# LIVING WITH THE ZEEKOEVLEI:

# AN ETHNOGRAPHY ON HISTORICIZING RELATIONSHIPS WITH/TO PLASTIC, WASTEWATER AND SOLID WASTE POLLUTION

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*This thesis is dedicated to my uncle, Ashraf Abrahams. I long for so many one mores. One more joke, one more laugh, one more smile, one more meal together and many more moments of joy, kindness, and love. You are always in my heart.*

Declaration

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# ABSTRACT

This thesis explores the complexities of plastic and solid waste pollution within and surrounding the Zeekoevlei, located in Cape Town, South Africa. This research focuses on waste pollution being a remnant of an unjust past that still manifests in the present and will seep into the future. The current practices of dealing with waste by the *City of Cape Town'*s waste management and natural resource managers as well as many residents in the city, is to see plastic and other forms of pollution as a 'now' problem, leading to reactive rather than proactive responses. When waste management logics are limited to the 'now', they fail to acknowledge how the current waste crisis in Cape Town is deeply intertwined with unequal settlement histories where indigenous and people of colour were settled in what Lerner (2010) refers to as 'sacrifice zones' and the implications of waste seeping into deep futures. It argues that a paradigm shift in all spheres of society is crucial in changing how we engage, manage, think about, and interact with wastes. The aim of this research is to show that the waste crisis is not new but rather located within histories of injustice, displacement, oppression, inequality, and violence. While a discussion of the futures of waste is also important the objective of this thesis is to trace how these geographies of waste and geographies of violence came to be in the Zeekoevlei. Based on roughly five months of fieldwork in the Zeekoevlei area with *The Friends of Zeekoevlei and Rondevlei*, what became increasingly significant was the ways in which history had manifested itself in this landscape and how notions of care are emerging in civil societies as a response to the waste crisis. Fieldwork primarily took form through clean-ups of the Zeekoevlei and surrounding areas. Working with *FOZR* provided a greater sense of the socio-economic issues that are contributing to the waste pollution in the area.

Specific research questions include: What relationships and meanings are embedded within plastic and solid wastes? What does this 'say' about our histories with solid wastes? How are people relating to solid wastes in the Zeekoevlei and surrounding landscapes? And what notions of care, kindness and reciprocity are emerging in civil societies? I respond to these

questions by drawing from past and current debates in the environmental humanities, urban studies, law, geographical and historical sciences, environmental, cultural, and social anthropology.

The evidence basis for this study includes experiences and relationships related by Zeekoevlei residents, archival and anthropological data, contributing to environmental humanities scholarship at the intersection of social and environmental anthropology.

## ACKNOWLEDGEMENTS

The research was funded by The Seed Box for which I am eternally grateful. This funding allowed me to see my ideas, questions, thoughts, and curiosity to come to 'life'.

My master's journey has been a rollercoaster as I was constantly encouraged and pushed to do 'mental gymnastics' as fondly known in the Environmental Humanities South (EHS) department. This journey challenged my thinking in ways that have changed how I see, engage, and make sense of worlds. Having suffered deeply personal losses during this time, the support, discussions, hallway conversations, mentorship, feedback, and engagements with my EHS classmates, friends, research participants, lecturers and supervisor kept me going. This thesis is therefore not my journey alone. Thank you all for your kind words, constant support, and patience.

To my parents Rafieq and Tasneem, your support, understanding, and words of encouragement gave me the much-needed motivation and confidence boost to see this through. To my aunt Zaida, thank you for reminding me to step back sometimes. To my siblings, thank you for always cheering me up on days I did not feel like my best self. To my grandparents, your prayers provided me the comfort I often needed throughout the isolating writing process.

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To Professor Lesley Green, your insights and experiences have been invaluable. Thank you for reminding me that we need to keep people accountable, that we should strive to be 'present' in the world and that we should follow the research wherever it may take us.

Sidney Jacobs and Tom Schwerdtfeger from *FOZR,* thank you for your willingness to assist throughout this research. Thank you for educating, sharing your stories, showing me around the area, introducing me to residents and for being invested in this research. Thank you to the residents for allowing me to observe the vlei and FOZR laborers in your backyards. A special thank you to all the laborers who allowed me to watch and capture what you were doing.

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Lastly, to my *skat*, Asemahle, thank you for being more than a peer, you are my friend. Thank you for keeping me accountable and allowing me to find humour throughout this process.

# PREFACE

I started my MPhil in Social Anthropology with great interests in relationships *with* and *to* spaces. Most of which was fuelled by the neighbourhood I spent most of my life in, Lentegeur, Mitchell's Plain. It is a predominantly low-income area and environmental interests do not seem to be on the 'top' of the community's priority concerns. Understandably so, when there are growing issues of violence, crime, gangsterism, substance abuse, unemployment, and poverty. As such, I became interested in how people made sense and found meaning from the area itself. However, at the time this was limited to human life. After taking the *Researching the Anthropocene* master's course in 2019, I became a self-proclaimed 'eco-warrior', wanting to singlehandedly tackle the waste problem in my neighbourhood. But there are only so many hours in a day to collect wastes that seem like they are running from a broken tap. After these few weeks and a move to the Environmental Humanities South, I began to rethink my initial interests in people and spaces. I was now thinking of space beyond its physicality. In Lentegeur, there are several dump sites. These are street corners, parks, fields and sometimes along the street. Having lived in the area for over twenty years it is quite interesting and terrifying to see how landscapes have transformed. Having seen the transformation of many living landscapes to large sites of waste made me curious about people's relationships *with* and *to* wastes. It also made me curious on why such sites were not evident in affluent areas. This in turn made me look into how high-income areas and poorer areas and their geographies came into being. This led me to look at colonialism and its 'delinquent' cousin, Apartheid (Le Grange, 2018) and how they continue to manifest in our worlds today, particularly within our landscapes and geographies. Apartheid geographies ensured that the white minority were given better land access and locations (Ramutsindela, 2007). In turn, indigenous people and people of colour were forced to the outskirts of the city creating densely populated areas.

Having made these observations, experiences and partaking in Environmental Humanities South (EHS) courses such as *Science, Nature, Democracy* and *Earth, Ecology, Humanities* made me committed to show that there is life possible beyond and outside of colonial, neo-

liberal and modernist approaches to our environments. All of which has been a great reminder and motivator throughout this research.

# INTRODUCTION

## Living with the Zeekoevlei

## INTRODUCTION TO THE VLEI

The Zeekoevlei is a large freshwater body approximately 256 hectares (630 acres) located in the South-Western region of the Cape Flats situated in Cape Town, South Africa (see image A). Historically, the Cape Flats was expansive, low-lying, flat area which was 'originally submerged beneath the sea and which separate the mountainous Cape Peninsula from the mainland' (World Lake Database, n.d.). The Cape Flats is situated to the southeast of the central business district of Cape Town. Today, it is synonymous with waste sites, poverty, gangsterism, violence, crime, and 'overpopulation' (Kinnes, 1996). Criminologist Irvin Kinnes (1996:17) argues that gangsterism, violence and crime on the Cape Flats is the result of 'the sheer misery of the environment into which families and whole communities were forcibly relocated from inner city areas during the apartheid era'. Apartheid systems perpetuated patterns of poverty and inequality in areas such as the Cape Flats. Llewellyn McMaster (2010:61) highlights that every societal ill cannot be blamed on Apartheid, but it is fair to state that crime, gangsterism and violence found a fertile 'breeding ground' within the 'socio-economic' issues created by Apartheid on the Cape Flats. The mouth of the Zeekoevlei is about 20kms south of central Cape Town (Bickerton, 1982).

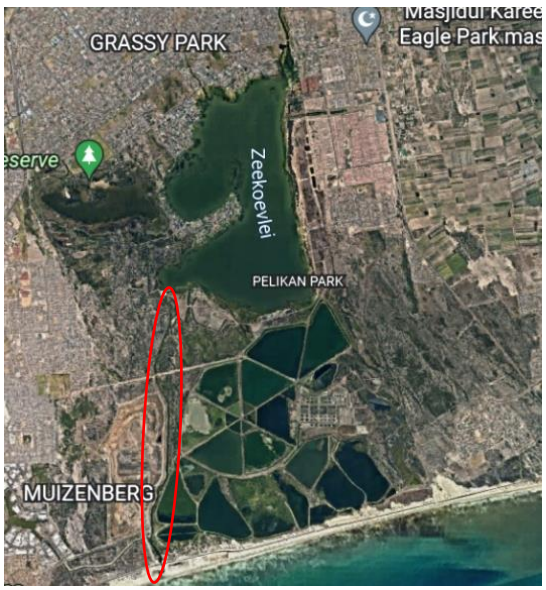



Image A: Aerial photograph of the Zeekoevlei area. (Source: Google Earth).

The Zeekoevlei stretches almost ten kilometres along the coast to Macassar which is located along the eastern shores of False Bay. The False Bay coast is located on the South side of the Cape Peninsula approximately 21km Southeast of central Cape Town. The Zeekoevlei forms part of the *False Bay Nature Reserve* (FBNR hereafter). The *FBNR* is divided into six sections: Zeekoevlei (256 hectares), Rondevlei (290 hectares), Pelican Park (244 hectares), Slangetjiebos (220 hectares), Zandwolf Coastal (+- 816.7 hectares) and the Strandfontein Birding Section (387 hectares) (see image B). Both Rondevlei and the Zeekoevlei are protected reserves, but the Zeekoevlei is a residential and urban conservation area (Ramsar, 2015) making it rather unique for a reserve.

In 1942, the Zeekoe Canal (see image A – circled in red) was built to prevent flooding along the banks of the vlei[1] and in this way the artificial connection to the South Atlantic Ocean was created (Bickerton, 1982). The Zeekoevlei is presumed to be the largest natural inland body of water within metropolitan Cape Town, with a surface inflow from the Big and Little Lotus 'rivers' as well as being fed by an extensive Cape Flats aquifer (Brown et al. 2008). The Zeekoevlei is separated from another lake, the Rondevlei, by a U-shaped peninsula. Together, these two vlei's carry out important functions for the area's ecologies such as flood control, nutrient transfers for diverse plant and animal life, as well as providing a green space for migrating birds, leopard toads and other fauna in this highly urbanized space. However, the significant amount of nutrients that enter the vlei from the Big and Little Lotus rivers also presents a challenge as they create an environment conducive for algal blooms. The exponential growth of the blooms reduces the amount of oxygen that circulates in the vlei, compromising the wellbeing of different life forms in the water.

The area is also home to some endangered fauna and flora (Zeekoevlei, 2014) such as the Cape Flats Sand Fynbos and the Western Leopard Toad. Despite such diverse ecosystems,

[1] Vlei – 'a shallow minor lake, mostly of a seasonal or intermittent nature. It even might refer to seasonal ponds or marshy patches where frogs and similar marsh dwellers breed' (https://en.wikipedia.org/wiki/Vlei ).

the vlei remains one of the most polluted water bodies in the Cape Town region, the reasons for which, I detail below.

The Zeekoevlei is surrounded by the suburbs of Zeekoevlei, Lotus River, Pelican Park and Grassy Park (Zeekoevlei, 2020). 'Zeekoevlei was proclaimed a local authority nature reserve in June 2000 and is one of the youngest conservation areas in Cape Town' (Zeekoevlei, 2020). One of the earliest records of the Zeekoevlei 'comes from a visit by Jan Van Riebeek in 1656, when he described the vlei as 'quite a large lake, as broad as the River Maas, and about two hours walk in circumference, with deep brackish water, full of hippopotami' (Zeekoevlei, 2020). There are however no longer hippos in the Zeekoevlei, but they can be found in the adjacent Rondevlei Nature Reserve (Zeekoevlei, 2020).

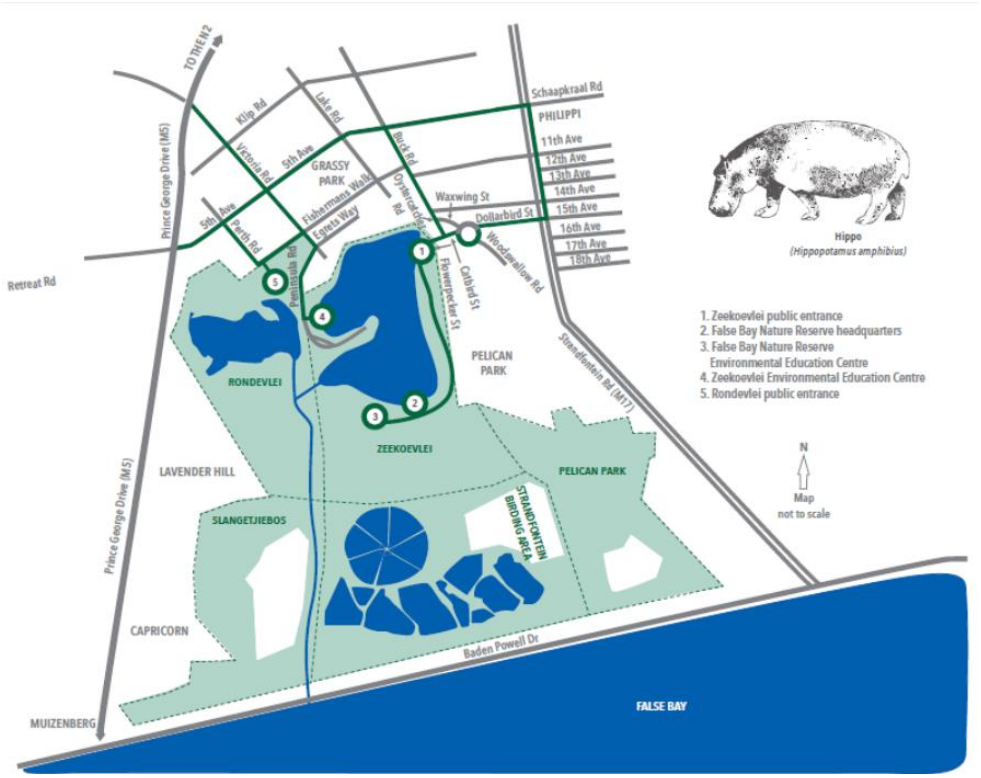



Image B: The False Bay Nature Reserves Sections. The Zeekoevlei and Rondevlei are located in between the Pelican Park and Lavender Hill areas. (Source: Southern Africa's Ramsar Sites, 2015).

As mentioned earlier, the Zeekoevlei is located in the Cape Flats. The Cape Flats are characterised by township areas that were established and executed through the Group Areas Act by the Apartheid government (Long and Spracklen: 2011, 63). 'The apartheid regime's

notorious racial segregation laws, especially the Group Areas Act, compelled the various races to live apart' (Long and Spracklen: 2011, 63). What this did in turn was create densely populated, 'under-developed' and 'urbanized' spaces, which lacked adequate service delivery such as the collection of waste, the provision of water, sanitation, and electricity. The poor service delivery, high density settlement and growing populations that exceed what the government is able to support in terms of providing housing and services contributes to the plastic and solid waste crisis in the Zeekoevlei and its surrounds, which I highlight in this study. In their journal article titled *Service delivery inequality in South African municipal areas: A new way to account for interjurisdictional differences*, Kurt and Ben Sartorius (2015) discuss how service delivery inequality is both a combination of long-term and short-term historical legacies, contradictory urban planning, and local efficiency levels. They argue that the allocation of public resources is mostly prioritized in areas with economic 'potential' in which services delivered can be matched with tax contributions (Sartorius and Sartorius, 2015: 02). A prime example of this would be the *The City of Cape Town*'s (COCT)[2] approach to residents. Cape Townian's[3] are referred to as 'customers' and 'business partners' on rates bills. It is these paying 'customers' and 'business partners' that are 'eligible' for adequate service delivery (Green, 2020). This places residents of Cape Town within what Michelle Murphy (2017) refers to as infrastructures of calculation, which enables the governance of populations for the sake of the national economy. As Murphy (2017) argues, this highlights a particular 'biopolitical logic', where a group of people suffer, while others have a better life because of how deep their pockets go. However, this biopolitical logic is indifferent to the racial inequalities, unjust displacement, resettlement, and health disparities which are a direct result of colonialism, imperialism, and Apartheid. I discuss this in more detail in chapter 5.

The title of this thesis, *Living with the Zeekoevlei: An Ethnography on Historizing Relationships With/To Plastic, Wastewater and Solid Waste Pollution*, does two things. Firstly, the use of

[2] The COCT is the metropolitan municipality which governs the city of Cape Town and its suburbs and exurbs
[3] Residents of Cape Town.

'with' implies that there is co-existence and acknowledgement of a relationship between man and 'nature'[4]. Secondly, the use of 'to', is far more dangerous. Dangerous as it implies there is a separation between man and nature. In other words, 'with' refers to a partnership, a sense of unity and mutuality. 'To' on the other hand refers to a 'one-sided-ness' that excludes mutual exchange. The use of the word 'to' draws on approaches to modernity, ownership, control, and mastery that have resulted in the exploitation and extinction of the very sources that produce, maintain, and sustain multiple lifeforms (Plumwood, 1993; Van Dooren, 2011 and Demos, 2016). 'To' also draws from a quote by Bruno Latour (2013):

> The difficulty lies in the very expression 'relation to the world', which presupposes two sorts of domains, that of nature and that of culture, domains that are once distinct and impossible to separate completely.

By thinking of our worlds, and the multiple worlds we shape and are fundamentally shaped by, as separate from us allows for notions of reciprocity, respect, mutuality, co-dependence, community, entanglement, and acknowledgement to 'slip-away'. It is this 'slippage' that has proven to be dire for all lifeforms. Some repercussions of this 'slippage' includes (but are not limited to), climate change, deforestation, loss of biodiversity, changes in ocean acidity, sewage spills (particularly in South Africa), global warming, toxic water levels, temperature changes, carbon pollution and of course, waste pollution.

*The Royal Commission of Environmental Pollution* (1984) describes waste as 'unwanted residues' that are usually recognized as having no economic value. 'Pollution can be defined as the introduction into the natural environment by humans of substances, materials or energy that cause hazards to human health, harm to living resources and ecological systems, damage to structures and amenities or that interfere with the legitimate uses of the environment' (Hamer, 2003: 72). With this definition, it is inferred that 'pollution' only describes

[4] 'Nature' – 'refers to the phenomena of the physical world, and also to life in general. It ranges in scale from the subatomic to the cosmic. The term 'nature' may refer to living plants and animals, geological processes, weather, and physics, such as matter and energy' (Nandini, 2021:87).

circumstances where unwanted effects occur (Hamer, 2003: 72). Plastic and solid wastes are the direct results of human consumption and consumerism. Dependent on the resource or object in question, it is the mode of consumption that will inevitably dictate the portion that is 'wasted' during and after its use. It is that portion or fraction that becomes waste upon a system of redundancy (Hamer, 2003: 72). Geoffery Hamer (2003) writes, that the establishment of 'waste management' is a relatively new practice. Over a century ago, the production of waste was the responsibility of the consumer (Hamer, 2003). However, over the span of a few decades an industry, 'waste management', had been established. This meant that the individual consumer could transfer their responsibility for the waste that they produce to waste management practitioners (Hamer, 2003). This in turn, made consumers disregard the inevitable fate of the waste that they generated. The irony here is that most consumers despise waste pollution but fail to see that they themselves are significant contributors to the waste crisis (Hamer, 2003). At the same time, manufacturing industries place the responsibility of dealing with waste on the consumers, with inadequate effort or investment into alternative biodegradable products. The issue of waste then becomes an 'everyone's problem, but no one's responsibility'.

This 'inevitable fate' of solid wastes greatly affects living and non-living environments. With unequal service delivery in poor and low-income areas, many wastes do not end up in local terrestrial dumping sites (landfills), recycling and other waste treatment facilities. The wastes that do not make it to these facilities end up being discharged into various sectors of our environments. Namely, lakes, swamps, dams, rivers, seas, forests, and fields (among others). These wastes are then carried by various water cycles and weather conditions, eventually ending up in accumulation zones which are primarily: 'river mouths, estuaries, on the coast or in the sea' (Surfrider Foundation: n.d.) as seen in the Zeekoevlei.

Locally published articles (see –AVERDA, n.d; AWARD, 2019; Daily Maverick, 2018, 2019, 2020 and 2021) epitomize that plastic and solid waste pollution is not solely an environmental crisis. It is firmly cemented in histories of unequal distribution of resources. With a vast majority

of the country living in poverty, why do we have such high levels of food wastage? It is not as if there are insufficient resources but rather it is their distribution that is insufficient, this is merely one reason for the high traces of food wastage in the Global South (Alexander et al. 2013). Here, food and its wastage become a deeply political matter. Catherine Alexander et al. (2013) discusses in *Food Waste* the profligacy of food consumption and wastage in the Global North and South. Other factors that contribute to food wastage include poor infrastructure, crop production, lack of organisation and political and economic structures which are frequently the reasons for crop failure and 'food not being received and exchanged' (Alexander et al. 2013:471). The above articles also indicate that the crisis of waste pollution is not exclusively a governmental and waste management issue, but it is also a social and political issue.

How we think about wastes, how we relate to them, how we think about consumption and how we think about waste disposal are important questions that need collective thinking and conversations to address the current states of many of the worlds we inhabit. Thinking about different ways of acting with and relating to wastes, needs a recognition of the ethical tensions at play. For example: a 'sanitary' way of efficiently disposing of wates may be in tension with livelihoods predicated on waste picking. 'Sanitation' through incineration may bring other environmental problems – and so forth. Waste pollution is a crisis that affects everyone (human and non-human/living and non-living). But, I do acknowledge that not all are responsible and have contributed to this crisis (Latour, 2002; Foucault, 2003).

French philosopher Michel Foucault (2003) and Latour (2002) reject the notion of universalising the human, as not all humans are treated equally, and not all humans pollute equally. There are many people actively working towards creating healthier and safer environments for all species. There are many who through their engagements with wastes and their environments are doing the work of the imagination. What this means is that there are people actively trying to create worlds that are not steeped in colonial legacies of inequality, extraction, pillage, and expulsion. There are people who see themselves existing

in relation with the environments they inhabit. There are also many finding and sustaining[5] themselves through their relationships with wastes (Saethre, 2020). This, however, does not come without challenges, such as the threat of violence and theft (see Saethre, 2020).

One organization actively trying to create healthier and safer environments for all lifeforms and is drawing on the work of the imagination is *The Friends of Zeekoevlei and Rondevlei* (FOZR hereafter) (see image C). *FOZR* was established in 2006 and describes their organization as an 'apolitical, community-based non-profit organisation that aims to assist the nature reserve authorities to protect the much-threatened flora and fauna that make this corner of the Cape Flats their home' (Zeekoevlei: 2020). Imagination is crucial in the work that they do. Creating worlds that exists outside of neoliberal and colonial frameworks requires you to imagine such worlds are possible in the first place.


Image C: *FOZR* official logo. It features the Cape clawless otter (also known as the African clawless) which finds its home in the Zeekoevlei. (Source: Zeekoevlei, 2020).

Community-based organizations (CBOs hereafter) fulfil a much-needed role when it comes to addressing issues that they themselves are faced with. CBOs can identify and address the

[5] https://www.news24.com/fin24/economy/sa-plastic-industry-breaks-recycling-record-creating-income-forthousands-20180517

issues that most affect their communities[6]. '[…] Being at 'grassroots' level gives them an on the ground vantage point and experiential knowledge that organizations coming in from the 'outside' may lack' (Daily Maverick, 2021). Over the duration of fieldwork what became more apparent were the daily challenges that *FOZR* are facing. One such example was after wastes were collected from the vlei, they were placed in household plastic bin bags[7] which were then placed in heaps whilst awaiting collection. They would then be transported to various waste plants. During the 'waiting' period which often takes a day or two, the plastic bags were often emptied back into the Zeekoevlei (or alongside). The bags were then stolen as these could be resold or repurposed for other uses. If there were any wastes of value, that would then be taken as well. Members of *FOZR* indicated that these are usually stolen by local substance abusers. This insight was solidified during clean-ups as some of the common items that were found were alcohol packaging (i.e., glass, plastic, and cans) and drug paraphernalia (mainly, glass pipes, burnt glass bits and foil and small plastic packaging). Having grown up in the area that I have, these items were easily identifiable. In addition to the consequences of socio-economic issues *FOZR* faces, they also fall victim to what many CBOs are struggling with i.e., being under-resourced, under-staffed, under-funded and overwhelmed with the needs of the communities they aid (Daily Maverick, 2021). This in turn restricts their opportunities to address all the social and environmental issues they are faced with daily. This research therefore highlights that partnerships between governmental entities and local entities such as CBOs are crucial in addressing the waste crisis in the Zeekoevlei.

