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About the Journal

JOURNAL PURPOSE

The purpose of the *Ngenani - Zimbabwe Ezekiel Guti University Journal of Community Engagement and Societal Transformation Review and Advancement* is to provide a forum for community engagement and outreach.

CONTRIBUTION AND READERSHIP

Sociologists, demographers, psychologists, development experts, planners, social workers, social engineers, and economists, among others whose focus is on community development.

JOURNAL SPECIFICATIONS

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SCOPE AND FOCUS

The journal is a forum for the discussion of ideas, scholarly opinions and case studies of community outreach and engagement. Communities are both defined in terms of people found in a given locale and defined cohorts, like the children, the youth, the elderly and those living with a disability. The strongest view is that getting to know each community or subcommunity is a function of their deliberate participation in

matters affecting them by the community itself. The journal is produced bi-annually.

Guidelines for Authors for the Ngenani Journal

Articles must be original contributions, not previously published and should not be under consideration for publishing elsewhere.

Manuscript Submission: Articles submitted to the *Ngenani - Zimbabwe Ezekiel Guti University Journal of Community Engagement and Societal Transformation* are reviewed using the double-blind peer review system. The author's name(s) must not be included in the main text or running heads and footers.

A total number of words: 5000-7000 words and set in 12-point font size width with 1.5 line spacing.
Language: British/UK English
Title: must capture the gist and scope of the article
Names of authors: beginning with the first name and ending with the surname
Affiliation of authors: must be footnoted, showing the department and institution or organisation.
Abstract: must be 200 words
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Italicise *et al., ibid.,* words that are not English, not names of people or organisations, etc. When you use several authors confirming the same point, state the point and bracket them in one bracket and ascending order of dates and alphabetically separated by semi-colon e.g. (Falkenmark, 1989, 1990; Reddy, 2002; Dagdeviren and Robertson, 2011; Jacobsen *et al.,* 2012).

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The Herald (2020). Harare City Could Have Used Lockdown to Clean Mbare Market. *The Herald*, 14 April 2020. Available online: https://www.herald.co.zw/harare-city-could-have-usedlockdown-to-clean-mbare-market/. Accessed on 24 June 2020.

SOCIO-ECOLOGICAL CONUNDRUMS: TOWARDS THE WISE USE OF WETLANDS IN THE HARARE METROPOLITAN PROVINCE, ZIMBABWE

MOREBLESSING MUSUNDIRE[1] AND ROSELIN KATSANDE-NCUBE[2]

Abstract

One of the critical concerns faced by African cities in the modern epoch are disappearing urban wetlands because of the construction of infrastructure. This is predominantly the case in cities that are expanding their urban areas at a rapid rate. Wetlands are currently being studied for their potential role in the food mitigation process, in addition to supporting urban sustainability in terms of water quality and availability. It is undisputable that the protection of Harare's urban wetlands is an investment that is well worth making. The main objective of this study i s t o analyse views, attitudes and perceptions of residents and relevant authorities towards wetlands in the Harare Metropolitan Province. This is to promote the wise use of wetlands for sustainable development. Human activities and poor policy implementation are the causes of wetland depletion. The study targeted the Harare Wetlands Trust, Monavale and Cleveland management, residents living on or near the wetland areas and representatives from the Environmental Management Agency (EMA). The study deployed a qualitative research approach and utilised the face-to-face Interview guide, semi-structured questionnaires and field observations for data collection and was guided by the wise use and ecological restoration concepts. Results highlighted that there is an existing policy on wetlands, most stakeholders are aware of wetlands and their benefits and are of the view that they should be conserved. Although they are viewed as important ecosystems, they are utilised in unsustainable manners. Human activities have been persuaded by economic challenges, a lack of policy implementation, lack of awareness

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programmes and education. There is need to change perceptions and attitudes towards wetlands. The study concluded that wetlands are an important part of the ecosystem, and they offer a crucial role, especially to the hydrological system of the city. The study recommended that the Environmental Management Act needs to be revised in line with on-going developmental activities, gazetting of existing wetlands to identify those under threat, reclaim or restore lost or degraded wetlands for sustainable development to be attained.

