Policy and Legal Framework of Wetland Ecosystems in Nandoni, Limpopo Province, South Africa

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Abstract

This study investigated the gaps that exist despite policy enactments at international, national, provincial, and local levels regarding wetland conservation and development encroachment at the municipal level, specifically in the case of peri-urban landscapes in Nandoni, Limpopo province. This investigation is set against the backdrop of continued development expansion on wetlands in peri-urban areas, which results in their alteration. Consequently, this exposes theory-praxis policy contestations between the choice of wetland conservation for future generations and land use development initiatives.

Informed by the resilience conceptual framework, the study adopted a constructivist philosophy and a qualitative research approach to guide the data collection. A total of eight purposively selected key informants were involved in the data collection, comprising spatial planners, environmentalists, and traditional leaders. Purposively selected document reviews of wetland conservation laws such as the Constitution of South Africa, the National Environmental Management Act, the

Water Services Act, the Conservation of Agricultural Resources Act, the Spatial Planning and Land Use Management Act, the Local Government: Municipal Systems Act, the Thulamela Spatial Development Framework, the Thulamela Integrated Development Plan, and the Thulamela Land Use Scheme were used to help triangulate the study's claims.

The findings reveal that various activities, such as brickmaking, farming, and residential development, have adversely affected wetlands in Nandoni's peri-urban villages of Budeli, Mutoti, and Mphego. These activities have consequently led to wetland degradation in the form of erosion of wetland banks, loss of wetland vegetation, water pollution, and a decline in wetland fauna. This has highlighted a policy mismatch between what is supposed to be followed and what is actually taking place in the planning environment. It is recommended that sustainable practices be adopted to support both the community and the wetland landscape environment, alongside fostering strong stakeholder partnerships informed by existing local policies.

Keywords: Policy, legal framework, wetland ecosystems, Nandoni, ecological resilience.

Introduction

Despite wetland ecosystems having high levels of biodiversity and economic and social significance, they lack sufficient legal protection and face enormous threats from unsustainable activities (Nature and Culture International, 2022). Contemporary studies on the policy framework for wetland ecosystems advocate for ecosystem-based adaptation, which involves people using biodiversity and ecosystem services to adapt to the adverse effects of climate change and promote sustainable development. Turner and Jones (2013) emphasise that much attention has been paid to the formulation and operation of sustainable management strategies for wetlands in recent years. In Africa, the South African government's policy on wetlands reflects the recognition that, to be truly effective, strategies for wetland conservation need to include

a combination of proactive measures for maintaining healthy wetlands, along with actions to reverse past degradation. In South Africa, the rural poor depend on the services that wetlands provide for their livelihoods and utilise the resources at a household level, especially in times of crop failure or drought (Emerton, 2005). Subsistence-level populations prefer wetlands for their agricultural and fishery activities due to their higher productivity. Even though wetlands are clearly valuable, freshwater ecosystems are among Africa's most undervalued resources. As a result, the services that wetlands provide continue to be degraded, either due to a lack of understanding or for short-term economic gain.

In the case of peri-urban villages in Nandoni, namely Budeli, Mutoti, and Mphego, local land use is rapidly expanding, and its associated activities have a significant negative impact. The land near these wetlands is mostly overgrazed and denuded, and are progressively deteriorating from Mutoti village to Muledane as the floodplains are converted into maize fields and small vegetable gardens. The area below Budeli is being developed into fields. Furthermore, gullies and ravines are being stripped of vegetation by people in search of firewood. The southern bank of the river features substantial cultivated fields, particularly maize. Although there are still some wooded areas, especially in the gullies, the region is generally overgrazed.

This research study investigated the policy and legal framework associated with the case, and highlights that despite existing policies, there are continued violations concerning development expansion onto wetland ecosystems. It advocates for the peri-urban community's interaction with wetland ecosystems through the adoption of sustainable practices amid spatial development, facilitated by integrated policy interventions to protect these sensitive landscapes. This systematic inquiry aimed to establish sustainable policy frameworks through stakeholder partnerships and engagement, thereby reducing the policy mismatch between wetland conservation policies and their implementation in the planning environment.