## RESEARCH QUESTION

South Africa, like many other countries on the continent, has a long history of inequality and injustice. A history which is still unfolding in many aspects of South African societies. These injustices however are not limited to humans, they also include the exploitation and destruction of various ecologies and ecosystems (Swiss Re, 2020). In a study conducted by the Swiss

[6] https://www.dailymaverick.co.za/opinionista/2021-08-02-helping-the-grassroots-grow-social-investment-incommunity-organisations-is-critical-for-civil-south-africa/

[7] Average household bin bag is 80L and 750mm x 950mm (Taken from Tuffy budget refuse bags).

Insurance Company Re (2020) on fragile ecosystems globally, South Africa has ranked number one with zero percent of our ecosystems intact. This shows that not only have people been treated as disposable through South Africa's history of coloniality; living (and non-living) environments have also long been treated as such.

Waste pollution as a consequence of inadequate spatial planning and unequal service delivery also highlight the importance of future thinking in the context of growing urban population and climate change. How do we redesign a city that will accommodate the inevitable growth of a population?

The central question is therefore: what relationships and meaning can be derived through tracing geographies of waste and geologies of violence in this landscape? I also ask: How have geographies of waste and geographies of violence come to be in/on this landscape?

To address the above questions, I also ask:

• How are people (and other lifeforms) relating to solid wastes, particularly plastics, in the Zeekoevlei and its associated landscapes?

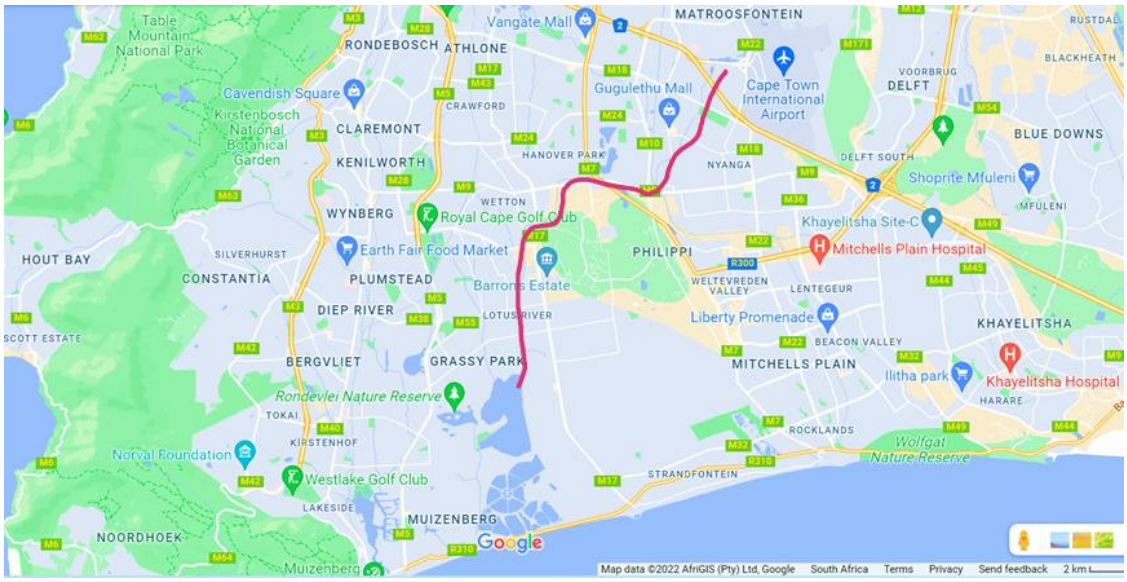
• What are these wastes revealing (and concealing) about South Africa's histories of inequality?

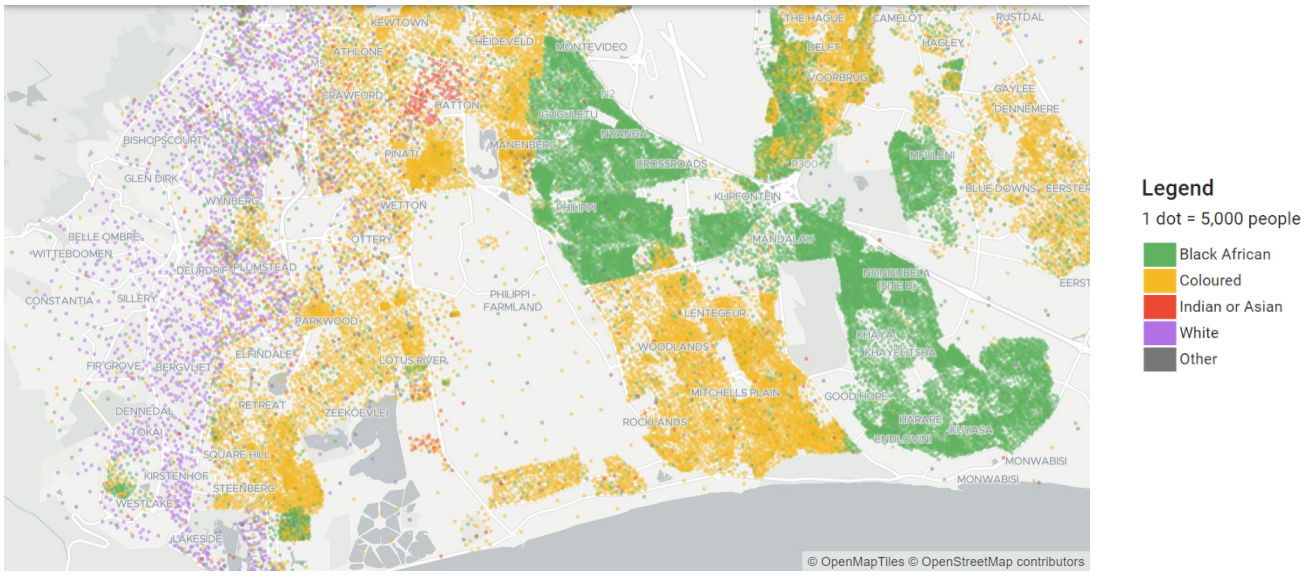
• What processes are happening (or not) for the pollution to reach in the Zeekoevlei?

• What notions of care, kindness and mutuality are emerging in civil societies as a response to poor waste management and environmental governance?

The Zeekoevlei is linked to the Little Lotus and Big Lotus River. The location of the Zeekoevlei is approximately 22km from Cape Town International Airport which is how far the Big Lotus River stretches to (see image D1 – red line). The wastes are travelling quite far distances to reach the Zeekoevlei. Wastes are being 'collected' from areas on the Cape Flats such as Gugulethu, Nyanga, Manenberg, Hanover Park, Philippi, Ottery, Lotus River and Grassy Park (see image D2). Apartheid settlement histories ensured that these areas do not have 'high

economic potential' (Sartorius, 2015), as such, they receive poor and inadequate service delivery and responses to service delivery issues. As wastes are being 'collected' by these streams passing through these areas, it presents a major waste problem to the Zeekoevlei. This begs questions around service delivery and spatiality. What is happening upstream and along these areas for the wastes to reach the Zeekoevlei? How does the spatiality of these areas affect the Zeekoevlei?




Images D1 and D2: Mapping the distance of Zeekoevlei to the Big Lotus River in red whilst showing the demographic distribution of the city. (Source: Google Maps, 2022 and Frith, 2011).

## CARE AND CIVIL SOCIETY

The fundamental role that CBOs play has been exacerbated by the global pandemic, COVID-19. Since COVID-19, Cape Town has seen the emergence of community-based and led organizations such as soup kitchens, after school programs, increase of neighbourhood watches, clothing and food collection centres and more. There is an ethics of care, presence, and mutuality in the work that they do. María Puig de la Bellacasa's (2017*), Matters of Care: Speculative ethics in more than human worlds*, offers posthumanist intervention into thinking about the politics and ethics of care in a world living through various environmental crises. This intervention comes from wanting and needing to 'recuperate care from the trappings of neoliberal biopolitics' (Shapiro, 2019:453). Puig de la Bellacasa (2017), frames the idea of care as 'a situated and committed form of speculation that simultaneously works to sustain the world we live in and opens it up to new constituencies and political stakes' (Samanani, 2019). I use Puig de la Bellacasa's (2017) framing of care as a much-needed tool for creating a different kind of biopolitics[8], and as means of opening up more ways of being in the world whilst highlighting the important work that CBOs are doing in their everyday.

CBOs are actively engaging with their environments and attempting to shape worlds based on reciprocity, care, and kindness. It is such logic and motive that I concur with, as it could be a great tool in addressing the waste crisis. This logic draws on imagination. To imagine is to envision and in some ways believe that something else is possible. As mentioned earlier, being able to imagine worlds outside of the neoliberal frameworks we have inherited is crucial in creating new ones. Postcolonial scholar Jason Allen (2017:492) writes that: 'The metamorphosis that takes place in the imagination highlights the desire to move towards the world, to extend oneself, in one's fullness, towards the plenitude of the other […]'. There are CBOs who are in many ways embodying this, extending themselves through their work, seeing indigenous and people of colour as deserving of dignity, respect, acknowledgement, and care. In the case of *FOZR* seeing our environments as living and breathing underpins these

[8] Biopolitics is the enforcement of politics over all life. Its core function is 'to ensure, sustain, and multiply life, to put this life in order' (Foucault, 1976) by any means necessary.

initiatives. However, CBOs do not exist without critique. CBOs and particularly those bordering 'higher income' areas are often critiqued for their classism, racial dynamics and where their care is 'allocated'. Some of the frustrations aired by residents of poorer areas in the Cape Flats is that there is a tendency for wealthier residents to care more about a flower or a frog than their fellow citizens of colour.

However, through working with FOZR, I observed the great deal of dedication and commitment that CBOs possess. Actively seeking and creating solutions to entrapping the plastic and solid wastes, engaging with stakeholders, doing regular clean ups, and removing alien vegetation. *FOZR* also aims to hold organizations and corporations accountable (not without hurdles), getting the community involved and educating youths on the challenges they face. These are some of the ways *FOZR* highlights notions of care, kindness, and mutuality that are emerging in civil societies. *FOZR*, through engaging, reciprocating and acknowledging our environments, particularly water bodies and their associated landscapes, as living beings and caring about their well-being shows a paradigm shift in the ways we think about, make sense of, manage, and interact with the multiple worlds we inhabit. By engaging at these multiple levels, what emerged was that waste is entangled with multiple meanings. For some it presents as a nuisance that needs to be controlled and 'gotten rid of' whilst for others it is a site for income generation or bringing communities together.

## RATIONALE: ENTANGLED WASTES

> Waste is what is left over, the irrelevant, the unintended side effect, the superfluous, the unwanted. It is nice to think that when we just throw it away, it disappears. But the reality is the amount of garbage is accumulating every day, all over the planet (Eriksen, 2012).

Norwegian Anthropologist Thomas Hylland Eriksen and Elisabeth Schober's (2017:283) write that 'waste is both an unwanted, unintended side effect of human activities, and inevitably also a social construct – an entity that only comes into being due to our incessant need to create social order amidst a chaotic world that is 'so continuous and so immense in its variety as to

be unhandleable'. Eriksen and Schober (2017) draw on the work of British Anthropologist Mary Douglas (1966), particularly, her book entitled *Purity and Danger: an analysis of the concepts of pollution and taboo.* Douglas (1966) explores the ways in which we have come to understand what 'dirt' is (or is not) in differing contexts. These understandings according to Douglas (1966) are based on cultural notions of what dirt is and their symbolic meanings. Douglas (1966) concludes that 'dirt' in any context or society is 'matter out of place'. Douglas (1966) suggests two conditions based on this definition. These conditions are 'a set of ordered relations and a contravention of that order' (Douglas, 1966: 44). According to Douglas, 'there is no such thing as absolute dirt' (Douglas, 1966: 02), and 'no single item is dirty apart from [i.e., outside of] a particular system of classification in which it does not fit' (Douglas, 1966: vii). Douglas (1966:44) writes that 'Where there is dirt there is system', as it is based on a 'residual category [of things] rejected from our normal scheme of classifications' (Douglas, 1966:45). Eriksen and Schober (2017) and Douglas' (1966), work have been instrumental in shaping my conceptualizations about what waste is, the social and cultural structures that shape our understandings of waste and the ways in which people can become waste or treated as such as seen with Steve Lerner's (2010) 'sacrifice zones', which I discuss in much detail in chapter 5.

Whilst this thesis does not draw on multispecies excessively, Thom Van Dooren's (2011), *Vultures and Their People in India: Equity and Entanglement in a Time of Extinctions* has been useful in in thinking about how we relate to waste and how we classify waste. Van Dooren (2011) discusses how humans and animals, particularly vultures have been entangled in India. Van Dooren's (2011) work speaks of the ways in which vultures were able to produce life through their consumption of carcasses, what most might consider waste. Similarly, Eriksen's (2012), *Waste in a World of Side Effects* draws on the 'life' and side effects of wastes after they have been discarded. In this way, wastes become 'reborn'. They are born in the form of pollution, ecological degradation, climate change and various other environmental crises. What this did was spark an interest in wastes, multispecies and the idea of living *with* them. It made me think critically how present-day geologies can be traced through human and non-

human histories. William L. Rathje and Cullen Murphy's (2001), *Rubbish!: the archaeology of garbage*, shows that population demographics and the acceleration of garbage output and consumer habits can be traced through wastes. *Rathje's Garbage Project* (Rathje and Murphy, 2001) conducted studies of American landfills. They were able to take samples which were presumed to be decades old. Rathje and Murphy's (2001) research was able to map variations of wastes through social and ethnic groups and how they changed over time which was not surprising as household wastes have grown significantly since World War II. More of which will be detailed later.

This thesis draws attention to an urban water body which is often thought of as something outside of communities, as something that must be conserved and protected from humans. The goal of this thesis is to explore solid and plastic waste management, waste infrastructure, spatial/urban city planning and how Apartheid histories are intertwined in these factors. The aim of this research is also to recognize relationships that are not premised on colonial ideologies of mastery, control, and ownership. Colonial thought has separated humans from the worlds we inhabit, which plays a pivotal role in the 'violent transformation of people and ecosystems; continuously obstructing our ability to achieve both social justice and environmental justice' (Solomon, 2021 :19). Thus, my intention is to speak to dominant discourses which misguidedly see humans as living outside of relationships with their environments. This research is thus intended to contribute to a broader body of work in the environmental humanities on what it means to be human and what it means to live with the worlds we inhabit.

## STRUCTURE OF THESIS: HISTORIES OF WASTES

The first two chapters of this thesis draws on the methodological and theoretical frameworks that have shaped this research. The chapters thereafter draw on Van Dooren's (2011) term 'twist death back to life' in relation to Anna Tsing's et al. (2017), book entitled *The Art of Living on a Damaged Planet: Ghosts and Monsters of the Anthropocene.* These chapters explore the 'life' of wastes post-consumption or use. Tsing's et al. (2017), work draws on the role of history and how some histories are still very present. Latour's *An Inquiry into Modes of*

*Existence (AIME)* (2013) has been a 'staple' in shaping the final chapter of this thesis. Latour (2013) discusses how different things come into existence within our worlds through different knowledge-making practices, each expressing their own cogitations of what is significant.

Chapter 1 highlights the methodological approaches and ethical considerations that were used and taken throughout this research. This chapter highlights the importance of building connections, 'slowing down' (Solomon, 2021), and getting to know a space. This chapter describes the processes of getting to know the people and multispecies of the Zeekoevlei. The era of mastery that we are in calls for a rethinking of how we do and produce research. We are living through worsening planetary changes and increasing inequalities. Alternative and innovative research approaches are needed to speak to dominant discourses of mastery and control (Solomon, 2021). These approaches may also allow for new knowledges to be produced that could contribute to various disciplines and aspects of societies (Solomon, 2021).

Chapter 2 draws on the conceptual/theoretical texts and relevant literature that have informed this research. South Africa as mentioned throughout this thesis has histories that are always present. Those histories can be traced through what Tsing et al. (2017) calls the 'ghosts' of the Anthropocene. These 'ghosts' are signs of pasts still thriving in the present. Similarly, Rob Nixon's (2011) notion of 'slow violence', which refers to a violence that appears over longer periods of time and is often not recognized as a violence at first also alludes to this idea of 'ghosts' (Tsing et al. 2017). As these violences and 'ghosts' (Tsing et al.2017) linger in our worlds, how do we begin to address them? The purpose of the chapter is to outline and draw on theoretical frameworks that aim to address these 'ghosts' and their 'monsters' (Tsing et al. 2017).

In Chapter 3, I draw on Van Dooren's (2011) term, 'twist' death back into life'. Van Dooren (2011) however uses it in the context of vultures and is referring to their ability to consume the dead animals, thus, giving 'new' life to these dead animals. The way 'twist' death back into life' is used in this chapter differs from Van Dooren's (2011) use of the term. I present a case study of a *Lay's* chip packet found during one of our clean ups. I begin by imagining the journey that

this packet has travelled, essentially giving this packet 'life'. This case study attempts to show the 'life' of a familiar waste and its associated complexities. In addition to Van Dooren's work (2011), I draw on Tsing et al. (2017) conceptualization of 'monsters' of the Anthroposcene and use *Lay's* packet to explore the monstrous nature of wastes. Wastes which are supposedly 'dead' and their ability to 'twist back into life' as different forms of pollution.

Chapter 4 is written as an extension of Chapter 3 as it narrows in on the history and 'life' of plastics in our environments. This chapter looks at the history of plastics and the proliferation of plastic manufacturing and consumption. These two chapters use the *Lay's* packet as a tool for tracing geologies of waste. It draws extensively on Timothy Morton's (2013) concept of 'hyperobjects'. 'Hyperobjects' are entities dispersed and produced massively across space and time (Morton, 2013). These entities are not often perceived as ecological threats at first, as they are not always quantifiable since they cannot always be seen. This chapter looks at plastics as 'hyperobjects' and traces how wastes can traverse geographies and time.

Chapter 5 looks at spatiality and waste infrastructure being a key contributor to the solid waste crisis in the Zeekoevlei. Apartheid spatiality comes as the result of South Africa's history. The by-product of this is unequal service delivery. Apartheid spatiality and poor city planning created densely populated communities. But it also created poorly located waste infrastructures. Today, these waste infrastructures are overburdened due to inadequate management. This chapter focuses on how geologies of waste have come to be in this landscape as a result of Apartheid spatiality and failing waste infrastructure and management.

The final chapter, chapter 6 speaks to other ways of existing. Ways of existing and approaches to our environments that is not premised on ownership, mastery, control, neoliberalism, and Western thought. It seeks to highlight paradigm shifts that have been happening in civil societies in a response to the challenges highlighted in previous chapters. It also aims to dismantle the myth of Africa needing 'saving', and knowledge as being 'something' that exists within particular spaces for particular people.

In the conclusion, I consider the possibilities of more generative approaches to dealing with waste for CBOs, waste management practitioners, governmental institutions, and our communities at large, whilst also reiterating why we need to rethink how we relate to waste and spatiality. Rethinking our relationships *to* and *with* wastes is crucial in addressing the waste crisis in the Zeekoevlei. Rethinking urban planning with growing urban populations in mind may allow for different responses and outcomes to waste pollution in South Africa.

# CHAPTER ONE

## Getting to know Zeekoevlei: Connections, Methodological Approaches and Ethics

This chapter highlights the methodological approaches used to explore geologies of waste and violence and relationships with the Zeekoevlei. Part of rethinking and reimagining worlds outside the frameworks of coloniality and Western thought is thinking through research methods that sees people as fully human and sees multispecies as being integral to our communities and existence. The methods used in this study were appropriate for the argument of this thesis and reinforces aspects of community, care and reciprocity whilst also contributing to environmental humanities research in and from the global South.

## METHODS

### BUILDING CONNECTIONS

In the later part of 2020, my supervisor posted in an EHS Whatsapp that some volunteers were needed for a clean-up with *FOZR*. Unfortunately, I was unable to attend but the photos shared in the Whatsapp group sparked my interest in solid wastes. The photos were of wastes that were found in the Zeekoevlei, it included a mattress, tyres, and heaps of other wastes. This was the first time I heard of *FOZR*. Prior to writing my research proposal, I reached out to *FOZR*, and received a response from both Sidney and Tom. Sidney is currently the chairperson for FOZR and is responsible for overseeing day-to-day activities such as clean ups, reed removals and communicating between various governmental entities. Sidney lives along the Zeekoevlei in the Grassy Park area. His knowledge of the daily damages and challenges to the Zeekoevlei was invaluable. There was a level of familiarity that came with speaking to Sidney. Being a person of colour as well, it was easier to understand the dialect that Sidney would sometimes use. These were often dialects and words used in communities of colour. Tom as the vice-chairperson takes on a more logistical, administrative and spokesperson role. Tom's backyard faces the Zeekoevlei Peninsula. Sidney and Tom's proximity to the Zeekoevlei has made it easier for them to track patterns, changes and

challenges to the vlei. Their insights shaped the questions I asked in my proposal and further shaped the questions I pose in this thesis. Much of what I knew about *FOZR* came from their informative website. It was only after having conversations with community members, attending community talks and listening to Sidney's stories that I began to think of the valuable role of CBOs and the possibilities they bring forth for knowledge on care and reciprocity.

I met Sidney in-person in April 2021. He and Tom reached out asking if I could assist a high school student, Cait, who was doing an 8th school subject through the *Two Oceans Aquarium Education Foundation*[9] . The student was primarily interested in plastic pollution and the effects it has on the environment. I also met Cait's mom Audrey. Audrey has a master's degree in public administration and currently works in the dept. of *Biodiversity and Conservation Biology* at the *University of the Western Cape*. Audrey's background, helped with thinking through the research methods I was using and intending to use.

Residents Phillip and Aunty Maryam played an integral part in this research. I knew Philip as he is a friend and colleague of my mom so establishing a relationship here was much easier. Phillip is a middle-aged white man of Scottish decent and identifies as 'average but middle-class'. By day, Phillip is a clerk but his passion lies with bees. He has lived in the Zeekoevlei area for about 18 years. Phillip was born in Mowbray, Cape Town and later moved to the United Kingdom (UK hereafter). Much of his early education was received in the UK. Phillip mentioned that he had severe dyslexia as a child but the school he attended in the UK was not equipped to working with students like himself. He returned to South Africa when he was about 8 years old. The effect this had on his education was dire. He talked about how his dyslexia was dismissed at the school and he how he was called '*dom*'[10]. But this experience combined with coming from generations of farmers, sparked his interests in nature. Phillip never finished school because of his learning disability but still managed to find employment

[9] https://aquariumfoundation.org.za/education/marine-sciencescurriculum/#:~:text=The%20subject%20is%20made%20up,marine%20protected%20areas%20(MPAs)
[10] 'Dom' – Afrikaans word for dumb.

in a reputable South African organisation. This raised some issues for me, particularly, the issue of race and job allocation during Apartheid. Certain jobs were allocated for certain peoples. However, this was an issue I did not dwell on too much. Phillip would send me regular photos of various animal species in and around his home. These were often leopard toads, pelicans, pied kingfishers, and butterfly cocoons. Philip would also send photos of the wastes washing up in his backyard as it is on the peninsula of the Zeekoevlei. Aunty Maryam, a local clerk and family friend and a woman of colour of Cape Malay decent who has been living in the Grassy Park area for 21 years. She grew up in an area nearby called Parkwood. Parkwood is characterised by its large blocks of flats and the social ills that result from living in Apartheid established 'communities'. We would often speak about her upbringing and how that affected the way she sees her current community. Having grown up with multiple siblings in a small home was 'tough'. Many friends and family of Aunty Maryam had succumbed to the plague of substance abuse on the Cape Flats. There was not much opportunity for employment, and many would just watch the day go by. Today, living in a two-income household is a luxury to Aunty Maryam despite identifying as a 'low-income' household. In Parkwood, most people growing up were living '*van die hand na die mond*' [11]as described by Aunty Maryam. Aunty Maryam would often describe the Zeekoevlei as calming, peaceful and scenic (sometimes), all of which was the opposite of Parkwood. Much of her responses regarding the 'scenery' of the vlei was crime related. She mentioned how she has seen a decline in the number of people that fish, sail, or picnic alongside the vlei and believes crime to be the main reason. During this conversation, she also alluded to the distrust that exists between some residents of Grassy Park, particularly, in the area she stays and municipal authorities. She went on to speak about how their complaints of dumping and dangerous activities along their area of the vlei would go unanswered but people along the peninsula of Zeekoevlei receive a very different response. Here, it was crystal clear that tax contributions match the level of 'care' and efficiency that is provided to specific incoming areas alongside

[11] 'Van die hand na die mond' – an Afrikaans phrase which translates to 'from the hand to the mouth'. It often refers to living 'paycheck to paycheck'.

the Zeekoevlei. Similarly, Sidney would point out the dangers that often lurk alongside the vlei. These were stories of people being robbed and/or assaulted. Having made these connections with participants and building on them allowed for this research to take shape in a way I had not foreseen.

