.

5.5.3 Contour ridges

Contour ridges consists of small earth structures which are constructed across the slopes on cultivated piece of land with the goal of conserving both water and soil (Nyamadzawo et al., 2013). They are designed in such a way that they harvest excessive runoff for the benefit of crops especially during dry spells as well as reducing the speed of overland flow, thereby protecting the soil from being washed away (Biazin et al., 2012). The use of contour ridges (*makandiwa*) dates back to the colonial era, when they were enforced through the Natural Resources Act of 1941, section 52 (Nyamadzawo et al., 2013). The practice was laborious and was made worse by the fact that the farmers did not have the appropriate equipment (Nyamadzawo et al., 2013). The use of coercive measures to enforce the construction of contour ridges resulted in the local people resisting their construction, viewing the practice as a form of oppression (Kwashirai, 2006, Msindo, 2012, Nyamadzawo et al., 2013, Mabeza, 2016). The contours were disastrous in drought-prone areas, as harvests declined due to increased soil erosion and the inability to store water (Mabeza, 2016, Nyamadzawo et al., 2013). Contour ridges have subsequently been modified to adapt to local conditions, and I observed that the Marlborough wetland farmers do not use the contour ridges prescribed during the colonial period. Instead, they have modified the practice to suit their own needs and local conditions. One farmer explained:

It is labour intensive, *unofondoka* [you work extra hard], it can only be practiced by someone who has land security. Our operations are considered illegal, we cannot invest in them. Imagine investing in those deep contours; then I get chased from this land tomorrow. I would have wasted my time and effort for nothing. So we do these simple ones that best fit our conditions. They are also beneficial to the soil and water. We try to maintain them every year to reduce labour. (F005)

To limit the uncertainty of outcomes, the farmer subdivided his field in two to prevent total crop failure. In Figure 5.12, the side labelled B has no contours, while the other side has contours. The two trenches were designed in such a way that they store water during the rainy season, but the contours constructed by Marlborough farmers are not deep enough to retain water for a long time. Deepened contours, an innovation by Mr Phiri Maseko in Zvishavane, store plenty of water and prevent erosion better than the traditional contours as they are modified to incorporate infiltration pits (Phiri Maseko and Bussink, 1995, Lancaster, 2008). However, because the farmers are considered “illegal” land occupiers, they cannot make a huge commitment to their activities and are hesitant to implement the deepened contours because they do not know what may happen in the future. Instead, the farmers work with simplified versions, altering the innovations in a way that best suits them.

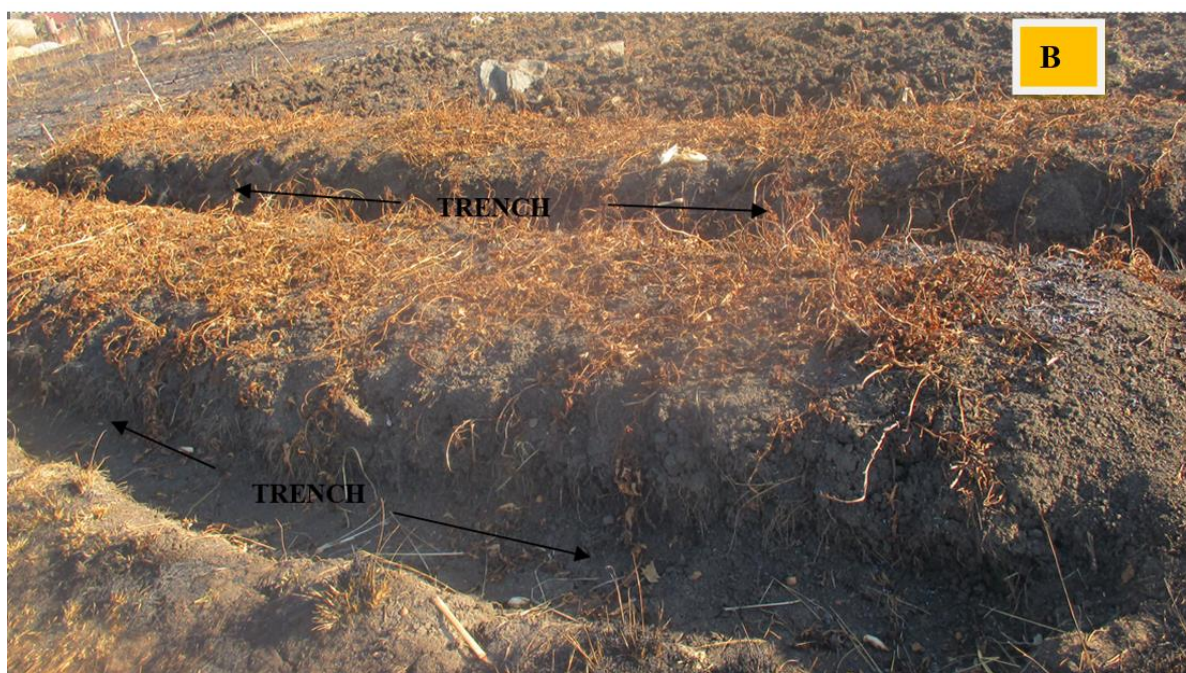


Figure 5.12: Ridges made by a farmer on the Marlborough wetland.

The method of making ridges used by the farmers in Marlborough is suitable for water conservation, because the wetland is seasonally wet. Figure 5.13 shows shallow trenches used by the farmers to retain water.



Figure 5.13: Water harvested in a shallow trench.

The farmers have acquired knowledge of the wetland soil conditions over time. One seasoned farmer said:

I used the ridges because this is a wetland. Therefore, there is too much rain in some seasons and floods occur. If the crops are grown on a flat piece of land, the crops will be washed away in case of drought. However, if you have elevated ridges, the crops might not be washed away. (F005)

A study by FAO (2008) found that ridges mitigate the effects of flooding on crops by reducing soil erosion, controlling runoff water, increasing moisture infiltration and facilitating water retention.

5.5.4 Foot-operated treadle pump

I consider two particular farmers as risk takers due to the nature of their activities on the Marlborough wetland. These farmers invested in a significant agricultural project without fearing the law and its consequences. One of the farmers said:

I started ploughing on the wetland in 2010, when the land was being used as a dumpsite by residents. I cleared all the waste and started a farming business. In 2012, we decided to have a joint venture with my friend who was unemployed like me. We started working towards buying a treadle pump. (F020d)

For more than a decade, the two farmers have practiced horticulture on the wetland, which is their source of livelihood. They developed their own pump to reduce the burden of watering the garden using canes. The main purpose of this treadle pump is to draw and distribute water to the field, where it is required to irrigate crops. In Figure 5.14, photograph A shows a well secured by a disused car and rail sleepers, while photograph B shows a treadle water pump.



Figure 5.14: Secured well (A) and treadle pump (B).

The two farmers dug a well estimated to be 5 metres deep. They secured it with an old, disused car, rail sleepers and pieces of asbestos sheet (Figure 5.14A) to prevent stray dogs or children falling in. The disused car and the asbestos sheet were picked up from a waste dump near the wetland. The farmers invested in hosepipes, with one end lowered deep down the well and the other end connected to a PVC pipe (Figure 5.15) attached to the treadle pump (Figure 5.14B). The treadle pump draws and distributes water to the crops in the field.



Figure 5.15: Connection from the well to the treadle pump.

Two pedals or direct-displacement pistons (Figure 5.16B) are pedalled to release water to the hosepipe to supply the plants. The pedalling process is strenuous, so the two farmers regularly exchange roles to relieve each other. To reduce hardness or stiffness during the pedalling process, the farmers pour water into the cylinders. The farmers said that if they pedalled without reducing the degree of hardness or stiffness, they risked developing *nhonho* (tinea pedis) on their feet and hands because of the excessive force. A bucket (Figure 5.16) contains water that the farmers use while pedalling, putting it inside the two metal perforations (cylinders) to loosen the pedals (Figure 5.16B). As seen in both photographs, the bucket is elevated on a wood stub so that the farmer does not have to bend down, avoids back pain and does not have to interrupt the pedalling process.

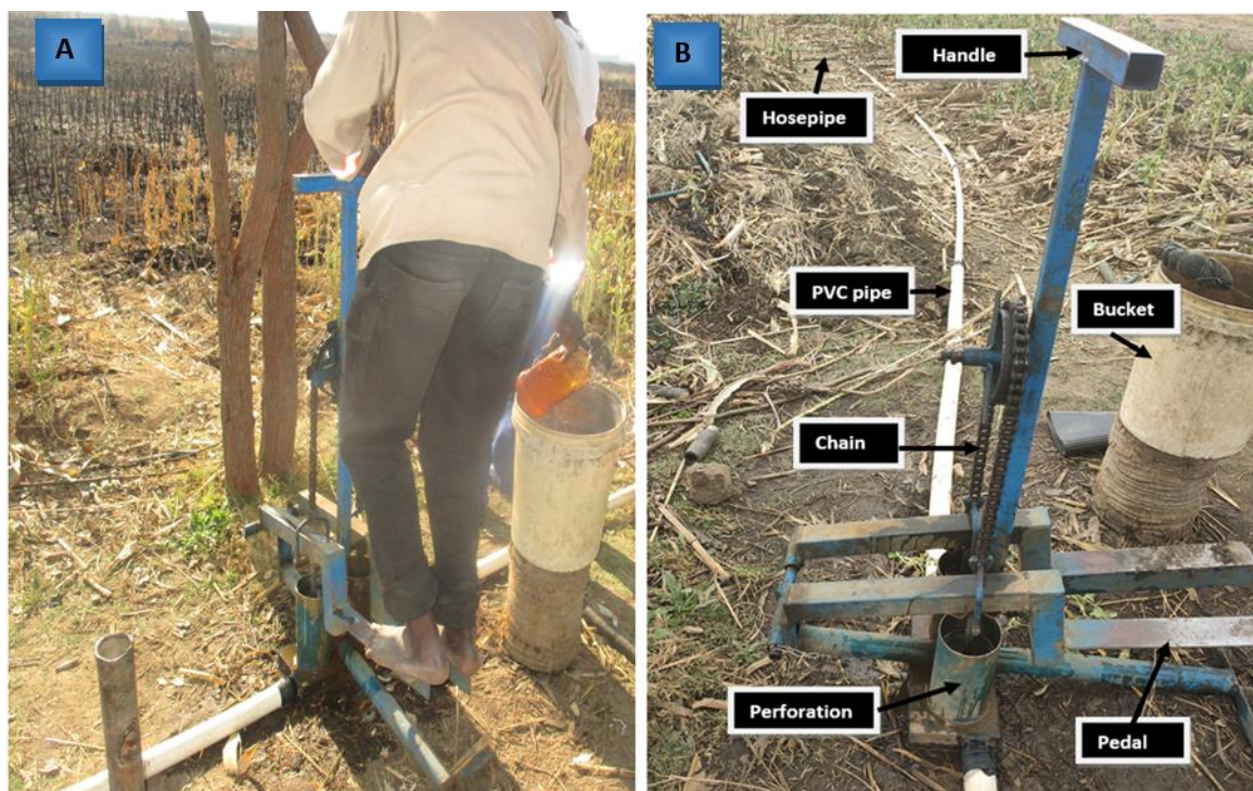


Figure 5.16: Pedalling the water pump to extract water (A); and major parts of the treadle pump (B).

While one farmer pedals the pump, the other waters the plants. When the farmer stops pedalling, the water no longer comes out, so if one farmer is not around, the lone farmer must double up, pedalling for some minutes then running to change the position of the hosepipe. This process is repeated until the field is thoroughly watered. The time required to water the field depends on the operator's physical strength (and whether there are one or two farmers at work).

5.5.5 Impact of the treadle pump on livelihoods

The treadle pump technology can be regarded as pro-poor technology: the farmers bought the treadle pump system at a low price at the Magaba market in Mbare. Using the pump, the two wetland farmers have been able to produce vegetables for sale throughout the year:

The pump enables us to plant a variety of crops throughout the year. As you can see, others have not cultivated anything; they are waiting for the rainy season. If there is a drought, they will not harvest anything. We do not rely on rains, because we can draw water and irrigate our crops. The surrounding residents come to buy fresh mealies, (*rugare*), leafy vegetables, tomatoes, onions, pumpkins, nuts, peas and many more crops. So we generate income for school fees, rentals, electricity and water bills, hospital bills. Our families have sufficient and healthy food produced from this wetland field. The treadle has changed our lives for the better. (F020e)

The interview reveals how horticultural practices helped the farmers improve their livelihoods. They grow various crops and practice crop rotation, mulching and mixed cropping as soil and water conservation methods to boost crop production.



Figure 5.17: A customer for vegetables.

The two farmers built a temporary shelter from plastic sheets and thatching grass to provide shade and protection against hot and rainy weather (Figure 5.18). They also gathered bamboo for an improved shelter, showing their commitment to farming.



Figure 5.18: Makeshift shelter made of bamboo wood and plastic.

5.6 Overview of the challenges and constraints of urban wetland farming

5.6.1 Marlborough wetland as private property

Dawn Properties, which owns the land, has made various attempts to stop cultivation on the Marlborough wetland. Figure 5.19 shows a Dawn Properties billboard on the wetland warning people not to engage in illegal activities such as cultivation, dumping and occupancy. The billboard has not been effective, however, as people have continued with their activities. Moreover, Dawn Properties' message seems to contradict itself, because it addresses issues of wetland conservation but plans to construct houses there. The farmers know that the company intends to build housing projects on the wetland, and they realise that the real estate company has prioritised monetary gain over the environment. The real estate company's planned activities raise ethical questions, as the farmers view agriculture as less harmful than infrastructural development, and they feel justified in continuing with their agricultural activities. Because the land is on private property, however, they do not feel secure. One farmer said:

The people who had built mansions on wetlands were forcefully evicted; the authorities demolished their houses – how about us who are farming? It is easier to remove us than evict those who had built houses on wetlands. We might face the same plight; only time will tell. If they did it on Operation Murambatsvina, nothing can stop them from doing the same to us. After all, the law prohibits wetland farming. We are being mischievous by doing so. The council used to slash our maize; however, it seems these days they are reluctant to do so. We are not at peace; we are always afraid of being chased away. Where will we go, how are we going to survive? (F005b)

The farmers risk being arrested, fined or having their maize slashed, and they live in a state of anxiety, not knowing what they will do if they are stopped from cultivating on the wetlands. The farmers know that the authorities can be merciless in their application of the laws: houses built on a wetland in Greendale, Harare were demolished (Nherera, 2020), and in 2005 about 700 000 people were directly affected by Operation Murambatsvina, which resulted in evictions and demolitions of “illegal” housing structures (Tibaijuka, 2005). These examples show that the farmers’ concerns are genuine.

The land reform programme in Zimbabwe was supposed to address inequalities in land distribution but has not achieved its intended goals. Instead, it created new forms of injustice between those who fought for the liberation struggle and those who did not. A Marlborough resident reflected that the problems around access to land for farming emanate from the liberation war:

People just say, “I fought the liberation war, so give me land.” Then the other says, “My father fought the war, so give me land.” Then the grandchildren also say, “Our grandparents fought the liberation war, so give us land too.” This will end up into generations and generations of the liberation war, and it would require more than three generations for the liberation war to mean nothing. (R014)

Many people who wanted land – especially the poor – did not benefit from the land reform programme, which forced some farmers to encroach on the wetlands.

5.6.2 Uncertainties

The farmers said that hyperinflation and the skyrocketing costs of basic commodities in Zimbabwe made it difficult for them to regularly buy food from the market, and they farmed on the wetland to produce crops to cushion themselves against the economic environment. As of October 2019, teachers earned a net salary of \$1 000RTGS, but a 10 kg bag of mealie meal cost \$230RTGS. Given the high inflationary environment, it was difficult to keep track of the costs in real time, making it difficult to make a monthly budget.

The criminalisation of agriculture on the wetlands made farming like gambling, in that one could lose on a bad day and win on a good day. The farmers determined to take a risk and try something rather than fearing to lose and sitting idle. Children in Zimbabwean society are taught this early, to try even what may seem impossible and never give up. In Zimbabwe, the zeal to persist and never give up is reflected in the proverb, *Zviro zviedzwa chembere yekwaChivi yakabika mabwe ikaseva muto*, which means “Things are to be tested, an old woman from Chivi [a remote village in Zimbabwe] boiled stones and got soup from them as relish”. Such acts of resilience are nurtured from a tender age and make the wetlands farmers in Marlborough strong in the face of challenges.

5.6.3 Conflicts amongst farmers

Conflicts arise amongst farmers and are sometimes difficult to resolve, because wetland farming is considered to be illegal and there is thus no legal recourse. For example, one

farmer started a fire on the wetland during land preparation, but it got out of control and damaged another farmer's property. The second farmer explained:

About two weeks back, another wetland farmer burnt my vegetables, hosepipe and shelter while doing land preparation. I asked the person to compensate for the damages, and he refused. The problem is, I cannot report the issue to the police, because farming on wetlands is illegal (F020f).

A hostile relationship between the two farmers emerged when the perpetrator refused to compensate for damages, and the victim could not seek assistance from authorities because he did not have land tenure rights and was performing "illegal" farming on the wetland. Given that wetland farmers do not have the right to use the land, they cannot seek legal assistance when they have a conflict. This shows that farming on wetlands is a high-risk business with no guarantee of compensation in the case of loss or damages.

The first-come-first-served self-allocation of land can also be a source of conflict, as someone can take over a piece of land if no cultivation has taken place for one or more seasons. One farmer said:

I got sick and stopped cultivation for about two years. When I came back, my field had been taken by someone else. I told him my story, but he refused to give me back my field. Later, I threatened him by saying *uchazviona* [you shall see]. He was afraid of the statement and agreed to give it back in the next farming season. (F016)

The conflict between the two farmers arose from the fact that neither farmer had a legal right to use the land, and the lack of property rights implied that anyone could use the land. Ultimately, the original farmer used threats to get "his" land back. The Shona people know that the word *uchazviona* is associated with acts of witchcraft. It invokes fear, which probably explains why the other farmer conceded the land rather than have a bad omen from witchcraft.

5.7 To hell with law and policy: farmers' reactions to scripts

Farmers in Marlborough have developed an emotional attachment and affective relationship based on love and passion with the wetland. Their emotional connectedness is rooted in the importance of the wetlands for their survival, leisure, socialisation and culture, and the farmers will not let go without a fight. Figure 5.19 shows a "No cultivation" placard that wetland farmers destroyed at night. It emerged from interviews that the farmers were angry and destroyed all the placards warning them not to practice agriculture. Such acts of defiance were triggered by the property developers engaging in approved projects such as constructing houses, shopping malls, wedding venues, service stations and other industries on the wetlands. The farmers were frustrated, because they operate on a small scale, use simple tools, and do not apply counter-productive fertilisers and agrochemicals to their crops, but the law still considers them "illegal" and those causing irreversible damage "legal".



Figure 5.19: Destruction of a “No cultivation” sign.