Keywords: *ecosystem, sustainable development, utilisation*

INTRODUCTION

The alternative extremes of wetland conservation or conversion can have devastating effects on livelihoods. Conservation leads to loss of access to land while total conversion leads to loss of natural products and hydrological functions (Maconachie *et al.*, 2008). Wetlands are defined as any area of marsh, fern and peatland, whether natural or artificial, static or flowing water, temporary or permanent with fresh or brackish or saltwater and include riparian lands adjacent to wetlands (EMA, 2002). The shifting urban landscape is a characteristic of global transformation taking place and has become a key issue facing metropolitan cities such as in the USA (California), New Zealand and Australia (Wei and Murambadoro, 2010). The fast pace of urban expansion in metropolitan cities has given rise to the reduction of wetlands and their surrounding areas. Wetlands in Zimbabwe have been seen as a readily available source to the urban poor for livelihood support and food security providence. Harare City's wetland areas are responsible for recharging the water supply that feeds Lake Chivero, which, in turn, provides water the societies that live in the city (Cunlife, 2020. The city has grown times its size and has been growing since independence in 1980. This has led to the scramble for resources due to population pressure The United States is no exception, with the amount of its wetland cover closely correlating with species richness. Even though wetlands cover only near 5% of the land in the United States, they support approximately half of all species listed as threatened or endangered, harbour more than 30% of plant species, and provide vital habitation for up to half of all North American bird species. But

wetlands in the United States remain highly vulnerable to loss, with today's wetlands covering less than half the acreage that they covered in the 1700s (US Fish and Wildlife Services, 2023).

Zimbabwe is a signatory member of the Ramsar Convention on conservation of wetlands, whose mission is to conserve and wisely utilise all wetlands through international, regional, national and local cooperation, to attain sustainable development (Ramsar, 2016). The reality is that wetlands are not being entirely conserved, but are gradually being depleted, if not totally eradicated. The aim of the study was to analyse views, attitudes and perceptions towards wetlands from the grassroots level up to governing bodies. The aim was motivated by the evident shrinkage of wetland resources by residents and developers within the metropolitan province, leading to the decrease of their functions such as water storage, groundwater recharge and biological productivity. Previous research on wetlands have mainly quantified them or mapped them without fully analysing the relationship between these ecosystems' depletion and human interaction, hence this study. The researcher analysed views and perceptions from policy-makers to the views of the residents, who make up the grassroots, to understand the underlying issues related to wetland utilisation.

BACKGROUND OF THE STUDY

Russian geographers projected that more than 6.4% of the land area of the world or 8.6 million km^2 are wetlands. Even though land use conflicts related to wetlands continue to pose great challenges in several parts of the world, the tide has started to turn. Present-day societal attitudes towards wetlands are more positive due to the acknowledgement that wetlands offer valuable regulating, provisioning and cultural services to humanity (Davidson *et al*., 2019). There are thus increased efforts to restore and create wetlands as nature-based solutions to help address problems such as eutrophication, climate change, biodiversity loss, floods and droughts (Bradfer-Lawrence *et al*., 2021). Therefore, the international community has reacted through conventions that involve wetland preservation and re-establishment and 38% of all countries presently have wetland protection included in their environmental policies (Peimer *et al*., 2017).

Wetlands in Africa are also anticipated to have a similar reduction inclination due to increasing pressure on wetlands (Zarh *et al.*, 2015). Major threats to wetlands in Africa include the growing development of reservoirs for energy purposes in some regions, a surge in population increase, agricultural undertakings, urbanisation and land use system, considering wetlands as communal land and open access. In the past few years, African countries have been attentive to designing sustainable utilisation of wetland ecosystems considering the biodiversity values of wetlands. Nevertheless, the knowledge and skills gap in the design and implementation of sustainable utilisation of wetland ecosystem services is a challenge in most African countries (Pansthwa and Buschke, 2019).

In Zimbabwe, wetlands cover 4.6% of its land. After its accession to the Ramsar Convention in 2011, Zimbabwe has now seven wetlands selected as Ramsar sites. In the history of human settlement, sufficient water supply was the main factor, thus largest settlements in Zimbabwe, like Harare, are in or near wetlands. Legislation to protect wetlands came into effect in 2007. Regardless of this, the loss of wetlands continues unchanged. The message is clear: the development of wetlands is on-going at a rapid pace (Mhlanga *et al.*, 2014). The Monavale wetland, where houses and other buildings have now been constructed, and the Belvedere wetland near the National Sports Stadium are two of the wetlands that can be seen in and around Harare that have subsequently been converted into stands where a school was being built while a multipurpose centre (hotel and wholesale) was completed only recently, constructed on a wetland in Ashdown Park. Many people in Chitungwiza, Budiriro 3 and 4, Tynwald and Glen Lorne all face immediate threat of construction activities taking place there. Although it is impossible to differentiate the status of the wetlands in Harare from the condition of the wetlands in the rest of Zimbabwe, it does seem that Harare has a distinctive pattern of acquiring regions that contain wetlands (Ruzvidzo, 2020). Table 1 highlights percentage loss of wetland ecosystems in Harare.