I met some *FOZR* employed laborers while spending time with Sidney. Sidney would oversee the removal of alien vegetation by *FOZR* laborers in surrounding homes along the peninsula. Laborers would use their hands, rakes, and other equipment to ease the process of pulling out the roots of the alien vegetation. Once pulled out, these reeds would then be transported to a collection site nearby and waste collectors would collect them the follow day (see images a) and b)).

Images: a) and b) *FOZR* laborer's removing alien vegetation. Taken in Zeekoevlei. (Source: Author).

Spending time getting to know people would determine the outcome and impact of this thesis which meant that there was now a real commitment required from me. What this means is that the 'nature' of fieldwork is often extractive. As researchers, we acquire the necessary data for

our projects and then move onto the next. But, building meaningful relationships with people and places challenges this extractive narrative. It also meant that now, I had the responsibility of being completely open and transparent with all participants throughout this research. As researchers we may represent 'hope' and the answers to all problems to the communities we work with, but much of the world's problems is beyond our control. Here, reminding participants that I may not have the answers and solutions to the challenges they face with the Zeekoevlei was of utmost importance.

## ENCOUNTERING THE FIELD

As noted earlier, fieldwork had taken roughly five months due to unexpected sewage spills in Zeekoevlei[12] . Due to temporary closures around the Zeekoevlei as a result of the sewage spills and possible health risks, I conducted fieldwork on days when it was declared 'safe' and the sewage spills were contained. This 'touch and go' situation increased the significant roles that participants play in the research. They would take photos of the wastes washing up in the backyards, take photos of various species in and around their homes and they would send me their thoughts regarding the waste pollution in the Zeekoevlei. Aside from the sewage spills, the annual drawdown[13] affected visits to the field. The drawdown affected the time frame of this research but attending the drawdown gave me a chance to familiarize myself with the community. During this time, I started researching these sewage spills. What became apparent through conversations with *FOZR* members and attending a community talk led by the *COCT's* Biodiversity Area Coordinator Bongani Zungu titled, *Saving Zeekoevlei* on the 18th of September 2021, was that these spills were not 'new' issues. This community talk came as the result of frustrated and concerned Zeekoevlei residents. The responses to these spills by the *COCT* officials were not great either[14] [15]. Aside from the health risks these spills pose for

[12] https://www.capetownetc.com/news/massive-sewage-spill-wreaks-havoc-in-zeekoevlei/
[13] https://www.southernmail.co.za/news/zeekoevlei-gets-clean-up-at-annual-drawdown-49a682e8-55e7-4f0b-94f1-5e611545fbb6

[14] https://www.capetalk.co.za/articles/396959/latest-zeekoevlei-sewage-spill-no-response-from-city
[15] https://www.iol.co.za/capeargus/news/zeekoevlei-grounds-opened-but-water-body-remains-heavily-polluted-0bc58e97-1f91-4e33-939d-eb687f57b1c2

human beings, what were the health risks for our ecologies and biodiversity's? These were not being addressed by the *COCT* or its representatives. *The Cape Flats Wastewater Treatment Works* (*CFWWTW* hereafter) located just south of the Zeekoevlei in Strandfontein on the North coast of False Bay is around 500 hectares in size and is one of Cape Town's largest sewage plants (PlanetUWC, n.d.). The location of the *CFWWTW* was once a dune-slack wetland (Brown et al. 2008: 191). The area was then converted into a 'series of settling and oxidation ponds' when the wastewater treatment works was developed in 1956 (Brown et al. 2008: 191). The *CFWWTW* has attracted large numbers of migrant birds and has become a popular bird sanctuary (PlanetUWC, n.d.). Furthermore, there is also the Coastal Park Landfill located in Muizenberg which is a neighbouring area to Strandfontein and is approximately 11kms from the Zeekoevlei (see image 1.1).

In July 2021, Xanthea Limberg former Mayco[16] member reported that only one of the four permanent Archimedes screw pumps at the *Strandfontein Sewer Works* were working as there had been numerous 'mechanical failures due to dumping into sewers'[17] . *The Strandfontein Sewer Works* is located less than 200 meters from the *CFWWTW.* The locations of these toxic sites are important as they play a huge role in what happens in the Zeekoevlei. The validity of Limberg's (2021) statement of 'failures due to dumping in sewers', remains questionable because it does not address why the other three pumps were not working, nor does it address the delayed response and action from the *COCT*. Limberg's (2021) response appeared to be the easiest response to give at the time. Limberg's (2021) response shifts the blame to residents and poor communities, rather than acknowledging that the infrastructure is aging and outdated and failing to cope with a growing population and new forms of chemical and solid waste pollution (Solomon, 2021).

[16] Mayoral Committee - 'The Mayoral committee's primary task is to assist the Executive Mayor in the exercise of his/her powers; it is in essence an extension of the Office of the Executive Mayor' (Madibeng Local Municipality, 2021).

[17] https://www.iol.co.za/capeargus/news/zeekoevlei-now-becomes-third-vlei-to-close-due-to-sewage-spillsd68e6f12-5cc5-4831-a619-687628be1545


Image 1.1: Aerial photograph showing the locations (and proximities) of the Zeekoevlei, the CFWWTW and the Coastal Park Landfill. (Source: Baigrie, 2015).

## THE POWER OF STORIES

A major method of gathering data for this research was through oral narratives and informal interviews often whilst participating in clean-ups. The questions asked were always open-ended, which meant that there was no expected responses. The use of oral narratives and informal interviews allowed for flexibility in the questions that I asked which meant that participants were less likely to have given 'prepared' responses. This flexibility built empathy and rapport between participants and I. Over time, the unrestrictive nature of these methods

encouraged openness and trust. This could be seen the longer I was in the field, participants would now start telling me about the everydayness of their lives. These were often stories about their kids, jobs, family, interests and life experiences. The advantage that this method provided was that, I was getting accounts that were first hand experiences. I was interested in stories about the vlei and stories of living with it  and how waste pollution has affected these stories. Through conversations with residents and *FOZR* members, I started to see the frustration toward local authorities and residents who are 'not doing their part' in taking care of the Zeekoevlei.

Simultaneously, I started seeing stories of hope. Hope that people will become more aware of their environments. Hope that people will care about the worlds that they inhabit. With these stories, it was extremely difficult to ignore the undertones of wealth inequality. Some residents would air their frustration with the 'issue' of homeless people, vagrants, drug users and other people deemed as being involved in criminal activity or not 'belonging' in the area. These people are then assumed to be the contributors of dumping in the area, similarly, to Limberg's (2021) neo-liberal claims.  After months of conducting research, it was proven difficult for me to confirm such claims.

As this research progressed, I began to think through some of the dilemmas that this research method brings. Such as recollection and memory and how we contiously and subconstiously choose to omit details from our experiences particularly unpleasant ones. For example: if an event has happened 20 years ago, it may be difficult for an individual to recollect certain details. For instance, when Phillip would speak of his pleasant childhood, I often wondered what things he may not  have 'seen' or was oblivious to at the time. What this means is that his pleasant experience may have ignored and ommited the unpleasant experiences of Apartheid for people of colour in neighboring areas. This highlighted the complexities of recollection, memory and oral narratives.

## PARTICIPANT OBSERVATION

As a woman of colour, I was inadvertently reminded of my positionality throughout this research. What this did was allow me to move between being an 'insider' and an 'outsider'. During clean ups, I was in insider along with other volunteers who were mostly people of colour coming from similar backgrounds as I. My bilingualism in English and Afrikaans, also made it easier to navigate between being an insider and outsider. But, when I attended the community talk hosted by *FOZR* and the *COCT,* I instantly became an outsider. The hall was filled with high-income white residents, many of whom mentioned their occupations i.e., lawyers and doctors. I was curious as to why majority of attendees were from the high-income section of Zeekoevlei? Where were the people from Grassy Park and Lotus River? Having grown up in a low-income area, there were moments that I felt a great sense of 'out of placeness'. *FOZR* is predominantly led by men, and I was reminded to always have someone accompany me to the field site for safety reasons. These observations and experiences gave me a greater sense of how Apartheid and spatiality shaped lives, particularly, for women of colour (Yusoff, 2018).

The view of the vlei changed greatly depending on where I was. When I was closer to the peninsula at a resident's home or at the *Zeekoevlei Yacht Club* (*ZVYC* hereafter), the view would be 'picture perfect'. When I was at the Little Lotus River, the view was often not as 'pleasant'. It made me interested in how and where care is 'allocated'. Were residents at the community talk only interested in the Zeekoevlei because it was affecting them? Affecting their yacht club? And the 'scenic' view from their backyards? It made me curious about what the concerns of residents in the Lotus River and Grassy Park area were regarding the vlei. At the community talk, it was clear based on the concerns and frustrations of residents the vlei itself was an integral part of this community, it was in fact a member of this community.

The primary method of data gathering for this study was through doing regular clean-ups of the Zeekoevlei (and surrounding streets, mainly, along Fisherman's Walk, Peninsula Road and Victoria Road in Grassy Park) and the Little Lotus River. The meeting locations were usually at the *ZVYC,* or the park located along Fisherman's Walk where the Little Lotus River

and Zeekoevlei meet. Locations also included residents' backyards as I observed *FOZR* labourers on reed removal activities. Observing the ways people engaged with the vlei and by extension the wastes that were flowing through the vlei which greatly shaped the final chapter of this thesis.

Clean-ups would usually work as follows: We would meet at the *ZVYC* or the park. From there, we would climb on boats with life jackets and head out onto the water with bin bags and physically remove the wastes we came across. This process was exhausting as it demanded intense physical labor (reaching, stretching, lifting and catching). If we were not on the water, we would walk along Fisherman's Walk, Peninsula Road and Victoria Road and collect the wastes lying alongside the road. These wastes were typically different from the ones on the water. The solid wastes alongside the road were often cans and bottles, drug paraphernalia, cotton buds, plastic straws, juice cartons, chip packets, plastic bags, and other smaller items. The wastes found in the Zeekoevlei were generally much larger, things like car bumpers, tyres, buckets, and TV parts. These were all wastes that we could see. Microplastics[18] on the other hand, are not easily visible. Much of which will be detailed later.

The first clean-up I attended was in April 2021. It was anticipated to be *THE BIGGEST ZEEKOEVLEI CLEAN UP EVER!* (see image 1.2). Volunteers were *FOZR* members, community members, and students in the *Nature Connect* (formally known as *Cape Town Environmental Education Trust* (*CTEET*)) program. I wondered what the benefits of such programs were. Were they creating a sense of community? Instilling ethics of care? Assisting with holding your peers accountable? And teaching people how to live *with* nature? These were questions I would hope such programs would answer positively.

[18] Microplastics – sizes are generally between 0-1 mm and 1-5 mm (Li and Liu, 2022).


Image 1.2: *THE BIGGEST ZEEKOEVLEI CLEAN UP EVER!* (Source: Zeekoevlei, 2021).

On *THE BIGGEST ZEEKOEVLEI CLEAN UP EVER!*, a resident mentioned that earlier that week she spotted a heron who appeared to be in distress. Upon further inquiry, she discovered that the bird had been choking on a piece of hair weave. She then contacted the *FBNR-Rondevlei Bird Sanctuary*. What this story reiterated is that there is an ethic of care not only for the well-being of the vlei but the numerous species that exist in and alongside it as well. There is commitment shown by residents and *FOZR* members to better the conditions of the vlei and its inhabitants.

I spent some time driving around the vlei and the Little Lotus River with Sidney. We would often speak about his family and the memories they share with the vlei. These were often about nieces and nephews that would spend the holidays along the vlei and also on the vlei. We went to various locations that could gain access to the Zeekoevlei. Whilst visiting these locations Sidney would tell me what challenges these locations were facing. These challenges

included but were not limited to vast amounts of sludge[19] (see image 1.3). This makes sense given the proximity of the *CFWWTW* and the *Strandfontein Sewer Works*. The challenge for *FOZR* is that sludge can manoeuvre through catchment nets and they often 'trap' solid wastes in them. Collecting wastes now becomes even harder since it is difficult to move through sludge with boats. The inherent toxicities that sludge carries bring a whole new range of health concerns for the vlei and multispecies.

Image 1.3: A photo of the sludge. It is this brownish-black slurry of toxins and wastes. This was taken toward the Grassy Park area. Taken in May 2021. (Source: Author).

Other challenges to *FOZR* included catchment nets which were not fulfilling their purpose as they are not being maintained and the role of swale. Swales often look like these long ditches. They can be naturally occurring or man-made. Wet swales can function as linear wetlands (Lake Superior Streams, 2009). They can assist with reducing peak flows and runoff velocity and promote infiltration. They can also trap sediments and other pollutants thus improving what goes in the vlei.

[19] Sludge - 'a semi-solid slurry that can be produced from a range of industrial processes, from water treatment, wastewater treatment or on-site sanitation systems' (https://en.wikipedia.org/wiki/Sludge ).

By using participant observation as a primary data gathering method, I was able to provide thick descriptions (see Geertz date, 1973) of how people were relating to the vlei, what stories and conversations were emerging during fieldwork and what aspects of care are emerging in civil societies. However, this research method made it difficult to remain objective at times. During conversations with participants, it was easy to 'side' with them and their frustrations toward the *COCT*. It was easy to shift all the blame to the *COCT.* The task here was not to blame a party but rather to look at the multiple tensions at play between residents, the *COCT* and their politics*, FOZR* and waste producers and manufacturers.

## PHOTOGRAPHS AND MAPS

The photographs weaved throughout are meant to capture the seriousness of the waste crisis in the Zeekoevlei. The photographs are meant to show the danger that this landscape, ecologies and multispecies are in. Finally, they are meant to make us think about how certain things are made (their materialities), what we consume, how we consume them, how we dispose of them and the side effects of wastes. The use of aerial photographs are meant to capture the vast differences in spatiality.

Maps have been used throughout this thesis to provide a close-up of the Zeekoevlei and its surrounding landscapes and infrastructures. Maps are useful in 'representing landscapes; how oceans, hills, mountains, cities and lakes, and streets to name a few, occupy spaces in relation to other objects in the environment. However, the representations of these landscapes are often flawed as they fall seriously short in representing the complex ecosystems, the socio-economic and political relationships that occur in these mapped territories, which often have geological effects far into the future' (Solomon, 2021:52). Maps also raise issues of territory, authority, ownership, property and land and water access (Green, 2020:34-35). As such, I began to question how maps warranted varying degrees of care 'allocated' to the Zeekoevlei. Maps supposedly show 'where' one space begins and another ends. These spaces split into different areas and municipal jurisdictions (which remain greatly influenced by Apartheid spatiality). It is these jurisdictions that the *COCT* uses when managing resources and services

designated to caring for particular sections of the Zeekoevlei. So, while maps are useful in representing landscapes, they also present complexities for people and lifeforms located alongside the 'wrong' cartographical lines.

## ARCHIVAL RESEARCH

To understand the correlation between solid waste pollution and population growth and density, I tried to look at maps of the Zeekoevlei area prior to Apartheid. Drawing from Tsing's et al. (2017) idea of 'ghosts', the current state of a space can be traced through its history. So how do we trace the life of a 'ghost'? By tracing its life prior to its 'death'.

History has been pivotal in understanding the waste crisis in the Zeekoevlei. What changes have happened in the last decades that have contributed and exacerbated the waste problem? The physical land changes can be traced through maps of the area. The earliest date I received access to was 1953 (which was the early stages of Apartheid) and the latest one was for 2018 (see images 1.4 and 1.5). What these maps show is not only the increase in residential areas, houses, and other infrastructure but also how the landscape has changed over this time. Most of the areas in the aerial photograph image 1.5 form part of the Cape Flats. Simply looking at these maps was not enough to understand the role of spatial planning pre- and post- Apartheid. Tracking physical changes, ignores the individual stories that people have about changes to this space. Philip grew up in the area during the 1960's/1970's. He later moved and then returned to the area almost 20 years later. He would tell stories of riding chopper bikes to the vlei and having these de ja vu moments when he returned to the area. He pointed out that there has been an increase in infrastructures, including housing, over the years which he believes contributes to the solid waste crisis in the Zeekoevlei. Aunty Maryam pointed out the increase of wastes in the Zeekoevlei area was/is the result of crime. Crime which comes as a consequence of substance abuse, which she believes has increased tremendously over the past few decades. While this may be true, it was very difficult for me to find any records that traced substance abuse and the influence it has/had on waste pollution in the area.

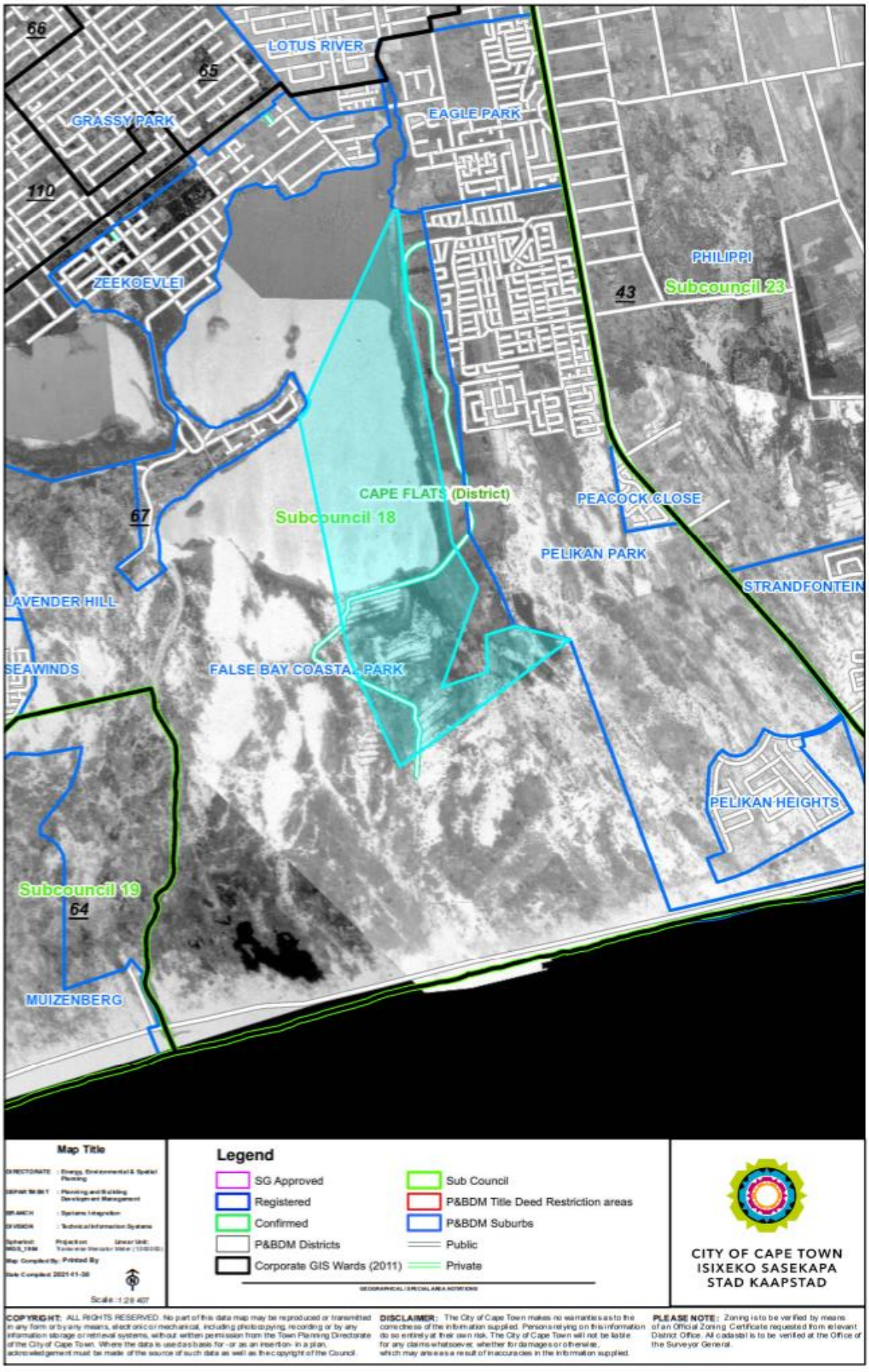



Image 1.4: Aerial photograph of Zeekoevlei dated 1953 .(Source: City or Cape Town website, 2021).

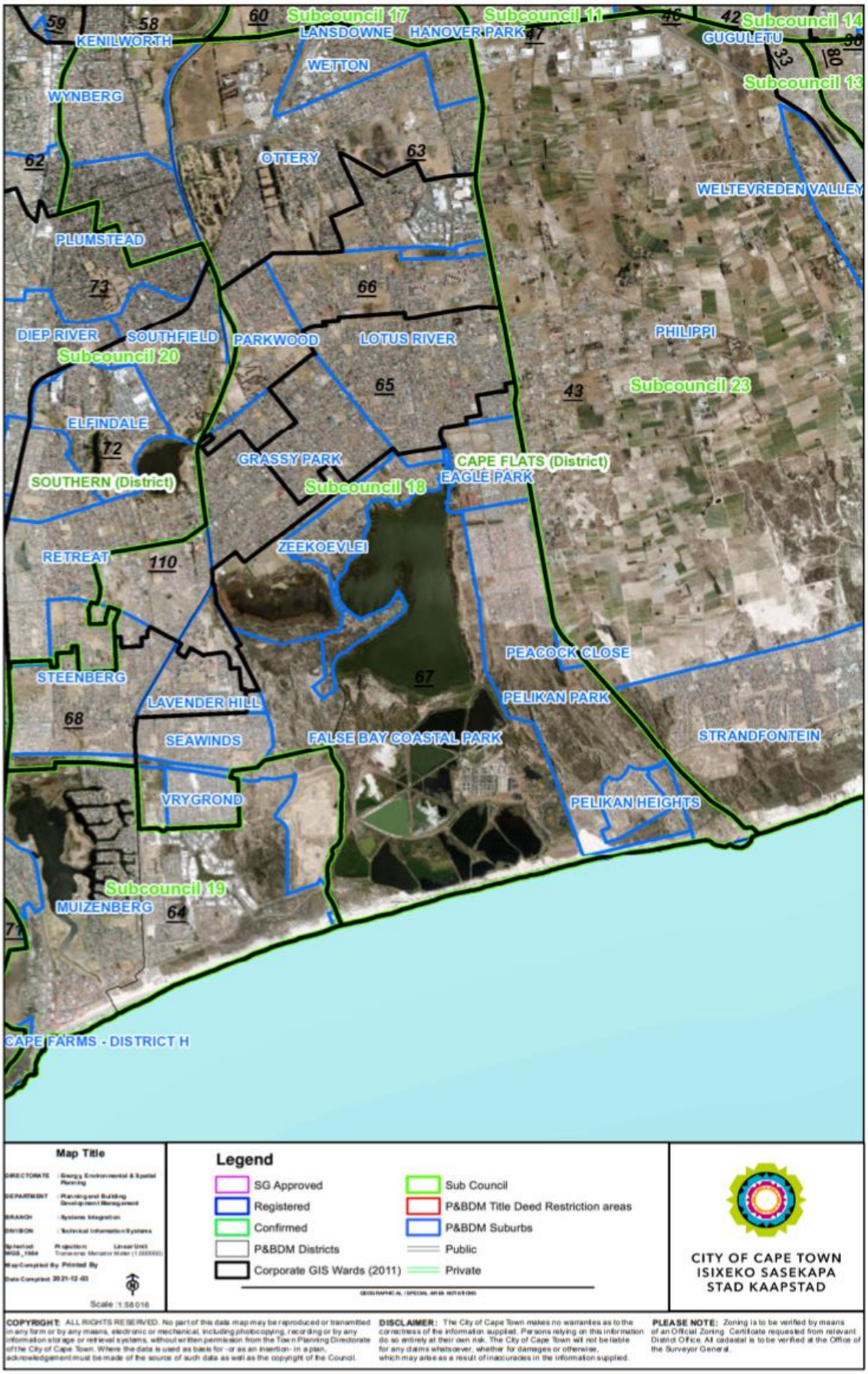



Image 1.5: Aerial photograph of Zeekoevlei dated 2018. (Source: City of Cape Town website, 2021).