Conceptual Synopsis

Globally, many wetlands have been exploited or used unsustainably, which resulted in a 35% loss of global wetlands since 1970 (Ramsar Convention on Wetlands, 2018). Wetlands and nearby communities share an important relationship. Communities in proximity to wetlands benefit significantly from them, as wetlands provide protection from extreme weather events such as floods, storm surges, erosion, and heatwaves. In addition to these benefits, wetlands assist in water management through their ability to store large quantities of water, replenish aquifers, reduce harmful flooding, mitigate soil subsidence, and buffer drought risk during dry seasons. This, in turn, creates long-term solutions for adapting to climate change while also sequestering substantial amounts of carbon emissions and providing liveable environments for recreation through the integration of wetlands in urban or rural settings.

According to Walker (2020), resilience is the ability to cope with shocks and to continue functioning in much the same way. It is a measure of how much an ecosystem or society can change before it crosses a tipping point into a different state that it then tends to remain in. This study was centred on the concept of ecological resilience, which assumes the existence of multiple stability domains and the system's tolerance of disturbances that enable transitions between stable states. Ecological resilience is defined by the magnitude of disturbance a system can absorb before changing stable states. Resilience is the ability to adapt and change and to reorganise while coping with a disturbance (Oberlack et al., 2018). A resilient system responds to a disturbance by altering the relative amounts of its different parts and how they interact, thereby changing its functioning. It remains the same type of system by learning from a disturbance, which enables it to better handle a similar disturbance in the future. In addition to the characteristics of resilience, governance plays a pivotal role in environmental systems, particularly in wetland ecosystems. This is realised through appropriate policy structures reflected in effective and strategic planning for wetland conservation and the enforcement of development ordinances that result in reduced expansion of

development, in its various forms, of environmentally sensitive landscapes (Herbert et al., 2020). Governance structures, in the form of institutions and policy formulation (plan implementation), are not sufficient on their own and should be complemented by proactive policy implementation plans that will aid in maintaining healthy wetland ecosystems, along with actions to reverse past and ongoing wetland degradation.

Despite the existing policies established at various levels, from national to local and municipal, regarding wetland conservation in peri-urban landscapes, selected villages along the Nandoni Dam experience significant theory-practice gaps, which are compounded by a rapidly expanding economy and a booming population. The choice between conserving wetlands for future generations and pursuing land use development for various purposes, such as residential, industrial, and commercial, becomes a challenging dilemma. Nandoni's peri-urban villages in Limpopo, such as Budeli, Mutoti, and Mphego, face issues, including the expansion of land use development, serious alterations in wetland quality due to encroachment, the overdrawing of water and soil to support brickmaking activities, and the extension of agricultural practices onto wetlands. These challenges undermine the governance structures that are in place for wetland conservation and hinder the development of effective mitigation measures to bridge these gaps in both planning and practice.

Study Area

The study area was Nandoni Dam (22°56'45.00" S and 30°20'07.00" E), which falls under Wards 18 and 19 of the Collins Chabane Local Municipality and Wards 19, 20, 26, 36, and 41 of the Thulamela Local Municipality in the Vhembe District Municipality, Limpopo province, South Africa (see Figure 1). It is located 16 km southeast of the town of Thohoyandou. Nandoni Dam was constructed on state-owned land (Department of Rural Development and Land Reform, cited by Lilimu, 2023) and is administered by three traditional authority territorial councils. These councils are responsible for allocating parcels of land for specific uses by individuals

or organisations. The construction of Nandoni Dam began in 1998 and was completed in 2005. The project was driven by the authorities' desire to upgrade water resource management, alongside the aim of enhancing economic development through water-based recreation and tourism (Department of Water Affairs and Forestry, 2003). Local communities were led to expect that economic development would arise from the recreational use of the dam. It was anticipated that water-related recreation and ecotourism development in the study area would not only create employment opportunities for local communities but also improve their lives and livelihoods. Furthermore, the dam was expected to act as a catalyst for new developments and initiatives in the area to alleviate poverty. This study investigated the policy and legal framework of wetland ecosystems in Nandoni, Limpopo province, focusing on the selected peri-urban villages of Budeli, Mutoti, and Mphego, as shown in Figure 1.