Another Marlborough wetland farmer ignored a “No cultivation” sign (Figure 5.20), as he could not come to terms with the logic of not using the wetlands for agriculture when other stakeholders utilised it in unsustainable ways. The farmer said:

The sign means nothing to me. I will stop cultivation only when others have stopped building houses on wetlands. Who is the worse culprit, the house builder or farmer? By farming on the wetland, I am protecting the ecosystem from pollution by waste dumpers; when people see cultivation, they will hesitate to use the wetland as a dumpsite. Moreover, I use conservation farming methods. I do not use a tractor or chemicals. The law is biased; it oppresses us.
Pasi nevadzinyiriri! [Down with oppressors]. (F007)

The farmer chanted *Pasi nevadzinyiriri*, a liberation war slogan against the colonialists who oppressed the black people in Zimbabwe. By using the slogan in this context, the farmer equated what was happening in the post-colonial era with what happened in the colonial era, feeling that the post-colonial laws were as oppressive as the colonial laws. The farmer felt justified in performing agriculture on the wetland when he compared his practices to those of the property developers.



Figure 5.20: A farmer's crops ignore a "No cultivation, no dumping" script.

The farmers can justify their continued farming on the wetlands because their agricultural practices are generally sustainable and are far less likely to cause irrevocable damage. The farmers feel that the wetland laws and policies are partial and discriminatory, designed to give preference to the elites. The acts of defiance depicted in Figure 5.19 and 5.20 can be summarised in the phrase "Actions speak louder than words", and the farmers' actions reveal their attitudes, feelings and thoughts about wetland farming and unjust legislation. An official from HCC criticised the Environmental Management Act, arguing that:

The law has loopholes, because we hear that development of a particular wetland was condemned by EMA. However, surprisingly, we will see projects on that wetland in the future. Why? Because someone will have used the back door to access the wetland. This is done by influential people who want to get richer and richer. The love of money is the root of all evil. (E001)

The desire to amass wealth may cause those occupying positions of influence in society to engage in projects that negatively impact the environment, as observed by interviewee E001. Corruption can thrive when the power to make decisions is based on a weak legal system, and in this case, it has resulted in damage to the wetlands. The elite use their positions of power to control the decision-making process and bypass the laws to suit their own needs. This runs contrary to environmental democracy, which is centred on the notion that decisions about natural resources should adequately and fairly address the needs and interests of citizens irrespective of class, race or gender (Worker and Ratté, 2014). However, in Zimbabwe, citizens are not actively involved in decisions, and the elite can subvert the law and suppress the interests and needs of the poor. This system is inclined towards capitalism, as it favours increased financial gain at the expense of the poor masses. A local university professor said:

If you plan to go to point A and are told that the road you usually use to reach point A is closed, you will have to take another route. You will not continue to plan towards something that does not work.

However, influential people have a mentality that says, “Let me just go, we will engage in talks when I reach that point; if it fails, I will come back and try other avenues.” (E002)

This interview illustrates an acceptance that the legal system is characterised by corruption, and that legislation has loopholes that can be exploited to the detriment of the environment. The weak governance system of wetlands management exposes the wetlands to environmental violence, with one environmental management expert saying:

The whole wetland legal framework is wrong. It should be impartial and non-political. It has many flaws, and it is totally compromised. Project developers continue to perform activities that are harmful to the wetland despite the existence of the regulations. (E003)

The legal system has many gaps, particularly as regards environmental impact assessments (EIA), which are performed as a formality, bypassing the law and continuing unsustainable projects on the wetlands that leave the poor urban farmers vulnerable. The farmers are voiceless, powerless, invisible and often left behind when it comes to decision making, even on matters that affect them. The farmers are powerless as they cannot freely practice farming given that their activities are criminalized. This is contrary to the provisions of the EIA regulations, which require local communities to be consulted for their inputs before a project can be approved.

5.8 Conclusion

A diverse composition of urban wetland farmers practice agriculture on the Marlborough wetland, and this chapter has shown how they relate with the wetland as they engage in their agricultural activities. Wetland farming plays an important role as part of poor urban farmers’ survival strategy. The farmers are connected to the wetland through their practice of conservation farming methods such as mulching, mixed cropping and contour ploughing, which cause minimal damage to the environment. The farmers face many challenges emanating from the fact that part of the Marlborough wetland is privately owned and they are considered trespassers who could be prosecuted. The farmers are “illegal”, so they cannot seek legal intervention from the authorities when conflicts arise. This chapter has revealed that despite being closely connected to the wetland, which is their source of livelihood, the farming activities of poor urban farmers are criminalised. The farmers fear being fined, prosecuted or evicted and do not know what the future holds for them. Because their activities do not conform to the law, they do not have a platform for expressing their views about the challenges they face and the uses that the wetlands are put to. The next chapter focusses on the role of community-based organisations in the conservation of the wetland.

Chapter 6 -The politics of community involvement in wetland conservation

“.... we cannot achieve the future we want if we do it alone. We have a saying in my native language Kiswahili, *Chombo hakiendi ikiwa kila mtu anapiga makasia yake*: A boat doesn't go forward if each one is rowing his or her own way. Collective action is needed...” (Msuya, 2019:1).

6.1 Role of community-based organisations

The extract from a speech by Joyce Msuya delivered at the seventeenth regular session of the African Ministerial Conference on the Environment (14 November 2019) reveals that a better future can only be achieved by working together towards a common goal. The active engagement of local people is crucial in the management of natural resources, as locals play a particularly critical role as “frontline workers” or “foot soldiers” who perform necessary, but basic tasks to address the situation on the ground. However, the locals have limited influence in that they do not have authority to make important decisions. In order for the local people to have an impact in the management of the environment, they tend to mobilise themselves into groups that speak with a collective voice. In Marlborough collective action towards the environment has been through Marlborough Environmental Action Group (MEAG), a local Community-based organisation. Community-based organisations come in different forms, such as voluntary associations, interest groups and social-service agencies, all of which serve as important vehicles for civic engagement (LeRoux, 2007). Such organisations play an important role in the devolution of power to local communities, as their work includes lobbying, advocacy and education. Literature about community-based organisations generally positions them as pursuing the interests of the communities they represent, but recent findings suggest they may have shifted from advocacy and community representation (Betancur, 2021) to be driven by more commercial interests. According to Choudry and Kapoor (2013), the emerging trend is for community-based organisations to loosen ties with the communities they represent as they evolve into quasi-businesses with dispersed clientele. An important question is whether the Marlborough Environmental Action Group (MEAG) resembles this trend or has stuck to its original mandate to protect the environment from forces of degradation.

The wetland in Marlborough is vast and requires combined effort to manage. This resonates with the Shona proverb *Rume rimwe harikombe churu*, meaning that regardless of one's strength or intelligence, one cannot accomplish everything on their own; no man is an island. That is the key driver for forming community-based organisations to address the challenges collectively. MEAG is a community-based organisation (CBO) formed in 2011 to conserve the Marlborough wetland. According to the MEAG chairperson, the organisation was formed by residents after rampant degradation of the wetland as a result of cultivation, solid waste dumping and construction in the area, exacerbating existing issues of flooding, water shortages and the disappearance of beautiful landscape. The organisation was oriented to

educating the community about the importance of the wetlands and restoring their integrity as natural water reservoirs. The chairperson also explained that they sought to maintain an equal balance between environmental management and community concerns by ensuring the engagement of residents in the wetlands decision-making process, as written in the MEAG constitution. The constitution is a *script* that guides the organisation's day-to-day operations. MEAG membership is free and constituted 100 members between 2011 and 2014. To facilitate easy management and conservation of the wetland, MEAG divided Marlborough into four sections, and committee members were selected to lead environmental issues. Notwithstanding the challenges that MEAG faces in terms of financial and human resources, it has been successful in raising awareness about the importance of wetlands. MEAG relies mainly from donors and well-wishers. It is currently facing financial challenges as there are few donors and well-wishers due to the harsh economic situation in Zimbabwe. It challenged property developers on Marlborough wetland by working with the Marlborough residents who petitioned against these developments, and it became a court case which was ruled in their favour. Since inception, MEAG has been instrumental in engaging and empowering people to take a leading role in conserving the wetlands. The MEAG logo (Figure 6.1) shows humanity united to protect water or wetlands. Holding hands, as depicted in the logo, can be understood as a symbol of connection, harmony and companionship with nature, while the colour green is usually used to represent nature. Both the wetland and the people are green, reflecting mutual dependence.

MEAG works in partnership with other environmental organisations, such as COSMO, the Harare Wetlands Trust, Bird Life Zimbabwe, the Harare City Council and the Environmental Management Agency. Monavale Vlei is regarded as a successful example of how local communities can conserve their wetlands, and MEAG organises visits to the site so that Marlborough residents can learn and appreciate the beauty of a restored wetland. The visits also promote interaction and dialogue with Monavale residents. The environmental organisations that partner with MEAG offer knowledgeable wetland management experts who impart the skills needed to protect the Marlborough wetland and prevent further degradation. MEAG consults its partners before making key decisions, and the partnerships also reduce MEAG's financial burdens.



Figure 6.1: MEAG logo

(Source: MEAG Facebook page, 2020)

In 2013, the Environmental Management Agency (EMA), in partnership with the City of Harare, had a meeting with residents, wetland farmers and other stakeholders to work towards a local environmental action plan (LEAP) for the management of the Marlborough wetland. A LEAP is a local plan developed for the management of the environment, whereby the authorities from city councils and the EMA work with local authorities to conserve the environment. Under the Marlborough LEAP, activities that change the wetland's natural state are prohibited, for example cultivation on wetlands, waste dumping and construction. According to the Chief Environmental Officer of the HCC, LEAP is based on three principles: enforcement, which local authority staff can do; policy implementation, which can be done with ward councillors; and the participation of CBOs such as MEAG. This system is meant to identify problems in environmental management before they arise but, despite the 2013 meeting, LEAP is yet to go through the validation process that will result in a final document that helps address environmental issues.

In 2014, environmental partners organised a World Wetland Day commemoration for schools at the Marlborough wetland to educate and sensitise young people as stewards of the environment. Over 300 people attended and had the opportunity to walk through the wetland and learn about wetland ecosystems in Harare, the threats to the wetland and the urgent need

for conservation. Students also had the opportunity to ask questions and present poems, songs and posters about wetlands.

6.2 MEAG activities managing the wetland

6.2.1 Uprooting invasive plant species

MEAG received training from EMA to identify and uproot invasive wetland plants, and the voluntary community participation shows their commitment to restoring the wetland to its natural state. In an interview, a MEAG member said they were considering uprooting invasive trees (palm, banana and gum trees), because they draw a lot of water from the wetlands. Alien plants (see Table 6.1) persist in the Marlborough wetland, because farming and waste dumping activities have not stopped. The farmers do not want to stop their farming activities, and MEAG only uproots invasive plant species in uncultivated areas. One MEAG member said:

Although we know that farming is illegal, we do not uproot in the farmer's fields. The crops that they grow are alien plants that should be uprooted. However, we only uproot in wetland areas where there is no cultivation. What if *ukateiwa nemishonga* [we are trapped by African magic] while in somebody's field? In the Shona culture it is not allowed *imhosva unotoripiswa* [it is a crime, and one is fined for that]. What if *ukanokorwa tsoka* [taking soil stepped on for bewitching purposes]? You cannot just uproot in someone's field, because some of the plants we uproot are vegetables or medicines for them, so that is cruelty. (R004)

MEAG members balance their conservation duties with Shona cultural values that respect one's field. Some MEAG members said they were scared of *dumwa* (traditional medicines and even goblins that can harm people who touch or interfere with them). In some fields, red and black cloths are tied on the maize or on clay pots in the centre of the field. These are believed to be charms that can cause harm to people who enter the maize field without permission. While some believe that these are not real charms, it is generally felt that it is better to be safe than to fall into danger.

Table 6.1: List of alien plant species observed on the Marlborough wetland.

ALIEN PLANT SPECIES	DESCRIPTION
Lantana (Mbarapati) (<i>Lantana camara</i>)	This species has become common because of wetland disturbances resulting from cultivation. It is stubborn and forms dense thickets, which suffocate other indigenous plants and reduce water availability.
Maize (<i>Zea mays</i>)	This is the most commonly cultivated crop on the Marlborough wetland and is frequently visible in the rainy season.
Mexican poppy (<i>Tagetes lemmonii</i>)	A widespread annual weed primarily associated with increased agricultural activities and waste dumping on wetlands. Its seeds are hazardous to human and animal health when consumed.
Morning glory (<i>Ipomea caurica</i>)	These purple flowers are believed to have found their way to the wetland through garden rubbish.
Okra (<i>Abelmoschus esculentus</i>)	A vegetable that invaded the wetland through agricultural activities.
Pigweed (Mowa) (<i>Amaranthus cruentus</i>)	This leafy vegetable invaded the wetland through agricultural activities, thriving when fertilisers are used.
Pink garden sorrel (Kahungwarara) (<i>Oxalis latifolia</i>)	This purple-flowered plant is difficult to control and invaded the wetland through garden waste.
Prickly sow-thistle (<i>Sonchus asper</i>)	A troublesome weed common on the wetland as a result of disturbances brought about by cultivation.
Pumpkin (Nhanga) (<i>Cucurbita maxima</i>)	This is grown by farmers and is frequently visible in the rainy season.
Shoofly plant (<i>Nicandra physalodes</i>)	A garden flower that thrives like a weed as a result of disturbances caused by agricultural activities.
Sweet potato (<i>Ipomoea batatas</i>)	A creeping plant with tuberous roots that is cultivated and is frequently visible in the rainy season.
Spear grass (Chitsine) (<i>Heteropogon contortus</i>)	The grass is not very common on Marlborough wetland because of human disturbances.
Weeping love grass (<i>Eragrostis curvula</i>)	This grass prefers disturbed areas and is thriving on the Marlborough wetland.
Palm tree (Arecaceae)	Palm trees on the wetland could have grown from garden waste.
Banana tree (<i>Ensete ventricosum</i>)	A banana tree was observed in the wetland that could have grown from garden waste.
Gum trees (<i>Eucalyptus grandis</i>)	There are several gum trees on the edges of the Marlborough wetland. Each tree consumes more than 100 litres of water and releases chemicals that kill surrounding plants.

The invasive species identified in Table 6.1 were found on parts of the wetland where no cultivation occurs. The consequences of invasion include competition with native plants for water, nutrients, sunlight and space (Gioria and Osborne, 2014). Exotic species are believed

to be better competitors for nutrients and can easily colonise an environment (Funk, 2013), reducing species diversity by squeezing the native plants out and making them extinct in that ecosystem (Sharma et al., 2005). Ecosystems can adapt to these changes, however, as illustrated by the growth of naturalised plants on the Marlborough wetland (Table 6.2). By definition, naturalised plants are of foreign origin and are introduced to a particular area where they never existed before either intentionally or by accident. In the new environment, naturalised plants adapt to the prevailing conditions and spread without human intervention (Fensham and Laffineur, 2019). Naturalised plants have become established over many years and are flourishing as part of the plant life of the Marlborough wetland despite being formerly exotic. Some of the indigenous and naturalised plants are flourishing and thriving, while others are unable to adapt to the changes taking place on the wetland. Table 6.2 shows some of the indigenous and naturalised plants that are useful for both humans and ecology.

Table 6.2: Indigenous and naturalised plant species in the Marlborough wetland.

INDIGENOUS AND NATURALISED PLANT SPECIES	DESCRIPTION
Blackjack (<i>Bidens pilosa</i>)	The leaves are edible when cooked and can be used for medicinal purposes.
Canna lily (<i>Canna indica</i>)	This has beautiful flowers, and the seeds are valuable for making beaded jewellery. The roots are edible and are used for medicinal purposes.
<i>Gerbera piloselloides</i>	The flowers add to wetland beauty and are helpful for pollination.
Hairy fleabane (<i>Conyza bonariensis</i>)	This plant has hairy seeds that are dispersed by wind and is widespread in the wetland.
Operation wildflower (<i>Chironia palustris</i>)	The flowers add to wetland beauty and pollination, and it is a beneficial indigenous medicine for treating diarrhoea and colic in children.
Purple top verbena (<i>Verbena bonariensis</i>)	The purple flowers add to wetland beauty and pollination.
Rose evening primrose (<i>Oenothera rosea</i>)	The pink flowers add to wetland beauty and pollination.
<i>Sesbania bispinosa</i>	This shrub flourishes under moist conditions.
Bulrush (<i>Typha capensis</i>)	A source of food, building materials and handcraft materials and a habitat for animals. It is also beneficial for removing toxins from the soil.
Smooth flat sedge (<i>Cyperus laevigatus</i>)	This weed flourishes in seasonally and permanently wet places.
Narrow heart love grass (<i>Eragrostis racemosa</i>)	A grass common in areas with high moisture content.
Natal red top (Bhurakwacha) (<i>Melinis repens</i>)	This grass has a reddish, soft top easily blown by the wind. It is a short-lived grass common on the Marlborough wetland.

Despite the importance of plant species to the Marlborough wetland ecology, increased human activities raise concerns about their capacity to continue to provide necessary services and functions. Changes to the ecosystem, such as bare surfaces, soil compaction, soil clods, burnt vegetation, cultivation and dumped waste are indicators of the slow disappearance of plant species on the Marlborough wetland.

6.2.2 Educating and engaging residents and surrounding communities

MEAG educates residents about the importance of conserving the wetland in various ways. At meetings and workshops facilitated by EMA and HCC at the Marlborough District Office, participants are taught about the importance of wetlands and the transboundary nature of wetland destruction beyond the local level. The meetings involve active engagement from all the participants. To reach as many people as possible, MEAG conducts door-to-door awareness campaigns about the importance of wetlands and distributes pamphlets to ensure wider coverage. While residents consider the awareness programmes necessary, the farmers feel that their plea for survival is not understood, as it does not make sense to preach the conservation of the wetlands on an empty stomach. Farming on the Marlborough wetland can be summarised by the proverb “A hungry man is an angry man”, and taking away the farmers’ source of sustenance and income is not likely to go over well.

Knowledge about the wetlands is gained through education, training and experience. Through my fieldwork on the Marlborough wetland, I explored the knowledge base of the farmers to ascertain the basis of the decisions they made, from which I generated four scenarios (Figure 6:2).