## LIVING AND BREATHING WITH THE ZEEKOEVLEI

Seeing the Zeekoevlei as a living and breathing member of our community allows for alternative approaches and engagements *with* the vlei. Belgian Philospher Isabelle Stengers (2018) argues for the need for a different kind of science, 'slow science'. Stengers (2018) makes a plea for the deceleration of science, arguing that scientists should reject the 'arrogance' that hinders their public engagement and take serious consideration to the use and 'relevance' of the knowledge. To enact 'slow science' as an alternative science, I began to think how I could do this research differently. By 'slowing down' (Solomon, 2021: 54), I became more aware of the vlei, the multispecies in and around the vlei, and how I moved in, on and around the vlei. 'Slowing down' also shifted my attention to building relationships with participants and the vlei. As a means of embodying presence, I spent time walking and sitting alongside the vlei and the Little Lotus River. Seeing the vlei as living, changed the ways I collected and thought about wastes. To attune myself to presence of other beings made me aware of every movement I made, not wanting to startle any birds, insects, otters, toads and whatever else was around. It was these moments of observation and presence made me more aware of my own relationship with wastes and gradually my relationship with the vlei.

How was I disposing my wastes? What was I disposing? How was I relating to the vlei? It was these moments of stillness (Stengers, 2005) that made me constantly re-evaluate my own misconceptions, assumptions, and thoughts. Becoming aware of the vlei and the way it moved, made me change how I interacted with it. At first, when participating in clean-ups, there was this sense of urgency to collect all the wastes I came across which often meant water was splashing everywhere. As I became more conscious of my position with the vlei and its inhabitants the ethical considerations I made changed. I started to move with a gentler approach.

This method came as a result of *EHS* courses which challenged dominant discourses on non-human beings as being without feeling and life. As this thesis aims to contribute to existing literature in environmental humanities centred on and around care which I believe is

underwritten, this method allowed me to employ an ethic of presence and care through my interactions with the Zeekoevlei.

## SAMPLING

This method was borrowed from a more scientific approach. Sampling is a technique of selecting people and things to make statistical inferences from them and estimate characteristics of the whole group (QuestionPro,2022). On some days during fieldwork, the wastes had already been collected in the vlei and would now be in large bags awaiting pick up from waste collectors. As these bags were awaiting collection, *FOZR* wanted to do an audit of the waste that were being dumped in the river. I was assisted by Cait, who was primarily interested in plastic pollution. I used sampling as a way of seeing the probability of the kinds of wastes that were found. This involved selecting the filled bin bags and then sorting and counting the various contents. This method allowed me to trace patterns. There were now 'common' [20]wastes. These included but were not limited to, plastic bottles, chip packets, medication packaging and clothing items.

In addition to the above, this research project draws from multiple disciplines across the social, political, and scientific sciences. The 'nature' of this transdisciplinary research required an approach to writing, producing, collecting, and understanding that was not premised on traditional ways of knowing. The numerous discussions and conversations held across the *EHS* courses pointed to a similar point, that a fundamental shift in how we think, engage, manage, write, and live with the worlds we inhabit is needed. The waste crisis in the Zeekoevlei will show that inadequate policing making, resource management and spatial planning are equal to the waste problem. Choosing to write this thesis in the form of an ethnography allowed me to include the everyday ethnographic accounts of living *with* the vlei. Ethnographic research also emphasizes the importance of one's positionality in relation to the people and worlds in which you are conducting research (Ross, 2010).

[20] 'Common' – refers to 'usual' and 'popular' wastes found.

## ETHICS

The research methods used in my research proposal drew from 'traditional' anthropological approaches i.e., interviews, oral narratives, and participant observation. I thus felt 'comfortable' with the ethical considerations I needed to take. However, this changed as I started thinking about 'non-traditional' research methods (Freire, 1968). After participating in EHS courses and having read my supervisor's doctoral work, I started thinking about the ethical considerations that I would take when working with the environment. Considering ethics beyond the human.

Anonymity was offered as an option to all participants. Where I have used names, they provided their full consent and were eager to contribute to this research as they were as invested as I was. Pseudonyms have been used for participants who wish to remain anonymous. All other names used such as the *COCT's* employees was accessible to the public.

## TRANSPARENCY

The 'nature' of relationships between the researcher and participants greatly influences how participants choose to respond. The inherent power dynamics between the researcher and the researched also shapes the direction in which the research goes. As such, it was important that I remained transparent with everyone involved in this research. Being open about what my research was on and the potential impacts of this research for participants and myself was important. Words have the potential to create and/or recreate already existing vulnerabilities and marginalization.

I ensured participants that I would share my research upon completion, but as I have read, there are 'no mechanisms are in place (in the university or elsewhere) to ensure this happens, and it is usually left to the individual researcher' (Solomon, 2021: 64). I constantly found myself asking what was the purpose of doing this or that was? How was this going to contribute to the community I was working with? How is this project relevant to the community of

Zeekoevlei? What is the aim of this project? And what are you hoping comes from this? It was also this thinking that made me hold myself accountable throughout this process.

# CHAPTER TWO

# Reading the Landscape

## CONCEPTUAL/THEORETICAL FRAMEWORK AND LITERATURE REVIEW

> The winds of the Anthropocene carry ghosts—the vestiges and signs of past ways of life still charged in the present […] Our ghosts are the traces of more-than-human histories through which ecologies are made and unmade.

An excerpt taken from the introduction, *Haunted Landscapes of the Anthropocene* (Tsing's et al. 2017), tells these stories of the active remnants of past human 'mistakes', these are 'ghosts. In other words, these ghosts' figures take on ecologies of damage in which pasts are always haunting presents. It is a haunting with all the things you cannot leave behind, in contrast to the modernist dream that assumes one can break away from the past through the production of 'new and better' products. These ghosts, as remnants of consumption practices, continue to remind us that pasts matter. These ghosts of industrial production affect the everyday of all lifeforms, as it moves and weaves its way into our worlds.

Using's Tsing et al.'s (2017), framing of the 'Anthropocene' 'carrying ghosts', became quite useful in thinking about how geologies and geographies of waste and violence have come be in the Zeekoevlei. These geographies and histories can be traced through landscapes and spatiality. In this line of thinking, spatial planning becomes this 'ghost' of Apartheid and coloniality.

A ghost refers to a being who is presumed 'dead' and who is believed to appear in the living (often distorted). Spatial planning becomes almost 'ghost-like' when thinking of it as being a distorted image of the past. Colonialism and Apartheid ended thus making them 'dead'. But their systems of control, displacement, inequality, and injustice still prevails (appearing in the living) in our current worlds. The second part of Tsing et al.'s (2017) book takes an almost grimmer yet fascinating approach when thinking about environmental degradation. These

'ghostlands' become playgrounds for 'monsters'. Solid wastes become these monsters, dwelling, moving, negotiating space, enforcing labour, relationships, presenting even more danger, threat, and horror to these 'ghostlands' (Saethre, 2020 and Tsing et al. 2017). The 'ghosts' and 'monsters' are the 'uncanny more-than-human manifestations of environmental relations that we have ignored, forgotten, or overlooked' (Harding, 2018: 02), similarly, to what Nixon (2011) calls 'slow violence'.

'Slow violence' refers to 'a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all' (Nixon, 2011: 02). With the destruction that solid wastes cause in its wake, it is often not looked at as sets of processes. The prevalence of these ghosts, in the form of colonial and apartheid spatial planning, and monsters in the form of solid wastes enact a slow violence not only on the residents of Zeekoevlei, but also on the multispecies that inhabit the landscape. Often described as the 'father of environmental justice' (Bullard, 2018), Robert D. Bullard (2011) argues that an important indicator of the quality of life for a person is their 'ZIP code' (Solomon, 2021:82). This draws on histories of coloniality, Apartheid and segregation; 'segregation between communities of colour and white communities' (Solomon, 2021:82). Lerner (in Bullard, 2011) expands on this unequal distribution of space for communities of colour and deems it as environmental racism. These spaces are often, if not always occupied by low-income people of colour, a pattern we see in the Cape Town context as well. It is in such spaces, that the environment and health of people are cast away in the name of 'progress', 'betterment' and 'development', usually 'brought about by technical proposals and responses assumed to be objective and neutral' (Solomon, 2021: 82).

Environmental Philosopher Tim Morton's (2013), 'hyperobjects' draws on similar frameworks as Nixon (2011). Morton (2013) writes that the ecological crisis is best understood as the time of 'hyperobjects' Morton (2013) argues that through the 'evolution of 'hyperobjects' that the end of world has already happened. For Morton (2013) 'hyperobjects' refers to entities (i.e., global warming, nuclear radiation, and plastics to list a few) which are produced massively

across time and space (Morton, 2013). 'Hyperobjects' are not always visible and can dissociate from the toxicities they produce.

Morton's (2013) work is useful to think through the plastic and solid waste crises in the Zeekoevlei. When using single-use plastics, many people may not see them as ecological threats. For example: if you are drinking out of a single-use plastic water bottle, it may seem harmless. Now imagine hundreds of these water bottles in a wetland. Their compounds breaking down over time and affecting the water quality and multispecies of that wetland. Only when seen en masse are they (plastics) considered a problem. This raises the question, what ontological shifts need to be considered in the time of the Anthropocene, where slow action and continuing with 'business as usual' is no longer an option. Morton (2013) argues that it is crucial to rethink how we write about, conceptualize, and address these planetary changes. Morton's (2013) 'Hyperobjects' and Nixon's (2011) 'slow violence' allude to a similar point, the dire consequences that appear in the human world is a product of our thinking through the period (Anthropocene) we have entered. Dumping sites and landfills are merely the 'end'[21] results of historical violences. But the systems that magnify these waste sites is often not looked at. When states (and other entities of power) look at solid waste pollution, often spatiality, service delivery and past-present inequalities are overlooked and ignored. Tsing's et al. (2017) separates 'monsters and 'ghosts' in the book, but they also argue that these entities cannot be thought of as separate. There is this reliance of sort. One cannot exist without the other. What would the solid waste crisis look like in the Zeekoevlei if not for spatial planning and its ramifications?

## ADDRESSING HISTORIES OF INJUSTICE

Part of addressing histories of injustices is by drawing on the work of scholars who have used various tools, lenses, and methods to challenge dominant narratives of modernist and Western thought. Authors like Aime Cesaire (Ricardson and Fijalkowski, 1996), Johannes Waldmuller (2014), Plumwood (1993), TJ Demos (2016), Latour (2013), and Van Dooren (2011) have

[21] 'end' - because it is the start of newer problems.

shaped my understanding and responses to histories of injustice. Their work contributes to thinking about other ways of being, imagining and knowing the world. Cesaire's (Richardson and Fijalkowski, 1996) conceptualization of surrealism being a tool for the imagination presents a way of thinking that defies Western thought. French writer Andre Breton (1924) describes 'surrealism' as '[…] the belief in the superior reality of certain forms of previously neglected associations, in the omnipotence of dream, in the disinterested play of thought. It tends to ruin once and for all, all other psychic mechanisms and to substitute itself for them in solving all the principal problems of life' (Seaver and Lane, 1969: 26). This refers to the way artists would allow their unconscious mind to take over their work. Using Breton (1924), Cesaire's conceptualization of surrealism refers to the making of a new reality, a revolution of the mind (see Biko, 1978). To Cesaire (Richardson and Fijalkowski, 1996), surrealism contests notions of what is real, allowing other ways of being, truths and possibilities. Cesaire (1939) calls for a return to the 'primal', a 'return to simplicity […] and to the harmony of man with the universe' (Snyder, 1974: 726). He argues in the wake of colonialism, humans have been robbed of knowledge of how to be like animals, plants, and minerals (Cesaire, 1939). Returning to the 'primal', is crucial in the unmaking and making of worlds outside of colonial frameworks. So, how do we begin to see ourselves as living and being in relation *with* our worlds? How do we rethink and unthink that which we have claimed to know? Using Cesaire's (Richardson and Fijalkowski, 1996) conceptualism of surrealism, this thesis intends to draw on alternative research methods, approaches, and literature as a way of making a new reality. A reality that exists outside of the colonial frameworks and 'traditional' scholarly ways of knowing that we have inherited.

Waldmuller (2014) and Demos (2016) are inherently asking, how do we place a different value in our politics? What we have come to understand about 'nature' is based on sets of eco-politics (Green, 2020). Eco-politics refers to the ''necessary partnership' between man and nature, between political science and ecology' (La Farga Rubio,1993: 265). Eco-politics is not only about this 'partnership' or adding justice to environmentalism but also shifting and

rethinking how we produce knowledge. Waldmuller (2014) draws on the Ecuadorian concept 'Buen Vivir', which means 'good living' or 'the good life' (Pachamama Alliance, 2017). 'Buen Vivir' is based on:

> […] the belief that true well-being […]is only possible as part of a community. The good of the community is placed above that of the individual. Furthermore, this is community in an expanded sense; it includes Nature, plants, animals, and the Earth. Nature itself must be cared for and respected as a valuable part of the community. The land cannot be owned; it should be honored and protected (Pachamama Alliance, 2017).

It is this belief that allows for a different value to be placed in our politics. When we see our landscapes and ecologies as part of communities, maybe then, can shifts in policy making and resource management take place. Removing what Lynn Margulis (1998) calls 'arrogance', in thinking that we are above and separate from our worlds and policy making strategies. Questions that may be considered when thinking of policies regarding our environments are: - Why do rivers need to gain 'human rights' to be seen as part of the community? Why is there still referral to the 'human' as being placed above other lifeforms? What possibilities and knowledges may emerge from treating and seeing our environments as beings? What Waldmuller (2014) and Demos (2016) are calling for is how do we rethink the binaries of nature and people in urban spaces? Demos (2016:12) draws on decoloniality and writes that '[...] decolonizing nature entails transcending human-centred exceptionalism, no longer placing ourselves at the centre of the universe and viewing nature as a source of endless bounty'. Latour's (2007; 2004; 2005) work has largely been based on this mode of thought. The mode of thought that undoes placing humans as the centre of all lifeforms. Demos (2016) notes that environmental governance has mostly failed, and Latour (2004:53), argues for the establishment of a 'progressive composition of a common world', where nonhuman entities are integrated into a new commonality and form the basis of a post-anthropocentric social, political, and economic organization (Demos, 2016).

Latour's (2013) *AIME* is fundamental in thinking about notions of entanglement, connection, and existence and what it means to live with multispecies. *AIME* (2013) 'concentrates on the plurality of the modes of existence of the actants and actors in a network, which essentially shape how relationships exist within the network' (Solomon, 2021: 42). I use Van Dooren's (2011) theory on entanglement equity and Latour's (2015) *AIME* as a way of thinking through what it means to live *with* and what it means to see connections. How do we see landscapes as more than *just* spaces? How do we begin to see them as part of a network of multispecies?

How do we start seeing the Zeekoevlei as living and breathing? By focussing on the multiple experiences and assemblages of human and non-human lifeforms in relation to their politics, truths, histories, relationships, and communities which allows for alternative ways of knowing and being in the world.

The final literatures that have framed this thesis was Paulo Freire's *Pedagogy of the Oppresse*d (1968). *Pedagogy of the Oppresse*d (Freire, 1968) speaks to dominant and traditional ways of teaching and learning. Looking to academics as gatekeepers to and for all knowledge on the environmental crises we face is not enough. Time has shown this. Knowledge exists everywhere and CBOs are contributing to a broader body of work in conservation and sustainability. Showing us that traditional ways of learning are limiting; we need to free ourselves and be freed from neo-colonial ways of existing. Emancipation from such frameworks of thinking and being present possibilities and alternatives that may not exist otherwise.

# LITERATURE REVIEW

## FRAMING 'CRISIS'

Around the end of 2012 the United Nations (*UN* hereafter) declared that the world is living through a 'global waste crisis' (Pope, 2020). Calling waste pollution a 'crises' provokes some interesting points. Language (and its use) can influence how we think, perceive, engage, and make sense of the world (Deutscher, 2010). Framing something as a 'crises' brings about a

sense of urgency, dread, emergency, fear, disaster and even terror (Yang et al. 2020 and Ladd, 1990). The word 'crisis' also presents itself as a *now* problem. Not as something that has been brewing for some time. Michael Brecher and Jonathan Wilkenfeld (1997:03) define 'crises' as a situation that 1) 'threatens high-priority goals […]' 2) 'restricts the amount of time available for response […]' and 3) surprises the members […] by its occurrence […]. These understandings are however grounded in political theory (Brecher and Wilkenfeld: 1997). Nonetheless, they are useful in unpacking the waste 'crisis' in the Zeekoevlei. Useful because they encompass the various aspects of wastes that this thesis aims to discuss. Such as, waste management, waste infrastructure and service delivery. I use the three definitions above as a way of thinking through the waste crisis in the Zeekoevlei.

We are in the era of what biologist Eugene Stormer and Chemist Paul Crutzen (2000) call the 'Anthropocene'. The 'Anthropocene' is best understood as the age of the human. The age in which human activities have created irreversible ecological changes to our worlds. The 'Anthropocene' 'tells a big story: living arrangements that took millions of years to put into place are being undone in the blink of an eye' (Tsing et al, 2017:01). Expanding on the 'Anthropocene', Environmental Historian Jason Moore (2017) argues that the 'Capitalocene' is a more appropriate term. The 'Capitalocene' is best understood as a system of re/production, profit, and power (at all costs) in the web of life (Moore, 2017). The 'Capitalocene' has propelled us to the 'Anthropocene'. Moore (2017) argues that to address the human/nature binary without identifying patterns of power and capital is rather fruitless. Fruitless because it is precisely these patterns of power and capital that were accelerated post-World War II (Moore, 2017) and has accelerated the Anthropocene. The following sections use Brecher and Wilkenfeld's (1997) three conceptualizations and definitions of 'crisis' and applies them to various aspects of waste pollution in South Africa.

The first definition of crisis as something which 'threatens high-priority goals […]' can be thought of in terms of financial frameworks (Brecher and Wilkenfeld,1997:03). South Africa generates approximately 54.2 million tons (around 52 000 000 000 kilograms) of waste per

year (municipal, commercial, and industrial) (AWARD, 2019). Of this, it is estimated that only 10% is reused or recycled (AWARD, 2019). The rest is landfilled or dumped elsewhere. It is the 'elsewhere' that is deeply concerning. This highlights several issues, the first, poor waste management, which is prominent in low-income areas (UNEP, 2012). The second, spatiality/geographies and within the context of this research, Apartheid geographies (Ramutsindela, 2007). The third, which is closely related to the second point, economic development, and economic profitability (Latour, 2004). With the push to 'develop' spaces and the *obsession* with profits, the increase in production and consumption of goods outweigh the capacity of our landfills (Creamer Media's Engineering News, 2018 and AWARD, 2019). This creates an overburden to existing waste-management systems. Systems which are often already struggling, particularly in low-income areas. Service delivery responses are almost *always* sub-par in such areas as well (Ramutsindela, 2007 and AWARD, 2019). The states *obsession* with economics and the costs involved in 'overburdening' its resources always exclude the implications of overburdening our living (and non-living) environments. The implications of this have proven to be dire as seen with the acceleration of the 'Anthropocene'. We are living through irreversible planetary changes so how do we respond in this moment?

## APARTHEID, SPATIALITY AND SERVICE DELIVERY

This section uses Brecher and Wilkenfeld (1997:03) understanding of 'crises' being a situation that 'restricts the amount of time available for response […]' in relation to service delivery. Spatial apartheid refers to the deliberate act of putting marginalised peoples in remote areas that make access to economic, social, and educational opportunities difficult. This was implemented through the Land Act of 1913 and 1950 Group Areas Act (News24, 2020). What spatial Apartheid looked like was the 'establishment' of township areas (for black[22] people) and suburban areas (for white people). Homes and land in 'white areas' were often separated by large open spaces, trees and various plant life. Township areas like the Cape Flats, became concrete communities (see image 2.1). Apartheid was South Africa's most powerful spatial

[22] Black – including indigenous and people of colour as a way of rejecting Apartheid's racial categories.

determinant, 'representing the 'pinnacle of geographical confinement', serving to displace and hide perceived problems (e.g., poverty)' (Spinks, 2001: 04). Urban spatiality during Apartheid was crucial to 'social order; lines were drawn on maps, and people reordered accordingly' (Spinks, 2001:04). In an article published by *The Daily Vox* (2017) entitled *What exactly is 'spatial apartheid' and why is it still relevant?* the author explores the impact of spatial Apartheid in Cape Town and argues that it is still a relevant issue that needs to be addressed. The effects of Apartheid's spatial planning are still felt decades later, it is a factor that defines lives (The Daily Vox, 2017 and Al Jazeera, 2016).

Image 2.1: Showing the stark contrasts between township areas which remain predominantly black and suburban areas which remain predominantly white. (Source: The Daily Vox, 2017).

The physical displacement of black people, meant that many would be placed in areas that were severely under-resourced, densely populated and exposed to high levels of pollution (i.e. noise, waste, air, and water pollution). Lerner (2010) describes these areas as 'sacrifice zones' which are ''fenceline communities' of low-income and people of colour, or 'hot spots' of chemical pollution where residents live immediately adjacent to heavily polluted industries or military bases' (Bullard, 2011: 266) (see chapter 5). In addition to living and attempting to create meaning with these zones, these areas receive little to no economic and political

attention from the state. These 'sacrifice zones' are dump sites for poor black/indigenous/people of colour (BIPOC).

Adequate service delivery becomes a 'luxury' and a 'dream' for people in 'sacrifice zones'. Noted earlier, Sartorius and Sartorius (2015) discuss how unequal service delivery is the conjunction between historical legacies, spatiality, and local efficiency levels. As majority of black people in South Africa remains poor, little priority is given to their 'sacrifice zones'. Firdaus, G. and Ahmad, A (2010) conducted a study on solid waste pollution and its management in Delhi, India. In their journal article, *Management of Urban Solid Waste Pollution in Developing Countries* (2010: 795) they found that the rapid growth in population in Delhi has greatly influenced the 'rate of generation of solid wastes manifolds'. These growths are particularly evident in poorer communities. It is important to note that, not all wastes produced and discarded is based on consumption, overconsumption, and modernist illusions of affluence. There are ancient and geographically widespread histories of people consuming more than they need for basic survival: status and ritual are often performed through 'non-essentials'. The authors further note that the task of waste management has become arduous work and dumping sites and all kinds of plastic and solid wastes have become common sites/sights in Delhi (Firdaus, G. and Ahmad, A (2010). What this shows is that the waste crisis in the South Africa is not an isolated issue. It is an issue that affects poor people globally.