Table 1: Loss of wetlands (Moyo, L. and Cunliffe, R., 2020)

Wetland	% Loss
Prospect	15.7
Kuwadzana	30
Mbare	30.8
Warren Park	30.8
Dzivaresekwa	32.5
National Sports Stadium	36.4
Tafara	46.2
Budiriro	49
Houghton Park	71
Epworth	78.8

~~Area~~

15.7

30

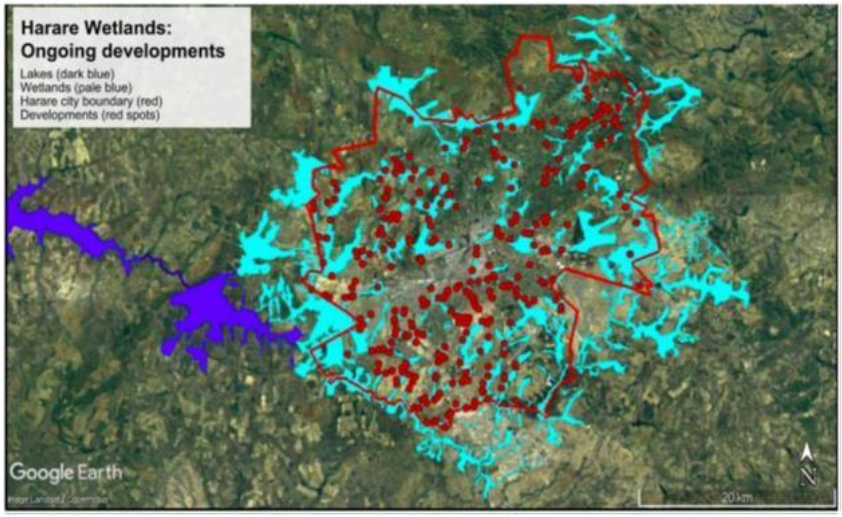

Figure 1: shows Harare and the extent of developments that have taken place on its wetland ecosystem (HWT, 2020)

CONCEPTUAL FRAMEWORK

This research was guided by the Ramsar Convention on Wetlands. The Convention on Wetlands is an international agreement adopted on 2 February 1971 in the Iranian city of Ramsar. Thus, although the name of the Convention is written ―Convention on Wetlands (Ramsar, Iran, 1971)‖, it has come to be universally known as the ―Ramsar Convention‖ (Ramsar Convention Secretariat, 2018). The certified name of the treaty, The Convention on Wetlands of International Importance predominantly as Waterfowl Habitat, reflects the original emphasis is upon the conservation and wise use of wetlands principally as habitat for water birds. (Ramsar, 2010). The Convention's mission is the conservation and wise use of all wetlands through local and national actions and global collaboration, as a contribution towards realising sustainable development throughout the world. The Convention requires its member states to support the conservation of their Wetlands of International Importance (Ramsar wetlands) and to plan for the wise use of all of the wetlands in their states. Convention guidelines emphasize that human use on a sustainable basis is wholly compatible with Ramsar principles and wetland conservation in general (Ramsar Convention Secretariat, 2018).

The ―Wise Use Concept‖ was adopted at the Ramsar Convention on Wetlands in Iran in 1972 as a management practice for wetland conservation (Ramsar, 2016). The wise use concept applies to all wetlands in signatory states indicating wetlands of importance known as ―Ramsar sites‖ (*ibid.*). Wise use of wetlands is the management of their ecological character, accomplished through the implementation of ecosystem approaches, within the framework of sustainable development. Wise use of wetlands results in benefits for poverty eradication, mitigation of and adaptation to climate change, and prevention of disease and natural catastrophes (Kumar *et al.*,2016). The wise use concept is about upholding wetland values and functions, while at the same time providing services and benefits now and into the future, for human wellbeing. Wise use, in stimulating maintenance of environmental, economic and social sustainability, encourages compromise between individual and collective interests. To realise sound decisions on wetland, use and management, decision-makers at

local, regional and national levels need to facilitate participation by relevant stakeholders and to balance a range of objectives and perspectives (Finlayson *et al.*, 2011).