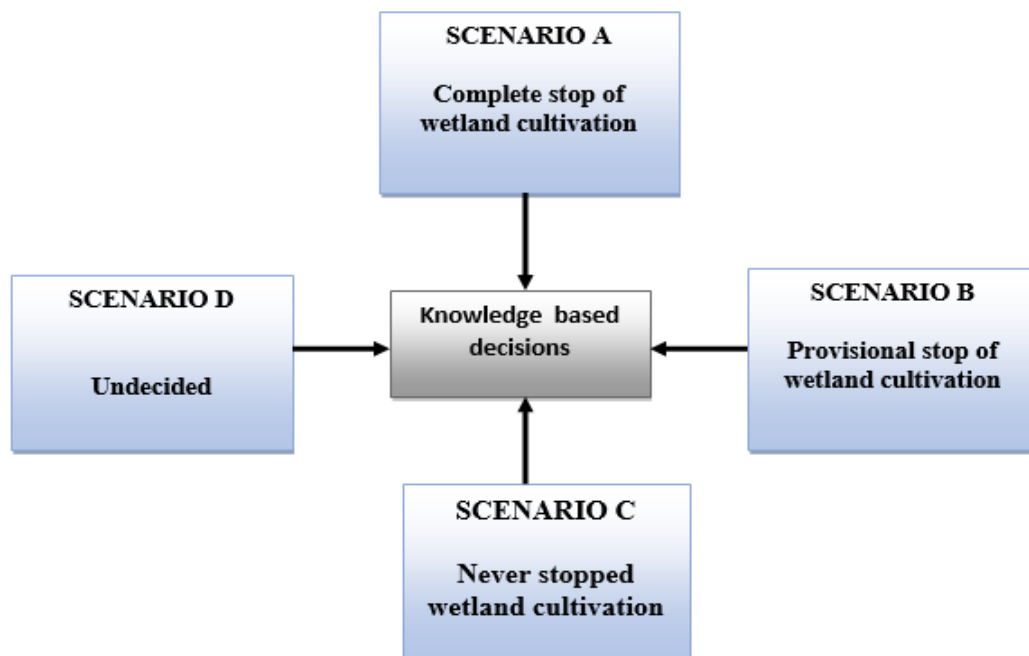


Figure 6.2: Scenarios based on wetland knowledge.
(Author notes, 2020)

Scenario A was made up of former wetland farmers who had gained knowledge about the importance of wetlands through MEAG’s educational campaigns, enhancing pro-

environmental behaviour and attitudes. Knowledge is considered a powerful tool for promoting pro-environmental attitude and behaviour (Otto and Pensini, 2017), and these farmers decided to stop wetland cultivation based on the knowledge they had gained. Thus, knowledge can be instrumental in altering human–nature relationships in a positive way.

In Scenario B, farmers had stopped cultivation but were considering cultivating on the wetlands again. One farmer described his reasons for going back to farming:

I stopped farming on wetlands, because I was educated on the importance of wetlands. We were told that the law prohibits wetland farming and those who practice it would be fined or imprisoned. However, many people received the same education, but they keep on cultivating and have not faced any prosecution. This demonstrates that the authorities are not determined to protect the wetland, and I am tempted to go back to farming. If the authorities say “NO” to wetland farming, they should implement the law rather than overlook it, as they see some farmers continue practicing the very acts they have condemned. (F004)

The farmer’s decision to stop wetland cultivation was based more on fear of prosecution than conservation. Although fear can motivate people to change behaviour, it can be unsustainable for a long-term commitment (Nabi et al., 2018), and Chen (2016) found that using fear to promote pro-environmental behaviour is ineffective. Moreover, Toomey and Domroese (2013) found that factual information firmly grounded in conservation ethics is a more effective method of advocating for positive attitudes and behaviour. Thus, using intimidating methods of communicating with and educating wetland farmers may result in only temporary behavioural changes.

The farmers in Scenario C understood the importance of the wetlands but decided to continue farming for various reasons, such as the need to survive, while in Scenario D, farmers were undecided about whether to continue cultivating or not. This shows that knowledge is not necessarily a strong predictor of behaviour change, as social, political and economic factors can also influence people’s conduct (Schrader and Lawless, 2004). As previously described, some farmers cultivate on the Marlborough wetlands to survive Zimbabwe’s harsh economic climate, and the need to earn a living can supersede knowledge gained about wetlands conservation. The application of knowledge to bring behavioural change is clearly dependent upon several factors, including the context of the targeted people.

6.2.3 Income-generating projects outside the wetlands

MEAG realised that people would not stop cultivating on the wetlands without alternative sources of livelihoods, so a former councillor provided a training facility for wetland farmers who were willing to be trained in chicken-rearing projects. Those who participated in the training paid USD10 and were given chicks and feed. Zimbabwe’s high inflation caused fluctuating prices that made returns on investment lower than expected, and some people were unable to sustain their operations due to the volatile economic environment. Some did not join because they did not want to part with their hard-earned cash and feared losing it to swindlers, as many people in Zimbabwe have fallen prey to scams such as pyramid schemes.

Some Marlborough residents received training in vermiculture and ran projects in their backyards, using compost to breed worms for sale. However, this turned out not to be viable, as they struggled to find buyers. A project on vertical farming was introduced to maximise land use by growing crops vertically in stacked layers using plastic bottles, tyres and drums, but the costs involved in starting the project were prohibitive. With these alternatives proving not to be effective, the farmers returned to wetlands agriculture. In Shona, there is a saying that *Zano pangwa une rako*, which loosely translated means you should try as much as possible to weigh advice against what you already have. This teaches people to measure and assess anything they are offered against who they are and what they stand for, and not to blindly buy into an idea. The wetland farmers assessed the potential of income-generating projects in relation to wetlands farming, which they were already familiar with.

6.3 MEAG and its relationship with different stakeholders

Some residents find it a waste of time to attend meetings that offer no financial or material benefits, and many people are fed up with hearing the same old story about wetland conservation when no change seems to happen. Most wetland farmers no longer attend meetings, because they do not want to hear about “stopping wetland cultivation” without viable alternatives being proposed. The MEAG chairperson said that the number of attendants at meetings and workshops was high between 2011 and 2014, about 50 on average. However, attendance has decreased drastically since then for a number of reasons.

Some residents isolated themselves from the wetland conservation, which had the cumulative effect of creating loopholes in the management of the natural resources. A resident said “*Zvemawetland izvi hatinei nazvo, ndezva vlei scout ari kuzvidyira*”, meaning “Because the vlei scout is paid for it, the wetland issues are his responsibility”. The vlei scout was doing what he must to survive, and the resident was doing the same, but it is problematic when one interferes with the source of livelihood of another. The resident’s statement that the vlei scout was being paid questions the morality of survival at the expense of another. However, it emerged from the interview with the vlei scout that he had passion for protecting the environment dating back to his school days, so he was only following his interests. To him, safeguarding the environment, particularly the one from the neighbourhood which he grew up was a fulfilling task that surpassed any monetary benefits. He argued that the residents focused on the financial rewards of his job without considering the environmental benefits which were attached to it.

Some residents doubt the sincerity of MEAG’s “no cultivation” mantra, because wetland agriculture was a historically common source of livelihood in Zimbabwe. Although CBOs have a central role to play in community development issues, it is important to ask whether the leadership speaks with the voice of the people they supposedly represent. The residents are right that the MEAG leaders say what organisations such as EMA, HCC and the NGOs tell them to say, but failure to echo the voices of these organisations might result in loss of a job, especially for the vlei scout, who is also a member of MEAG. The Shona proverb

Mutumwa haana mbonje (“The messenger has no scars”) means you cannot harm a messenger, because they are just delivering a message.

A CBO leader said:

One farmer brought a tractor around 2 p.m. on Marlborough wetland. As an advocacy group discouraging illegal activities on wetlands, we phoned the Harare City Council (HCC) to come and stop the tractor from ploughing the land. They said they were coming as soon as they got a vehicle and fuel. When they finally got the car and fuel around 4 p.m., the person had already finished land preparation, so they did not need to come. (R006)

This shows that the CBO and the HCC work together. If they were not in partnership, the alternative might have been to talk directly to the farmer or other CBO members about what action to take. This is supported by an HCC authority who indicated that:

HCC is there to uphold the law. Urban by-laws and the EMA Act prohibit wetland cultivation and we uphold that. We welcome all people who report illegal activities and we act accordingly.

When the CBO leadership talks of *kuchengetedza matoro*, they mean preservation of the wetlands. According to the Cambridge dictionary, preservation means keeping something in its original form and preventing it from damage or degradation – according to this definition, even utilising conservation farming technologies is not acceptable. In the current economic situation that forces people to farm for their survival on the wetlands, it is not possible to preserve them. Conservation is possible, however, because it allows for use of the wetlands in an environmentally sustainable manner. “You cannot put the same shoe on every foot”, meaning every situation is unique and requires a unique solution. Before applying particular principles, CBOs should consider local people’s needs, preferences and desires.

The sincerity of CBOs’ talk about wetland preservation is questionable, because some members have houses on the Marlborough wetland and are thus participating in irreversible damage to the wetland. Yet these same people would stop farmers who practice conservation agriculture to protect the wetland, so the issue of advocating for the preservation of the wetlands becomes a façade. Direct experiences, particularly unpleasant ones, are more likely to positively change attitudes and behaviours about the environment (Rosa and Collado, 2019). A CBO member with a house on the wetland revealed that in 2014 she woke up to a flooded home, which made her realise the importance of saving the wetland. The worst experiences can bring about the best lessons for transformation, because they prompt people to rethink their relationship with wetlands. Bad experiences provide an opportunity to reflect on how things can be done differently to avoid recurring mishaps.

From the vlei scout to the farmers, different stakeholders have different understandings of and relationships with the wetland, and all are justified in their own eyes. But if more options were available, no one would need to take risks and face uncertainties spending energy in the wetland.

6.2.1 Employment of a vlei scout

As noted earlier, MEAG works in partnership with other organisations, such as NGOs, who employed a vlei scout in 2014 to monitor activities on the Marlborough wetland. The scout was a Marlborough resident and was paid a monthly salary to monitor flora and fauna, observe human threats and to guide visitors, and the scout also reported illegal activities to authorities such as the EMA and HCC. Hiring a MEAG member to be the scout gave rise to hostility, as other members wanted this salaried job. Being on the payroll also compromised the neutrality of the vlei scout in the eyes of the farmers, as “he who pays the piper calls the tune”. The participation of the vlei scout in meetings was met with resentment, because it was assumed that the words he spoke were not his own but those of his paymasters. Farmer R005 indicated that the vlei scout, “he is doing this because that’s where his *sadza* [meal] comes from; our *sadza* comes from these wetlands.” The farmer implied that the vlei scout was not sincere in his advocacy and was doing it for the salary and not out of a passion for the environment. The farmers depended on the wetland for their livelihood and were reluctant to stop, and the vlei scout had to use negotiation skills to raise awareness about the wetland, but with limited success. According to the vlei scout he had been privileged to have first-hand experiences with this wetland, but the future generations would not have such encounters, and to them it would be mere folktales as the wetland was slowly disappearing if action is not taken.

The term *scout* has negative connotations, especially to residents of Marlborough who witnessed the liberation struggle. In *Chimurenga* (the war of liberation in Zimbabwe), the Selous Scouts was a special forces unit of the Rhodesian Army that operated from 1973 until Zimbabwe gained its independence in 1980 (Melson, 2005). The unit was infamous for its spying activities and acts of brutality, infiltrating *Rhodesia’s* (the colonial name for Zimbabwe) black majority population to collect intelligence on insurgents so that they could be attacked by regular elements of the security forces. The Selous Scouts used poisons and biological agents to kill anyone they deemed to be their enemy, which drove many young people to join the liberation struggle, realising that if they did not resist they would be destroyed (Martinez, 2002). The word *scout* is still associated with fear, and the vlei scout is a source of resentment amongst some of the Marlborough farmers, as it reminds them of the brutality of the Selous Scouts.

In the *Chimurenga*, the Selous Scouts were termed *nhunzvatunzva*, meaning rogue or scoundrel. “*Pasi nenhunzvatunzva*” was a common slogan at mobilisation meetings, meaning “Down with scoundrels”. Zimbabwe has been independent for more than four decades and the word *nhunzvatunzva* is losing its power, as those who fought in the *Chimurenga* and had first-hand encounters with the Selous Scouts are dead or advanced in years. The generation born after independence (the *born frees*) know what happened in the war from oral tradition and studying history at school – but witnessing something and learning about it indirectly are very different experiences, and the word *nhunzvatunzva* is losing currency. Instead, the *born frees* use the term *boorangoma* to describe individuals who are hard-headed and challenging to deal with. A *boorangoma* is infamous for *boora ngoma* (beating the drum until it has holes in it), spoiling what others enjoy. To the farmers, the vlei scout is a good fit for *boorangoma*,

in that he knows that people are farming the wetlands to survive, but he ignores this and wants to stop them from farming. Therefore, the vlei scout relied on persuasion and negotiation skills in order to encourage the farmers to change their line of thinking because to the farmers he is like a person who lives on a different planet, pretending to be divorced from the situation on the ground. People assume he is serving his own interests and protecting his livelihood by whatever means necessary, even as the farmers do the same. The issue is that the scouts do it at the expense of many others, and the farmers see the vlei scout not as a conservationist but as a beneficiary of his role as imposed custodian of the wetland.

6.2.2 Marriage of inconvenience: wary of hidden agendas

In 2016, MEAG challenged the validity of the environmental impact assessment (EIA) certificate issued by the Environmental Management Agency to Dawn Properties and Gold Coast Properties. After losing the court case, the companies, which had planned to use the wetland for residential purposes, approached MEAG to establish a partnership to conserve the wetland. In September 2019, MEAG entered into a deed of settlement with Dawn Properties and Gold Coast Properties (Pvt) (Ltd), agreeing to engage each other on the protection and preservation of the wetland. To residents of Marlborough, this seemed more like a strategy to coerce MEAG to support construction, and they inevitably wondered what had changed between the two groups that their divergent interests could now unite them as partners in wetland conservation.

One resident asked “*Mwoyochena wei, tsvimborume kubvisa mwana wemvana madzihwa?*” (“What sort of kindness is it in a bachelor to wipe the nose of a young woman’s child?”), a Shona proverb warning that when people who would normally not approach you finally come close, they may have ulterior motives. In this proverb, the key message is that the man wants something from the mother but cannot approach her directly, so he approaches the child instead. The takeaway from the proverb is that one must keep one’s guard up when unfamiliar people offer assistance or favours, and some relationships must be approached with caution because of hidden expectations of benefits to accrue at a later stage. Accordingly, it is imperative that those receiving help or who are approached for partnerships be vigilant and question the motives of what may superficially appear to be a beneficial relationship or harmless favour.

The relationship between MEAG and Dawn Properties and Gold Coast Properties became closer after the latter lost their case in court. The antagonistic relationship between the two parties changed, and they were soon working on a billboard to advertise their blossoming partnership around the conservation of the Marlborough wetland. As resident R007 said, however: “This partnership could be a conspiracy and a trick intended to deceive MEAG into approving the plan of building houses, a school and a church on the Marlborough wetland.”

Many residents in Marlborough were surprised that the real estate agency was working with MEAG, as their interests seemed so incompatible, and a resident pointed out that real estate is a commercial business that will not cease its capitalist desire to amass profit. If the real estate agent had not lost in the law courts, it is unlikely that it would have sought a partnership with

MEAG. One resident argued that the relationship raised many questions, summed up in the Shona proverb *Zvina manenji kuti dede ripunzike mumuti*, or “It is extraordinary to hear that a baboon has fallen from a tree”. The partnership is extraordinary in two ways: first in the profit-oriented company’s overnight change from seeing the wetland as a viable space for development to becoming a champion of its conservation; and secondly, because the real estate agent clearly intended to continue construction, but it was not clear whether it had accepted the court’s verdict. Bearing in mind that *Zvina manenji kuti dede ripunzike mumuti*, there were many unanswered questions about what the real estate agent expected to gain from the partnership. Many Marlborough residents believed that the baboon had fallen from the tree for just a moment and would rise again with vigour.

Residents’ fears about the partnership between the real estate agent and MEAG were not unfounded, as history is full of stories that show that *Mukuru ndiye ane mari* (“One who has money is the greatest”). In Zimbabwe, the saying was popularised in a 1996 song by Marshall Munhumumwe.

Table 6.3: *Ane mari ndiye mukuru* (“One who has money is the greatest”).

Original Shona version	English version
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Paushamwari ane mari ndiye mukuru	In a relationship, money is the key
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Paushamwari ane mari ndiye mukuru	In a relationship, money is the key
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Paushamwari ane mari ndiye mukuru	In a relationship, money is the key
Mazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Pamazuva ano ane mari ndiye mukuru	Nowadays he who has money is the greatest
Kana usina mari shamwari wotosevenzera ane mari	If you don't have money my friend, then work for the one
Kana usina mari shamwari wotosevenzera ane mari	with money
Hazvina mhosva kuti ndiye mudiki	If you don't have money a friend, then work for the one
Kana aine mari ndiye mukuru	money
Hazvina mhosva kuti ndiye mudiki	No matter how young he is
Kana aine mari ndiye mukoma	If he has money, he is the greatest
	No matter how young he is

Mwari anongopa zvipo Haasarudze kuti mudiki kana mukuru Mwari anongopa zvipo Haasarudze kuti mudiki kana mukuru Kana une chipo chemari, shamwari iwe ndiwe chete Kana une chipo chemari, shamwari iwe ndiwe chete Kana wave nemari, wave nezvese zvese zvaunoda Kana wave nemari, wave nezvese zvese zvaunoda Kana pane nhamo yakaita sei, kana uine mari hazvinetse Kana pane nhamo yakaita sei, kana uine mari hazvinetse Mazuva ano ane mari ndiye mukuru Paushamwari ane mari ndiye mukuru Mazuva ano ane mari ndiye mukuru Pamazuva ano ane mari ndiye mukuru Mazuva ano ane mari ndiye mukuru Paushamwari ane mari ndiye mukuru Mazuva ano ane mari ndiye mukuru Pamazuva ano ane mari ndiye mukuru Kana usina mari shamwari wotosevenzera ane mari Kana usina mari shamwari wotosevenzera ane mari Hazvina mhosva kuti ndiye mudiki Kana aine mari ndiye mukuru Hazvina mhosva kuti ndiye mudiki Kana aine mari ndiye mukoma Mwari anongopa zvipo Haasarudze kuti mudiki kana mukuru Mwari anongopa zvipo Haasarudze kuti mudiki kana mukuru Kana une chipo chemari, shamwari iwe ndiwe chete Kana une chipo chemari, shamwari iwe ndiwe chete Kana wave nemari, wave nezvese zvese zvaunoda Kana wave nemari, wave nezvese zvese zvaunoda Kana pane nhamo yakaita sei, kana uine mari hazvinetse Kana pane nhamo yakaita sei, kana uine mari	If he has money, he is a brother God only gives gifts He does not choose the young or the old God only gives gifts He does not choose the young or the old If you have a gift for money, you are the only friend If you have a gift for money, you are the only friend When you have money, you have everything you need When you have money, you have everything you need If you have a problem, if you have money, it doesn't matter If you have a problem, if you have money, it doesn't matter Nowadays he who has money is the greatest In a relationship, money is the key Nowadays he who has money is the greatest Nowadays he who has money is the greatest Nowadays he who has money is the greatest In a relationship, money is the key Nowadays he who has money is the greatest Nowadays he who has money is the greatest If you do not have money a friend, then work for the one with money If you do not have money a friend, then work for the one with money No matter how young he is If he has money, he is the greatest No matter how young he is If he has money, he is a brother God only gives gifts He does not choose the young or the old God only gives gifts He does not choose the young or the old If you have a gift for money, you are the only friend If you have a gift for money, you are the only friend When you have money, you have everything you need When you have money, you have everything you need
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hazvinetse Mazuva ano ane mari ndiye mukuru Paushamwari ane mari ndiye mukuru Mazuva ano ane mari ndiye mukuru Pamazuva ano ane mari ndiye mukuru	If you have a problem, if you have money, it doesn't matter If you have a problem, if you have money, it doesn't matter Nowadays he who has money is the greatest In a relationship, money is the key Nowadays he who has money is the greatest Nowadays he who has money is the greatest
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Source: Marshall Munhumumwe, 1996

The song's message is applicable to the relationship between Dawn Properties, Gold Coast Properties and MEAG, as it is difficult to trust one another in a country where financial gain tends to take precedence over environmental issues. Given the devastating economic situation in Zimbabwe, people feared that the housing company would use its financial resources to influence MEAG and advance its economic gain over ecological benefits. Despite the concerns of the Marlborough residents, MEAG contended that the partnership was strategic because its conservation operations were hindered by financial constraints. In interviews, the MEAG leadership revealed that lack of funding was an obstacle to field or exchange visits, water and soil tests in the wetlands and intensive outreach programmes.