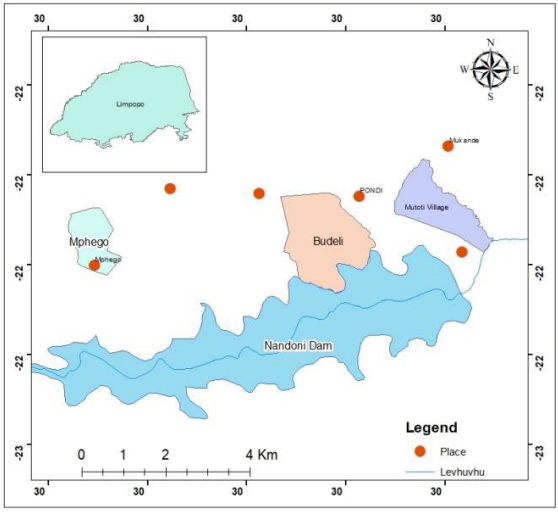

Figure 1: Map Showing the Budeli, Mutoti, and Mphego Villages Along Nandoni Dam in Limpopo Province, South Africa. Source: Researchers (2022)

Research Methodology

Research Design

The research employed a case study descriptive design that was aimed at understanding and describing the ongoing developmental expansion of wetland ecosystems and the resulting alterations in three peri-urban villages, namely Budeli, Mutoti, and Mphego. From a policy perspective, the study reveals gaps between policy theory and practice and highlights the continued violation of policies by residents through human activities, despite operational policies established at both the national and municipal levels. The phenomenon under investigation is the ongoing developmental expansions in these three spatially configured peri-urban villages.

Research Approach

The research employed a qualitative research approach with the main goal of obtaining data through open-ended and conversational communication. This approach not only focused on what people thought but also on why they thought so, which allowed the researchers to engage further in probing and questioning the key informants based on their responses to understand their motivations and feelings. The qualitative research approach was ideal for this study as it sought to uncover responses that highlight the experiences, meanings, and perspectives related to gaps in the policy and legal framework, particularly in the context of the continued expansion of development activities on wetland landscapes despite existing policy provisions. The key informants' experiences were complemented by a document review, which aimed to interpret documents to give a voice to the research (Bowen, 2009).

Sampling Design

The study employed non-probability sampling, specifically purposive sampling, to select key informants such as spatial planners, environmentalists, and traditional leaders, using the researchers' judgement to determine the sample. Purposive sampling was also utilised in selecting key legislation related

to wetland conservation and development monitoring. Table 1 provides a summary of the key informants selected and the legislative frameworks used in the study.

Table 1: Summary of Key Informants and Legislative Frameworks Used in the Study

Key informants	Spatial planners (4)
	Environmentalists (1)
	Traditional leaders (3)
Legislative frameworks	Constitution of South Africa (1996)
	National Environmental Management Act (NEMA) (1998)
	Water Services Act (1997)
	Conservation of Agricultural Resources Act (CARA) (1983)
	Spatial Planning and Land Use Management Act (SPLUMA) (2013)
	Local Government: Municipal Systems Act (2000)
	Thulamela Spatial Development Framework (SDF) 2019-2023
	Thulamela Land Use Scheme (2020)
	Thulamela Integrated Development Plan (IDP) 2021/2022 –2023/2024

The study included eight key informants, comprising four spatial planners from the Department of Spatial Planning, one environmentalist from the Department of Environment at Thulamela Local Municipality, and three traditional leaders from Budeli, Mutoti, and Mphego villages. A total of nine legislative frameworks were selected for document review, as listed in Table 1.

Data-Collection Instruments

The study utilised both primary and secondary data sources, including key informant interviews with spatial planners, environmentalists, and traditional leaders. The data collected

focused on wetland quality, size, and spatial configuration, the degree of development expansion, wetland conservation policies, gaps between wetland theory and practice, as well as policy mitigation measures and the resilience of wetland ecosystems. Secondary data were employed to systematically collect, review, and evaluate legislative framework policy data relevant to the study.