This research was also guided by the ecological restoration concept that seeks to restore degraded ecosystems for sustainability purposes. As defined by the Society for Ecological Restoration International (SER) (2004), ecological restoration is a deliberate activity that initiates or speeds up the reclamation of an ecosystem with respect to its integrity, wellbeing, and sustainability. Restoration normally begins with practical questions of: Which locations are accessible? How have they been ruined? and Which aims are attainable? Additional questions develop from cultural and socio-economic insights, including: Which aims are most anticipated? Who gets to choose? How much effort can be put in to achieve goals? and How can local citizens become involved? The latter questions are truly significant from an ecological perspective. Restoration is an opportunistic arena (Zedler, 2005). It is in the interest of this research to investigate what has led to the degradation, of wetlands, that wetlands have been degraded, what can be done to involve societies in the process of restoring the lost wetland ecosystem.

ENVIRONMENTAL MANAGEMENT ACT

On a national scale, the government of Zimbabwe formulated the Environmental Management Agency (EMA) guided by the act of 2002. Its aim is to protect the environment against any form of degradation for sustainable growth to be achieved. Wetlands are part of the environment that EMA seeks to protect against destructive human activities. The Environmental Management Act concentrates on sustainable utilisation of natural resources and safeguarding of the environment, the inhibition of pollution and environmental dilapidation, the preparation of a National Environmental Plan and other strategies for the management and safeguarding of the environment. It provides for the formation of an Environmental Management Agency and an Environment Fund. The Environment Management Act (Chapter 20:27) section 113(2) says, no individual shall, excluding in accord with the express written permission of the Agency, given in discussion with the Board and the Minister in charge for water resources;

- recover or drain any wetland;
- interrupt any wetland by drilling or tunnelling in a way that has or is likely to have an adverse impact on any wetland or badly disturb any animal or plant life therein;
- Present any exotic fauna or flora species into a wetland.

RESEARCH METHODOLOGY

STUDY SITE

Harare is Zimbabwe's biggest city and it is governmental, commercial and infrastructure centre. The city exists on a watershed plateau with some of the country's best agricultural soils, hence urban population grows by leaps and bounds. Nearly all open green spaces in greater Harare are wetlands and these are the headwaters of the Manyame/Marimba/Gwebi catchment basin upon which the city is built. This basin is a water source for half of the population of Zimbabwe. The water supply is downstream of Harare, so it is important to keep wetlands intact. Numerous wetlands that can be found in and around Harare have been converted for different developmental causes and there are some are still under threat from human encroachment. Wetlands to be studied are the Cleveland Dam and Monavale Vlei .

Cleveland Dam was built in 1913 to supply water to the city of Harare. Cleveland covers an area of 2 500 hectares and is one of the countries' Ramsar sites. The dam has a water supply capacity of 90 million litres. There are three main water sources flowing into the dam, namely Mabvuku, Manresa and Chikurubi Rivers. The catchment area is a public facility and important water source as the water from Cleveland eventually flows into Lake Chivero. The site was initially woodland grass and grassland. The Cleveland area is one of Harare's prominent recreational sites and is subdivided into four sections, namely Cleveland Dam Picnic site, Shooting Range, Haka Game Park and Danhiko.

The Monavale Ramsar site is an urban seasonally flooded short grassland wetland ecosystem situated in northwest Harare, close to the

city centre. These vleis or wetlands are the main water sources for the city. Monavale is an exceptional example of the once wide headwater wetland or vlei environment of Zimbabwe, supporting a different range of flora and fauna, many of which are distinctive and of global significance. The overall Monavale site is 594 hectares in size with the protected Monavale Vlei at its centre settled between the hilly suburbs of Monavale and Meyrick Park. It is the headwater of the Marimba River which flows straight into Lake Chivero. The main protected area is 34 hectares in extent situated in the municipal area of Malbereign.

Monavale Vlei and Cleveland Dam were preferred as wetlands for the study because they are listed as Ramsar sites of international importance. Also, the study aimed at doing a comparative analysis on the two different sites. Monavale Vlei has been conserved as an open grassland wetland whereas Cleveland Dam has been utilised as a recreational facility. the study looked into policy implementation on both sites and evaluated stakeholder perspective on the wetland utilisation. Monavale is surrounded by low-density areas and Cleveland by high-density areas.

METHODS

Both primary and secondary data were used for the study. Primary data about physical characteristics, types of wetlands, ecosystem services offered, legislation on wetlands, contribution to livelihoods, threats to the wetlands' ecosystem, perception on wetland management was collected. Questionnaires, field observations and key informant interviews were used to collect data from residents and authorities managing wetland ecosystems under investigation. To strengthen the quality of the data gathered, secondary sources were used to obtain more information. These were published and unpublished sources.