6.2.3 Community betrayal

The reaction of some Marlborough residents to the deed of settlement between MEAG and Dawn Properties and Gold Coast Properties can best be described by the Shona saying “*Mviro mviro dzemhanza mapfeka*,” which means “The bald head is just the end result; its coming is long predicted by the shape of the hair”. To them, the surprise was only in that the saying was fulfilled faster than they expected. This group discerned that the talk was all about conservation but that the real estate agent was slowly but surely advancing its ulterior motives. Dawn Properties and Gold Coast Properties knew what they wanted to achieve from the onset and took an alternative route after being tripped up by the courts, but it is not clear what MEAG wanted to achieve. To unpack this question, it is necessary to understand how community-based organisations operate. A former member of MEAG noted in an interview that the organisation has done *kutengesha nekurasa ngwara remusangano*, a term from the war of liberation that suggests it has sold out its mandate and betrayed the residents by joining forces with the enemy of the environment.

Several residents felt short-changed by MEAG when it signed the deed of settlement, arguing that the parties have different interests – *Rima nechiedza hazvidyidzane*, meaning darkness and light do not go hand in hand. The lack of transparency around the sudden change of circumstance led to suspicions of money or other benefits changing hands, seemingly confirming the saying among residents that *ane mari ndiye mukuru*. The residents were not convinced that MEAG could justify giving away vast tracts of wetland for development when

it had previously been strictly opposed to building in the area. MEAG no longer seemed to be guided by its goal of protecting the wetland and had changed the *script*. People wondered how the wetland had suddenly been approved for development after MEAG had successfully challenged the EIA that permitted construction on the wetland, and the question of whose interests community-based organisations represent persisted.

6.2.4 Female domination

Women dominate the MEAG demographic, which can be a big challenge in a patriarchal society like Zimbabwe, where gender issues obstruct decision making. The chairperson of MEAG said:

Women dominate conservation because *musha mukadzi*. Women are the ones who experience the wickedest effects of wetland degradation. When we have a shortage of water, the women run around looking for water for domestic use. When there is flooding, women run for their lives while carrying babies on their backs and arms. When durawalls crack and fall as you have seen, the women must ensure the safety of the children. (008)

Scholars argue that women are the fundamental actors in environmental management because they are directly dependent on natural resources due to their day-to-day activities, and they encounter the worst effects of environmental degradation (Dankelman and Davidson, 2013, Shiva, 2001, Agarwal, 2000). However, women are sometimes unable to work effectively because they do not have the support of their male counterparts. For example, some women said that they did not come to meetings because their husbands disapproved, with one woman saying “My husband thinks that we come for these meetings to gossip and play” (R003a). Other men found it a waste of time, as they would rather engage in money-generating activities than spend time discussing wetlands.

Some men’s egos make them reluctant to take instructions from women., and some such men did not support MEAG’s conservation efforts. They disregarded MEAG’s work as trivial next to their struggle to earn a living through farming. One man said, “*Pane chinobuda pane zveBeijing*”, meaning “Is there something worthwhile that will come from Beijing?” When Zimbabweans talk of gender empowerment and equality, reference is often made to the so called Beijing conference (The Fourth World Conference on Women: Action for Equality, Development and Peace that took place from the 4th to 15th of September 1995) that marked a watershed in the emancipation of Zimbabwean women, whereafter the proportion of women in politics was increased through a quota system. When women take positions of influence now, they are often labelled as beneficiaries of the Beijing conference. “Beijing” is used in a derogative manner to belittle women who rise to power, based on the argument that they needed lobbying and advocacy at international level to gain recognition. After the Beijing conference, several gender-oriented organisations were formed to empower women, and conservative men argue that power is being usurped from them in broad daylight. These gender chauvinists undermine MEAG’s work, denigrating women as inferior to men and deserving of less respect.

6.2.5 Polarised political environment

There seems to be no consensus among residents about conservation of the Marlborough wetland, and everyone seems to be doing *mazvake zvake* (individualism or doing as one pleases). Such an approach is regarded as anti-progressive, while collectivism, where people work together, is pro-development. Lack of harmony affects the much-cherished values of *ubuntu*, the moral fabric that defines humanity and translates as “I am because we are”, encouraging people to work together as a team. The lack of unity of purpose in the use and management of wetlands resulting in *mazvake zvake* can be traced to Zimbabwe’s polarised political environment.

Resident R009 said, “MEAG is anti-government. It is an MDC-driven [opposition party] project, because the former and current councillors belong to that party and they are members of MEAG.” Politics divides people based on partisanship, and in this instance the environment becomes the arena in which the drama unfolds. Another resident said, “I am a war veteran, and I did not get a farm; therefore, I will continue to plough in the wetlands.” Having participated in the war to liberate the land, war veterans feel entitled to land irrespective of where it is. Some war veterans issue threats, saying “*Takafira ivhu irori*”, meaning they died for this land (but are alive and kicking). These war veterans have exerted a lot of pressure on the government, resulting in the chaotic land reform programme that has reduced the country from the bread basket of Africa to a basket case. The land reform programme itself is not the subject of this thesis, but how it was carried out made the country vulnerable to food shortages that continue to haunt Marlborough residents.

Politicians interfere in meetings and workshops convened by MEAG, and the vlei scout said that “sometimes during election periods, politicians override the meetings by handing out seed and fertiliser” as they campaign for their parties. The politicians hypocritically provide agricultural inputs so that farmers can plant crops on the very wetlands that are being conserved by MEAG initiatives. The wetlands manifest the vested interests of the various stakeholders, with the politicians’ primary concern being to enhance their chances of being elected into office. In Shona, this is referred to as “*Ngoma inorira ichiti pangu pangu pangu*”, a drum sound that says “for me-for-me”, meaning that when people explain their actions or motives, they gloss over the undesirable bits and push their own needs at the expense of others.

A founding member of MEAG highlighted the impact of political interference and manipulation, saying:

In 2014, a private company had planned to build 2 000 houses, two schools and a church on the wetland. The private company owns about 300 hectares on the Marlborough wetland. EMA indicated that only 27% of that land was in the W3 (non-wetland) and could be built on. However, the company wanted to change the local development plan so that construction could take place on the remaining land. Marlborough residents petitioned against these developments, and it became a court case. Some politicians interfered in this matter by using threatening words, such that many members of MEAG withdrew from membership. Thus, now MEAG has few regular members, who do not total 30. Although the matter was resolved at a snail’s pace, mainly due to political intrusion, in 2019 the court case was ruled in favour of MEAG, and the project was stopped because the regulatory framework and the community opposed the development. (R010)

Among other things, this interview again shows that politicians interfere with the effective operation of MEAG, causing low attendance at meetings and low membership and influencing how laws are enforced and applied. The court case itself stalled for five years because of a politician's interference, and it was only when that politician lost power in 2017, when the government of Zimbabwe changed leadership, that MEAG won the wetlands case. Over such a long time, people are likely to lose hope and trust in the whole legal system, leaving the land barons to do whatever they want; in the end, it is the environment and the local people who suffer.

6.2.6 Laws detached from reality

The EMA and Ministry of Environment have a particular responsibility of upholding environmental policies and laws of the Government. They have a critical role in protecting natural resources in Zimbabwe including wetlands. An employee from EMA indicated that:

Urban wetland farming remains illegal. Those who want to farm on wetlands can go to rural areas where we embark on projects that train farmers to sustainably farm on wetlands. (E004)

In addition, an official from the Ministry of Environment said:

As the ministry we adhere to the Environmental Management Act. Urban wetlands should be protected from farming and infrastructural developments. We work with EMA to ensure wetlands are protected. (E005)

MEAG experiences problems implementing environmental law because some Marlborough residents have reservations about the selective application of regulations and a lack of fairness and transparency, contrary to the saying *mutemo ndewemunhu wese* – the law applies to everyone. This is typical of George Orwell's political satire *Animal farm* (Orwell, 2021), in which the seven commandments of animalism are condensed into one phrase: "All animals are equal, but some animals are more equal than others". The unfair application of laws sets a bad precedent, as it emboldens more people to break the law. The residents of Marlborough see the breaking of environmental laws as far more moral than other acts of criminality, and many Marlborough farmers do not respect laws inherited from the colonial regime. Common law in Zimbabwe is primarily from Roman-Dutch law, whose origins can be traced to the Cape of Good Hope in June 1891, as per the provisions of Section 89 of the Constitution of Zimbabwe. The Common Law was *translated* without modification and imposed on Zimbabwe with little heed to the different contexts. Many people consequently feel that the law is divorced from the situation on the ground and must be revisited to recognise local context. In an interview, a war veteran lamented the application of colonial laws that he had fought to liberate his country from. This "independence" made a mockery of what he fought for, because the legal system still needs an overhaul to remove colonial bias. It is important to deconstruct the colonial legacies and practices that continue to haunt supposedly

liberated people in the post-colonial era (Green, 2020). An EMA official indicated that:

The law is fair because it was crafted by the Zimbabweans themselves after independence. Everyone was asked to give their voice when this law was crafted. (E006)

The children born after independence, the *born frees*, argue that there is little difference between the oppressive laws of colonial rule and the laws of post-colonial Zimbabwe. The only difference is that now the oppressors are not whites but a few privileged blacks who treat their countrymen as if they own the country. Even the real estate company planning to build on the Marlborough wetland was formed by the elite to hide who was behind the projects. The residents of Marlborough know who the owners are but did not discuss them publicly for fear of being victimised. Impoverished people who fought for liberation were sidelined from subsistence farming, and the people denied access to the wetlands saw how the same set of laws gives exclusive rights of access to the elite.

6.4 Conclusion

This chapter has shown the complexities of wetland use and management in Marlborough. Stakeholders ranging from the farmers to the property developers have vested interests in the ecosystem, resulting in conflicts of interest. The community-based organisation MEAG made efforts to conserve and encourage wise use of the wetland, but it lacked support from residents and farmers, who were sceptical of its partnership with private companies invested in property development. The context in which this unfolded was characterised by environmental laws which were both outdated and colonial in origin and were regarded as unfair and not transparent. Each stakeholder felt justified in how the wetland should be used, and this resulted in a deadlock as stakeholder engagements under MEAG failed to achieve a win-win solution. The next chapter considers a pragmatic approach to solving this challenge by using a human-centred, collaborative, problem-oriented and solution-focused approach called design thinking, which is informed by the situation on the ground.

Chapter 7 Towards a democratic governance of the Marlborough wetland

A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise” (Leopold, 1968: 224-225).

7.1 Why is democracy needed in governance of Marlborough wetland?

Aldo Leopold’s thinking reveals the importance of living in harmony with nature. This demands among other things, the democratic governance of natural resources, where policies, institutions and standards respect people and their environment. Good governance principles such as fairness, transparency, access to justice, accountability and active participation are essential for curbing environmental degradation (Maathai, 2004). The previous chapters have revealed the complexities in the democratic governance of the Marlborough wetland which can be traced to the vested interests among the stakeholders. The resultant conflicts degrade the ecosystem, as each stakeholder is driven by the need to continue benefitting from the wetland at the expense of the others. This is reminiscent of the Shona proverb *Panorwa mukono hapameri sora*, meaning “When elephants fight, the grass gets hurt”. Marlborough wetland stakeholders – farmers, residents, Dawn Properties and Gold Coast Properties, MEAG and the Environmental Management Agency – are locked in a battle over access to and use of the wetland, shifting attention from conservation to confrontation. MEAG, which claims to have a mandate to mobilise local people for a common cause, has to date not been successful in its effort to protect the wetland.

In such an environment, the struggle is between the poor and the rich, with the former losing out because they lack the financial resources to navigate their way, particularly in a corrupt society that favours the politically and economically powerful. When the poor are marginalised and underserved, they are plunged further into the abyss of poverty; when the rich get exclusive rights to the environment, their capitalist search for profit often results in them *translating* the environment, which can lead to irreversible changes. Bringing stakeholders together to work towards sustainable management and use of the wetland has proven to be a mammoth task, and in the meantime, harm continues to be inflicted on the environment.

Various mechanisms have been put in place to protect the wetland, but to no avail. When conventional approaches fail, new methods must be sought out and deployed. This chapter is informed by the popular adage that “insanity is doing the same thing over and over again and expecting a different result” and explores a hybrid method of design thinking and focus group discussions to promote democracy in environmental-resource governance. Democratic management requires that muted and sidelined voices are allowed to participate meaningfully in public processes to ensure that decisions are framed such that they adequately and equitably address citizens’ interests (Gellers and Jeffords, 2018, Mason, 2012).

One-size-fits-all methods of natural-resource management have not worked, because context is important. By virtue of being oriented to solving complex problems, design thinking was

implemented to address the conflicting situations that had sidelined the farmers. This chapter reviews literature that proposes the importance of connecting humanity to nature and encourages public engagement in the democratic governance of natural resources. It then describes how design thinking can be used to complement focus group discussions and generate win-win solutions for humanity and nature.

7.2 Connecting humanity to nature

There is a growing call across the globe for humanity to “reconnect to nature” to promote human–nature wellbeing (Ives et al., 2018, Ives et al., 2017). Humanity is dependent on ecosystems for survival, and an explicit recognition of this connection has inspired many researchers to focus on improving such relationships (Arora et al., 2020, Kellert, 2012, Russell et al., 2013). Ecosystems provide the resource base from which people get food, water, shelter and energy and regulate the conditions that underpin basic life support processes and cycles (De Groot et al., 2003, Rasul and Sharma, 2016). Despite the crucial role ecosystems play in human well-being, their connection to humans continues to be compromised and diminished. This can in part be attributed to the expanding population in urban areas (Zhang et al., 2014), technological advancements and poverty (Mirza et al., 2019), neoliberal approaches and capitalism (Bakker, 2009, Faber, 2018), reduced emotional affinity with nature (Soga & Gaston, 2016) and contemporary levels of consumption, which are dependent on extracting, fabricating and disposing massive quantities of natural resources (Kellert, 2012). Capitalism has long been intent on subjugating and eliminating wild nature, particularly by the design and development of the human-built, principally urban, environment and agriculture (Kellert, 2012, Shiva, 2016, Iatu and Eva, 2016).

Several researchers have explored the connection between humans and nature. (Nisbet et al., 2009b) propose a scale that assesses the affective, cognitive and experiential aspects of an individual’s connection to nature, (Soga and Gaston, 2016) emphasise the causes and consequences of the extinction of human experience with nature and make suggestions for future research, and (Ives et al., 2017) offer a systematic review and synthesis of the empirical literature on human–nature connections. These studies focus on the causes and effects of the disconnection between humans and the environment and have contributed to understanding the underlying factors of these complex relationships. (Ives et al., 2018) propose a social-ecological systems perspective based on the concept of “leverage points” as entry points for reconnecting people with nature, and emphasis has been placed on public engagement as a means to connect people with nature (Dickinson et al., 2012, Friedrich et al., 2014, Nisbet et al., 2009b), but methods for its execution are lacking.

Various efforts have been made to engage Marlborough residents and farmers to find a solution to the degradation of the wetland. The problem is not with engaging the stakeholders, but in persuading them to come together, as they have preconceived ideas about how the wetland should be used. Public engagement is a recommended strategy for informing, consulting, involving, collaborating and empowering people to connect with the environment (McKinley et al., 2017, Reed et al., 2018) and calls people to actively participate

in planning, implementing and managing their local environment. This is reflected in key global sustainability agreements; for example, target 1 of Sustainable Development Goal 12 of the UN's 17 Sustainable Development Goals (2015) requires that people have the information and awareness necessary to ensure that they can live in harmony with nature (Nhamo, 2017, Osborn et al., 2015). A deep understanding of people's perceptions and impressions of nature is fundamental to establishing their attitudes towards the environment in terms of how and why they relate to nature in a certain way (Nyumba et al., 2018). According to Ibáñez-Rueda et al. (2020), a connection with nature is associated with greater public engagement and contributes to pro-environmental behaviour. The term "public engagement" is very broad, encompassing a myriad ways in which people can participate in environmental issues that affect them, but few empirical studies have been done on how local actors can be effectively engaged to promote sustainable environmental management practices. (Ives et al., 2017) suggest that future scholarship should investigate a cross-fertilisation of methods for sustainability transformations. On this basis, this chapter focuses on the application of design thinking-mediated focus group discussion as a hybrid method for connecting humans to nature through the democratic governance of wetlands.

7.3 Public engagement in environmental management

The increasing global emphasis on environmental management, through multilateral norms, agreements and conventions, has resulted in a paradigm shift in responsibility from national governments as champions of a more consensus-based approach to stakeholders at community level (Swiderska et al., 2008). As management of the environment becomes more complex, there is a growing call for participation from multiple subjects in resolving conflict and mistrust that often plague the use of natural resources (Beierle, 2010). Of particular significance is the central role played by the local communities as the primary stakeholder in these processes. The commitment of communities is critical, considering that participation from affected people can be instrumental in facilitating better-informed decision-making, which is more likely to generate effective environmental outcomes by providing more buy-in (Prado, 2019, Reed et al., 2018). This emanates from the fact that community members, by virtue of having the lived experience constitute the principal stakeholders as they tend to be the most affected by issues in their neighbourhood. The active engagement of the communities and their partnerships with other stakeholders is an integral and critical component in connecting humans to nature. The process is multi-dimensional as it is an embodiment of material, experiential, cognitive, emotional and philosophical perspectives (Ives et al., 2018). According to du Plessis (2008), public participation demands the involvement of people in planning, implementing and managing their local environment, which positively affects their relationship with nature. Developing more robust and intimate community connections with their natural environment offers the potential to leverage and foster deep societal change for sustainability (Ives et al., 2017), as the interaction of people with nature is considered crucial to human well-being and development (Kellert, 2012).