This paragraph draws on the final conceptualization of 'crisis', which is that it 'surprises the members […] by its occurrence […]' (Brecher and Wilkenfeld (1997:3). There is always this element of 'shock' and condemnation usually from main contributors to waste pollution. For example: there are various companies within the production industry that claim to no longer use plastic bags and have opted for 'green' alternatives, yet plastic bags are one of the most common items found in landfills and dumping sites. Our TV screens, newspapers and social media is flooded with 'recycle and reduce' initiatives and campaigns, often by the very companies and industries that have contributed significantly to waste pollution. What about

restorative environmental justice, where the manufacturers hold a semblance of responsibility for the waste that they produced for the sake of profits with little consideration of the impact of their products shelf lives.

Within the context of South Africa, there have been major inadequacies in waste collection and disposal (Sartorius and Sartorius, 2015). Simply, collecting wastes and disposing them at landfills is not a long-term solution. It is merely relocating the problem. The relationships we have with solid wastes need to change so that we have governments, manufacturers and citizens that are better equipped in conserving and protecting our environments[23]. The *Mail and Guardian* (2018) released the article, *Western Cape tackles its mounting landfill crisis* in which the Provincial Minister of *Environmental Affairs and Development Planning* Anton Bredell warned in a press release that 'we have a serious waste problem in the Western Cape. We are running out of landfill space'. Landfills are not solutions for the waste crises, they are merely 'band-aids' for never healing wounds. The article further states that (Mail and Guardian, 2018):

> The Western Cape generated approximately three million tonnes of waste in 2017 according to the government. The City of Cape Town alone produced almost 7 000 tonnes of waste per day last year.
>
> According to Rudolf van Jaarsveldt, head of communication for environmental affairs, the Western Cape is having trouble keeping up. 'The growth in waste quantities is placing a strain on the limited waste management infrastructure,' Van Jaarsveldt said. Population growth and industrial growth are driving up waste production.
>
> To add to the problem, 93 out of 164 landfills in the Western Cape had closed, having reached the end of their natural lifespan, according to James-Brent Styan, spokesperson for the provincial minister of environmental affairs.

[23] https://www.dailymaverick.co.za/article/2021-09-09-waste-management-a-very-public-private-affair/

What these passages highlight is that our current systems of waste management are not equipped to cater to the demands and velocity of waste that are being produced. Landfills in the Western Cape are nearing capacity, so they cannot be the first resort. If anything, they need to be the last resort. What happens when the remaining landfills have reached their capacity?[24] Simply stating that population and industrial growth are the leading causes of solid waste pollution without acknowledging the factors and systems that contribute to them in the first place is a fallacy. This places all the blame on consumers and holds no manufacturers and industries accountable. South Africans are living in an economy and with a government that has no shame that 'profits at all costs' is the order of the day. Industrial growth is merely a remnant of this economic logic. Mentioning 'population growth' and insinuating that overpopulation is the leading cause of solid waste pollution without connecting those to histories of inequality is extremely *lazy*. To mention overpopulation as a leading cause of solid waste pollution but not address the issue of housing, inadequate service delivery, inadequate waste management, unemployment, inadequate resource management, and funds allocation (among many other inadequacies) is an *easy* response.

The attainment of wealth and land is far more challenging for black people who were historically excluded from such opportunities. As a result, you have generations born into 'sacrifice zones', which makes it almost inevitable that certain areas would be densely populated. It is inevitable that plastic and solid wastes would be visible on the landscape when service delivery is not prioritized in such areas. In discussions with my supervisor, Dr Nikiwe Solomon, she highlighted that, 'It is easy to blame people in low-income areas when there is no interrogation into consumption and waste practices in those areas. There is no interrogation into who consumes the most and produces the most waste in low- and high-income areas. We generally only see these waste sites in low-income areas. But is there someone keeping track of how much waste is produced in well-serviced areas? Because the wastes are quickly

[24] https://www.engineeringnews.co.za/article/sa-landfill-sites-a-ticking-timebomb-2018-11-12/rep_id:4136

swept up and taken to 'nowhere'' (personal correspondence, 2022). It is this 'nowhere' that becomes increasingly dangerous to our biodiversity's and ecologies.

## TRACING WASTES

The crises of plastic and solid waste pollution stems from histories of inequality, globalization, industrialization, modernization, urbanization, technological 'advancements', the illusion of 'development', 'progress' and post-truth 'theatrics' (Wilson, 2020). The era of overconsumption has such deep fixation on economic profitability, scientific objectivity, technical efficiency (Latour, 2004). Latour (2004) describes these as the 'gods of reason'. These 'gods' were fashioned within neo-liberal and modernist knowledge systems. Much like Apartheid in South Africa, these 'gods' can be linked to the Dutch settlement. It was these 'gods' that were 'used to lay claim to territory' (Solomon, 2021: 117). It is also these 'gods' that have led us to the 'Anthropocene' (Miller, 2001; Moore, 2016 and Latour, 2007). There are constant pushes, representations, and images of what 'development', 'efficiency', 'growth' and being 'modern' to the global North looks like, thus creating ideas of consuming things for reasons other than fulfilling our basic needs (Miller, 2001). As a result, this has detrimental impacts our waterbodies, climates, biodiversity's, and ecologies. With people wanting more (because of modernist and neo-liberal illusions), multibillion companies are eager to meet those demands. Now, the production of artificial materials (or partly artificial materials) become high demand. These are materials such as plastic, Styrofoam and polystyrene. The production of plastic alone, has increased tremendously over the past few decades with the packaging industry being the highest producer (see tables 1 and 2). The use of global statistics comes largely as a result of the limited research on plastic and solid waste pollution in the Zeekoevlei area. These results are meant to draw attention to the velocity of materials produced and discarded as wastes later on.

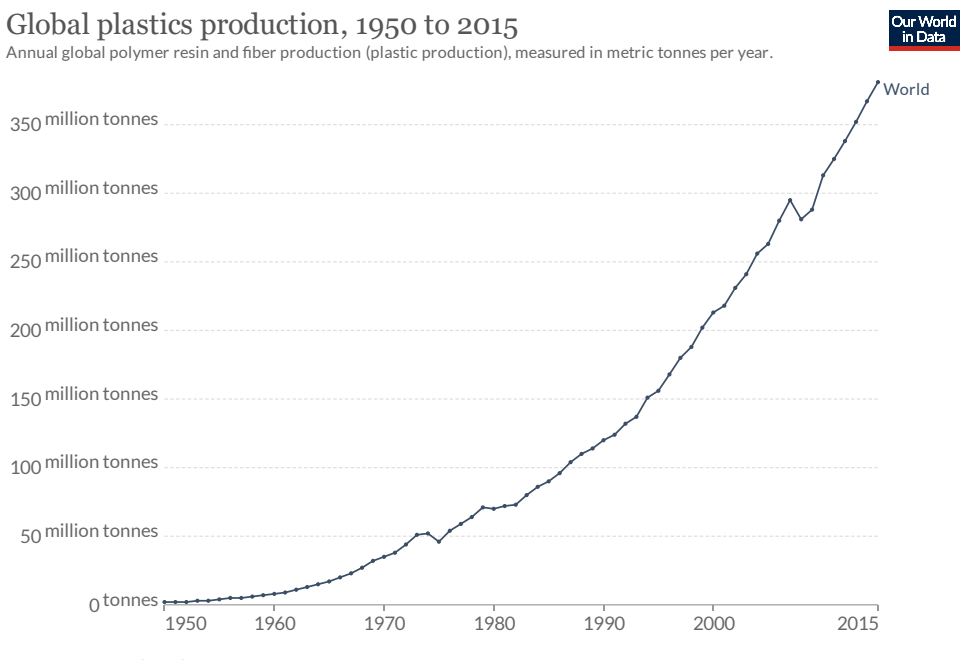



Table 1: Graph showing the global increase of plastic over the past few decades. (Source: Geyer et.al, 2017).

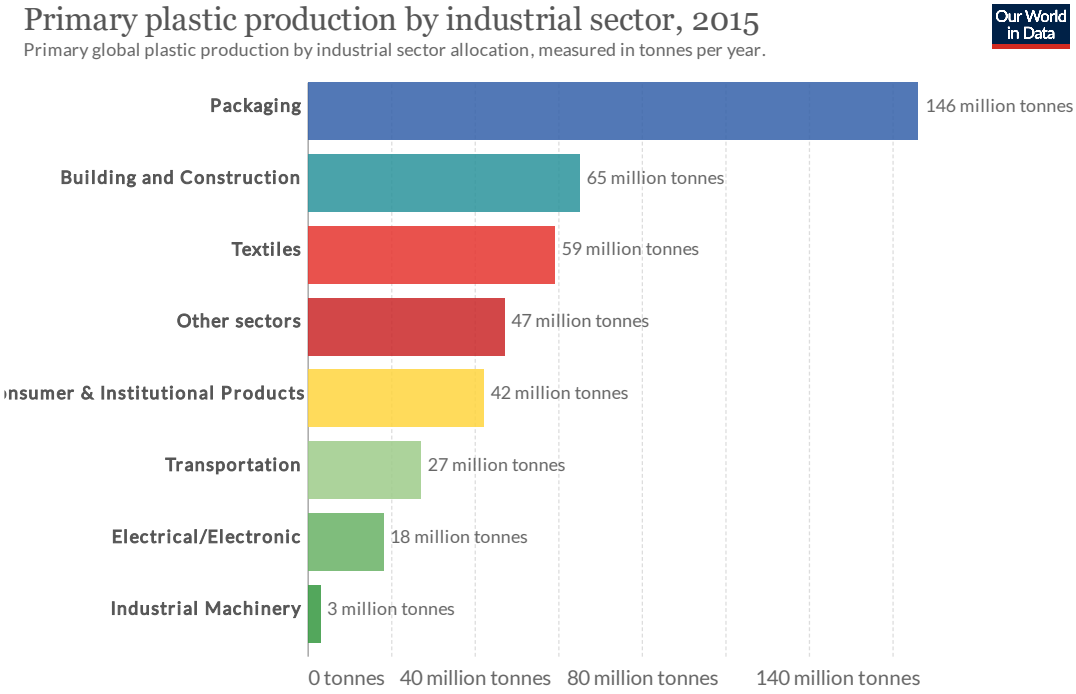



Table 2: The packaging industry is the largest contributor to global plastic pollution. (Source: Geyer et.al, 2017).

The crisis of waste pollution now moves beyond its effects to our ecologies and biodiversity's. When there is great capital involved, politics always joins the conversation. According to Roberto Guimarães, political scientists and ecologists 'have failed both to reconcile the

conflicts between the preservation of the environment and economic development within their respective fields, and to develop the analytical tools with which to comprehend the environmental crises' (La Farga Rubio, 1993: 265). In agreement with Guimarães, there has been a 'miscommunication' between ecologists and political scientists (La Farga Rubio, 1993). This research attempts to bridge those divides and areas of communication. How do we begin thinking across our respective disciplines? And how do we think of economics with the preservation of our worlds in mind? Val Plumwood (1993) argues that divides between economics and preservation come from histories of mastery and relating nature to male dominance. Similarly, Nixon (2011) argues that these divides come from histories of violence. Kathryn Yusoff's (2018:02) *A Billion Black Anthropocenes or None* investigates how these histories of mastery and violence have worked to erase histories of inequality that were 'incubated through the regulatory structure of geologic relations'. It is these histories and stories that have informed the conceptual and theoretical frameworks used in this thesis.

## CONCLUSION

This chapter framed the context in which this study materialized. Waste pollution is a 'monster' that is webbed in histories of injustice. Histories that have influenced how we think, produce, dispose, and interact with wastes. Apartheid spatiality is a ghost that is always present (Tsing et al. 2017). We are reminded of the power and influence of this ghost through service delivery efficiency or lack thereof in low-income communities. A power that is often exerted through the form of 'slow violence' (Nixon, 2011). It is these 'monsters', 'ghosts' and violence that this chapter aimed to address by drawing on bodies of work that speak to other ways of knowing and being in the world; ways of being that exists outside of neoliberal, modern and capitalist logics.

# CHAPTER THREE

## Twisting Death to Life

This chapter showcases the 'life' of a *Lay's* chip packet. This packet is used as an analogy to trace the lifespan that certain materialities have and as a 'representative' of the millions of other wastes floating and moving around in our environments. The purpose of this chapter is to show the long lives that synthetic materials have as a way of highlighting the waste[25] crisis in the Zeekoevlei. The argument throughout this chapter is that these 'lives' which are presumed to have 'died' after disposal are merely 'rebirthed' in the form of waste pollution. In other words, there is no 'death' for certain wastes. This chapter gives 'life' to this chip packet by tracing where it comes from, how it moved, the spaces it occupied and the lives it encountered.

### PRESENTING THE CASE STUDY

On the 8th of May 2021, I conducted a short research study at the Little Lotus River. The Little Lotus is adjacent to the Big Lotus River and the Zeekoevlei. The Little Lotus (and Big Lotus) were canalised[26] to feed into the Zeekoevlei on the northern side and it, in turn, empties into False Bay (along the Atlantic Ocean) on the southern side (News24, 2020). With the risk of flooding or erosion, structural measures are put in place to remove flood waters as rapidly as possible as well as to stabilise the banks. Thus, many urban rivers are canalised (with the bottom and sides encased in concrete) (Malan and Day, n.d.). Dr Heather Malan and Dr Jenny Day (n.d.) from the University of Cape Town's *Freshwater Research Unit* wrote this about canalization:

> Whilst this may be an efficient engineering solution, the result is not ecologically sensitive since there is no habitat within the smooth walls for aquatic organisms to live, and few organisms will be found in such systems. More environmentally friendly

[25] 'Wastes' here, refers to plastic and solid wastes.

[26] Canalised means 'to divide (a channel) into separate reaches controlled by dams and weirs to aid navigation, control water levels, generate power…' (Dictionary.com, 2022).

> options are available – for example the use of gabions (metal baskets of stones) that can be arranged to prevent erosion and allow the river to meander). Such options allow plants to grow along the banks and offer some habitat for aquatic organisms (but not a lot of protection from flooding).

While canalization does assist in maintaining water levels and helps with the risk of flooding, they also present even less possibilities for the habitation of multispecies. The catchment area of the Big Lotus River is much larger and carries a greater pollution load than the Little Lotus River (Grobicki, 2001). The latter runs primarily through areas of middle income, formal residential housing. The Big Lotus catchment area, on the other hand, displays a wide variation in land use (Grobicki, 2001) which includes farmland. In 2001 the population surrounding the Big Lotus and Little Lotus Rivers was estimated to be close to 400,000 people (Grobicki, 2001). I would imagine the current population surrounding these rivers to be almost double today. As a way of trying to understand the 'life' of wastes and its effects on multispecies, I started estimating the movements and side effects of certain wastes (Eriksen, 2012).

Research published by the *Council for Scientific and Industrial Research* (CSIR) (1982) and the *Water Research Commission* (WRC) (2001) on the Big Lotus, Little Lotus and the Zeekoevlei catchment provided the estimated trajectory of waste flows used in this thesis. This research on the Big Lotus and Little Lotus River catchments shows the various tributary channels that flow to these catchments which lead to the Zeekoevlei and later the False Bay through the Zeekoe Canal (CSIR, 1982 and WRC, 2001). With this research, I was able to estimate where and how wastes would flow into the Zeekoevlei. Wastes are flowing from the Little and Big Lotus Rivers into the Zeekoevlei. This is not to say that wastes are solely being dumped in the Big and Little Lotus Rivers, but it is merely meant to give a glimpse into how and where wastes move when they make it to Zeekoevlei.

One day alongside the Little Lotus River which was where the bags of wastes were often 'waiting' to be collected, I used sampling to do an audit for *FOZR* of the wastes that were

found. About two days prior, *FOZR* had done a clean-up at the Little Lotus River. I chose to do a short study to bring attention to the waste crisis in the Little Lotus River and Zeekoevlei. A crisis which is severely exacerbated by rainfall. This was slightly before entering the winter months, unique to the Western Cape's Mediterranean climate (World Lake Database, n.d.). This short study aimed to show the severe impact that one day of rainfall has on waste pollution in the Zeekoevlei and the Little Lotus River. So, imagine the effect of multiple days of rainfall. Increased and/or heavy rainfall brings an influx of wastes as there are drastic changes in the flow of these rivers (Enviroswitch, n.d.). As mentioned previously, the Little Lotus and Zeekoevlei are merely the end stops (some wastes make it into the False Bay) of problems happening upstream. From this, we can see how wastes are flowing from multiple parts of the city to another. I monitored weather forecasts using *Windfinder.com*. for two weeks and eventually there was moderate rainfall. Despite it being moderate, the amount of solid waste that were collected after the rainfall produced around thirty-two sized household bin bags (see images 3.1 and 3.2).

Image 3.1: Taken on the 8th of May 2021. A day after moderate rainfall which brought an influx of waste to the Little Lotus. (Source: Audrey).


Image 3.2: Also taken on the 8th of May 2021. (Source: Author).

The 8th was also the day I met Cait and her mother Audrey. As clean-ups had already happened and the wastes were bagged and awaiting collection, Cait and I used around 3 bags for sampling. This way we could a sense of what wastes, and other materialities were flowing in and through the Little Lotus River and the Zeekoevlei. We separated the wastes into groups, namely, plastic bags, metal cans, glass, chip packets, Styrofoam, clothing and miscellaneous (twigs, toilet paper and little pieces of metal and plastics). After separating these wastes, we counted each waste group to establish a pattern. This way we could see what wastes prominent and what wastes are contributing the most to the pollution of the Zeekoevlei (see table 3). With this table, it is evident that chip packets which are made from a combination of foil and plastic and plastic bags, bottles, wrappers, and parts are key contributors to the waste pollution in the Zeekoevlei.

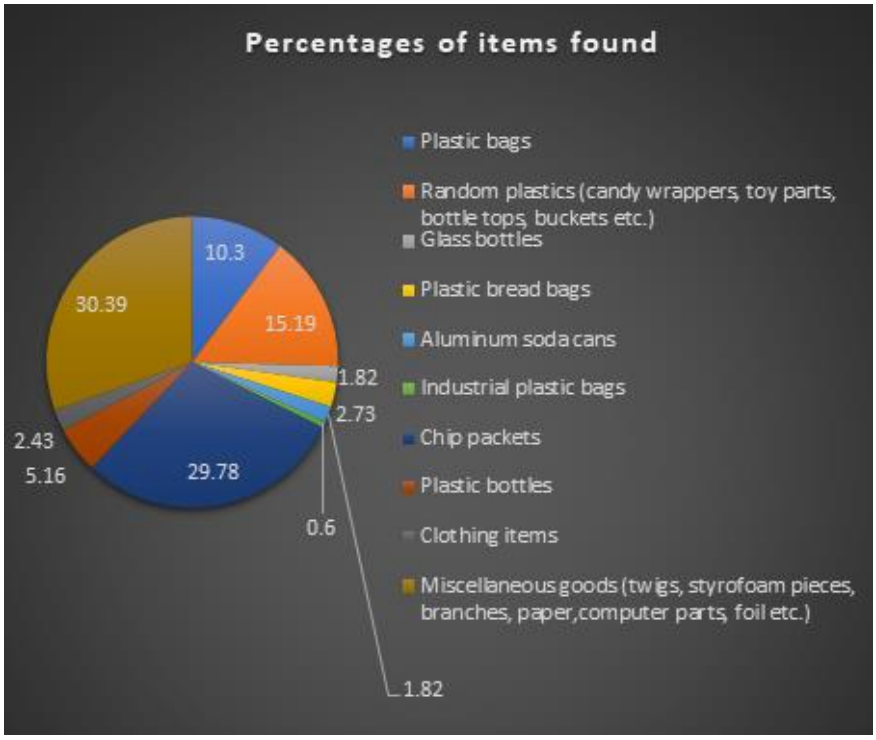



Table 3: Graph showing the materialities contributing to the solid waste crisis in the Zeekoevlei. (Source: Author).

## THE GREEN AND YELLOW PACKET

In the process of separating wastes and placing them in their heaps, I started looking at their expiration dates. Most of these dates were relatively legible and others were extremely faded. The dates on these wastes would give an idea around when the product was manufactured. Sorting through these wastes made me curious about their lifespans. The majority of the expiration dates were between 2019 and early 2021. Nonetheless, during the sorting process, I came across a green and yellow *Lay's* packet. I was overcome with nostalgia and said to Cait 'when last did I see a packet like this', forgetting that Cait was in her early teens and may never have seen this packet. The packet or rather design was extremely popular growing up. Aside from the famous *Lay's* logo, it was also the packet that contained a 'prize' inside. Growing up, my siblings and I were always more interested in the 'prize' called tazos than the actual chips. The prize was tazo's. Tazo's were collectible plastic disks with the various characters of a children's anime show called *Dragon Ball Z* on them. This special edition *Lay's* packet always had a plastic-foil strip across it. I figured the packet was 'old' and checked the

expiration date, and it was dated 24 June/July '04'[27]. This was by far the oldest waste found on that day (see image 3.3).


Image 3.3: Photograph showing the expiration date of the Lay's Packet (circled in blue). (The photograph has been sharpened to increase the legibility of the date). (Source: Author).

Later, I reflected on what wastes were found during the day (this became common practice as my research proceeded). My thoughts kept coming back to this packet. I started imagining the 'life' of this packet given its 'age'. The expiration date was in 2004, which means that for the past sixteen or so years this packet has been 'travelling'. It would have traversed geographies, encountering multiples species over decades, effortlessly moving across time and space. I started wondering, where exactly did this packet come from? How far has it travelled? Who and what has it encountered? Where did it flow from? Who did this packet belong to? Who ate its contents? Who chucked it away? How did it end up here?

Some days later, I re-read Van Dooren's (2011) work on vultures and their entanglement in India. The phrase 'twist death back to life' (Van Dooren, 2011) kept resonating as I thought

[27] Only the first two letters of the month were legible.

about this packet; envision the life of this packet by giving it 'living' attributes such as movement, travel, encounter, and flow. This packet would have travelled across and through landscapes, encountered multiple species, flowed through varying waters, 'negotiated' the spaces it moved through and in. This 'dead' object was now alive, 'twisted back to life'. Notwithstanding that much has been written and researched on practices of reuse and recycling such that particular wastes are less twisted from death into life but keeps going endlessly reassembled – until there is a point where the wastes itself refuses such twisting.

Moore's (2015) *Capitalism in the Web of Life*: *Ecology and the Accumulation of Capital* argues that the sources of today's global turbulence have a common cause: capitalism as a way of organizing nature, including human nature. Moore (2015) presents capitalism as a 'world-ecology' of power, nature, and wealth. 'Capitalism's greatest strength—and the source of its problems—is its capacity to create Cheap natures: labor, food, energy, and raw materials. That capacity is now in question' (Verso, 2016). 'Life' after disposal is insignificant (Eriksen, 2012) for most consumers and manufacturers. The side effects of wastes are not what most people are thinking about (Eriksen, 2012). We are living in a world of side effects, where every action leads and is connected to the next (Eriksen, 2012). Wastes become monsters by taking on other forms and a range of entanglements.

Using Tsing et al.'s (2017) idea of 'monsters' of the Anthropocene and applying it to the waste crises, recurring images such as the one posted by the *New York Times* (2020) in the article *These Items in Your Home Are Harming America's Sea Animals* (see image 3.4). It is such images of plastics in animals and animals stuck in plastic (the familiar plastic wrapped around sea turtles and crabs[28]) that speak to the ways in which plastics perform their monstrosity. Despite entangling animals or getting stuck in their digestive systems, even through the acids of the gastric system, these plastics *still* survive. Not excluding the slow leaching chemicals that are released from plastic wastes and the ways those chemicals impact water, soils, and

[28] https://www.aquarium.co.za/blog/entry/the-plastic-problem-how-does-plastic-pollution-affect-wildlife

multispecies worlds; their impact becoming dispersed over vast geographies and bodies, much of which will be discussed in the following chapter.

Image 3.4: The body of an albatross chick (Source:https://www.nytimes.com/2020/11/19/climate/plastic-ocean-animals.html).