SAMPLING PROCEDURE

Purposive sampling known as convenient sampling was used to select informants during the data collection process. Residents who live near wetlands and utilise them for livelihood support were chosen to answer questionnaires as they were likely to have more knowledge on the ecosystem that are part of their everyday lives. The two wetland

ecosystems selected to be studied, Monavale Vlei and Cleveland Dam are located in different areas and serve different populations, hence samples of residents were drawn from both areas to give broader perspective on wetlands management. Key informants from authorities that deal with wetland management such as EMA, Harare Wetlands Trust, Cleveland Dam administration and Monavale Trust were selected as the best, as they manage wetlands in their institutional daily mission. They also interact with residents who are contributing to wetland management.

DATA COLLECTION TOOLS

Key informant interviews were researched through administering indepth interviews which sought to gather information on their analysis on wetland management. The other tool was legislation framework on wetlands, the challenges being faced, strategies put in place to conserve wetlands, their views and perceptions on communities they engage with in wetland utilisation.

QUESTIONNAIRES

These were administered to residents who live round the study sites and are in constant contact with the ecosystem itself. Questions were structured to extract information on whether they were aware of the legal framework, benefits from wetlands, challenges in utilising wetlands, why they are carrying out activities on wetlands. Questionnaires helped the researcher assess attitudes towards wetlands through direct contact.

FIELD OBSERVATION

This method was highly beneficial to the researcher as it helped gather information from the study sites. Field observations allowed the researcher to gather personal analysis pertaining to the physical structure and state of wetlands comparing with the information that was being given to by informants.

DATA ANALYSIS

Data were analysed through thematic analysis. The themes of interest were based on the research questions and the information given by respondents. Some of the themes were on stakeholder views and perceptions on wise use of wetlands, challenges being faced in promoting the wise use of wetlands, measures put in place to promote the wise use of wetlands and recommendation on how to ensure wise use of wetlands.

RESEARCH FINDINGS AND DISCUSSION

This component exhibits, analyses and interprets findings from the study carried out with indications of responsiveness of the target population. The presentations are in accordance with the questions that were asked and the analysis constituted the captured data from the interviews in comparison with the literature review.

VIEWS AND PERCEPTIONS FROM RESPONDENTS ON WETLAND MANAGEMENT

As argued by key informants from authorities who manage wetlands, wetlands are often viewed as open grassland spaces. So, such views have resulted in these areas being used as open spaces, wastelands that can be utilised in any way that is beneficial to human beings. Wetlands are not deemed important due to their being not so visible to the human eye, hence susceptible to degradation. The uses of wetlands such as the soil that is a critical part of the ecosystem and the benefits that come with it are not visible to the human eye or beneficial to their urgent livelihood support system. Therefore, they are not deemed to be important.

EMA has reported that wetlands are generally viewed by the general populace as open spaces awaiting to beutilised for development purposes, hence there has been an increase in the conversion of wetlands into shopping malls, water draining areas for commercial purposes, residential homes and agricultural use. All these activities are against the Agency's thrust to protect wetlands and promote their wise use as stated in the Ramsar Convention handbook. In view of the policy in place, EMA encouraged that the wetland policy should address the views and attitudes of multitudes that have led to the destruction of the wetland ecosystem in the city.

Of note is that the Agency has, therefore, in its thrust to promote the wise use of wetlands, embarked on community projects and public awareness programmes through various platforms to try and change behaviour and perception towards wetlands. The reason behind public engagement is that the general populace is not aware of the benefits and functions of wetlands, mainly those not visible to the human eye. Because of this, these open lands face the risk of human activities, since there is no visible physical structure to demarcate them as ―no land use zone areas‖ . They have been susceptible to human encroachment as citizens are in search of housing and livelihood support systems that these wetlands have provided over the years. Because wetlands have fertile soils and can store water, urban agriculture has become rampant on these lands as people seek to produce household food, especially maize, the staple food.

Therefore, emphasis is on the need for the city of Harare, and all relevant stakeholders from grassroots awareness to promote wise use of wetlands and include the wetland ecosystems in city's land-use planning. However, there are loopholes in the policy, leading to wetlands being converted to concrete areas, to non-compliance by developers, lack of EIA and monitoring. Political interference in policy implementation has also been a major setback on protection of wetlands and overlapping policies that have resulted in environmental legislation that protects wetlands, losing its value.