Public participation has three facets: access to information, active involvement in the decision-making process, and access to justice (Kabiri, 2016). For participation to be

effective, the three facets need to be conceptualised as a package rather than in isolation, as their interaction is meant to promote decentralisation and autonomy, accountability and transparency, responsiveness and flexibility, participation and inclusion as well as experience and support in the management of the environment (Tanner et al., 2009). To achieve desirable results, public participation should be a two-way process in which the aspirations, concerns, needs and values of citizens and communities are incorporated at all levels of decision-making, leading to co-production of adaptation plans, and civil society-dominated and -led projects of action (Sarzynski, 2015). Decisions on environmental governance can be better reached and their information base can be more credible if the interested and affected parties are appropriately and effectively involved (Stern and Fineberg, 1996). To be effective, it is suggested that the process of public participation should follow a traditional decision-making model of pre-decision, decision, post-decision and feedback, in which emphasis is on early engagement in determining the design and purpose of participation (National Research Council, 2008). This will ensure that citizens think and talk about potential solutions to connect to their environment. Linked to this, (Kochskämper et al., 2016) call for a more transparent and deliberate approach to the design and purpose of public participation in environmental governance. There are many mechanisms for public engagement, ranging from citizen jury (in which ordinary members of the public are selected to represent a cross-section of the community) to consensus conferences (Fish et al., 2014).

While generally desired, not all forms of participation in environmental governance are equal. According to (Rowe and Frewer, 2005), models of public involvement differ in five variables: participant, intention, procedure facilitator, distribution of technical expertise and available choices. (Prado, 2019) suggests a variety of typologies on the spectrum of community participation, from no participation, through various degrees of tokenism, to degrees of citizen power. Despite these differences, effort should be made to ensure that processes to engage the public are explicitly designed to facilitate two-way communication and ensure fair representation of all values and preferences (Jeffery, 2009). Choosing a method of public participation is not simple, bounded or well-understood and many factors must be considered (Rowe and Frewer, 2005). It may take many forms in many different situations, with many different types of participants, requirements and aims, requiring tailored approaches to maximise effectiveness. Public participation requires a clear structure and process with well-defined rules regarding process implementation and decision making (Holdar et al., 2002), and it is important to understand the conditions for meaningful participation in activities that connect individuals to nature to avoid the “extinction of experience” (Miller, 2005). There are many ways of engaging communities on environmental issues, of which focus group discussion is one.

7.4 Focus group discussion as a method of public engagement

Focus group discussions are used widely to collect rich, in-depth insights for use in consensus development, emotional support and education (Barbour, 2017). They present a unique context for public deliberation, providing an open but defined space for the collaborative and spontaneous pursuit of knowledge essential to decision making (Pitts et al., 2020, Robles and

Ho, 2014, Southwell et al., 2005). According to Jayasekara (2012), the main strength of focus groups lies not simply in exploring what participants have to say on a particular issue, but in providing insights into the source of complex behaviours and motivations that cannot be discerned superficially. This is achieved by providing a defined space in which participants can articulate and form opinions and focus discussion on a shared popular culture experience, which is instrumental in building confidence to fully engage with matters affecting them (Kligler-Vilenchik, 2015, Pitts et al., 2017). Focus group discussions are beneficial when existing knowledge about a phenomenon is complex and inadequate (Powell and Single, 1996) and have transformative potential to bring about change, raise consciousness and empower participants while simultaneously playing a mediating role of uncovering both dominant and hidden discourses (Johnson, 1996).

The foundational premise of focus group discussions is that group dynamics are useful in helping participants to express and clarify their views in ways that are less likely to occur in a one-on-one interview (Jayasekara, 2012, Krueger, 2014), although the degree of interaction can be adversely affected if power differentials exist between participants. For example, some participants, particularly those in less powerful situations, might simply agree with the more powerful ones as a way of avoiding possible reprisals (Happell, 2007). If not addressed in the early phases of focus group discussions, this may suppress the views of participants, resulting in skewed outcomes (Jayasekara, 2012). According to Lewis (2001), the quality of focus group discussions depends to a large extent on the experience and skills of the moderator, who should be capable of steering the process interactively. Thus, without an experienced facilitator there is a risk that discussions will be less focused and may degenerate into generalised talk typical of a question-and-answer session.

The facilitator should not express their own judgments or opinions and must encourage participants to play an active part in the discussions (Silverman, 2015). Focus group discussions are more effective when group rapport and trust are established at an early stage, otherwise the process will be too complicated and compromised to be of value (Carey and Asbury, 2016). It is important to be sensitive to the size of the group and its composition as some of the participants in a focus group discussion may be unwilling to share very personal experiences or unpopular opinions in a large open group (Kitzinger, 2005, van Eeuwijk and Angehrn, 2017), but a safe, non-threatening environment can encourage and empower participants to overcome stigmas, discrimination or taboos in the presence of people with similar experiences (Kitzinger, 1995). This requires flexibility and cultural sensitivity as well as methodological rigour (Barbour, 2017, Nisbet et al., 2009a).

The complexities of some topics and the limitations of focus group discussions call for a combination of methods, and (Carey and Asbury, 2016) assert that, like other qualitative methods, focus groups can be integrated with other qualitative methods to inform various aspects of the overall research. The combination of focus group discussions with other methods can be effective in solving the problem under investigation (Coenen et al., 2012, Tausch and Menold, 2016) and allows for triangulation (Barbour, 2017).

7.5 Design thinking as a human-centred approach

Design thinking is an innovative, creative and collaborative method of public engagement to solve problems that is grounded in abductive reasoning (Kolko, 2010, Maher et al., 2018). It draws inspiration from logic, imagination and systemic reasoning to explore possibilities that address users' needs and calls for analytical modes of reasoning in the development of customised products and services for the targeted public (Barrett & Moore, 2010; Brown & Wyatt). In design thinking, intuition is important, solutions generated are numerous, experiential learning is promoted and users' needs are taken into consideration (Pruneau and Langis, 2015). Teams composed of people from diverse backgrounds ensure diverse points of view for the definition of a problem and the formulation of new ideas, leading to sustainable solutions (Leifer and Steinert, 2011). By being human-centric, design thinking focuses on humans first and foremost to gain an understanding of their needs. According to Dunne (2018), design thinking challenges traditional analytical thinking, which is fragmented by specifically integrating interdisciplinary elements and knowledge. This is suitable for finding more appropriate alternatives to sustainability challenges, such as the fight against environmental degradation. For example, a study by (Maher et al., 2018) recommended design thinking methods for issues pertaining to sustainability to generate human society-centric solutions. (Plattner et al., 2012) propose that given the societal changes required for sustainable development, design thinking is crucial for the management of the environment. By virtue of being creative, design thinking is collaborative in its approach, experimenting with numerous solutions to meet the unarticulated needs of the users, and it is considered one of the most effective environmental management methods (Plattner et al., 2012). Previous studies into the application of design thinking show that it can be instrumental in tackling complex problems, particularly those that are ill-defined or unknown (Brown and Wyatt, 2010, Kolko, 2010). Considering the importance of being innovative in sustainable development, the design thinking process offers potential to restore and improve the quality of the environment (Brown and Wyatt, 2010).

Connecting the residents to the wetland has proved challenging and typifies what (Buchanan, 2010) refers to as a wicked problem, which he defines as:

A class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing.

To solve wicked problems, (von Thienen et al., 2014) and Leverenz (2014) call for alternatives to a step-by-step design process model, of which design thinking is one. Design thinking is a human-centred methodology that aims to solve complex problems affecting humanity (Carlgren et al., 2016, Rauth et al., 2010). Although many variations of the design thinking model exist, the design process is divided into two distinct phases: problem definition and problem solution. The former is an analytic sequence in which all the elements of the problem are determined, while the latter is a synthetic sequence in the underlying problems used as the basis for finding a solution (Buchanan, 2010). Although design thinking gives voice to the weak, the major limitation is that it is demanding in terms of resources,

both financial and time which requires the users to adapt the method in a pragmatic way to the specific context to achieve the intended results (Cross, 2011).

7.6 Implementation of design thinking methodology

This project's design thinking process started with the recruitment of a diverse team of participants to work on the challenge. Seven participants from different backgrounds – five women and two men, between 25 and 55 years of age – were recruited based on their availability for a five-day intensive programme and their interest in solving problems for the community. The implementation of design thinking is premised on teamwork, which is cherished in Shona culture, where many proverbs encourage people to work together instead of in isolation (see Table 7.1). In the Shona culture, a person who does not unite with others in a common cause is regarded as a misfit.

Table 7.1: Proverbs that encourage cooperation among people in the Shona culture.

SHONA PROVERB	LITERAL ENGLISH TRANSLATION
Rume rimwe harikombi churu	One man cannot surround an anthill
Chara chimwe hachitswa	One fingernail cannot crush a louse
Zanondegakaonekwa ane mbonje pahuma	He who listened to no advice had a conspicuous scar on his forehead
Mbimbindoga akawira mumasese	Know-it-all fell into the dregs [of beer]
Kuwandahuuya/museve wapakoneta pamuzukuru.	It is good to be many, for an arrow meant for grandfather hit the nephew instead
Mazano marairanwa	Ideas are shared
Kutsva kwendeavu varume vanodzimurana	Men extinguish each other's burning beard
Makudo ndimamwe musi wenjodzi anobatsirana	Baboons are united, for in times of trouble they help one another
Shuro yamutswa neruzhinji yave nyama	A hare hunted by a group is easily killed
Kuchera mbeva kukomberana.	To dig for mice requires a concerted effort
Zano ndega akapisa jira.	The one who did not seek advice burnt his blanket
Chaitwa chisina ranga chinopfuka	That which is done without consensus is doomed
Benzi vhunza rakanaka	One can only learn through asking others



Figure 7.1: Part of the team that participated in design thinking.

The design thinking process was run by an experienced facilitator hired to run the programme. Participants started with a team-building exercise in which they introduced themselves and shared their expectations of the exercise. In Zimbabwean society, giving introductions is a prerequisite before people start working with each other. Without introductions, people tend to be suspicious of each other and do not want to participate. Although participants were from the same neighbourhood, introductions were important to share with others and explain what had brought them to the workshop. As a Zimbabwean who grew up in the local culture, I understood the underlying importance of the introductions. The political environment in Zimbabwe is polarised along the lines of political parties, with hostility between the ruling and opposition party. When people gather, they are afraid of being joined by spying intelligence officers (*vasori*), which has happened in many cases.

The facilitator discussed the importance of an environment conducive to participation, and the participants developed a team charter in which they agreed on how they would work for the duration of the programme. From the outset, participants agreed to defer judgement, give each other chances to participate, embrace failure as an opportunity to learn and stay focused on the topic. One participant raised the issue of making the team non-partisan, and all the members agreed not to discuss political issues. As a marker of their commitment to finding solutions without being drawn into politics, the members wrote on the team charter in bold “*Hatidi zve maslogan*”, meaning “Away with political slogans”. Environmental management

in Zimbabwe is politically charged, with those yielding power or connected to the elite having unfettered access to natural resources, so it remained a challenge for the team to navigate the management of the wetlands without being swept away by political discourse.

7.6.1 Understand phase

In the *understand phase*, the facilitator introduced the challenge to the team, broadly framed as: How might we protect the Marlborough wetland from the damage caused by urban agriculture? The issue of farming on the wetland had gone unabated for some time, and some participants had despaired of ever finding solutions for this highly ambiguous “wicked problem”, with many knowns and unknowns, that is too complex to solve. Participants also felt overwhelmed by the magnitude of the challenge, with one suggesting it was easier to engage law enforcement to stop people farming in the wetlands than to think of solutions. Many projects had been initiated to solve the problem but had not been successful. The facilitator acknowledged the issues raised and the emotions generated but appealed to the participants to trust the process, reminding them of the Shona proverb *Pfavira ngoma usiku hurefu*, meaning they should not rush into solving the challenge without understanding it, as the journey was long. It was evident from the beginning that wetland management is a highly charged topic that should be treated carefully to find effective solutions. Quick fixes would not work, and to drive home the message the facilitator played the song Wongororo by Oliver Mtukudzi.

Table 7.2: Lyrics to “Wongororo” by Oliver Mtukudzi

Wongororo	
Wakurumidza kumedza kutsenga uchada	You rushed to swallow
Mandikurumidze akabara mandinonoke	When you still needed to chew
Pfavira ngoma chimhandara, usiku hurefu	Unnecessary rush leads to delays
Tanga waongorora patsika remberi	Take it easy on the drums, my girl, the night is still young
Uchati ndidai, zvoramba	Check first what the front foot is stepping on
Kana kudai, zvoramba	(before you lift the other foot)
Wongorora, chimhandara, patsika remberi	You will try one thing and it will fail
Wongorora, machewe, patsika remberi	Try another, and it will fail
Wongorora, makeyi, patsika remberi	Check first what the front foot is stepping on
Wongororo ruzivo rwerema	(before you lift the other foot)
Ukanyararira injere yerema	It is wise to take time to analyse
Iko kunyararira ruzivo rwerema	It is wise to be cool
Kana kusapaparika injere yerema	It is wise to be steady

Source: Oliver Mtukudzi, 2002

After listening to the song, the participants were given time to reflect on its message. They agreed not to dismiss the challenge at face value but to take time and seek in-depth insights before coming to a conclusion. The team added “*Tinowongorora*” on their charter, meaning “We take our time to reflect and explore further”. As a result of the facilitator’s direction, the participants changed their approach to the challenge: instead of rushing to complete the project, they agreed to take it one step at a time.

The participants engaged in a mind-washing exercise in which they shared their thoughts, emotions and prejudices about the challenge. Some participants were already proposing solutions at this stage, and the facilitator had to remind them to take one step at a time. The team unpacked the key terms of the challenge on sticky notes to deconstruct the loaded words in the challenge statement. This was intended to bring different interpretations of the challenge to the fore, to widen its scope and to approach it from different perspectives. This opened the challenge to interpretive flexibility as enshrined in the design thinking principles, which emphasise quantity rather than quality at the early stage. Stakeholders who were directly and indirectly affected were identified, and the team described the connections to create a stakeholder map (Figure 7.2).



Figure 7.2: Map of stakeholders linked to farming on the Marlborough wetland.

The team was asked to choose one stakeholder as an entry point to address the challenges. After some deliberation, the team selected the farmers practising urban agriculture on the wetlands as the key stakeholder. This did not mean that the other stakeholders were not important, simply that a decision was made to find a customised solution for one stakeholder and consider the other stakeholders thereafter. This is premised on design thinking principles of generating customised solutions for the users.

7.6.2 Observe phase

With the farmers at the centre of the challenge, the team framed interview questions to solicit the information they wanted. The interviews were semi-structured to allow the informants the freedom to express their views on their own terms. The participants were divided into two groups, one with three people and the other with four. The two teams interviewed the Marlborough farmers as part of the observe phase – the teams were warned not to make assumptions but to listen to first-hand experiences. This is reinforced by the Shona proverb *Chitsva chiri murutsoka*, meaning that one can have new experiences and insights by moving to different locations, and the teams were surprised by the amount of information they were able to collect over a relatively short space of time.



Figure 7.3: One of the design thinking teams interviewing wetland farmers.

The teams unpacked their interviews and captured them on the chart to generate insights (Figure 7.4). Pseudo names were used to ensure confidentiality of the research participants. After sharing their information, the teams worked as one to synthesise and develop insights into the challenge's underlying issues. The participants found that the residents who practised

UNPACK						
We met	He/she told us					Insight
Chimoyo ±50 man self employed	disturbs Environment	affects under	30 mts from the river	water: people are so polluted	water is to be kept from the children area	
Maria ±30 self employed	Preserved	may can be built out for tourism	Soil Erosion	Good place to visit	to be good to visit	
Group of 3 Youths employed	Soil Erosion	Siltation	Municipal takes all year round	Tree Seed	Evergreen	
Brian ±55 man self employed	200 mts from Guabi	water is to be kept	watering: water is to be kept	watering: water is to be kept	watering: water is to be kept	
Tinashe ±45 man employed	teaching & merge	water is to be kept	water is to be kept	water is to be kept	water is to be kept	
Andrew ±50 man self employed	water is to be kept	water is to be kept	water is to be kept	water is to be kept	water is to be kept	

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7.6.3 Point of view

From the interviews, it emerged that the harsh economic environment in the country was forcing the residents to practice agriculture on the wetlands. The farmers were to the point, saying “*Tiri kutsvakawo chouviru kuti tirarambe, kwete zvakawanda,*” (“We are merely trying to find a means to survive and nothing beyond that”). Informed by this insight, a *point of view* was developed as the basis for specific solutions to the challenge (Figure 7.5).

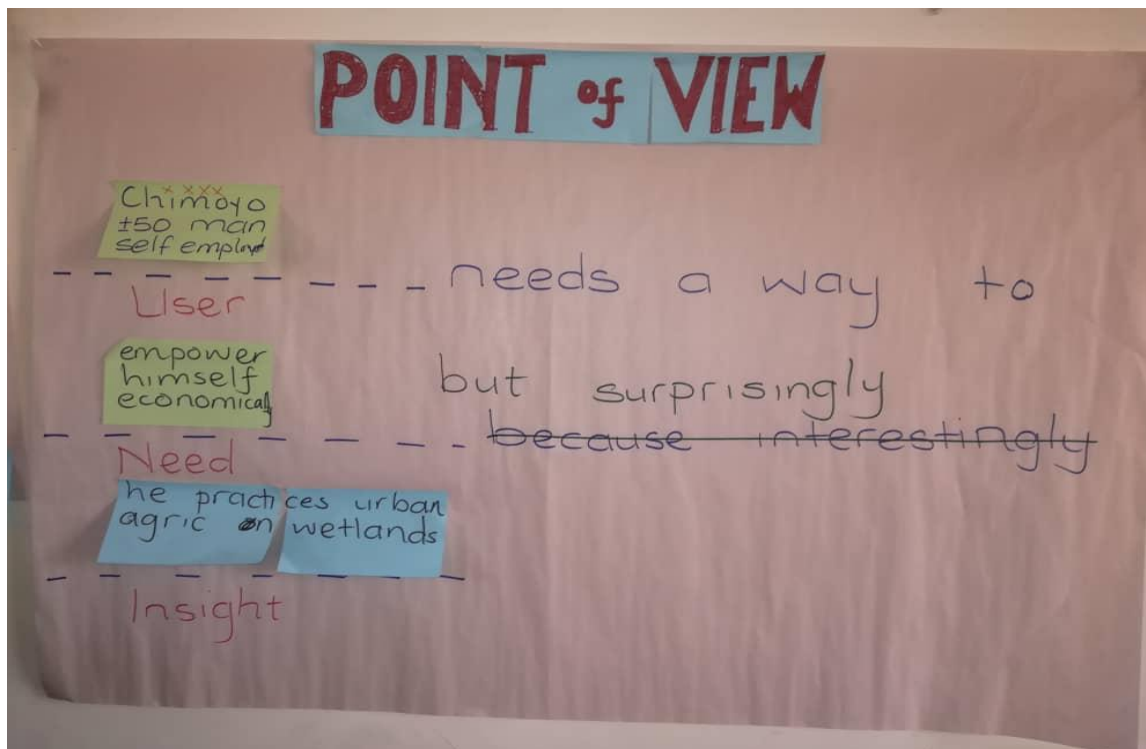


Figure 7.5: Point of view that the team developed from the interviews.