Using 'monsters', their entangling and immortal nature, I began consider the range of entanglements this *Lay's* packet would have had and might continue to have. When thinking about the 'life' of common wastes like chip packets, plastic bags and water bottles, it is a relatively easy task. Generally, you would start with the product idea, the audience it is aimed at, the demand for such a thing, the process of creating the thing, then it will be packaged, thereafter distributed, and sold. What happens 'after' purchase as mentioned earlier in this chapter is of very little interest to waste producing industries. But it is this 'after' that is unmaking ecological worlds that have existed for millennia.

## CONCLUSION

If we were to imagine the 'life' of every single-use product, maybe then will we be able to see that there is no actual 'death' for their remaining wastes. They merely morph into other beings,

'monstrous' beings. Constantly lurking, entering worlds, and causing havoc, with their immortal like nature. These wastes 'survive' changing climates, chemicals, acids of gastric stems, horrific human events and many of these wastes will outlive you and me. This chapter argued that there is no inexorable 'death' for most wastes particularly man-made ones like the *Lay's* packet. Through tracing the life and lifespan of something as simple as chip packet, it is evident that wastes and their materialities are changing and undoing ecological communities. Communities which have existed prior to human inception (Falkowski, 2015). The immortal characteristics of most man-made wastes means that these wastes will be seen, and their effects will be felt into deep futures. Reuse and recycling approaches are great, but they do not undo and address the waste crisis in its entirety. These approaches address the waste crisis as a 'now' problem and not as a historical problem. These approaches also do not and cannot address the magnitude of wastes that are already floating and weaved into our worlds. These approaches do not address structural and historical violences and injustices inflicted upon poor people of colour. Violences that have and will continue for generations to come if they are not addressed in this present moment. The following chapter looks at single-use plastics as 'hyperobjects', dispersed in time and space. Drawing on the immortal like nature of single-use plastics and their ability to transcend centuries and geologies.

# CHAPTER FOUR

## Geologizing the Zeekoevlei: Plastics as 'Hyperobjects'

There are patterns and inevitabilities that come with tracing plastic and solid wastes. What this means is that production, delivery, consumption, and disposal (not excluding reusing and recycling) practices can be traced to a certain degree, but it may not be that easy to trace patterns and their effects within our living and non-living environments. It is inevitable that after consumption, what is left over and/or without value becomes waste, waste which is then disposed of. But such inevitabilities become way more intricate, uncertain, entangled, and difficult when we attempt to apply this projection to our living and breathing environments. The projection here refers to the moment something is manufactured to the moment it becomes disposed. What happens after disposal is what is unmaking and undoing networks, communities, and worlds of multispecies. Morton (2013) argues through the evolution of 'hyperobjects' that the end of world has already happened. These worlds refer to human and non-human worlds. This chapter therefore explores plastics as 'hyperobjects'. Morton (2013) asserts that the ecological crisis is best understood as the time of 'hyperobjects'. He argues that it is crucial to rethink how we write about, conceptualize, and address these planetary changes (Morton, 2013).

'Hyperobjects' as mentioned earlier, are entities dispersed massively across space and time relative to human scales. Expanding on that definition, 'hyperobjects' are, entities of 'such vast temporal and spatial dimensions that they defeat traditional ideas about what a thing is in the first place' (WIRED, 2021). Drawing on the example mentioned in chapter two, seeing one single-use plastic bottle is very different from seeing thousands of them in the form of pollution. We may not consider the effects of one bottle, but we may consider their effects when seeing thousands of them in a vlei. 'Hyperobjects are often ancient or destined to be' (WIRED, 2021), like the sum total of single-use plastics littered across the Earth over the past century, which will remain for centuries. People may see and experience manifestations of 'hyperobjects' such as icebergs melting, pollution and rising temperatures but may fail to

see the '*totality* of them, or to the very *end* of them' (WIRED, 2021). For Morton (2013), 'hyperobjects' only emerge in patches and fragments that do not always seem to connect from our view on the ground. 'Hyperobjects' are 'very real; yet they exist beyond, and independently of, the reality of humans' (Bricker, 2015:359). So, we may not see their impact and influence in their entirety in how we experience and make sense of our politics, ethics, thought and habitability. As mentioned earlier, to Morton (2013), 'hyperobjects' appear in the human world as a product of our thinking through the period (Anthropocene) we have entered.

In their work, Moore (2016) and Morton (2013) believe that the damage and detriment caused to all lifeforms are irreversible in this planetary moment. However, there is still room to think through these planetary changes. There is crucial collective work that *must* happen across all sectors of our societies. We are in a vulnerable and unstable state and according to Morton (2013), we have been in this state for a while. Using Morton's (2013) conceptualization of 'hyperobjects', this chapter discusses 'plastics' as 'hyperobjects' which appear in our worlds as a product of capital and modernist thought. The aim of this chapter is to trace how, why and the extent to which plastic has become so ingrained in our worlds. Plastic has revolutionised our worlds as we know it. Plastic has become so entangled in all lifeforms that I cannot help but ask what were we using before? And why has it become such a big part of our worlds?

## THE HISTORY OF PLASTICS

Plastic creation and production stems from histories of extractivism, production, expansion, and capitalism. The word 'plastic' comes from the Greek verb *plassein*, which means 'to mold or shape' (Freinkel, 2011). Plastics have the capacity to be shaped thanks to their structure, flexing chains of atoms or small molecules bonded in a repeating pattern into one gigantic molecule (Scientific American, 2011). In the early 1860's English Metallurgist Alexander Parkes introduced the first-ever man-made plastic, 'Parkensine' (Plastics Industry Association, 2009). Parkensine marked the beginning of man-made plastic (Plastics Industry Association, 2009). As an improvement of Parkensine, American John Wesley Hyatt created the first

synthetic polymer[29] around the late 1860's. Both Parkes and Wyatt were wanting to create cheaper substitutes to ivory (Plastics Industry Association, 2009). Over the next few years Hyatt, invented a new material called 'celluloid', a nitrated cellulose compound (Plastics Industry Association, 2009). Hyatt improved the use of nitrated cellulose by adding camphor which made the compound easier to mould under high temperatures and pressure (Plastics Industry Association, 2009). This discovery was revolutionary as human manufacturing was now not 'constrained by the limits of nature' (Science History Institute, n.d). Natural resources like metals, wood, stone, tusks, and ivory had their limitations. They were not renewable resources. However, these concerns are relatively recent. The key motivator for a cheaper material was that many of these natural resources were limited and expensive. With the invention of synthetic materials such has celluloid[30] people could now create new materials. The creation and production of plastics moved beyond the sphere of simply being goods, materials, and products. They were actively shaping and constituting social and economic relationships. The possibilities of plastics gave consumers an almost utopian vision of a future with abundant material wealth thanks to an inexpensive, 'safe' and sanitary substance that could be shaped by humans to their every whim (Science History Institute, n.d.). These social and economic relationships were proliferated post-World War II in the United States. WWII necessitated an expansion of plastics in the United States as industrial vigour proved as important to victory as military success (Science History Institute, n.d.). Most people would agree that war is a terrible thing, but it also breeds innovation as seen with the production and expansion of plastics. If we think of war as the proliferator of plastics, in that sense plastic is a 'monster' (Tsing et.al, 2017). But it is also a 'ghost' that serves as a reminder of an atrocity i.e., war. Post-WWII, the need to preserve scarce natural resources made the production of synthetic alternatives a priority (Science History Institute, n.d.). Plastics provided those substitutes at the time. Today, there lies much irony in this logic. The logic that plastics were meant to preserve and protect our natural resources when today it is one of the largest threats

[29] https://www.sciencehistory.org/the-history-and-future-of-plastics
[30] Celluloid – made from polymers.

to our ecologies. With the increase in globalization, industrialization, foreign investments, mobility and international trade, plastics are now being shipped and produced to and in most parts of the world (Roberts, 2001). The waste crisis is a product of capital, modern and neoliberal thought. Similarly, in the way that Morton (2013) argues that 'hyperobjects' appear in human worlds as a product of our thinking. The following section uses the *Lay's* packet as an example of a fossilised waste by looking at it through the lens of 'hyperobjects'. First, it breaks down the properties of 'hyperobjects' to show how plastics are 'hyperobjects'. Secondly, it refers to the *Lay's packet* and the ways in which it becomes fossilized in a landscape.

## PLASTICS AS 'HYPEROBJECTS'

> 'Hyperobjects are the true anarchists, the shock troops of ecological coexistence' (Morton, 2012: 80).

Morton (2013) uses the term 'hyperobjects' to help understand and 'cope with something that is so big and so powerful that until now, we had no real word for it. [...] the concept gives us a single word to describe something on the tip of our tongues' (Lectorate Design, 2021). 'Hyperobjects' are man-made massively distributed objects of the Anthropocene. The current age where 'man-made dominates the nature made' (Lectorate Design, 2021). Morton (2011) notes that the ecological crisis is best thought of as the time of 'hyperobjects'. Morton (2011) substantiates by stating that this is the moment in which 'large non-human, non-sentient entities make decisive contact with humans ending numerous human concepts such as world, horizon, nature and even environment'. 'Hyperobjects' directly lead to what Morton (2013) calls the end of the world. According to Morton (2013), 'hyperobjects' are all things that one can study and compute but are not easy to see. Morton (2013) uses hyperobjects to describe entities that are massively dispersed across time and space as to transcend spatiotemporal specificity, such as global warming, styrofoam, capitalism, oil spills, black holes, tectonic plates, nuclear radiation, and as this chapter argues, plastics. Importantly, since 'hyperobjects' are man-made, we humans are obliged to care about them. We are responsible for them

'because we can think them' (Lectorate Design, 2021). Morton's (2013) book *Hyperobjects: Philosophy and Ecology After the End of the World,* his article *Everything We Need: Scarcity, Scale, Hyperobjects* (2012) and his talk *Dawn of the Hyperobjects* (2011) breaks down 'hyperobjects' as consisting of these properties:

1. They are viscous, which means that they stick to other objects i.e., other plastics, wastes, microplastics and other debris. According to Morton (2013, 40), the more we know about hyperobjects, the more we find ourselves glued to them, unable to escape.
2. Hyperobjects can grow very old. 'Even relatively short-lived hyperobjects ruthlessly demolish 200 years of comforting (for some) anthropocentric domination of time and space' (Morton, 2012:80). They can in fact have very different temporalities than what we are used to, Morton (2012) suggests that they can have space-time, 'in a more figurative sense, hyperobjects last so long that they are foreshortened in time, so that we can't see them as a flat, linear object' (Lectorate Design, 2021). There is no such thing as a rigid body extended in time and space. Hyperobjects end the idea of absolute infinite time and space as 'neutral containers' (Morton, 2011).
3. 'Hyperobjects are nonlocal because they are not here, despite the fact that human objects feel their presence' (Bricker, 2015: 360).
4. Hyperobjects are super high dimensional in the sense that 'they are complex entities that you have to map in what they call a high- dimensional-phase space: a space that plots all the states of the system' (Lectorate Design, 2021). Hyperobjects occupy a high dimensional phase space therefore they are partly invisible to us. They seem to come and go like seasons, yet they are continuing to unfold elsewhere.
5. They exhibit interobjectivity. Hyperobjects 'consists of all kinds of other entities but is not reducible to them' (Lectorate Design, 2021). ''Hyperobjects' are shared by numerous entities in a common sensual space […] this shared space is a vast nonlocal configuration space' what Morton (2013:40) calls the *mesh*.

Plastics are 'hyperobjects' because of the many properties of 'hyperobjects' that apply to them. Looking at plastics as 'hyperobjects' compels us to think of them as complex and multifaceted problems that require several solutions to address them. Different multispecies interact with plastics in different ways, some may eat it and break it down for energy, some may inhabit these long-lasting surfaces but most multispecies ingest it and get entangled in it and/or poisoned by their chemicals which often has incurable outcomes (Mongabay, 2021). The invisible nature of 'hyperobjects' makes it easy to not see their effects in totality. For example: with microplastics in our ecosystems, we may not always consider their effects on organisms like earthworms, mites, and land snails. But these organisms are crucial inhabitants that facilitate 'soil nutrient cycling via decomposition, burrowing, tilling, and aeration' (Mongabay, 2021). Soils can become corrupted with plastics, microplastics and solid wastes. Much of which comes from sources such as sewage spills, pollution, composting and agricultural run-off (Mongabay, 2021). 'Studies on microplastic contamination in soil bioindicators documents poor reproductive success, retarded nutrient absorption and growth, increased antibiotic resistance, behavioural changes, and neurotoxicity' (Mongabay, 2021). The effects of plastics are felt and entangled to the minuscule organisms in our ecosystems. 'Hyperobjects' invert what is real and that which is not. So, while the term 'hyperobjects' seems easy to grasp, it is extremely difficult to grasp their extent of their effects on our worlds. Effects which will be felt for a long time.

'Hyperobjects' are viscuous (Morton, 2013). They have the ability to stick to other things. It is this ability that allows for them to attach themselves to, with and in our ecologies and organisms. To Morton (2013), the more we know about hyperobjects, the more we find ourselves entangled with them, unable to break free. Images of plastics in and wrapped around multispecies flood our news feeds and social media but we are unable to break free and change these images. Despite seeing images like the albatross chick (image 3.4), many are still 'forced' to consume and use plastic even when we know the extent of the damage it causes to our organisms and ecosystems. Histories of inequality, modernity and capitalism does that. It is also these histories that will have us believe that we cannot escape, reverse,

and change the effects of 'hyperobjects' on our worlds. The following section breaks down the components of the *Lay's* packet, as a way of showing how these materials become fossilized and exert their 'hyperobjectivity'.

## BECOMING A FOSSIL

Single-use plastics (like a *Lay's* packet) 'are goods that are made primarily from fossil fuel–based chemicals (petrochemicals) and are meant to be disposed of right after use—often, in mere minutes' (Natural Resources Defence Council, 2020). One major petrochemical is ethylene, used to create polyethylene – which is one of the most important plastics in manufacturing (Total, 2015). Potato chip bags such as the *Lay's* one, are made mostly out of a plastic called polypropylene. Polypropylene is great as a moisture barrier because potato chips tend to lose their 'crunchiness' by absorbing moisture. To strengthen the polypropylene, most chip bags have a thin layer of aluminium coating on the inside. A layer of polyethylene (the stuff plastic grocery bags are made of) is sandwiched between this inner layer and the outer layer, which displays the branding and nutritional value. Polyethelene and polypropolene are slow releasing chemicals even more so when exposed to heat i.e., sunlight. This exposure releases toxins in soils, multispecies and contributes to air, water, and waste pollution (Ju et al. 2019). Using the *Lay's* packet as an example, we can begin to think of these slow leaching chemicals and their effects on our worlds. As polyethelene and polypropolene are released in soils, the pH[31] levels within soils are increased. The presence of microplastics in soils also lead to greater ammonium-N and nitrate–N in the soils. Adding microplastics to soil greatly increases the levels of nitrogen in soil, affecting the nutrient cycling processes in soil ecosystems (Liu et al. 2017). Nonetheless, multiple studies have found that microplastic concentrations significantly change soil enzymes (Liu et al. 2017; Liu et al. 2018 and Awet et al. 2018). The impact of one waste is now dispersed over vast geographies and bodies. Before *Lay's* bags are sealed, they are filled with nitrogen gas, this keeps the chips from being

[31] Potential of hydrogen (pH) – 'a measure of the acidity or alkalinity of a solution equal to the common logarithm of the reciprocal of the concentration of hydrogen ions in moles per cubic decimetre of solution' (Dictionary.com, n.d.).

crushed and it gives the bag a 'fuller' look. Oxygen would cause the oil and fats in the chips to oxidize and alter the taste, nitrogen does not cause any chemical reactions. This process of perseveration is meant to capture time i.e., production dates to expiration dates. These dates are meant to store time. But, as this chapter unfolds, it shows that stored time moves beyond the now and is interwoven with the past and the future. The history of the Earth's physicality spans over 4.5 billion years ago (Falkowski, 2015: 71). Humans have only existed for around 300,000 years. What this means is that entanglements and networks between species existed for millions of years prior to human inception. Human interferences are now undoing these networks. It is human interferences that now sees the Earth's lifespan rapidly decreasing.

The process of extracting plastics and solid wastes from the Zeekoevlei focusses on the now. The process does not consider life before and after this step. Where do these wastes flow from/to? When were they created? How were they created? What are the chemical compounds used in their production? How long do these wastes 'live'? What are their time scales in relation to the 'deep time'[32]? 'Deep time' allows for a thinking beyond and before. Whilst thinking of the *Lay's* packet in relation to 'deep time', I came across the diagram below (see image 4.1) in an attempt to find a depiction of the lifespan of chip packets. The concern with this diagram is that there is an 'end'. The so called 'end' is, 'clipboards' and 'tote bags'. What this research has shown so far is that chip packets like the *Lay's* one usually do not end up as 'tote bags'. It ends up in our environments and landscapes like the Zeekoevlei. It breaks down into microplastics and become deeply entangled with and in our worlds.

[32] Deep time – 'refers to the time scale of geologic events, which is vastly, almost unimaginably greater than the time scale of human lives and human plans' (ThoughtCo., 2018).

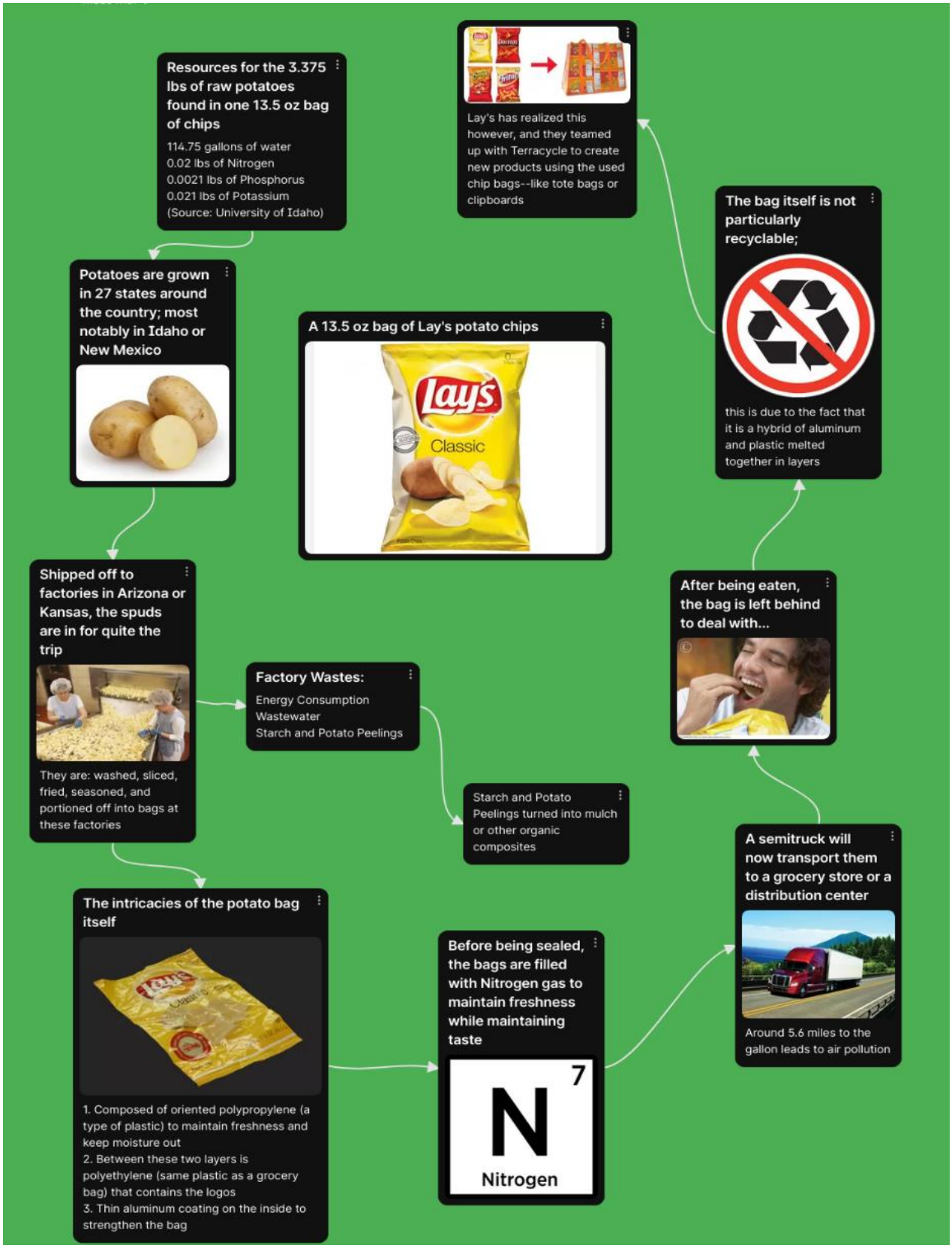



Image 4.1: Diagram displaying the life cycle of a Lay's bag in the United States. (Source: Wright, 2018).

The effects of polyethylene and polypropylene on water quality and multispecies is as devastating as it is to soils. As plastic wastes move through the vlei, coming into contant with other substances and elements, enables parts of the plastic wastes to detach, disperse and disintegrate. Becoming micro-fragments or microplastics of what it once was and is. As the polyethylene and polypropylene are released from the bag through sunlight, water movements and weathering process, they become microplastics. Herons, leopard toads, common carp, pied kingfishers, and otters may not be able to distinguish between what is food and what is not. These species commonly found in the Zeekoevlei are now consuming these microplastics (see image 4.2). Microplastics are small enough to pass through the mouths of these species. Like the image of albatross chick, these plastics and their chemicals will survive.

Image 4.2: A Heron who had scavenged through wastes in the Little Lotus River. (Source: Audrey).

Microplastics can also accumulate pollutants from their surroundings making them transport vectors for other pollutants (Issac and Kandasubramanian, 2021). With the above effects of microplastics on soils, water quality and animals, we can see how plastics become part of our multispecies communities. They become part of soils, animals, and waters, in this way, they become are fossils. A fossil is understood to be the remains of prehistoric life embedded in rock but in the case of the Zeekoevlei, microplastics are embedded in the soil, water, and animals of the Zeekoevlei. The chemical compounds of plastic have created irreversible alterations and changes in the Earth's matter and multispecies. Plastic wastes may never have a 'death'. They are truly the 'monsters' of the Anthroposcene.

## CONCLUSION

Plastics are unmaking worlds despite the capitalist illusion that plastics are revolutionizing our worlds. This chapter argued that plastics and their slow leaching chemicals are 'hyperobjects', dispersed in space and time. It explored the ways in which plastics and particularly microplastics are 'hyperobjects'. They may not be visible, but they are always there. Growing bigger and more powerful at the expense of dying ecosystems. When we start to look at single-use plastics and microplastics as 'hyperobjects', maybe then, can we see their effects in their totality. Maybe then can we change how we relate to these wastes. Seeing how these wastes are broken down and become part of the Earth is a 'wake up' call not only for consumers but manufacturers and pro-capitalists as well. Something so familiar like a *Lay's* chip packet can become fossilized in soils, air and water which affects numerous multispecies communities. 'Hyperobjects' distort time in that past actions are woven into the present. The following chapter intends to show how wastes have come to be and are coming to be in the Zeekoevlei. The chapter draws again on Tsing et al. (2017) 'monsters and ghosts', this time looking at Apartheid spatiality and waste infrastructures as 'ghosts' of a system of injustice and inequality. The chapter also highlights the importance of city planning in growing urban populations.

# CHAPTER FIVE

## 'Monsters and Ghosts': Spatiality and Waste Infrastructure

Researcher Max Liboiron (2021) argues in their book *Pollution Is Colonialism* that pollution is not a manifestation or side effect of capitalism and colonialism but is rather the violent enactment of ongoing colonial land relations. This chapter looks at spatiality being a 'ghost' in relation to waste infrastructure surrounding the Zeekoevlei. In architecture, spatiality is defined as 'characteristics that, looked at from a certain aspect, define the quality of a space' (Alfirević et al. 2019). However, geographers Cloke et al. (2014; 940) define spatiality as the:

> spatial arrangements of relations, both between people and non-human things. The term emphasizes the production of space, i.e., how places are socially and materially created, reconfigured, and experienced in the context of the changing economic, political, and cultural relations between other places, people and things.