The Cleveland area provides a wide variety of functions such as water storage, supporting aquatic life systems, vegetation cover, conservation of wildlife, food and habitat for animals and promoting the conservation of indigenous trees such as *mutohwe, mukute, muzhanje, mutamba,* amongst other trees. It is important to observe that if wetland areas are conserved, they can support the economic growth of the country. The Cleveland area has four major areas, picnic site, Haka Game Park, shooting range and Dhaniko School, which can be utilised for eco-tourism and education to the benefit of the country.

However, if the Cleveland area is not protected at national level, it is at risk of losing its value due to human interference, such as streambank cultivation which, over the years, has led to siltation of the dam, introduction of exotic trees such as the pines and the eucalyptus (gum trees), leading to reduced growth of the indigenous trees. This because of perceptions that there is need to continuously grow trees on the woodland, but the wrong trees are being grown on these areas, leading to the introduction of alien species to the ecosystem. Water drainage from the Cleveland Dam for commercial purposes has triggered human encroachment into the wetland, prompting residents to utilise water from tributaries that flow into the dam in unsustainable ways.

Harare Wetlands Trust (HWT) reported that the Monavale Vlei used to cover a wider area than it is today, this being due to limited resources to adequately manage the area. Being an open grassland area, it has been threatened by human activities, a large part of it has been converted to fields and houses by residents from Milton Park, Kuwadzana and Tynwald. Therefore, only a small portion of the entire wetland area has been conserved as the Monavale Vlei. Footpaths on the wetlands have been affected by soil compaction causing drying up of the wetland. The continuous passage of people through the wetland threatens the peace and stability of creatures on the wetlands as they view humans as a threat to their survival.

Visual assessment of the Cleveland noted that the area just outside the fence demarcating the boundary for Cleveland, is extensively used for cultivation. Just like the Monavale case, the Cleveland site used to be bigger than it currently is, as it was a wider wetland covered by woodland and grassland ecosystems. Due to the need for household food and firewood, there has been continuous cutting down of trees and clearing of land for agriculture. The Cleveland authorities highlighted that they resorted to fencing the area to protect the remaining woodland, wildlife and land on the wetland from human threat. Residents stated that the area outside Cleveland used to be very fertile when people started cultivating, but with time, the soil structure and its fertility has been slowly diminishing due to erosion and the use of inorganic fertilizers.

Residents also echoed the same sentiments regarding the ecosystem services that the Cleveland offered to them. The area just outside Cleveland offers firewood and fertile soils for agriculture. However, despite the benefits, they echoed that there is need to continue to protect the wetland. Benefits derived from the wetland ecosystems by communities who live around them were recorded to be as follows: ▪ Helps in the hydrological cycle, through evaporation and hence increases rainwater.

- It helps boost the tourism sector as there is a game park that has been put in place due to the existence of a conserved wetland that offers food and shelter for animals.
- Picnic site is good for leisure purposes.
- Livelihood support as people do fishing.
- Offers educational tours.
- Underground water recharge.
- Fresh breeze from the wetland area due to its vegetation cover and moisture content.
- The wetland has helped in the conservation of indigenous trees such as *muzhanje, musasa, mukute, munenda, hacha, and utohwe,* amongst many other trees found on the Cleveland site.
- Grasslands and trees help trap soil and reduce erosion, reducing siltation of the dam.
- Wetland soils offer plant growth even in dry spells. These plants, in turn, offer food and habitat for animals, helping the ecosystem function fully.

Most community members said they were aware of the legal framework, acknowledging that they knew it was not allowed to cultivate, construct or cut down trees on wetlands. Some went on to state that stream bank cultivation is not allowed on the dam. The use of inappropriate fishing equipment such as sacks or nets is prohibited. Residents highlighted that with regards to community engagement or sensitisation on wetland management, no public awareness or educational campaigns have been done by authorities such as EMA. Noteworthy, the knowledge on wetlands is acquired through indigenous knowledge systems which has

been passed on within the communities from one generation to another. If the policy is not made public, they all agreed that the environment will be continuously abused.

Residents utilising the Monavale Vlei stated that they support the conservation of wetlands, but due to economic hardships, they have had to resort to farming on the wetland since it offers very fertile soils and moisture that support the growth of maize. Residents pointed out that some of them are rural migrants, and where they came from, wetlands were good for agriculture, hence when they relocated to the city, they had to continue with their staple food production to meet food needs. Despite the area being in the low-density areas, respondents who utilise this wetland for agricultural benefits travel from high-density areas. In this regard, there is need to ensure that wetland ecosystem management is not limited to those who live around the wetland, but to the entire population.