The *point of view* was framed as: *Chimoyo, a middle-aged unemployed resident of Marlborough, needs a way to empower himself economically and, interestingly, he looks to urban agriculture on the nearby wetlands as a source of livelihood.* This was informed by the interviews, which revealed that many people who practiced urban agriculture on the wetland were like Chimoyo: they knew the important role the wetlands played in removing pollution, recharging groundwater supplies, controlling floods and providing a habitat for a variety of plants and animals, but their need to eke out a living through wetland farming overrode that priority. To solicit solutions that might help overcome this challenge, the point of view was converted into a question:

How might we help Chimoyo, a middle-aged unemployed resident of Marlborough, to empower himself economically and earn a living without damaging the wetland through urban agriculture?

The question ushered the team into the next phase, called *ideation*. In this phase, the participants came up with ideas and solutions that could help solve the challenge (Figure 7.6).

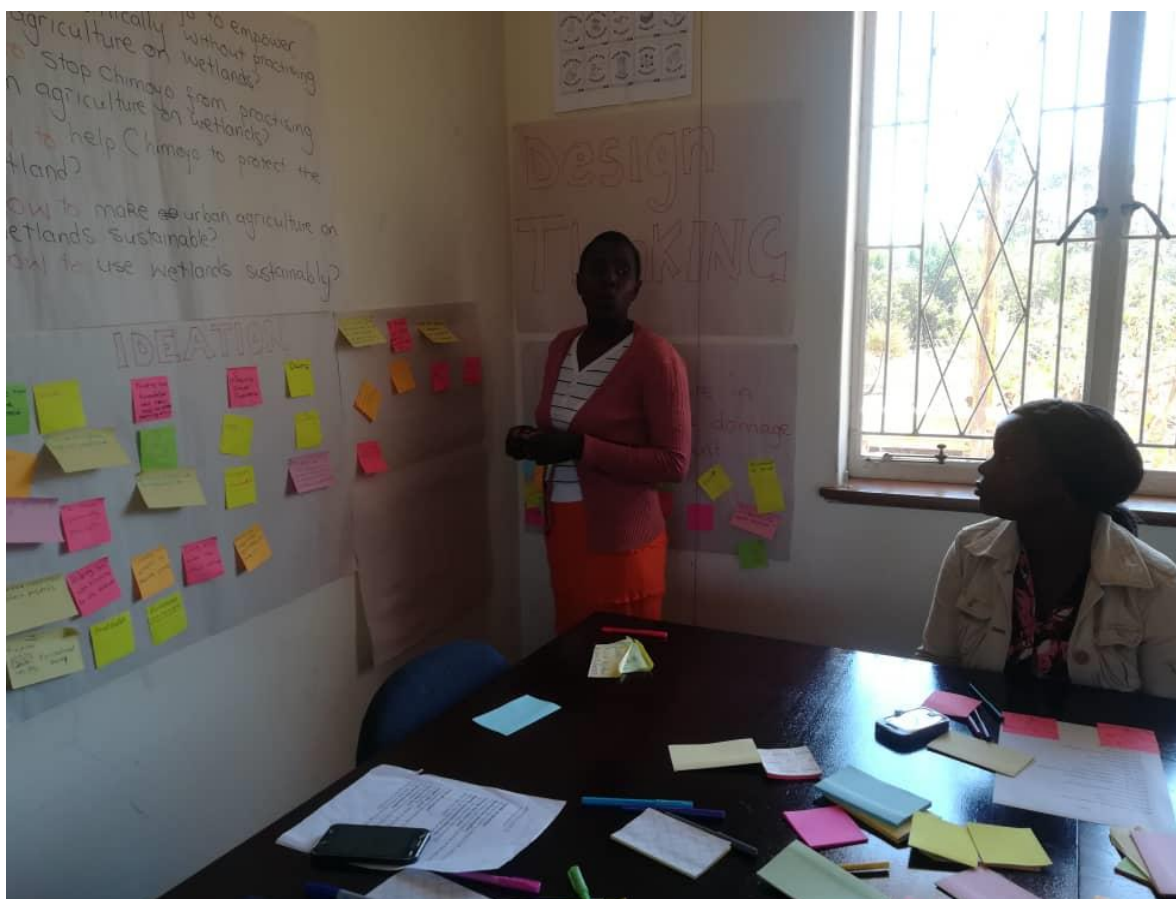


Figure 7.6: A participant sharing her ideas with the team.

7.6.4 Ideation

The ideation session uncovered and explored new angles and avenues of problem-solving in a judgement-free environment. As many ideas as possible were generated and, to push the participants to come up with more, the facilitator used the metaphor “*Mazano chitubu vanoteka richibvinina wani*”, which means that ideas are like a fountain of water, and those who fetch water will never exhaust it. The generated ideas were synthesised by grouping them into themes and clusters and were selected based on their originality and potential for significant impact (Figure 7.7).

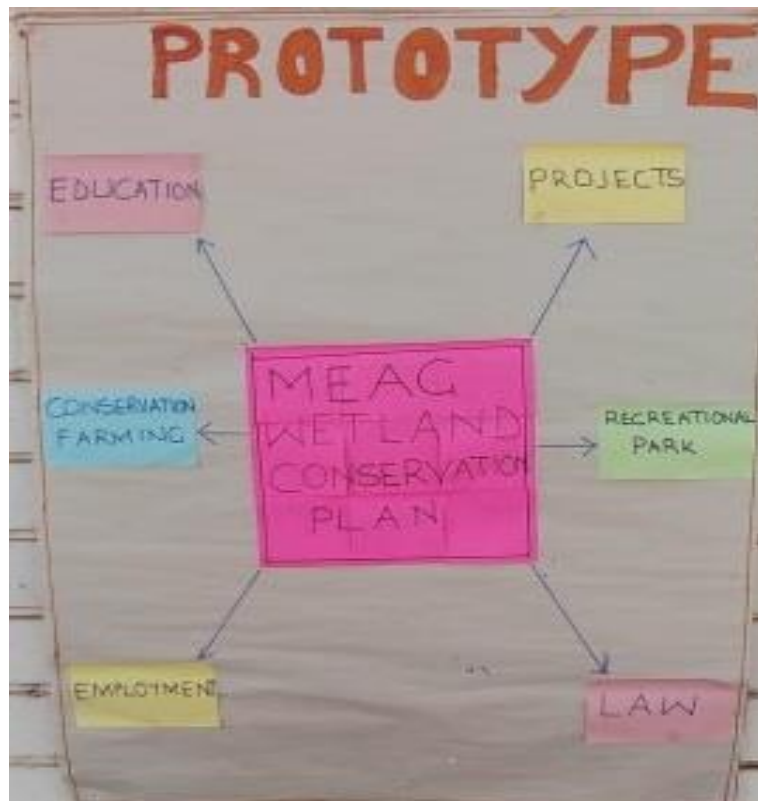


Figure 7.8: Prototype presented to trigger focus group discussion.

The prototype shown in Figure 7.8 strategically positioned MEAG, a community-based organisation, at the centre of connecting residents to the wetland. After an intensive five-day workshop, the prototype was presented on the sixth day, a Saturday (Figure 7.9). The solution was presented as a work in progress that needed further participant input to ensure a holistic approach to the problem. The prototype comprised the following.

Education

Although many residents were knowledgeable about the wetlands' role in the local ecosystem, education was considered to be an indispensable component of empowering residents to be custodians of the environment and should be regularly reinforced through different mechanisms. It was proposed that MEAG educate farmers and residents about the importance of wetlands through workshops, meetings, newsletters and social media platforms. Understanding that children are the future, the education plan also entailed educating children about the wetlands through drama, music, art and games in social clubs.

Income-generating projects

Viable income-generating projects are essential to improving household income, but projects depend on the availability of start-up income. The opportunity to engage in viable projects would mean that some wetland farmers could voluntarily stop practicing agriculture on the Marlborough wetland. Part of the plan entailed engaging the HCC to secure land with irrigation systems for farmers who wanted to continue farming (some farmers said they only

practiced agriculture because they were unemployed). According to the plan, title deeds should accompany the given plots of land. A variety of projects would have to be introduced to suit the various interests and needs of the people.

Employment creation

Employment is key to ensuring sustainable use and management of the wetland, and there is a need to engage NGOs, HCC and other partners to assist in creating employment. As some of the residents and farmers are professionally qualified, these partners could help source employment for them. To reduce pressure on the wetlands, the labour shortages in sectors such as waste collection, health and education could be filled by residents and farmers.

Recreational park

It was anticipated that when farming ceases on the wetland, the land could be used to develop a recreational park as a source of employment for the residents. The park would also provide opportunities for relaxation, education, poverty alleviation and ecosystem management services. Recreational use of the wetland was based on the premise that leaving it idle would suggest it was not being used and invite more unsustainable practices. iSimangaliso Wetland Park in Durban and Khayelitsha Wetlands Park in Cape Town (both in South Africa) were cited as examples. This is a long-term plan that depends on state and donor funds.

Conservation agriculture

Conservation farming on the wetland was suggested to protect soil and water. The practice also enhances productivity, so farmers would benefit from a high yield while protecting the environment. Conservation farming on the wetland constitutes a subtle form of *translation* which causes minimal damage in line with the goal of maintaining the functions of the ecosystem. This is different from construction activities by property developers who are driven by profit, even at the expense of the environment. Some farmers were knowledgeable about conservation farming but needed further training in new conservation farming methods that could be used in the wetlands.

Law

The plan included a review of the laws applicable to wetlands. The current laws governing use of wetlands are an outdated *script*, and local people should be engaged in the law-making process to incorporate their voices and create a law that is democratic and fair. The wetland law should only be applied as a last resort if people continued farming despite initiatives to address their needs. This is a long-term goal that requires serious consultation with authorities.

What emerged from the focus group discussion is that the farmers are interested in *appropriating* the wetland by domesticating it as a negotiated space to meet their needs and interests. The wetland is a resource upon which they depend for their living.



Figure 7.9: Presentation of the prototype for focus group discussion.

Comments, views and questions

After the presentation of the prototype, the participants in the focus group discussion were highly motivated to contribute their views, given a rare and seemingly genuine opportunity to address the challenges associated with use of the wetlands. They related to the proposed solutions and were willing to freely express their views about how to protect the wetland. This was the democracy they had longed for, as it factored the interests of the marginalised into the process. The discourse changed from the earlier Shona phrase that *Pane ane nzeve here dzokunzwa zvichemo zvedu isu varombo, kungovaraidza nguva kuteya nzou neriva* [“Is there anyone with ears to listen to our challenges as poor people, it is just whiling away time at the meeting, like trying to trap an elephant with a falling flat stone used for catching small animals”] to *Mwana asigachemi anofira mumbereko* [“A child that does not cry dies in the cradle”], which encourages people to present their complaints because no one else will do it for them.

The farmers pointed out that they participated in the project because it was being run by *mwana wechikoro asina zvakawanda wanda* – a neutral student with no hidden agenda and a desire to acquire knowledge for further use. The farmers said, “*Aana mai nana baba, ngatitaurei tibatsire mwana wedu mustudent ari kudzidza kuSouth Africa, kwakarongeka uku, ndiye angatotibuditsa munhamo yatiri akatora zvichemo zvedu sezvo anonzwikwa*” [“Ladies and gentlemen, let us help our own child who is studying about wetlands from an academic perspective and is based in South Africa, which is a country with order and better planning. No one knows, maybe the student will be our saviour in our predicament, as she has a better chance of being listened to by the authorities than the people who have been engaging us for

long but to no avail.”] The residents expressed a willingness to protect the wetland if their need to earn a living was addressed. They did not ask for much, just to see that the wetland was recognised as the means of their livelihoods. Most of the farmers regarded the law as unfair, and they did not want to continue being constrained by the law; they felt entitled to the land as *vana vevhu* – “children of the soil”. One farmer asked:

Why are we prohibited from farming on wetlands, yet companies, politicians, business people are building houses, shopping malls, fuel stations? Why are we prohibited from wetland farming, yet we see commercial farmers practicing agriculture in this wetland? Why are we forbidden from agriculture, yet we can practice agriculture on wetlands without damaging the environment in our rural areas? Why are we prohibited from securing an honest living in this harsh economic environment with no jobs? Why are we never consulted when these laws are formulated? Why are we still using *mutemo waCecil John Rhodes* [the law of Cecil John Rhodes]? Why? Why? Why? Why? (F008)

The farmer touched on important issues of injustice, favouritism, corruption and coloniality, and other participants clapped their hands and nodded their heads, and women ululated to show their agreement and support. The presenter responded:

Mataura idi baba vangu, ndosaka tati tiite muwoner pamwechete, nekuti rume rimwe harikombi churu. Dambudziko nderedu tose, uye mazano marairanwa. [“What you have said is the truth, my father, that’s why we have said let us share ideas, because one man cannot encircle an anthill. The problem is for us all, we should share ideas.”]

The residents revealed that they had been promised income-generating projects before that had not materialised, which made them sceptical of the initiative. They were interested in income-generating projects that did not require a lot of capital, and several projects were proposed, including poultry production, bee keeping, mushroom growing and vermiculture. A Marlborough resident volunteered the large garden at her house for horticulture, and the area councillor encouraged people to submit project proposals to receive funding for income-generating projects.

The idea for the recreational park was enthusiastically received, as the residents believed it could be a source of employment and would bring beautiful scenery to Marlborough. However, residents doubted the project’s feasibility in the tough economic environment and were concerned about accessibility rights. One participant said:

This is a good project, because jobs will be created, nature will be conserved and our children will have a play area. However, access to the park should not be restricted, it should be free of charge. Many parks, like Hwange National, Mukuvisi Woodlands, are charging people to view nature – is that fair? This should be avoided. However, this is a massive project, and I wonder if it will materialise given the economic status of the country. (R010)

Other residents advised on the need to use ecologically friendly materials like wood and grass for paths and other infrastructure. Others suggested signposts like “No littering” to keep the wetland free from pollution. A youthful participant added:

On your plan you should add the issue of private property rights. Planned projects cannot be done on private property. There should be a negotiation to transfer rights of ownership to the community. Then, the private company can be given another piece of land to carry out their construction projects. These private companies are only concerned about financial benefits, they don’t care about our environment. We want to manage our wetland the CAMPFIRE way to eliminate poverty within our community. We cannot have our wealth, our life, our wetland stolen while we watch. *Pachishona tinoti kana ukarera*

imbwa nemukaka mangwana inofuma yokuruma ["In Shona, we say the dog that you spoil with milk today will bite you tomorrow]. Private developer *ngaishamure! Suka! Hamba!* [Go away!] (011)

There was ululation, clapping and whistling when this participant finished talking, showing that the participants were concerned about corporate ownership of the wetland. The proverb *Ukarera imbwa nemukaka mangwana inofuma yokuruma* suggests that entertaining the private developers will backfire on the community, possibly through environmental problems caused by wetland loss. The participant referred to the CAMPFIRE projects, in which environmental projects were tackled at a grassroots level in rural Zimbabwe. Therefore, he suggested that the same concept be adapted to manage the wetland resource. The participants agreed that the issue of private property developers should be included in the plan. Natural resource governance should ensure the improvement of the livelihoods of local communities (Matose and Watts, 2008), which requires the eradication of top-down approaches by considering local community participation in decision making.

The focus group discussion was intended to last for an hour, but the residents stayed for another half hour to contribute their views, as it was conducted in a tension-free environment in which they were excited to contribute. These discussions were more focused and purposeful than other discussions they had participated in, which they described as one-sided and confrontational. In a post-focus group interview, one wetland farmer said:

This is a different approach to the management of wetlands. I had decided not to attend all meetings on wetlands, because every time we are told of threats of being arrested or having our crops slashed. To me, it seemed as if they did not understand what was driving us to grow crops on wetlands. With the new approach used today, the solution presented appeals to most of us residents who do farming, because it provides us with other viable options to earn a living. We are not rebels but people who are just trying to survive, and we are open to initiatives that help us protect our environment as long as our needs are addressed. (F005DT)

The residents were initially sceptical about design thinking, particularly during the Observe phase, when they were interviewed about challenges; they suspected hidden motives. Another respondent explained:

We had gotten used to meetings when we were invited to attend with the hope that we would present our views as the farmers. But instead, the meetings would turn out to be one-sided, as the authorities would tell us to stop farming and we were afraid to express our thoughts. So, we did not see value in attending the focus group meetings, as we did not want to expose ourselves as culprits and did not know what the future held for us. (F006)

The residents did not attend when first invited to the focus group discussion, and it had to be postponed. It took much effort to convince them that the process was not window dressing, as they described it. They came to the focus group discussion because they wanted to see what came from the exercise, and the residents were ultimately pleased that this focus group discussion had engaged with their needs:

It is the first meeting that I feel that we have been genuinely and actively engaged in finding lasting solutions to the challenges as farmers. It was clear that our involvement was not like rubber stamping the decisions made in boardrooms. Instead, we felt our voices have been heard, as the solution generated appeals to us. I never imagined that a focus group discussion on such a sensitive topic could be interesting and tension free. I was at liberty to contribute my views, as the whole process was empathetic to our situation, which has not happened to us before. (F007DT)

Participants in the focus group discussion appreciated that they were actively engaged without feeling intimidated, which made the discussions more effective in gathering the opinions of the target audience and the attitudes to proposed solutions. The focus group discussion ended on a high note, with MEAG being mandated to convene a meeting for residents to visit the wetland for first-hand experience of the ecosystem and to devise pragmatic strategies for connecting to it. It was also proposed that the prototype be revised to cater for issues raised by the residents, such as the issue of private property. As the councillor was in attendance, she promised to present the final plan to HCC.

7.7 Design thinking to promote democracy in environmental management

Feedback after the meeting showed that engaging the farmers through design thinking positively influenced their participation and generated solutions in a non-confrontational way. Five thematic areas emerged from the whole process.

First, the use of design thinking prior to the focus group discussions facilitated groundwork on the complex issues surrounding the use of wetlands for farming. The farmers were not interested in the top-down approaches they had experienced in the past, in which they were told what to do and were not invited to offer their own input.

To design and implement effective strategies that encourage people's engagement in pro-environmental behaviour, it is critical to understand what drives environmentally destructive behaviour ((Whitburn et al., 2019). It is difficult to explore the underlying issues of wetland farming without actively engaging farmers, and immersion in user experiences, the hallmark of design thinking, provided raw material for deeper insights. In this case, immersion in users' experiences involved a long, winding route rather than a direct one, and is well articulated by the Shona proverb *Kukwira gomo hupoterera* ["It is easier to climb to the top of a mountain by taking the circuitous, indirect route"]. This was effective in addressing the challenges of wetland farming, as the long, winding route brought the different stakeholders on board, and the resultant solutions were not rushed.

Design thinking paved the way for an effective focus group discussion, as some issues shared in the design thinking interviews were personal and may have been difficult to present in a focus group discussion. Design thinking had generated many insights from interviews and prototype testing by the time the focus group discussions were convened, so the subsequent discussion was pitched at an advanced level. It was a time-consuming process, but speed is worthless when travelling in the wrong direction. Shona wisdom has it that *kumhanya handiko kusvika*, meaning that hurrying up does not always guarantee safe arrival.