Space is produced and reproduced through economic, political, cultural, social relations and networks. These relations change the 'materiality of the space - the life domain, the (human and non-human)' worlds that 'we' (humans) occupy (Weaver, 2020: 02). This chapter draws on Cloke et al. (2014) definition and adds that space is socio-historically produced and reproduced phenomenon that alters according to the 'humans occupying it and the thought, power and resources flowing through it' (Weaver, 2020: 01). With this understanding, space is lived, lived in, and lived through (Weaver, 2020). Apartheid spatiality, however, adds that spatiality was meant to be a form of governance and control. Governing the physical space but also governing where and how people moved and controlling how people occupied space.

### APARTHEID SPATIALITY

The Group Areas Act was the term of the three major acts of the Parliament of South Africa enforced under the Apartheid government[33].These acts assigned racial groups to different residential and business sections in urban areas in a system of urban Apartheid (South African

[33] https://en.wikipedia.org › wiki › Group_Areas_Act

History Online, n.d.). The aim of these laws was to exclude black people from living in the most 'developed' areas, which was designated to the white majority. These laws influenced how people travelled, their employment, sense of community and access to education. Making the attainment of financial security a 'pipe dream' for many people living on the Cape Flats. The first *Group Areas Act* was implemented in July 1950, and it was enforced over a period of several years (South African History Online, n.d). In 1991, the *Group Areas Act* was abrogated with other discriminatory laws by the *Abolition of Racially Based Land Measures Act*[34]. But at this point, the damage had already been done. Damage that would continue to roam in our current societies like 'ghosts' (Tsing et. al. 2017). Today, poor black people in South Africa are still trying to claw their way out of the trenches of Apartheid's systematic oppression and exclusion. Spatial planning was a key tool in creating these systems.

Cameroonian Political Theorist Achille Mbembe (2019) uses the argument of 'Necropolitics'[35] to extend Foucault's (2010) notion of 'biopower' which expresses the power, administration, management, and control to determine life. During fieldwork, there were numerous conversations with participants that alluded to homeless people being an 'issue' in the area and the tensions that were emerging between 'paying' residents of Zeekoevlei and Grassy Park and 'non-paying' residents i.e., homeless people. 'Necropolitics' (Mbembe, 2019) was fundamental in thinking through these tensions. Who decides who gets to live in the area? Who decides who *must* leave the area? Who decides who gets to stay? And what are those conditions? On route to Zeekoevlei, there was one large open field I often passed (closer towards the Grassy Park area) that had some dilapidated infrastructure. I was told that some homeless people were living there. This site was apparently a growing issue for 'paying' residents in the area. 'Necropolitics' and 'biopower' are manifested through generations of displaced people and the destruction of the environment. Determining where and how people

[34] https://www.sahistory.org.za/dated-event/abolition-racially-based-land-measures-act-adopted

[35] Necropolitics – 'the use of social and political power to dictate how some people may live and how some must die […] Necropolitics creates what Achille Mbembe calls deathworlds, or 'new and unique forms of social existence in which vast populations are subjected to living conditions that confer upon them the status of the living dead' (https://en.wikipedia.org/wiki/Necropolitics ).

should live exposed many communities to hazardous landscapes through covert forms of violence. The irony is that it is often people living in these 'necropolitical' communities and states that are 'blamed' for the plastic and waste problem in the Zeekoevlei. Yet, it is also these people who exercise recycling as a way of sustaining themselves. Additionally, the 'overpopulation' argument also gets thrown in as a cause for the waste crises.

The 'overpopulation' argument presents 'red flags' in feminist literature (Subramaniam, 2018). 'Overpopulation' as a key contributor to the waste crisis in the Zeekoevlei is a *familiar* response. Who gets blamed or is forced to take responsibility for 'overpopulation'? Women and particularly women of colour in third world countries (Subramaniam, 2018). For feminists, population is a critical site of violence (Subramaniam, 2018; Clark and Haraway, 2018). The article '*Overpopulation' is not the problem* (2018) by Women, Gender and Sexuality Professor Banu Subramaniam tackles the mythology of overpopulation logics and argues that overpopulation in third world countries is not the problem. Banu (2018) argues that 'overpopulation' does not cause societal ills, but rather that it is a 'symptom of the pillage and impoverishment that result from colonialism, slavery, and economic exploitation'. In line with Banu's (2018) argument, using poor black women as the 'scapegoats' for issues rooted within histories of oppression, violence and impoverishment is the *familiar* response. Overpopulation and 'anti-homelessness' arguments do not interrogate how both these factors have come into being in the first place.

The stark differences between the high-income section of the Zeekoevlei (surrounding the peninsula) and the lower income section which runs into Grassy Park and Lotus River emphasized the role of Apartheid spatial planning and by extension service delivery. When looking at the vlei from residents along the peninsula's backyards and the *ZVYC*, the view of the vlei was 'picturesque' (see image 5.1). But this view quickly changed when looking at the vlei from the view of Grassy Park (see image 5.2). Early on, Aunty Maryam described the vlei as 'peaceful', 'calming' and 'scenic'. However, this was not the case when I saw the Zeekoevlei from her home (see image 5.2). The sludge looked almost like black tar. I could only describe

the smell as rotten eggs mixed with metal. I asked, 'how is this scenic?', she joked and said 'I came on a bad day'. I wondered, 'what did it look like on a good day?'. She went on to tell me how it does not always look like this. Some days there was no sludge, no wastes, no smell, and the grass would even be greener alongside the vlei. To Aunty Maryam, it was on these 'good days', that the Zeekoevlei embodied peace and serenity.

Image 5.1: Taken from the view of ZVYC. (Source: Author: 2021)

Image 5.2: A sludge filled vlei. The view close to Aunty Maryam's home in the Grassy Park area. (Source: Author, 2021).

Apartheid spatiality was not only based on segregation and exclusion, but it also meant that waste and chemical plants would be built in what Lerner (2010), calls 'sacrifice zones'. To reiterate, 'sacrifice zones' are "fenceline communities' of low-income and people of colour, or 'hot spots' of chemical pollution where residents live immediately adjacent to heavily polluted industries or military bases' (Bullard, 2011:266). Essentially, spaces where human and non-human life are 'sacrificed'. These lives are sacrificed through exposure, interaction and

relations with toxic chemicals and wastes. Sacrifice zones and unequal service delivery cannot not exist without each other. It is people in 'sacrifice zones' that cannot afford to make major tax contributions and as a result, they receive the service delivery that government entities deem them as 'fit' to receive. These services are usually, if not always, sub-par, inadequate, late, and insufficient. As mentioned in the introduction, statistically service delivery differs greatly between higher and lower income areas (Sartorious and Sartorious, 2015). The efficiency and urgency of services and resources allocated are based on areas with economic profitability (Sartorious and Sartorious, 2015). These economically profitable areas remain predominantly white due to Apartheid's spatial planning. The following section looks at waste infrastructure and how it is ingrained in Apartheid spatiality.

## WASTE INFRASTRUCTURE

Apartheid spatiality not only forced people into 'townships'[36] like Mitchell's Plain, Lotus River, Lavender Hill and Parkwood, it also placed people in proximity to toxic wastes sites. Lerner (2010) describes these proximities to waste sites as 'sacrifice zones'. The *CFWWTW* is situated less than 10kms from the Zeekoevlei. In the nearby area of Muizenberg located less than 12kms from the Zeekoevlei, is a coastal landfill (see image 1.1). Within a 15km radius, there are two toxic wastes sites. What consequences could this possibly have? What consequences could this have for the Zeekoevlei? Looking at the *CFWWTW*, this chapter aims to unpack the consequences of spatial planning in relation to human and non-human life by looking at the 'recent' sewage spills in the Zeekoevlei. The *CFWWTW* as mentioned previously is around 500 hectares in size, making it one of Cape Town's largest sewage plants (PlanetUWC, n.d.). The recent and not-so-recent sewage spills in the Zeekoevlei is the consequence of equipment failure, maintenance, mismanagement of funds, solid waste pollution and lack of resources. But it is also the consequence of inadequate urban planning, infrastructure, and design.

[36] Townships- is placed in inverted commas because of its negative connotation. It is also how these areas are often framed in by the global North. It is this framing that makes it homogenising, almost mythical.

The sewer spill from a damaged manhole was first identified around the 2nd of July 2021. As there was no immediate rescue team or measure put in place in the event of such disasters by the necessary *COCT* department, *FBNR* and *FOZR* staff stepped in to assist in controlling the spread of sewage into the vlei and the area of Zeekoevlei. After stepping onto the scene, they battled for hours to contain the spill whilst being severely under resourced. Bearing in mind, that neither *FOZR* nor *FBNR* staff had the necessary equipment to respond to such a disaster in the first place. But their primary concern was the communities that were going be affected. Communities of endangered species, people, and water bodies[37].

On the 4th of July, *FBNR* issued a notification to *FBNR Protected Areas Advisory Committee (PAAC).* During these few days, there was outrage, frustration, and concern from residents in the area. Local resident and researcher Vanessa Farr said that residents and the community alike were witnessing the *COCT*'s 'negligence and incompetence' in managing a water common[38]. Farr said:

> We need a highly skilled, competent and passionate team to care for every aspect of the City's water systems: all the streams, rivers, groundwater, vleis and the ocean are connected […] 'When one part is neglected, the others suffer. A truly committed City management would focus on fixing infrastructure, rethinking water-borne sewage, redesigning, upgrading, and maintaining old infrastructure and replacing what doesn't work.

In agreement with Farr, there is a desperate and urgent responsibility and obligation that must be met on behalf of City management. The sewage spill goes beyond its affects to human life. When we see the effects of sewage spills in their totality (i.e., as affecting multiple lifeforms) maybe then can the response to such horrid forms of pollution be efficient and effective. Between the 4th and 6th July, *FOZR* visited the sites of these spills repeatedly and it appeared

[37] https://www.southernmail.co.za/news/zeekoevlei-sewage-spill-contained-1a2b6090-febb-4631-b5a2-6156119e73cd
[38] https://www.pressreader.com/south-africa/cape-argus/20210806/281565178812312

that the *COCT* line departments had not attempted or visited these sites to address the flow of untreated sewage.

On the 7th of July, the flow was reduced as *FBNR* staff provided a temporary solution to the problem. They reconstructed the manhole using sandbags and concrete bricks. The sewage was then pumped into the adjoining line and a plug is put in place by placing heavy sandbags on top of the temporary repair (see image 5.3). Eventually, the flow ceased.

Image 5.3: Sandbags meant to contain the flow of the sewage spill. There is an open manhole caused by the sewage spill. (Source: Independent Online, 2021).

On the 8th of July, *COCT* line departments started stepping in by meeting on site to discuss this disaster with the assistant manager of *Pollution Policy & Regulatory Services*, Russel Mehl. The issue at hand was the broken-down screw pumps which Limberg (Cape Argus, 2021) described as 'mechanical failures' (see image 5.4).

Image 5.4. Archimedes Screws at the Cape Flats Wastewater Treatment Works (CFWWTW). (Source: Independent Online, 2021).

It was confirmed that the screw pumps could not sustain the inflow of various solid wastes as they were meant to turn and breakdown raw sewage. The screw pumps lift untreated sewage into the plant where it is then treated. If there is not sufficient capacity and function to lift the sewage, it backs up into the system which causes these sewage spills. Over the following days (early July), various visits, discussions, and work was put into getting another screw pump working since only one of four had been operational.

On the 12th of July, multiple manhole covers started popping off in an area close to the reserve (Zeekoevlei, 2021). At this point, another pump had not yet been operational, so the final pump had just 'caved in'. As expected, large quantities of raw sewage were now being released into the area again! This time *COCT* staff were more efficient than the initial spill earlier in the month. There was an attempt to reduce the flow of sewage into the Zeekoevlei, but the large quantities of untreated sewage outmatched the temporary barriers.

The community talk held in September was aimed at informing and addressing the concerns and frustrations of residents regarding the waste crisis in the Zeekoevlei, but this only probed more questions. It was made clear by *FOZR* alongside *FBNR and COCT's* Bongani Zungu that there was severe lack of maintenance and funding going into ensuring that these screw pumps were working. As residents 'aired' their concerns, most of the questions were 'skirted around' by Zungu. The only operational screw pump which eventually broke down was made up of parts of the already broken-down pumps. So, the greater part of the Cape Flats was now relying on a 'Frankenstein' screw up.

From this talk, I found out that screw pumps are also often hired and imported for hiring, which costs tremendous amount of money. It may just be more cost efficient for the *COCT* to replace them every few years. It is bound that with such large mechanical equipment that over prolonged periods and use; they will become faulty and need repair. Having temporary solutions for frequent problems does not serve much purpose. Only one of four screw pumps were working which is a point of concern. Should there not have been some plan of action, funds allocated, scheduled maintenance after one of these pumps had broken down? Let

alone three. What and how are funds and resources being allocated to ensure these kinds of environmental disasters do not happen? Think of the ways these sewage 'slurries' become fossilized in the Zeekoevlei and the surrounding landscapes. This disaster was not only based on 'mechanical failures', but it was also a disaster that came from inadequate resources, poor management and involvement in techno-managerial approaches that simply focus on command, predict and control; that fail to consider aspects of relationality in spaces such as Zeekoevlei.

In addition to the screw pumps causing the sewage spills, the infrastructure and location of the sewage and wastewater works pose great threat to the Zeekoevlei. The *CFWWTW* is in the heart of the *False Bay Nature Reserve*. In terms of spatiality, it is not the greatest location as there will always be great waste threats to our landscapes and ecologies. There will always be the risk of waste flows into surrounding landscapes. How and where do we begin containing flowing pollutants? And how can we prevent them? Removing the unseen pollutants and toxins in these waters is an exceptionally difficult task. It is easy collecting plastic and solid wastes but how do we collect the wastes we cannot see? The treatment works is also built above ground level, which contributes to pollution levels. While there are nets and fencing in place, sewage and other wastes continue flowing into the Zeekoevlei. When waste infrastructures are built above ground level, there is always the risk of contaminants and pollutants spilling over, running down, and escaping through nets, fencing and walls. The location of the *CFWWTW* and the infrastructural design are flaws in urban planning and lack an awareness of the interconnectedness of surrounding environments.

In water quality tests conducted by the *COCT*, it was determined that the Zeekoevlei had above 'acceptable risk' of E. coli[39]. The *COCT,* released these tests results for the vlei for the months May to October 2021. E. coli is measured in colony-forming units (cfu) per 100ml.

[39] E. coli - Bacteria commonly found in intestines of human and animals and fecal matter (Water Science School, 2018).

The *COCT* declares levels over 4 001 cfu/100ml to be an 'unacceptable risk' for public and recreational use (Cape Town etc, 2021) (see table 4 and appendix A).


Table 4: Graph showing E. coli levels in the Zeekoevlei from May to October 2021. (Source: Daily Maverick, 2021).

These measurements of E. coli levels were at six locations in the Zeekoevlei. At five of the six testing sites, CFU/100ml was more than the acceptable risk level of 4 001 CFU/100ml across the majority of days tested. The average reading across all Zeekoevlei sites was approximately 64 000 CFU/100ml, with the highest average reading at testing site ZEV2S, at over 190 000 CFU/100ml. Results from the Zeekoevlei, taken on the 29th of October 2021, show at three different sampling points over 100 000 cfu/100ml. Outside of the *ZVYC (ZEV1S)* it was as high as 980 000 cfu/100ml, and 940 000 cfu/100ml at the inlet of the Big Lotus River. With these results, it is easy to imagine what such exposure to high traces of E. coli can have on humans i.e., cholera, gastroenteritis, disease, diarrhoea, abdominal pain, nausea, respiratory problems, vomiting and fevers. But it is not that easy to imagine the effect of E. coli on multispecies. Human immunity is different from fauna and flora. Humans (well not all humans as the section on spatiality would have indicated that resources are not spread equally), have access to healthcare facilities in time of illness and disease. What happens to

the plants, animals and micro-organisms that inhabit the Zeekoevlei? And how do we as communities living with multispecies respond to 'violences'?

To reiterate the words of Zeekoevlei resident Vanessa Farr, a commitment is needed by the *COCT* to 'fixing infrastructure, rethinking water-borne sewage, redesigning, upgrading and maintaining old infrastructure and replacing what doesn't work' (Independent Online, 2021). I acknowledge that there have been some strides in trying to address the plastic and waste crisis in the Zeekoevlei and the greater Cape Town area. These have been through Litterbooms[40] which are in the Big Lotus River, drainage or 'trash nets' [41] which can be found in Gansbaai (Kirsten, 2019), environmental awareness programs, recycling initiatives and the encouragement of multiple use plastics by various industries. But these are not entirely helpful as it does not address historical issues. Issues that create and enable waste pollution in the first place. In theory, waste initiatives look great but in practicality it is a different story. It is not as simple as just placing a litterboom, drainage net, doing clean ups, having them collected and our work is done. What happens to those wastes after? Landfills are serving more as relocation destinations for wastes. Litterbooms, fencing, catchment nets and other entrapping sources do not alleviate the waste problem. They are merely slowing it down. These waste structures require regular maintenance. The immense influx of daily plastic and solid wastes would affect the solidity[42] of any waste treatment and catchment structure. In addition to the influx of wastes, varying weather conditions also amplify the already existing strain that these structures are expected to endure. The photo (see image 5.5) below shows the damage that lack of maintenance has on waste structures. Over time, these catchment fences will collapse, fall over, tear, come apart or break altogether.

[40] Litter booms are designed to stretch over the surface of the water, catching floating wastes. They generally are these long, cylinder like objects. (https://panorama.solutions/en/solution/litterboom-project )
[41] These nets stop waste and pollutants from leaving the sewers, preventing garbage transported by rain waters from contaminating the town's local water reserve (https://www.getaway.co.za/travel-news/trash-traps-installed-in-gansbaai/ )
[42] 'Solidity' - refers to the structure, capabilities and capacity that is needed for these waste catchments to perform efficiently and effectively.

Image 5.5: A damaged catchment net in the Little Lotus River. (Source: Audrey, 2021).

What happens now is that instead of wastes being cut off here at the Little Lotus River, it now flows over into the Zeekoevlei, creating an even larger pollution problem as these wastes are now dispersed in an even greater area and have the potential to reach the Zeekoevlei. During conversation with Sidney, he said that the agreement was that *FOZR* would install these types of fencing and the *COCT* would provide maintenance of these structures every three months. This agreement was not fulfilled i.e., the damaged fencing. On average, these structures were only being maintained once a year by the *COCT.* It is evident that there is urgent collectivity, conversation and accountability that *must* happen amongst multiple local governmental departments. The waste crisis in the Zeekoevlei is not an *our* or *their* problem. With that said, the factors that have enabled and maintained the pollution crisis within this city for as long as it has needs to be restructured and reconsidered. This time with the well-being of our environments and their inhabits taking precedence.

As the above section has shown, reuse and recycling approaches are great, but they do not address the core problem which is the system that enables and proliferates single-use plastics, wastes and inequality. Latour's (2004), 'gods of reason', namely technical efficiency, economic profitability and scientific objectivity are used as justifications and motivators for systems that worsen inequality and 'better' the expansion and production of goods. Value is assigned to

these goods based on their ability to perform and create profits. Value is not measured in terms of sustainability, habitability, and the livability of a space for multispecies. So, how do create a different value system that exists outside of these 'gods'? What considerations would be made if there were different concerns such as the Earth's future and multispecies, rather than economic profitability being the key motivator and at the centre of our politics?

## CONCLUSION

Apartheid laws went beyond affecting the physical, political, and social lives of black people. It affected the way in which people were able to create sustenance and spaces that would allow them to thrive. Apartheid laws greatly affected the quality of life for multispecies in areas such as the Cape Flats. The accompanying partner of Apartheid spatiality i.e., unequal service delivery significantly influences the waste problem on the Cape Flats (Sithole and Manthosi, 2015). Multiple studies show that low-income areas receive less governmental attention and resources as these areas are not deemed as 'economically attractive' (Sithole and Manthosi, 2015; Sartorius and Sartorius, 2015; Firdaus and Ahmad, 2010). Poor spatial planning and possibly intentional planning of waste infrastructures such as the *CFWWTW* and the *Strandfontein Sewer Works* on the Cape Flats has caused irreversible damage to the surrounding ecosystems and landscapes, particularly the Zeekoevlei. While recycling, reuse approaches, waste collecting and creating environmental awareness is great, none of them address core problems. Problems of injustice, violence, and inequality. Yet, despite lack of governmental initiative and involvement, there are many people who are trying to address the environmental issues their communities are facing. The following chapter looks at notions of care emerging in civil societies as a response to damaged landscapes and failing waste infrastructure.

# CHAPTER SIX

## Thinking of Care in Damaged Landscapes

The following chapter looks at notions of care emerging in civil societies as a response to damaged landscapes and failing waste infrastructure. Latour's *AIME* (2015), is a revision of his earlier theory, *Actor Network Theory (ANT). ANT* is a methodological and theoretical approach to social theory where everything that exists in our natural and social worlds are constantly moving networks of relations (Latour, 2015). *AIME* (Latour, 2015) suggests that we need to think outside of the frameworks of modernity, financial logics and outside the 'gods of reason'. Latour (2015) is fundamentally asking that we think through and about networks, nodes, and assemblages that exist within human and non-human experiences. These are assemblages of relations, histories, politics, technologies, and communities. Latour (2015) is arguing that all these experiences and assemblages are connected and entangled (although these entanglements may be different). Looking at networks of relations to Latour (2015) is not enough, because within these networks are nodes and assemblages of various kinds. When academics, city planners, governmental institutions, chemical producers, and communities start to see our worlds as being deeply entangled, maybe then can we instil a different form of ethics in our politics and resource management. Environmental activism often emerges as a response to failing waste infrastructure and unjust environments. The waste crisis in the Zeekoevlei cannot be the sole responsibility of activists, *CBO*s such as *FOZR*, community members and volunteers. There is a sense of accountability and responsibility that is missing from the appropriate governmental departments. Embodying an ethic of care at all levels of governance will allow for a different type of politics and management to emerge. When the city of Cape Town is looked at as a body[43] rather than various parts that must be managed separately, maybe then can we see positive changes in our communities. Seeing and respecting entanglements allows for a reimagination of living *with* damaged landscapes.

[43] Body – Something which is deeply connected and reliant on other parts.

Apartheid spatiality and the proliferation of plastic post-WWII shows that histories do not truly end. They are intertwined with the present. So how do we live with these histories in the present? And how do we respond?

## PRACTICING CARE THROUGH KINDNESS

Spending time along the Zeekoevlei and Little Lotus River, following and engaging with social media groups such as *Action for Responsible Management of Our Rivers* (ARMOUR), the *Friends of Liesbeek*, *FOZR*, *Environmental Humanities South* and doing this research prompted me to think about ethics through the concept of care and kindness. Having done the research, the work of de la Bellacasa (2011) on care, technology, and science became increasingly significant. How do we begin to think of care in the sciences? How do employ care through the questions we ask? How do we begin to think of care in relation to multiple domains and networks that go beyond the human? And moral disposition? (de la Bellacasa, 2011: 86). De la Bellacasa (2011) draws on Latour's (2004) 'matters of concern' which proposes the simultaneous existence of politics in knowledge production that could have lasting effects on world-making and unmaking practices (Solomon, 2021). Latour's (2004) interests here is 'care' and the ways in which we research, practice, and make sense of our worlds. De la Bellacasa (2011:85) uses this framework or 'concern' and argues why this 'brings us closer to a notion of care'. In all its complexities, nuances and ambiguity's, 'care' plays an important role in managing, organizing, and thinking through the waste crisis in the Zeekoevlei. What does it mean to care? What does it mean to care for the more-than-human? What forms of care are visible in civil societies? What possibilities do these varying forms of care present for scholarship, policy, and management?