In light of the discussed findings, it is worth noting that, once a wetland is converted into concrete or buildings, it automatically loses its function and an imbalance is created within the ecosystem. Plant life is lost, alongside some animal species who depend on solely the wetland as an ecosystem. Wetlands improve water quality by acting as sediment sinks or basins. As argued by EMA, nutrients from fertilizers, manure and leaking septic tanks are dissolved in the water and are often absorbed by plant roots and microorganisms in the soil while other pollutants stick to the soil particles. In many cases, this filtration process removes much of the water nutrients and pollutant load by the time it leaves the wetlands. If wetlands are wisely utilised, respecting their natural functions and systems, they can offer many ecological services at no cost. The city could be saved from losing a lot of money through acquiring machinery and lots of chemicals for water filtration and purification.

FACTORS THAT HAVE LED TO THE DISAPPEARANCE OF CLEVELAND AND MONAVALE VLEI WETLANDS ECOSYSTEMS

CULTIVATION

Streambank cultivation is one of the major threats to wetland, particularly in the Cleveland Dam area by residents from surrounding suburbs such as Mabvuku, Chikurubi and Epworth. This activity does not only affect one segment of the ecosystem, but carries long with it several problems for the environment. Streambank cultivation has led to an increase in runoff, leading to the siltation of the dam and thereby reducing its carrying capacity. Cultivation has also led to eutrophication of the dam, leading to invasive water plants such as the water hyacinth that affects the survival of water-dependent plants and animals. High use of chemicals and tillage has led to degradation in the soil structure and quality.

CONSTRUCTION

The Monavale wetland is 594 hectors in extent, but the protected core area is 34 hectors in extent. The reduction in the size of the core area has been due to the construction of residential stands, the need for industry and recreational facilities which has also led to the depletion of wetland areas and their value.

INVASIVE SPECIES/EXOTIC SPECIES

The main challenge facing Cleveland and Monavale wetlands is the existence of invasive plant species that have affected the existence of indigenous plant and animal species. Along the driveway entrance to the dam, there is a beautiful scenery of pine trees. They may be beautiful to the human eye, but are destructive to the wetland ecosystem. These pine trees are highly flammable and do not support the growth of any other plant species around them. On the Monavale wetland, the introduction of trees on a wetland that should be grassland has also led to the growth of invasive plants that do not favour the growth of indigenous plant and animal species. Various invasive weeds have engulfed the wetland area leading to disappearance of indigenous plants that existed before. The extinction of one component of the ecosystem eventually results in the extinction of another.

WATER DRAINAGE

The dam that has a water-storing source has been subject to drainage by companies such as ZimForce for commercial purposes. This has posed a threat to the dam's water capacity, especially during the dry season.

MISMANAGEMENT OF WETLAND AREAS

With regards to the Cleveland Dam, the picnic site is meant to be grassland but due to poor management practices, the grassland areas have been turned into vehicle pathways as patrons are allowed to drive into the wetland area. This has led to the destruction of the ecosystem, affecting animal habitats and destroying existing plants and grasslands. The opening up of pathways has led to the loosening of the soil, causing to an increase in runoff and hence, river siltation.

Just as on the Monavale Vlei, creation of footpaths has led to soil compaction, increasing runoff and reducing infiltration, reducing groundwater storage in the long run.

DEFORESTATION

The Cleveland Dam site is a woodland grassland area, where there has been encroachment into the area by residents from surrounding areas in search of firewood and timber from the gum trees. High loss of indigenous trees has been taking place in the woodland area.

POOR POLICY IMPLEMENTATION

The Agency's policy does not offer license of operation to individuals wishing to partake in small-scale activities such as residential or house construction. Local authorities have made it a trend to give out permission to an individual to construct their homes on wetlands. All wetlands in Zimbabwe's towns and cities will disappear within 20 years if municipalities continue on their current model of development. Harare has endured rapid urbanisation and is presently experiencing a substantial shortage of housing. As a direct result of this, most Harare's wetland regions face the prospect of being transformed into residential areas. Others have been converted into a ―hive of commercial operations‖ with housing communities, gas stations and other facilities related with commercial enterprise taking over the area.

CORRUPTION

Corruption within the Agency and governance systems has chocked the existence of wetlands. Due to corruption and political interference, most developers on wetland sites are somehow linked to an individual within the political realm. When issued with a warning or fine, they often ignore or threaten officials using their affiliation to those who are politically influential. Hence, political interference has led to the crippling of the Agency ending in loss of wetlands on massive scales.