Second, using design thinking to explore problems and generate solutions ensured that the time for focus group discussions was used effectively, because the focus area was already clear. This is illustrated by the Shona metaphor *Kuti dyo panhongonya, kwete kuti pamusasa, pamupfuti kana pamunhondo*, which means to be direct and to the point and not to beat about the bush. Farmers may be reluctant to attend meetings because the agenda setting process often lacks clarity and is not planned, using a more reactive than proactive approach.

Design thinking contributes to the efficacy of meetings by ensuring they are framed with clearly articulated goals and that the facilitators are connected to participants (Bernstein and Ringel, 2018). Design thinking made a remarkable difference in this study, because the agenda for discussions was clear. Discussions were not about fact or fault finding, and it was possible to cover substantial ground in a short space of time and to explore potential solutions. The smooth transition from design thinking to focus group discussions resulted in the participants contributing freely because of the relationships already established, and the proposed solutions suggested that the focus group discussion built on design thinking's foundations. The process proved to be an embodiment of the democratic governance of natural resources.

Third, because the solutions generated through design thinking resonated with the farmers, the participants could use the focus group discussions as a platform to express their views. The relationship between needs and solutions was closely knit, typical of *kuita mukombe nechirongo* (a drinking gourd and an earthenware pot for water) or *bhandi nebhurukwa* (belt and trousers). Design thinking is driven by its ability to be intuitive and to develop solutions that have an emotional meaning beyond the functional (Martins et al., 2016).

For example, many Marlborough residents saw no value in focus group discussions and no longer wanted to take part in them, in part because discussions were always about stopping farming and did not address their reasons for doing so. Because design thinking solutions are context oriented, the residents now felt their input was being taken seriously, and the focus group discussion was able to achieve a lot in a short space of time. The participants were eager to discuss the issues, as they felt progress was being made and they wanted to make the most of the opportunity. When addressing complex problems on the use of ecosystems, concerted effort should be put into ensuring a close nexus between need and solution.

Fourth, because design thinking is oriented towards creating solutions that are feasible, viable and desirable (Naiman, 2016), the participants enjoyed and engaged with the focus group discussions. It can be difficult to reach consensus and find amicable solutions when discussing contentious issues such as wetland farming, as discussion may degenerate into confrontation without addressing the situation. This focus group discussion yielded desirable results because it was centred on generating win-win solutions for farmers and the wetland, and the proposed solutions satisfied the needs of the people farming on the wetland and were easy to implement.

The farmers expressed their satisfaction with the engagement outcomes, saying, “*Nhasi taita rombo rakanaka*” [“Today, we have been very lucky”]. Previous meetings about the wetlands had degenerated into conflict, and they were surprised that amicable solutions could be reached in a tension-free environment.

Fifth, the engagement of the participants through design thinking prior to the focus group discussions was instrumental in building rapport and trust. Focus group discussions can fail to generate meaningful interactions if there are suspicions about the motive for conducting them, and this may be more problematic with regard to “wicked problems” like environmental issues that are complex, open and poorly defined. Design thinking proved

useful in building a trust-based team culture that encouraged creativity and innovation. The application of design thinking and the focus group discussion helped establish rapport with the residents of Marlborough, and the established relationship proved useful.

The importance of relationships or rapport is highly cherished in the Shona culture, as reflected in the proverb *Kukanya mukaka hurangana*, which literally means “Mixing sadza with milk requires the consent of others.” Sadza is a staple food in Zimbabwe and is often eaten with milk in the rural areas. Shona culture promotes togetherness and families eat from one plate, so it is common to see a huge plate of sadza and another full of milk. Because it is shared, when one wants to mix sadza with milk, one must seek consent from others. The moral value is that one should consult affected parties before doing anything that affects the public. This shows the importance of considering the views and opinions of others and agreeing on a course of action as part of democratic governance.

7.8 Conclusion

This chapter has shown how design thinking and focus group discussion were used as a hybrid method to engage Marlborough wetland farmers. The purpose of combining the methods was to maximise engagement with the farmers so that they could take ownership of the solutions to their challenges. Design thinking was used as a means to an end, and the focus group discussion was an indispensable component of the public participation. This was a departure from conventional approaches of top-down stakeholder engagement that endorse solutions proposed and finalised in boardrooms. Many solutions to environmental challenges are driven by perceived needs, and users are rarely engaged, resulting in solutions that are difficult to implement. By taking the time to understand users’ underlying needs, bottom-up approaches to the management of environmental resources address real and not perceived needs. This chapter has revealed that it is possible to develop a win-win solution in the management of wetlands, provided that the views of the poor and marginalised are incorporated. The win-win solution that emerged from the hybrid method was the result of an interplay between *appropriating* and *translating*, in which the former was preferred. Given a fair and level playing field, the farmers are keen to protect the environment, but this is not possible when their needs are dismissed as trivial.

Chapter 8 -Rethinking relationships with nature: beyond criminalisation of urban wetland farming

Today, we are faced with a challenge that calls for a shift in our thinking so that humanity stops threatening its life support system. We are called to assist the world, to heal our wounds; and in the process, heal our own. Indeed, to embrace the whole creation in all its diversity, beauty, and wonder. This will happen if we see the need to revive our sense of belonging to a larger family of life, with which we have shared our evolutionary process (Maathai, 2004).

8.1 Thesis summary

The extract from Wangari Maathai's Nobel Peace Prize acceptance speech in 2004 shows the importance of reconsidering how humanity acts towards nature to promote environmental integrity. The focus of this thesis on the use of the Marlborough wetlands through the lens of the environmental humanities provides critical insights for constructive engagement with fundamental questions of meaning, value, responsibility and purpose which are often taken for granted when dealing with contentious ecological issues. The thesis consists of eight chapters of which chapter 1 provides a background and shed light on the underlying sources of conflict with regards to the use and management of Zimbabwe wetlands. Chapter 2 is the research methodology which provides the techniques used in the study for data collection, handling data analysis and chapter 3 is the conceptual framework for the study which is derived from a review of literature. Chapter 4 is anchored on the land use changes that occurred on the Marlborough wetland in since 1984, chapter 5 assesses the relationship between urban farmers and the Marlborough wetland, chapter 6 explores initiatives taken by Marlborough residents to address the "problem" of practising agriculture on the wetlands, chapter 7 proposes participatory ways to connect Marlborough residents to the wetland and finally, chapter 8 presents conclusions and insights generated from the study on rethinking human relationships with nature.

Challenging the stakeholders involved in the management and use of natural resources to reflect critically on the intricate relationship between nature and human beings is central to this thesis. Current discourse on environmental management emphasises protection of the environment at the expense of human livelihoods, instead of striking a balance between the two. While protection is important, there is also a need to consider nature within social and cultural realms, considering pertinent issues such as social justice and democracy. This thesis focuses particularly on the conceptualisation of human agency, social and cultural formation, social change and, more importantly, entangled relations between human and non-human actors. By engaging with urban farmers practising agriculture in the Marlborough wetland, the thesis provides a new perspective on the management of environmental resources, emphasising issues of inequity, democracy, social justice, capitalism and development.

By investigating the lived experiences of farmers, I sketched critical relationships between people and the wetland. An ecologically sound connection between human and nature is crucial for human and ecological well-being, but the systems put in place by the governing structures and authorities do not support sustainable relationships – made explicit through

analysis of the relationship between the farmers and the wetlands through the lens of scripting. Scripts highlight the importance of use and users in land use configuration. While users play an integral role in shaping the meaning and functionality of land use designs, they are often overlooked in narratives of land use development in favour of reductive stories of genius inventors or superior design. By investigating the role of users in the evolution and politics of the Marlborough wetlands, the thesis highlighted the tensions and challenges emanating from stakeholders' conflicting interests. Through the analysis of the *scripts* (such as the law and placards forbidding cultivation, which are rejected by the farmers), this study showed how the wetland is positioned in relation to potential and actual users. The rigid nature of the scripts affects wetlands as *companion species (ecosystems)* by altering components of the mutual coexistence between wetlands and people.

8.2 Reflections on empirical research findings

8.2.1 Inequitable access to natural resources

The competing uses of the Marlborough wetland reveal the vested interests at stake. Each competing user seeks legitimacy in the use of the wetland, as the real estate company uses its strong financial base to outmanoeuvre the farmers. This has resulted in the wetland undergoing spatio-temporal changes despite the wide range of vital functions it provides. The shrinkage of Marlborough wetland is due to anthropogenic activities such as the encroachment of residential and built-up areas into the ecosystem and waste dumping. The farmers consider themselves “sons and daughters of the soil” and, having grown up in rural areas growing vegetables in *matoro*, feel entitled to use the wetland for agricultural purposes. To them, the wetland is ideal for practising urban agriculture, as it can sustain the moisture content even during periods of drought. Although the real estate company lost its case to develop the wetland, it reached an agreement with a community-based organisation, while the farmers, most of whom are poor and produce food for subsistence, are officially denied access to the wetland. Although the vlei scout regularly monitors their activities, they continue with their criminalised agricultural activities.

The farmers argue that their agricultural activities on small tracts of the land are less damaging to the wetland, as they use simple tools such as hoes and digging sticks, they hardly use fertilisers but rely on organic manure and mulching, and they do not use pesticides and herbicides. Large-scale commercial agriculture would require heavy equipment, pesticides and inorganic fertilisers that adversely affect the wetland. Many of the farmers use conservation farming technology, which they learnt growing up in the rural areas. Their practices are in harmony with nature, as they do not threaten the environment. The farmers consider their activities to be compatible with the wetland functions, as they use it as a source of livelihood without harming the ecosystem. The farmers thus regard the wetlands as *companions* they are connected to and with which they create symbiotic *interspecies relationships* important for human and ecological wellbeing.

The farmers criticised the real estate company, which wanted to develop the wetland in a profit-driven project that would involve draining the wetland and erecting drainage systems to prevent buildings from cracking. This massive project constitutes a real threat to the environment and made the farmers raise ethical questions about what the conservation of natural resources is all about and whose interests are served, as they feel that *ane mari ndiye mukuru* [“He who has money is the greatest”].

The residential development of the Marlborough wetland by the real estate company was premised on argument about the elites versus the poor which depicts that the few elite are the most powerful in society and they influence decision making in land use (Pokharel, 2019). This played out when the real estate company lost its case to develop the wetland but reached an agreement with a community-based organisation shortly thereafter. The residents of Marlborough were not excited when they won the case, because they knew it was window dressing – shopping malls and houses are erected on Harare wetlands in spite of by-laws that prohibit such activities. The elite seem above the law, because regardless of what the courts decide, they use money to advance their interests at the expense of the poor.

The non-elites – in this study, the poor urban farmers – are powerless and believe that the occasional court judgments in their favour are not worth celebrating. In turn, they defy the laws that criminalise farming on the wetlands. Farming activities are criminalised even as high levels of unemployment leave them with no livelihood. It was clear from this study that an unjust “democracy” ruled by the elite causes poor farmers with no voice to resist by continuing their agricultural practices. It is open to question whether the transition of the country to democracy four decades ago was intended to serve the interests of the privileged few or the poor majority.

8.2.3 Post-colonialism in different shades and folds

The discussion around the use of the Marlborough wetland invokes questions of whether Zimbabwe has really moved on from the colonial laws that oppressed the majority, as most laws enacted in colonial times continue to be applied, including the laws that criminalised farming on wetlands. There were few urban farmers prior to independence, as entry to the city was strictly controlled and people could do many other odd jobs to earn a living. Structurally, however, the only difference now is that where the laws were biased towards one race during the colonial era, the situation now favours a different elite. While history has not repeated itself exactly, many of its patterns are being repeated.

The elite, who seek large tracts of land for personal benefit, are given preferential treatment over poor farmers, who need only a small allotment of land for survival. Urban farmers find the law to be an ass, meaning that its application is contrary to common sense, and they find it strange that the laws criminalise their farming activities while the “real criminals” go free. There are few instances where the law as a *script* is applied impartially, as occurred when the real estate company lost its court case to construct houses on the wetland. However, the farmers knew that even the law would not stop the elite from advancing their interests. Thus,

the power to use the wetlands is in the hands of a small, privileged ruling class that translates land uses to accomplish its goals. The danger of eradicating symbiotic interspecies relationships is that humans and nature are both affected – especially future generations – and the real estate company's desire to use the wetland as a residential area reveals an inability to recognise wetlands as *companions*.

8.2.3 Economic development... for whom?

The term “development” is often abused when it comes to the management of environmental resources. Anything that contributes to an economy's growth as part of the country's Gross Domestic product is often regarded as development, especially in low-economy countries in need of economic growth. The construction of state-of-the-art houses using sophisticated technologies to drain wetlands is considered development by economists (Shrotryia and Singh, 2020), while the production of a few bags of maize from the wetland for personal consumption is not. The latter does not add value to the economy, as no income is generated. The activities of poor farmers are of little interest to economists, and so they remain under the radar. Commercial ventures generate employment and income, which the national treasury views as development. Inevitably, one must ask what development is and how it manifests. For many years, development in low-income countries has been peppered with misguided projects that have failed poor people.

The construction of shopping malls and houses on wetlands is regarded as development despite the irreparable damage it causes to the environment. This is a form of *translation*, in that the wetland is changed from a natural habitat to a locus of construction activities under the guise of development. Doane (2014) notes that the term development is now only applicable to property developers, IT developers or fundraisers. The real estate company considers its Marlborough wetland activities development-oriented, whereas subsistence farming makes no contribution to the economy, only bringing food to the poor farmers. So, what is development? A critical component of development missing from mainstream economics is the importance of non-economic indicators. The poor farmers only break the law as a consequence of their marginalisation, which is caused by the discriminate application of laws that leave them with limited options for survival. Conceptions of development should not be limited to income-generating projects but should extend to the provision of equal resources for all and an equal and fair distribution of opportunities.

The conflicting wetland uses of the property company and the farmers reveal how flawed the concept of development is, with the development paradigm being subsumed into economics such that it cannot address problems at community level (Sanders, 2016). The study found that the concept of development has become a cliché that is not useful in operational terms, as it is biased towards contributing to the GDP and not to the welfare of those at the bottom of the economic pyramid. It is explicit that development has different meaning for different people. To the poor urban farmers development is about survival and livelihood although they do not contribute to GDP. Then for the property developers, development is about providing housing that is much needed given housing crisis in Harare. Though there are

varied perspectives of development what is important is that in pursuit for development the environment should be protected.

8.2.4 Capitalism in various shades and folds

The war for Zimbabwean liberation was also a war against capitalism: the colonisers or *Vapambepfumi* [“Wealth grabbers”] had siphoned off the environmental resources such as minerals for their own financial benefit. People were mobilised to join the fight against the colonisers and against capitalism, but this later positioned them at a disadvantage. After independence, the country adopted *gutsaruzhinji*, or socialism, as its development ideology. The liberation movements moulded their discourse around popular goals such as majority rule and regaining land lost under colonialism, and the mantra of socialism allowed the liberation movements to unite for a common cause. Liberation movements in pre-independence Zimbabwe were driven by socialist principles of community ownership and were anchored in the need for access to land and a people-centred government that would look after them through fairness, transparency and good governance (Ranger and Ranger, 1985).

Few visible traits of socialism remain four decades down the line, as nearly every economic blueprint is drenched in capitalism. This is also true of the Marlborough wetland, where inequitable access has reinforced capitalism and its attendant core value of private land ownership for profit and not for the community. Privatisation discourages environmental stewardship and alienates communities from their environment, despite residents being better able to manage their resources than private companies (Gibson et al, 2002). Many issues around the Marlborough wetland can be explained in the context of the fight against capitalism by the poor farmers, which to some extent is reminiscent of the racial, social and economic injustice of the country’s colonial past. Environmental governance in the country caters for the powerful elites who boast the means to bypass the laws to achieve their own interests.

Against this background of an unlevel playing field, the study recommends revisiting and reflecting on the current system of wetland management, in Marlborough and further afield, to address the anomalies perpetuated by the uneven structures. The emerging field of environmental humanities, which calls for deep cultural and social transformations, can help in this regard, as understanding the values, ideas, ethics and ways of life that led to the present condition are critical to its methodology.

8.3 Emerging insights

The findings of the thesis have generated interesting insights on human-nature relationships. The key insights are as follows:

8.3.1 Interplay of collectivism and individualism in the management of natural resources

The study has revealed the intricate human–nature relationship which is anchored on collectivism rather than individualism in the use management of the environment. For example, MEAG was formed on the principle of collectivism in raising awareness on the need to protect the wetland which constituted a common good, while the property developer was driven by the notion of individualism. These antagonistic orientations were a source of conflict in the management of Marlborough wetland. Although MEAG was founded with the aim of providing a collective platform for uniting the residents of Marlborough to protect the environment, the core mandate was lost along the way due to the interplay of individualistic values and self-interests. That was evident when MEAG made an agreement to work in liaison with the property developer which raises ethical questions on how the contending parties could have reached a compromise. It can be noted that while collectivism presupposes that people feel encouraged to subordinate personal goals to those of groups by upholding obligations associated with belonging to interpersonal and social realities, that is not constant, but subject to change with time. That was the case with MEAG, which gradually shifted its focus on collective interests in pursuit of egoistically oriented goals. This reveals that human-nature relationships should not be taken as given as they are subject to change due to the influence of different forces. Explicit here is the fact the existence of community-based groups is not a guarantee that collective interests will be advanced as they can be permeated by individualism as portrayed in this study. What is important is to establish what Hernández et al. (2012) describe as scale of collectivism and individualism in the environmental identity of such groupings, paying attention to the degree of altruism and austerity. This invokes the need for putting in place checks and balances to ensure that any deviations from collective values towards independent personal goals are identified early before they become ingrained.

8.3.2 Criminalisation of poor urban farmers

The study has shown that farming on the wetland in Marlborough was criminalised and this adversely affected the well-being of the poor farmers, who were trying to survive in the face of a harsh economic environment. The farmers did not consider themselves to be criminals but rather victims of a geo-political system characterised by inequitable access to natural resources. The farmers feel that they are victims because they lack the political power and financial resources to directly confront the very laws that disadvantaged them, the poor farmers found themselves at the receiving end of the regulations. The biased application of the law whereby the farmers were prohibited from engaging in agricultural activities though they caused less damage to the wetland compared to the property developers was a

contentious source of conflict. The farmers were left with no options other than defying the law, not because they were hard core criminals, but just because they needed to survive. The study has depicted that treating the farmers as criminals dehumanises an already disenfranchised group which, complicates the human-nature relationships. It is imperative to understand the underlying causes of human actions in the interaction with the environment to identify the cause, scope and impact of the problem as was the case with poor urban farmers. This is particularly important in that when people go against the law, it does not necessarily mean that they are naturally defiant (Witter, 2021), but it could be an expression of dissatisfaction with unfair application of the regulations as described in this study. Thus human-nature conflicts should not be dismissed superficially, but it is imperative that the cause-effect nexus is unravelled before criminalising a particular group.