Data Analysis

The responses from the key informant interviews were analysed using thematic analysis. This analysis focused on activities encroaching on wetlands, the causes of these activities, their effects on wetland ecosystems, policies regarding wetland conservation and development encroachment, theory–practice gaps in wetland conservation, and the mitigation measures employed to address policy gaps between blueprint and practice, along with conclusions and policy directions. Document reviews were used to augment the key informant interviews and to ensure data reliability and validity. Legislative documents were examined and interpreted to provide meaning, enhance understanding, and develop verifiable knowledge.

Presentation and Discussion of the Results

This section presents the findings on policies, gaps, and mitigation measures related to wetland conservation and development encroachment. It addresses activities that encroach on wetlands, the causes of these encroachments, the effects of expanding activities on wetland ecosystems, and concludes with policy directions. The findings are based on key informant interview responses and a review and interpretation of legislative frameworks to gain a deeper understanding of how planning policy and practice converge and diverge in the context of wetland ecosystem management in peri-urban areas, specifically in the case of Nandoni in the Limpopo province, South Africa.

Policies, Gaps, and Mitigation Measures in Terms of Wetland Conservation and Development Encroachment

The Constitution of the Republic of South Africa, 1996

In South Africa, the Constitution of the Republic of South Africa, 1996 (as amended), stipulates that spatial planning is the responsibility of all three spheres of government: local, provincial, and national. It further establishes a system of cooperative governance that empowers these three spheres to share both legislative and executive powers (Currie & De Waal, 2001). Through Section 24, all three spheres of government are both effective and responsible for environmental management, and are required to fulfil the primary duty of ensuring environmental protection (Republic of South Africa [RSA], 1996).

Section 24 of the Constitution states that "everyone has the right to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development". The Constitution therefore makes provision for environmentally sensitive landscapes, such as wetlands, and outlines how they should co-exist with their neighbouring communities. If utilised, these resources should be used wisely to ensure their maintenance for present and future generations. Section 24 embodies an environmental right, with Section 24(b) laying the foundation for the development and implementation of legislation and additional supplementary measures to ensure environmental protection while upholding socio-economic development (Herbst, 2015). Wetlands are implied in this environmental right (Cameron & Katzschner, 2017).

The Constitution clearly stipulates the right to property, which is embedded in Section 25 on property rights. In Section 25(1), the Constitution states that "no one may be deprived of property", after which provision is made in Section 25(2) for

the expropriation of property "only in terms of a law of general application (a) for a public purpose or in the public interest" (RSA, 1996). The relevance of this section to the discussion is highlighted by the interpretation of public interest as articulated in Section 25(4)(a), where the Constitution directly states that "the public interest includes the nation's commitment to reforms to bring about equitable access to all South Africa's natural resources" (RSA, 1996). Section 25(4)(b) further states that property is not limited to land. The significance of this right lies in its impact on natural resource management decisions made by establishments based on property rights. A strong interdependence between property ownership and environmental protection has been established, particularly where there has been successful protection and conservation of wetlands based on their location. This relates to wetlands being better protected and managed in areas where land is owned by the state, thereby enhancing management decisions and accountability (Adger & Luttrell, 2000).

Another relevant section is Section 27(1)(b), in which the Constitution provides for a right of access to sufficient food and water (RSA, 1996). This right is relevant in the context of the multiple value systems that wetland ecosystems benefit. The social value that is attributed to wetlands for sustainable livelihoods has a direct link to access to water and water quality issues. Moreover, the section on the water regime examines in detail the upholding of this right.

Section 32 enshrines the right of access to any information held by the state, as well as any information held by another person that is required for the protection of any rights (RSA, 1996). This right is central to the successful protection and conservation of natural resources, including wetlands. A lack of access to information results in the public's inability to participate properly and actively in environmental decision-making processes (Fabricius et al., 2003). The state has provided a legislative measure in the form of the Promotion of Access to Information Act, No. 2 of 2000, which outlines comprehensive procedures that must be followed to enable the realisation of this right.