CONSERVATION MEASURES APPLIED FOR THE WISE USE OF WETLANDS

EMA is responsible for activities done on the environment as it is responsible for issuing licenses to operate, revoking those licenses, and stopping operations that are detrimental to the environment. EMA supports the Ramsar Convention on the notion of ―wise use of wetlands‖ . The agency also ensures that EIAs are carried out before the commencement of a project to ensure that the wetland ecosystem is not affected. This is also done to ensure that when environmental audits are carried out, the developer is still carrying out operations as per initial agreement when their licenses were issued and if not, fines are imposed on these offenders or licenses for operation are revoked.

The Agency also upholds and commemorates World Wetlands Day every 2nd of February each year. The gives the Agency a chance to facilitate public awareness and educational programmes as these commemorations are done in different parts of the country, both rural and urban. The Agency provides training to 10 local environment action plan community groups. These community groups form pressure groups whose aim is to speak on behalf of the environment. They were created mainly to protect wetlands from urban cultivation for the restoration process to take place. The groups are being trained to facilitate the introduction of soft projects such as the creation of recreational parks on wetlands in their respective areas. The main challenge these communities are facing is lack of funding to kick start their ideas. The Agency raises awareness through engaging stakeholders at all levels through word-based feedback meetings such as television programmes, radio talk shows, use of social media and

engaging schools through school visits where they aim to catch them young.

As argued by the HWT, its mandate is to restore wetlands that have been lost or degraded. The trust lobbies against any developer who wishes to start operations on wetlands. These are taken to EMA and, if
the agency fails to handle the matter, a case is filed in a court of law against the developer by the trust. To protect these wetlands, authorities have put up signs that state and warn that the area is protected and is not a dumping zone, and that any offenders will be prosecuted. With time, such measures have been minimised dumping in the area. The Monavale authority has also tried to protect the wetland area from urban cultivation by employing security guards and routine checks to ensure no cultivation takes place in the area. To minimise or stop nearby residents encroaching into the wetland area to farm, are given food hampers by the authorities.
The Cleveland Dam site is conserved through minimising the introduction of new tree species. Any tree planting projects IN the area are not allowed as this might affect the existence and growth of indigenous trees such as Loquat fruit *(muzhanje)* and Spiny monkey orange *(matamba)* trees that help in the sustenance of wildlife such as monkeys found in the game park. The areas have also been electrically fenced to boost security measures and to also try and stop trespassers. Residents also try to support responsible authorities on the study sites in conserving wetlands. Efforts pointed out includes no cutting down of trees, trespassing, poaching or hunting animals within the demarcated Cleveland area or on the Monavale site.

CONCLUSION AND REFLECTIONS

The Ramsar Convention on wetlands, adopted in the Iranian city of Ramsar in 1971, is an intergovernmental treaty that offers the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The drive for creating the Ramsar Convention was that the overall wetland area and value were deteriorating in most counties of the world, even though wetlands are vital for the benefits of ecosystem services that they offer humankind. The loss and dilapidation of wetlands are taking place due mainly to the

lack of awareness regarding their benefits that can be challenging to quantify. At first glance, wetlands seem like unattractive wastelands of little or no noticeable economic value. Particularly in urban areas, they can be viewed as dumping sites or unwanted grounds. It is, therefore, not surprising that these areas have frequently been considered by the public and planners as fit for infrastructure development.

However, when efforts have been made to study and assess the benefits of wetlands, their value is shown to be substantial, resulting in policy change. This new analysis provides decision-makers with the assurance that the robust decision for the future is to treat the wetland areas as no-development zones. Capturing and publicising good practices is the most effective way to escalate awareness of the value of wetlands internationally. Understanding and quantifying the value of wetlands, whether they are coastal, freshwater, or urban will permit governments to make wiser resolutions on environmental, sustainability, economic growth, and urban development.

The Environmental Management Act needs to be revised in accordance with activities that are taking place on wetlands that have led to their disappearance. As indicated within the findings, the act needs to be revisited and revised, removing some of the clauses that have paved the way to environmental degradation.
An integrated approach to the wise use of wetlands should be adopted, this means including everyone from the grassroots level in encouraging the wise of use of wetlands. Wetlands need to be reclaimed or restored if possible. EMA needs to be consistent with carrying out EIA and environmental audits and offenders have to be apprehended. The judiciary system needs to be more environmentally conscious to make wise judgments regarding the environment. Lastly, re gazetting of wetland areas needs to be done urgently. Re gazetting entails official listing and publication of all wetland areas in the city. All stakeholders, relevant authorities and developers should agree on wetland areas identified as no land-use zones.

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