8.3.3 Decolonising environmental laws and policies

The findings of the thesis tap into the contemporary debate on decolonisation in its broad context. In this study, the focus is on environmental laws which were inherited from colonial rule and applied for almost forty-two years after the country attained independence. This raises ethical issues on what independence from colonial rule means when the same laws that drove people to liberate themselves from oppression continue to be used. In general, enforcing colonial laws is not problematic if they are fair to everyone, but if they are an embodiment of tyranny and exploitation, then that is a cause for concern. It emerged from the study that the colonial orientation of laws governing the use of wetlands rendered them irrelevant to the lived experiences of the stakeholders, as per this study. While the country boasts of being independent and sovereign, the laws governing environmental resources such as wetlands still have a colonial legacy and are outdated. For example, the Administrative Court Act of 1979 as amended 2002: chap 7:01; the Regional, Town and Country Planning Act of 1976 as amended 1998: chap 29:12; the Urban Councils Act of 1997 as amended 2002: chap 29:15; and the Urban Councils Act of 1995 as amended 2001: chap 29:15 have dominant traces of colonialism despite amendments that have been made. Accordingly, the enforcement of laws pertaining to wetland use in Harare evokes memories of pre-independence era where the application of regulations was crafted to benefit the colonial masters. The paradox is that in the present day, the discriminate application of laws has continued, not on racial grounds but on economic class, thus it is no longer the whites versus the blacks but the rich versus the poor. This is food for thought on the emerging discourse on decolonisation (Ndlovu-Gatsheni, 2019, Woldegiorgis, 2020) as it raises ethical questions on what does independence mean when indigenous sovereignty is curtailed by illegalising the ability of local people to practice self-determination over their surrounding land.

8.3.4 Constructive community engagement

This study has shown that the wetland farmers in Marlborough were reluctant to attend meetings because they did not see value in the gatherings. Instead, meetings were used as

platforms to denigrate and threaten them. The approach was rather militant in that it was focused on stopping farming on the wetlands with no alternative solutions being offered. To the farmers, attending the meetings was tantamount to publicly exposing themselves as enemies of the environment. They were not motivated to attend meetings as they were used as arenas for displaying who wielded more power than the other. The interactions were dominated by top-down approaches, with authorities such as the Environmental Management Agency and the Harare City Council issuing commands and mandates to the wetland farmers. The study has shown that using such approaches does not yield desirable results. Instead, it silenced the local farmers resulting in the false impression that they were irrational, ignorant and uninformed, yet they were knowledgeable and informed by virtue of their lived experiences. The farmers had their own needs, priorities and goals but they had no one to listen to them. This created antagonism and resentment resulting in a constrained human-nature relationship. What was lacking from the engagement with the farmers is empathy, a gap which was filled by the use of design thinking approach. Thus, it is imperative that community engagement should not be done as a public relations exercise as it is not merely about having an influential group or institution deciding what to do and then convincing community members that it is the best option (Irvin and Stansbury, 2004, Costanza-Chock, 2020). Instead, effective community engagement should be executed in an interactive process characterised by dialogue, information sharing and decision making.

8.3.4 Commodification of wetland use and management

The results of the study have shown the influence of the elite in the commodification of the wetlands. They used their financial resources to acquire private ownership, which proved to be a source of conflicts in the use of wetland to the detriment of poor farmers. Such a dispensation whereby the elite extract more wealth from environmental resources at the expense of the poor creates an unjust society. The process of converting land and associated land rights into a commodity freely tradable on the market is a source of capital accumulation which adversely interfere with human-nature relationship (Zhang and Wu, 2017). Privatisation of the commons as articulated by Shiva (2005) brings about deprivation and exclusion while facilitating greed and domination. The process of making the environmental resources tradeable by exchanging them on the market can have far reaching implications as shown in this study where a property developer acquired land on a wetland for residential purposes. This causes lasting damage to the environment and in the case of wetlands, the process can be irreversible. Thus, attaching economic value on environmental resources initially considered as being outside the market realm through commodification processes such as marketisation can be a contentious source of conflict.

8.4 Suggestions for future research

This thesis has revealed the importance of studying environmental-resource use from a humanistic perspective. The “elephant in the room” is capitalism, which has corrupted the governance system and caused a deviation from democracy, social justice and equitable

access to natural resources. On this basis, future studies should focus on how to disentangle capitalism from resource use and ensure that control and ownership of the environment are not left in the hands of profit-driven private owners. Mechanisms must be put in place that provide checks and balances in the governance of environmental resources that cater to marginalised and underserved communities.

The study showed that challenges such as unfair access to resources, lack of democracy, recurrence of colonialism laws and capitalism hinder the equitable use and management of natural resources, and future studies should focus on mechanisms that address inequalities and the privatisation of resources.

With the management and use of environmental resources being influenced to some extent by capitalist tendencies of investing in trade, it is recommended that future studies should focus on commodification of nature. It is crucial to have in-depth studies on the ways in which nature is made exchangeable through the market forces of demand and supply.

The emergence of the COVID-19 pandemic has presented new challenges and opportunities in the use and management of natural resources. This study recommends that environmental humanities should explore how intervention strategies such as lockdowns play out in the management and use of natural resources. Studies might focus on understanding the entanglements of urban wetland-human relationships in the wake of the pandemic.

8.5 Contribution to scholarship

The human-nature relationships which is the core focus of the study as espoused in this thesis is intricate and multifaceted. This study, by approaching the human-nature relationships from a multidisciplinary perspective using Environmental Humanities scholarship provides not just an entry point, but a means for understanding with the dynamic nexus. By drawing on multidisciplinary approaches, this study used different lenses to gain a deeper level of insights into the relationship between humanity and nature. This has resulted in contribution not only to the body of knowledge but also methodologically.

There is a tendency to depict the human-nature relationship in a linear fashion which is typical of deterministic approaches. This is usually done through approaches that are firmly grounded in disciplines such as geography where much attention is on validating the models that have been developed. This study deviated from the traditional ways by taking a multidisciplinary approach where the issue of humanity's relationship with nature was scrutinised to open the black box of its contents. By opening the black box of the complex relationship, the study makes a scholarly contribution to the body of knowledge. Instead of generating partial findings that tend to neglect the complexities that exist between interlinkages, causal directions, processes, and relations, the thesis has applied an integrated approach. This resulted in topical issues that are relevant to contemporary debates on environment management such as commodification, decolonisation, collectivism and criminalisation being brought under spotlight.

The thesis by virtue of being focused on understanding the complexity of human-nature relationships makes an epistemological contribution by providing different routes to knowledge acquisition. As a result, the study is informed not only by explicit knowledge but also tacit knowledge of the farmers and residents in their engagement with the environment which can be easily dismissed as inferior, uncoded and informal yet it is critical to a holistic understanding of the relationship between humans and nature. For example, it emerged from the study that wetlands just like other water ecosystems have since time immemorial been associated with long-standing cultural and traditional practices that are crucial to survival, adaptation to environmental change and sustainability. This is important considering that the traditional ties with wetlands have survived the test of time and cannot be dismissed without losing sight of the complex relationship.

Apart from making a theoretical contribution, the thesis presents design thinking as a methodological input in providing pragmatic interventions to the complex relationship between humanity and nature. As the study focused on real societal challenges in the management of wetlands, it applied design a solution in addressing the conflicts of interest on the management of the wetland. This proved effective in building a good relationship with the residents of Marlborough and the farmers who practiced agriculture. Such an approach provides a scholarship contribution in terms of knowledge valorisation with the aim of achieving societal impact. It closes the gap between theory and practice which is commonly referred to as the “valley of death” (Midler, 2019) because of the difficulties in applying research findings was bridged. While this research focused on wetlands, the design thinking approach can be applied to address challenges affecting the management and use of other ecosystems.

8.6 Overall conclusion: rethinking human-nature relationship

The thesis has focused on the intricate relationship between human and wetlands in an urban setting in Zimbabwe. Interesting insights have been generated which invoke the need to rethink the nature of the relationship, paying particular attention to the views of all the stakeholders, especially those occupying the bottom of the pyramid as they represent a group from poor socio-economic background. It suffices from the study that when it comes to the management of environmental resources, it is imperative to understand the underlying needs of the users before making decisions. The group from a poor socio-economic background can be easily overlooked but it constitutes a key stakeholder that is fully dependent on the environment for its livelihood. This implies that when rethinking about the human nature relationship, it is important to engage the marginalised members of society so that they can contribute towards a desirable outcome. As revealed in this study, the engagement should be done not as a formality but with the aim of gathering firsthand information on the lived experiences. Such information demands deep immersion with different social groups to understand what drives them to act in certain ways.

This thesis has provided a strong argument that understanding the complex human-nature relationship is the key towards addressing conflicts in the management of environmental resources. Therefore, it is important to engage the stakeholders and get first-hand information about their experiences. This emanates from the fact that there is need to make sense of how the stakeholders behave and act as there is a logic behind their actions. Thus, when engaging with environmental challenges, it is important to get to the crux of the matter to get an appreciation of the underlying causes. The stakeholders, particularly those who are vulnerable because of their status in society, for example the poor farmers need to be engaged rather than being side-lined in finding lasting solutions to the challenges. Resorting to punitive measures such as criminalisation without addressing the factors that drive what is deemed “illegal” by the authorities is tantamount to addressing the symptoms rather than the causes of the problem. When the stakeholders are engaged in a transparent, interactive and respectful way, they open up their grievances as was the case with Marlborough wetland where the poor farmers complained that the environmental laws were not applied fairly. It takes genuine concern and concerted effort to win the confidence of the stakeholders to open up and generate win-win solutions. Thus, it can be concluded that no matter how complex the human nature relationship can be, it takes empathy to understand and share the feelings of others without making prejudices and stereotyping which can escalate the conflicts. The playing ground for the stakeholders need to be levelled so that all the participants can actively engage in the game without any constraints. Through this, it is possible to connect humans to nature and move together as a team towards finding sustainable solutions.

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APPENDIX I: INTRODUCTION LETTER



University of Cape Town

Environmental Humanities Department

Private Bag X3, Rondebosch 7701

Cape Town

South Africa

Telephone: +27 (0)21.650.3676 +27 (0)21.650.3536

Dear participant

My name is Esther Sigauke, a PhD student in the Department of Social Anthropology at the University of Cape Town, South Africa. I am conducting research in partial fulfilment of the requirements of a PhD degree in Social Anthropology. My study is titled ***Rethinking relationships with nature: human–wetland connections in Marlborough, Harare, Zimbabwe***. The research focuses on how wetland resources are utilised and managed by different stakeholders. The study looks at the conflicts that emerge when different stakeholders with opposing interests, needs, beliefs, values, or goals are involved in the use and management of wetland resources. The research focuses on the extent to which the involvement of the local people in the governance of wetlands strengthen efforts to ease problems within human–nature relationships. On this basis, I also focus on the challenges that Marlborough residents face in their efforts to promote the sustainable use of wetlands and intervention mechanisms for the sustainable use of Marlborough wetlands.

You have been selected to participate in the study because you are either a long stay resident of Marlborough or a farmer practicing agriculture on Marlborough wetland. Your participation in the interviews is entirely voluntary and you are assured that the information you provide will be treated with extreme confidentiality. Please feel free to express your

views and opinions. You can share stories, occurrences that you may feel are necessary to address the wetland problems in Marlborough. With your permission, I will use a voice recorder to capture the interview. With your consent, I will take some photos and videos. Where you feel you are not comfortable with recordings, please feel free to speak out.

Upon your agreement, I will proceed with the interview under your verbal consent.

Thank you.

APPENDIX II: INTERVIEW GUIDE FOR FARMERS

Date of interview:

QUESTION GUIDE	TICK	COMMENTS
GENDER Female Male		
AGE GROUP (YEARS) 23–30 31–39 40–49 50+		
LEVEL OF EDUCATION Primary Secondary Tertiary None		
OCCUPATION Full-time farming Part-time farming		
PLACE OF RESIDENCE Resident of Marlborough Non-resident		
YEARS FARMING Less than 3 years 4–7 years 8 years +		
FIELD SIZE		
LAND ALLOCATION PROCESS		

CROPS GROWN		
QUANTITIES OF HARVEST		
FERTILISER, PESTICIDE AND CHEMICAL USE		
FARMING METHODS USED		
USE OF SOIL AND CONSERVATION METHODS USED		
MOTIVATION FOR WETLAND FARMING		
BENEFITS DERIVED FROM FARMING		
ANY OTHER ACTIVITIES ENGAGED BY FARMERS IN THE WETLAND		
CHALLENGES ENCOUNTERED IN WETLAND FARMING		
HOW THEY DEAL WITH AUTHORITIES SUCH AS HCC AND EMA		
AWARENESS OF WETLAND LEGISLATION		
HOW CAN THE CHALLENGES BE RESOLVED?		
RECOMMENDATIONS AND COMMENTS		

APPENDIX III: INTERVIEW GUIDE FOR ORGANISATIONS

Name of the organisation:

Date of interview:

QUESTION GUIDE	TICK	COMMENTS
Factors shaping wetland use and management		
Roles of the organisation in wetland use and management		
Position of the organisation on the use of urban wetland for agriculture		
Legislation governing use and management of wetlands		
Effectiveness of the legislation		
Relationship of the organisation and the farmers and residents		
Partnerships of the organisation with other wetland stakeholders		
Importance of community participation in wetland conservation		
Challenges in partnerships and community participation		
Challenges faced in execution of duties		
Ways in which wetland problems can be resolved in Harare		
Comments and suggestions		

APPENDIX IV: INTERVIEW GUIDE FOR RESIDENTS

Date of interview.....

QUESTION GUIDE	TICK	COMMENT
Period of residence in Marlborough		
General status of the wetland		
Knowledge about importance of wetlands		
Knowledge about wetland laws		
Views about agriculture on wetlands		
Role of community participation in wetland conservation		
Challenges of community participation in wetland conservation		
Ways to protect the wetland from degradation		
Recommendations		
Comments		

APPENDIX V: FIELD OBSERVATION GUIDE

Date of observation: **Time of observation:**

VARIABLES	TICK	COMMENTS
Farming activities		
Additional wetland activities -Waste/garbage -Infrastructural developments -Wells -Other		
Conventional farming methods		
Conservation farming methods		
Tools used in farming		
Crops grown		
Estimate field sizes		
Status of wetland resources		
Signs of wetland degradation		
Placards, signposts		
Other observations		
Other comments and findings		

APPENDIX V: DESIGN THINKING PROGRAMME

DAY 1-Understand and explore the problem

09:00 – 09:30	:	Welcome and introductions
9:30 – 10:00	:	Introduction to Design Thinking Brief introduction of design thinking as a tool, process and mindset What makes design thinking to be a human centred approach? Principles governing Design Thinking
10:00 – 10:30	:	Team formation Developing a team charter- the dos and don'ts Expectations from the team members Amplifying the good -being positive to each other
10:30 –10:45	:	Coffee break
10:45 – 11:15	:	Team check in Asking each other how they are feeling Discussion on ways of increasing team's bonds and boosting performance Exploring how the team can support each other
11.15 -12.45	:	Introduction to the challenge and input to understand – How might we protect Marlborough wetland from damage caused by urban agriculture? Mind-wash and unpack terms Stakeholder Map
12.45-14.00	:	Lunch
14.00 -15:30	:	Input to observe Developing interview questions Practicing interview skills through demonstrations
15.30-16.00	:	Team check out Lessons and skills learnt

DAY 2-Observe and interact with the farmers

9:00 – 09:30	:	Team check in Recap of previous day
9:30 – 10:00	:	Preparations to go out and observe Team is divided into groups of small groups Assignment of roles such as interviewer, note taker and observer Preparing clip boards and writing materials
10:00 – 10:30	:	Coffee break
10:30 –12:00	:	Go out and observe Identifying farmers and other stakeholders Conducting interviews Recap of each interview to capture main points
12.00-12:30	:	Discussion on the interviews What went well What could be improved Key lessons from interacting with the stakeholders
12:30 – 13:30	:	Lunch
13.30-15:00	:	Intro to unpacking and selecting Unpacking using the grid framework We met// he or she told us// insights Capturing key points
15.00 -15.45	:	Insights from the interviews What are key findings, contradictions and tensions? Which information could be missing? What could be interesting to probe further?
15:45-16:00	:	Team check out Key takeaways from observing

DAY 3 -Point of view and generate insights

9:00 – 09:30	:	Team check in Warm up activity Recap of insights from interviews
9:30 – 10:00	:	Input to POV Who is the user? What is the underlying need? What is the key insight?
10:00 – 10:30	:	Coffee break
10:30 –12:00	:	Developing Point of View and Sharing Discussion on the point of view Framing the point of view statement Sharing the point of view and providing feedback
12.00-12:30	:	Refining Point of View Incorporating feedback to refine point of view Discussion on the refined point of view
12:30 – 13:30	:	Lunch
13.30-15:00	:	Intro to Ideation Developing How Might We (HMW) questions Discussion on the HMW questions
15.00 -15.45	:	Ideation and selection -Silent brain storming -Flower blossoming technique -Radical ideas Grouping the ideas into clusters using 2 x 2 matrix
15:45-16:00	:	Team check out Key takeaways from ideation

DAY 4-prototyping and testing with the users

9:00 – 09:30	:	Team check in Warm up activity Brief discussion on ideation
9:30 – 10:00	:	Input to Prototyping Why do we prototype? Types of prototypes? Principles of prototyping
10:00 – 10:30	:	Coffee break
10:30 – 12:00	:	Developing rapid and low fidelity prototype for understanding Discussion on the storyline of the prototype Developing a prototype using simple materials and sketches Sharing the prototypes for quick feedback
12:00-12:30	:	Refining the prototypes Incorporating feedback to refine the prototype Discussion on the refined prototypes in terms of its critical functions Sharing of the refined prototype
12:30 – 13:30	:	Lunch
13.30-15:00	:	Developing a prototype for testing Building a physical prototype for testing with the users Developing a narrative on the prototype Demonstrations on how a prototype is tested with the users
15.00 -15.45	:	Going out for testing prototype -Testing the prototype with users who participated in the interviews - Discussion after each round of testing to capture key points -Capturing user feedback
15:45-16:00	:	Team check out Key takeaways from testing prototypes

DAY 5 -Iteration and preparations for final presentations

9:00 – 09:30	:	Team check in Warm up activity Brief discussion on feedback from testing prototype
9:30 – 10:00	:	Input to iteration as a repeating cycle of designing Why do we iterate? How do we iterate? Principles of iteration
10:00 – 10:30	:	Coffee break
10:30 –12:00	:	Iteration of the prototype Discussion on the entry point for iteration Iteration of the prototype Presentation of prototype for feedback before testing
12:00 – 12:30	:	Testing of prototype Going out to test the refined prototype Capturing feedback for final iteration
12:30 – 13:00	:	Prototype for final presentation Iteration based on feedback Making a prototype for presentation Rehearsals for final presentations
13.00-13:15	:	Team check out Discussion on the Design Thinking process Capturing feedback on the experiences of the design thinking journey

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