Bellacasa's (2012, 197) *Nothing Comes without Its World': Thinking with Care*, describes 'care' as 'a vital affective state, an ethical obligation and a practical labour'. All of which matters. Van Dooren (2014) breaks down de la Bellacasa's description of care to the three key components. The affective state according to Van Dooren (2014: 291) sees care as an embodied experience, the outcome of 'intellectual and emotional competencies to care is to be affected

by another, to be emotionally at stake in them in some way'. Ethical obligation sees care as becoming 'subject to another, to recognise an obligation to look after another' (Van Dooren, 2014: 291). The final component i.e., practical labour requires that people get involved in some way or another by taking care of another (Van Dooren, 2014: 291). De la Bellacasa's (2012) analysis of care is useful in thinking of care as a set of practical and embodied ethics. It is the kind of ethics emerging in the civic organisations such as *FOZR*. I acknowledge the complexities of 'care' and the ways that it may be 'counterproductive', for instance, caring for one thing, species, or person, usually means that you are not caring for another. In this light Haraway's (2008:36) *When Species Meet,* addresses the dilemma that 'care' presents and proposes that 'caring means becoming subject to the unsettling obligation of curiosity, which requires knowing more at the end of the day than at the beginning'. It is this kind of curiosity that leaves room for further engagement and sees 'care' as interwoven, neither inclusionary nor exclusionary but webbed in its own complexities. What became significant during fieldwork was the ways in which the states of our environments were indeed manifestations of human thought (Morton, 2013). Whether this was thought based on neoliberal and capitalist logics, the idea that our worlds must be 'conquered'; or thoughts inspired by acts of care, presence, and kindness towards our environments. How do we start practicing care? And kindness? And will this be enough to create a paradigm shift in the ways in which we approach our worlds?

Initially, I went into this research wanting to understand what people were doing to address the plastic and solid waste crisis in the Zeekoevlei. What became more valuable as this research unfolded was looking at how people were relating to waste and the Zeekoevlei. Trying to understand what 'drives' them to care for their environments. All participants I worked with agreed that the waste pollution in the Zeekoevlei is indeed a crisis. A crisis that needs to be worked through with all members of society. Compulsory environmental education at all schooling levels, changes in environmental policies and management, holding politicians and manufacturers accountable and connecting with people and making them a part of their environments is practical and possible. Having regular community discussions, increasing

recycling efforts, doing rigorous scholarship, having committed city officials, creating awareness, working with activists, conservationists and allocating adequate resources will reshape how we think and engage with wastes and damaged landscapes. Finally, employing a genuine ethic of care, presence, and relationality, working with indigenous groups, and acknowledging our histories through various environmental changes are some of the ways in which the pollution crisis can be addressed. There is also a level of 'anger' and hope that is needed to accomplish these practical efforts. Hoping, imagining, and believing we can inhabit a different world but also being angry enough to keep fighting for that world.

## CREATING COMMUNITY THROUGH KINDNESS

Early on in this research the construction for the Western Leopard Toad (Sclerophrys pantherina) tunnels in the Zeekoevlei area had already begun. These two (50 metres apart) tunnels are located along Peninsula Road and are installed in the ground (see image 6.1). Toads cross this road on their way to the wetlands around their breeding seasons which is expected to be around August. The last two decades have seen major declines in toad populations in urban areas where they once thrived (News24, 2021). These tunnels are meant to assist the toads as they migrate to the vlei. Toads required assistance as it was not uncommon for passing vehicles to accidently injure or kill them, particularly during their breeding seasons. There are guiding barrier walls, along Peninsula Road to assist with guiding the toads to the tunnels. The tunnels have holes at the top to ensure air passes through and to control the heat within the tunnel.

This initiative and structure also allow other fauna to move across the road quickly and safely. This initiative was constructed by *CTEET*, with funding from the *Leisure Charitable Trust and Foundation Ensemble* (News24, 2021). Louise Baldwin *CTEET*'s Species Conservation Manager stated that they would monitor these tunnels during the toads breeding season to determine if there has been a decline in the number of fatalities (News24, 2021). This project is the first of its kind in the country (News24, 2021). This is a great example of the ways in which urban city planning can adapt to living *with* our environments. These toads form an

integral part of the Zeekoevlei and the Zeekoevlei community at large. By seeing these toads as living, moving, and breathing creatures, we are actively speaking up and against notions of control, mastery, neo-liberalism, and ownership. Neo-liberal logics places the human at the centre of all life, this example sees us as co-habitants of a community.

Image 6.1: Underpass tunnels built to guide toads as they migrate towards the vlei. (Source: Facebook/*FOZR* Facebook page).

The clean-up which was open to the public on the 17th of April also proved that working with other local community organizations is an essential part in changing how we connect with our environments. There is potential for a snowball effect. This clean-up brought volunteers from various parts of Cape Town, the Zeekoevlei community and partnerships with organizations such as *CTEET*, *Pristine Earth Collective*, *FBNR*, *ZVYT* and the *Wildlife and Environmental Society of South Africa* (WESSA). Which shows that *people do care! People are caring!* People are enacting various forms of care through their relationships with the Zeekoevlei and their respective environments.

After clean ups, Phillip and I would have conversations about his life along the vlei. We also spent hours talking about his passion for bee keeping. Phillip told me how the colour of the water in the Zeekoevlei had changed since he was a child. He first described the water as 'brown and brackish' and almost black underneath. When he returned some years later, the

water appeared as 'green and murky'. Based on conversations Phillip had with residents upon his return to the area, it was believed that a cubic ton of arsenic was dumped into the Zeekoevlei during the late 1960's/early 1970's by the National Party[44]. Many residents according to Phillip believed that this caused the change in colour to the vlei. I spent many hours trying to research this claim but was unsuccessful. Phillip would tell me about the stories he was told by his father. These included war stories and stories about riding horses across the vlei during the 1930's. It was also at this time that I learnt that Phillip was part of a military band in the early 1980's during the Angolan Civil War. Phillip played the bagpipe for the Cape Town Highlanders[45]. Later on, Phillip was called upon by a major to become his personal butler. Phillips disapproval of the inherent violence that came along with war placed him in this constant moral and ethical dilemma. To increase the intensity of this moral and ethical dilemma, Phillip was later called to serve alongside the military. He told me how horror films were triggering. They triggered images of a life he would rather not have known.

When we were not talking about the war, we would speak about his hobby, beekeeping. Much of which was new and exciting for me as I was not too familiar with the 'life of bees'. Phillip explained how he would build wooden boxes which would be used as hives. All of which was based on some Youtube videos he had seen. We would speak about the ways in which nature is able to organize and to some degree take care of itself. Each bee has a task, you have the queen bee[46] and the worker bees. Phillip explained that there is usually one adult, mated queen in a hive, in which case the worker bees will fiercely protect her. What these conversations often highlighted was the reproducing nature of our living environments, but also how this nature is being disrupted and how this nature is being used to justify extractivism, production and capitalism. Believing that our worlds will keep reproducing despite the violence's inflicted upon it, is what has greatly influenced capitalist logics.

[44] https://www.sahistory.org.za/article/national-party-np
[45] https://en.wikipedia.org/wiki/Cape_Town_Highlanders
[46] The queen bee would typically be an adult, mated female that lives in a hive or colony of bees.

At times, conversations would drift off and Phillip would ask 'what was your question again?' I distinctly remember the conversation that took place after I had asked, 'what was it like growing up with the vlei?' He said that, 'when you start realising that you are living on a nature reserve, you need to start thinking how insects and animals are going to react to things like light and sound'. He began to speak of 'living *with* nature' and the chain reaction that destroying one part of nature has on multiple species. Much of his insights came from growing up as a scout and the lessons he was taught through scouting particularly on how to care for and live *with* nature. It is insights and approaches to nature like Philip's and *FOZR*'s that remind me that creating worlds and networks of care are possible. Phillip would send regular photos of various multispecies in and around his home, all of which he reminded me should not be disturbed (see image 6.2). Phillip often reminded me that we were living in 'their' (multispecies) worlds.

Image 6.2: 'As big as my fist, endangered leopard toad'. Taken in Phillip's backyard. (Source: Phillip)

In addition to the mechanical failures of the screw pumps mentioned earlier, there is also the issue of theft and crime along the vlei. It is not uncommon that valves get stolen or vandalised from the treatment works. It is also not uncommon for *COCT* staff (aiming to do maintenance work) to get robbed from their personal belongings while on duty. While we could look at some socio-economic factors mentioned earlier in relation to these issues, it does not justify such acts. The effects of such acts are so dire that they will affect many multispecies communities. However, despite these issues and threats, there are many people who are still committed to caring for the vlei.

I attended a seminar in May 2021 hosted by the *Institute for Humanities in Africa* (*HUMA*). The seminar was titled *Ethical Humanitarianisms: Kindness, Generosity and Compromises*. One of the key things that struck is that kindness does not *undo* inequality and injustice. There are mental and emotional things that we have some control over like the act of being kind and showing kindness, but that does not undo structural damage i.e., Apartheid spatiality and unequal service delivery. While the mental shifts are necessary to bring about the change many seek in the world, it becomes pointless when underlying issues are not in the same conversation. For example: we cannot change how we think about wastes but not address structures of inequality. Kindness, imagination, and hope is needed in this planetary moment so that we are able to rethink how we make and relate to our worlds. Bell Hooks (2008) stated:

> Hope is essential to any political struggle for radical change when the overall social climate promotes disillusionment and despair.

Pro neo-liberalists and pro-modernists rely on people feeling and being in a state of despair. Despair which is often partnered with hopelessness. Hopelessness which manifests into inactivity and complacency within unjust systems. People should be hopeful of inhabiting a world where kindness works toward eradicating systems of inequality and violence. I asked Sidney at some point, 'why do you keep doing what you do when the same problem will come up tomorrow?'. The response was simple, the positive feedback from the communities affected and involved is what keeps them (*FOZR*) motivated and hopeful of inhabiting a safe and

healthy landscape. Sidney had lived in the Grassy Park area for many years and later moved. But there was always something about the area and the Zeekoevlei that called him back. He said that you cannot describe the feeling of waking up and seeing this landscape on a beautiful day. Sidney reminded me of Indiana Jones. He would wear a similar style hat, a camouflaged jacket, and boots. He always looked ready to tackle whatever the vlei was facing on that day. Being a person of colour as well, we would speak about some of the challenges our communities were facing regarding substance abuse and in particular, drug abuse. The ways in which they have torn apart communities and taken over or taken people's lives especially young people in the area. This was an all too familiar topic to me given my background. Later on, he would tell me about how he would often find people 'doing their business' [47]in the park along the Little Lotus River. He mentioned that at one point, the park became extremely dangerous at night as there were concerns over residents getting mugged. It took some back and forth with the *COCT* and eventually some fencing was installed along the park. It was clear that caring for the Zeekoevlei and its human and non-human residents was arduous work. Constantly, having to communicate and almost beg the *COCT* to assist because *FOZR* lacks the funding, manpower, resources and some cases the skill set needed to maintain and adequately take care of the Zeekoevlei and its surround. Sidney would tell me about how most of the organizations funding for their day-to-day operations would come from membership fees, residents of the area, donations, and from some of the limited services they offer i.e., reed removal, which is not a service offered all year round. The laborers also needed to be paid, many of whom were not South African citizens as Sidney mentioned and given the politics of citizenship, they depend on this short-term employment. From this service, very little income is generated to the organization. Being an NGO, *FOZR* relies greatly on the efforts of residents, the greater Zeekoevlei community and to some degree the *COCT* to assist with caring for the Zeekoevlei and its surrounds. So, despite the everyday challenges that the Zeekoevlei faces, there are people trying every day to cope with and combat these challenges

[47] Referred to people doing and consuming various substances.

in whatever way they can. There are many people like Sidney and Phillip who are inspired by alternative community values based on care rather than economics and ecology rather than short-termism[48]. In the *HUMA* seminar mentioned earlier, someone said: 'we sometimes see the world from only reading bad stories'. These are the stories that the 'pro-'s' mentioned above create and rely on. The things we are exposed to, subjected to, experiencing, and are engaging with shapes the stories we replicate, follow, learn form, and tell.

Bram Büscher and Robert Fletcher (2019: 283) describe 'convivial conservation' as 'a vision, a politics and a set of governance principles that realistically respond to the core pressures of our time […] it proposes a post-capitalist approach to conservation that promotes radical equity, structural transformation and environmental justice and so contributes to an overarching movement to create a more equal and sustainable world'. Through the establishment of 'convivial conservation', maybe then can we address the waste crisis in the Zeekoevlei. The waste crisis in the Zeekoevlei cannot only be addressed through clean-ups and community talks when core past-present systematic and structural issues are not addressed. The waste crisis should be looked at as an assemblage. An assemblage that is entangled with the past, present, and future (Latour, 2013). An assemblage that is connected to different nodes and networks of relations (Latour, 2013).

## CONCLUSION

There is an ethos of care and kindness absent from science, technologies, and politics. When we begin look at things from a point of 'concern', we provide space for care to thrive. This chapter highlighted the forms of care emerging in civil societies. It aimed to show why care is crucial in/for the sciences, CBOs, governmental institutions, and all members of society. There are desperate partnerships that need to happen between governmental institutions, CBOs, and community members. Community members provide the insight of be able to experience and witness daily changes. CBOs provide the organizational and 'know how' to

[48] Short-termism- 'Short-termism is giving priority to immediate profit, quickly executed projects and short-term results, over long-term results and far-seeing action' (https://en.wikipedia.org/wiki/Short-termism ).

address the issues that their communities are faced with. Governmental institutions must provide access to resources that will allow all communities to thrive and not only affluent ones. Not all people are contributing to the waste crisis, but all multispecies communities are feeling and experiencing the effects of waste pollution in the Zeekoevlei. The immortal abilities that certain wastes have allow them to become fossilized within our worlds. What this means is that their effects will be seen for generations to come. Commitment, kindness, and care are needed between all parties mentioned throughout this thesis. Having these parties committed to learn, unlearn, and understand the networks of multispecies that exists within the Zeekoevlei may allow for 'care' to thrive within our politics, resource, and waste management. Care and kindness does not undo injustice and inequality, but it does provide 'room' to think through alternatives and possibilities, essentially asking 'how can we do things differently?' in our scholarship, resource management, city planning, politics and communities.

# CONCLUSION

## Rethinking Waste Relations

Neoliberal and capitalistic logics would have many believe that our consumption and waste practices have no side effects, that there is an inevitable 'death' of our wastes. However, as this thesis has shown, there is no 'death' particularly for man-made wastes. This thesis explored the ways in which histories of inequality and injustice have manifested into various waste practices. With growing urban populations, adequate urban and spatial planning is fundamental in creating a city with infrastructure that accommodates and considers such growths. Unequal service delivery stems from unequal distribution of a city and its resources. When poor BIPOC people are seen and recognized as fully human and members of communities that must be treated with dignity maybe then can change within our city management take place. Land use, distribution and opportunities should be looked at with the benefits for all members of society (living and non-living) as a key factor. With regards to resource management in the urban context, institutional and social processes should supersede purely economic and technical decisions. This was proven to be successful in environmental management initiatives globally (Grobicki, 2001).

Chapter 1 details the methodological approaches used for this research and their purpose. I describe how various relationships with participants and the vlei emerged. This chapter highlights the significance of presence and getting to know people and spaces. I also discuss the importance of transparency and ethics in this research. The use of various methods was crucial in highlighting the significance of interdisciplinary research and possibilities for the sciences. Chapter 2 discusses the various conceptual and theoretical texts that framed this research. It also discusses various literature on wastes, waste practices and management. Practices and management that fails to consider the side effects of waste pollution on our ecologies and biodiversity's.

Chapter 3 traces the 'life' of a chip packet. This packet becomes an analogy for the millions of wastes floating in our worlds. It argues that there is no inevitable 'death' for many man-made wastes. These wastes are 'monsters' who keep coming back to life. Leaving traces of themselves across vast geologies and time. Chapter 4 looks at plastics and the slow leaching abilities as 'hyperobjects'. 'Hyperobjects' are dispersed across time and space, meaning that their effects will be felt, seen, and experienced in deep futures.

Chapter 5 discusses Apartheid spatiality and waste infrastructure and their roles in greatly contributing to the waste crisis in the Zeekoevlei. It also looks at the ways in which Apartheid spatiality is shaping, reshaping, and defining the quality of life for many BIPOC. The objective here was to highlight the ways in which waste infrastructure and Apartheid spatiality has defined and affected the quality of life for many BIPOC particularly those on the Cape Flats. Chapter 6 looks at the ways in which CBOs are responding to failing waste infrastructure and poor service delivery in low-income areas. Thinking and employing an ethic of care in damaged landscapes allows for alternative ways of being in the world that rejects capitalists and neoliberal logics of mastery and ownership. All these chapters strengthened my main argument through showing multiple waste stories that reiterate that waste relations, practices and poor waste management stem from histories of inequality and injustice.

To achieve long-term sustainability of our water bodies and landscapes, positive resource management and urban planning can be established by 'linking more strongly with quality-of-life considerations', especially with the provision and inclusion of 'recreational amenities and the conservation and restoration of biodiversity' (Grobicki, 2001: 13). Here, CBOs initiatives are crucial to achieving these long-term goals. Many are drawing on notions of surrealism (Richardson and Fijalkowski, 1996). Not only rethinking but actively doing the work to create worlds that exists outside of the neoliberal and capitalist frameworks we have inherited. Practicing and embodying care and kindness, allows for a different type of society, management, and scholarship to emerge.

In conclusion, this thesis through its telling of various waste stories argues that a paradigm shift in all spheres of society is necessary to address the waste crisis in the Zeekoevlei. Seeing the waste crisis as a 'now' problem fails to acknowledge the role of unequal settlement histories in South Africa. The obsession with economics and profits at all costs is the biggest 'monster' here. It is something that must be fed and praised. Nevermind, the worlds and lives that are being destroyed. So how do we address these 'monsters' in our scholarship? politics? resource management? and city planning?

By employing an ethic of care and kindness in the work that we do and through holding those in power accountable. There are people who do care. There are people wanting to create safer and healthier worlds for all lifeforms. But this is not enough to solve an issue that runs deeper than waste pollution. It runs to the core of what South African society is today. A society that is still scavenging through the aftermath of colonialism and Apartheid. We cannot undo the past, but we can undo the structures of inequality and oppression that thrived through the displacement, and oppression of BIPOC. We can undo systems of extraction, control, and ownership. Until we undo and rethink these unjust systems, only then can we address and respond to the waste crisis in the Zeekoevlei adequately.

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# APPENDICES

## Appendix A

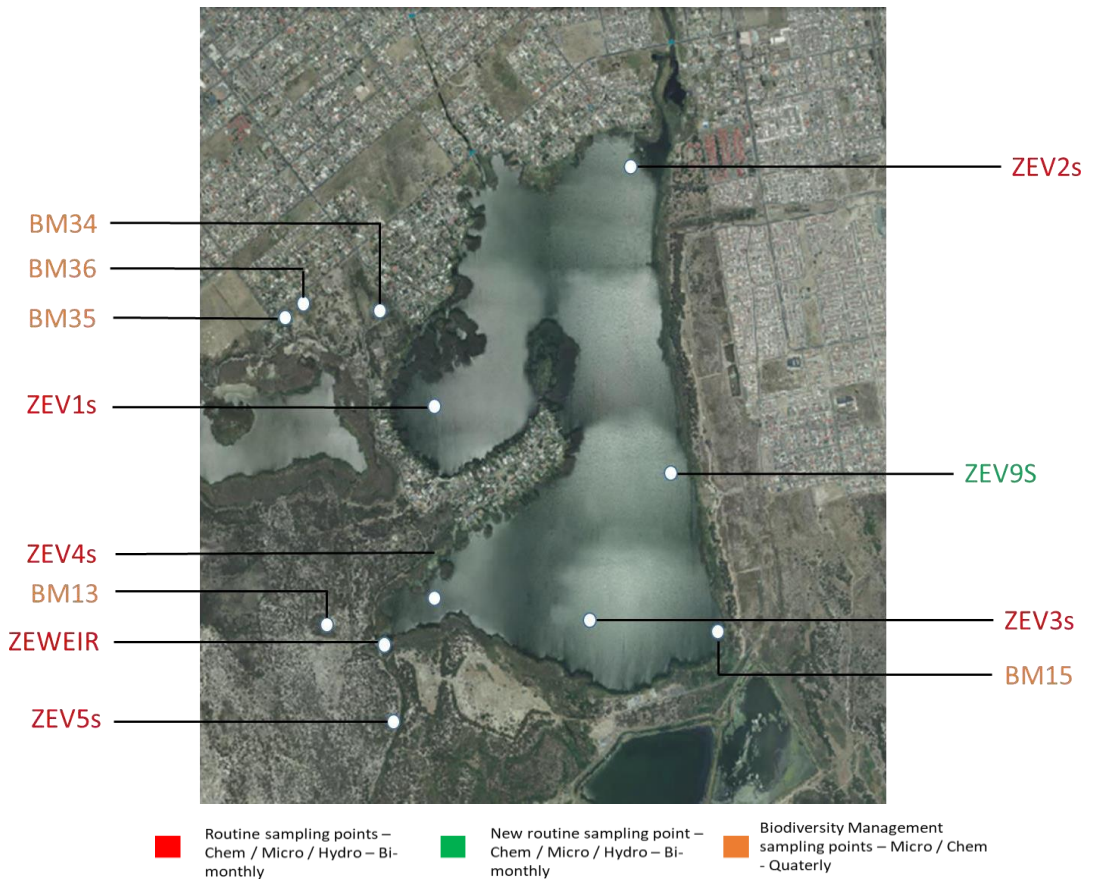


*Figure 1: S*ampling points for Zeekoevlei

*Table 1: Zeekoevlei sampling points description and GPS co-ordinates*

| Sampling point name | Sampling point description | Longitude | Latitude |
|---|---|---|---|
| ZEV1S | Home Bay in front of Zeekoevlei Yacht Club | 18.50788 | -34.06244 |
| ZEV2S | Opposite inlet of Big Lotus River | 18.51712 | -34.05317 |
| ZEV3S | In front of Cape Peninsula Aquatic Club | 18.51944 | -34.07042 |
| ZEV4S | SW corner approx 200m from weir | 18.50652 | -34.0693 |
| ZEV5S | At cutoff drain outfall into the zeekoe canal | 18.50535 | -34.0738 |
| ZEV9S | Zeekeovlei Eastern shore near stormwater outlet at Picnic area near traffic circle | | |
| ZEWEIR | Vlei sample at Zeekoevlei weir | | |
| BM13 | Moddervlei | | |
| BM15 | South eastern corner - at outlet | | |
| BM34 | Erica Field culvert | | |
| BM35 | Fishermans Walk, Coot Road, Inlet | | |
| BM36 | Hippo Boma Wetland area | | |

*Table 2: Zeekoevlei E.Coli results May – October 2021*

| Sampling date | ZEV1S | ZEV2S | ZEV3S | ZEV4S | ZEV5 | ZEWEIR |
|---|---|---|---|---|---|---|
| **2021/05/11** | 100000 | 10000 | 10000 | - | - | 10000 |
| **2021/05/16** | 3900 | 27000 | 28000 | - | - | 1000 |
| **2021/06/03** | 3600 | 51000 | 9400 | 3900 | - | - |
| **2021/06/14** | - | 2600 | 2600 | - | - | 2900 |
| **2021/07/12** | 41000 | - | 52000 | - | - | 68000 |
| **2021/07/20** | 71000 | 100000 | 100000 | - | - | 100000 |
| **2021/07/27** | 7100 | 340000 | 83000 | - | - | 34000 |
| **2021/08/06** | 42000 | 35000 | 21000 | 17000 | - | 10000 |
| **2021/08/16** | 34000 | 49000 | 74000 | - | 280 | 18000 |
| **2021/08/27** | 6000 | >100000 | 13000 | 5100 | | 4200 |
| **2021/09/07** | 3400 | 63000 | 32000 | 4400 | | 3900 |
| **2021/09/13** | 6800 | 39000 | 5900 | | 340 | 5300 |
| **2021/09/20** | 43000 | >100000 | 42000 | 39000 | | 23000 |
| **2021/10/01** | 7400 | 6800 | 5600 | 6600 | | 5200 |
| **2021/10/15** | 140000 | >1000000 | 57000 | 53000 | 420 | |
| **2021/10/29** | 980000 | 940000 | >100000 | >100000 | | >100000 |

The Zeekoevlei E. coli test results from May to October 2021 and sampling point locations. (Source: https://www.groundup.org.za)