Another relevant right is discussed in Section 38, which provides for the enforcement of rights. This section allows anyone listed therein to approach a competent court if a right in the Bill of Rights is infringed or threatened (RSA, 1996). This right empowers any citizen of the country to become involved, which implies that any member of the public has the right to approach a court to take suitable action to promote the sustainable use of natural resources (Fabricius et al., 2003). This includes wetlands and aligns with the provisions of Section 38(d), which specifies that "the persons who may approach a court are … (d) anyone acting in the public interest". This could include the environment when read alongside the aforementioned Section 25 and, more importantly, in conjunction with the environmental right in Section 24 (RSA, 1996).

The peri-urban populace is not excluded from interactions with natural landscapes such as wetlands, as demonstrated by various activities and their effects in the villages of Budeli, Mutoti, and Mphego. There are violations of the laws concerning wetlands in these areas. The key informants highlighted several examples: in Budeli and Mutoti, residential development has expanded onto wetlands, and in Mphego, brickmaking activities have degraded and polluted wetlands, leading to a loss of surrounding wetland vegetation. Additionally, farming in Mphego has converted wetland sites into croplands, while overgrazing and the retrieval of medicinal plants in Budeli and Mutoti have further contributed to the loss of wetland vegetation. These scenarios, reiterated by the key informants, violate the rights enshrined in the Constitution, as neighbouring communities to natural landscapes are not co-existing and are not using wetlands and their resources wisely, which create an imbalance. The interdependence between land ownership and environmental protection enables the state, through collaborative measures, to intervene in cases of land violations in order to mediate and rectify these issues. In the case of Nandoni's peri-urban villages, where violations involving wetland ecosystems occur, the local authority is not excluded

from decision making, as it is an active stakeholder in natural resource management.

The National Environmental Management Act (NEMA), No. 107 of 1998

The NEMA provides a national framework for environmental governance in democratic South Africa (Cameron & Katzschner, 2017). According to Du Toit (2016), the NEMA addresses several weaknesses found in previous environmental laws. The Act refines and expands the definition of the term "environment" from the original definition provided. It specifies the types of surroundings and conditions, and articulates the properties and circumstances that influence the health and well-being of humans (RSA, 1998). The Act further provides 18 environmental principles that are critical for environmental management and form the basis for all decision making that impacts the environment across all spheres of government (RSA, 1998). It does this by outlining specific principles in Section 2, which can be grouped into the following themes: sustainable development, decision making and cooperative government, environmental assessment and management, environmental justice, and stakeholder engagement (Rossouw & Wiseman, 2004). These principles are relevant to wetland conservation, protection, and wise use, as they relate to the maintenance of ecological character through the avoidance of biodiversity loss, pollution control and mitigation, and remedial measures where pollution has occurred (Herbst, 2015).

In line with Section 24 of the Constitution, section 2(2) of the NEMA states that environmental management must place people and their needs at the forefront of its concerns, serving their physical, psychological, developmental, cultural, and social interests equitably (RSA, 1998). This provision indicates that the benefits of wetlands must also serve people and their needs equitably. The principles of sustainable development, as outlined in Sections 2(3) and 2(4)(a)(vi) of the Act, are relevant for the wise use of wetlands. Additionally, the environmental assessment and management principles detailed in Sections 2(2) and 2(4)(a) of the Act legislate pollution control and impact assessments (RSA, 1998). For example, in Section 28, the

NEMA prescribes a general duty of care not to cause significant pollution or degradation of the environment and, where harm is unavoidable, to take measures to reduce or stop the pollution (RSA, 1998).

In an instance where an emergency incident affects a wetland, the response procedures prescribed in Section 30 of the Act should be followed (Cameron & Katzschner, 2017). Such emergency incidents are defined in the Act as unexpected sudden occurrences, including major emissions, fires, or explosions that pose a danger to the public or can potentially cause serious pollution of, or harm to, the environment, whether immediate or delayed (RSA, 1998). The NEMA includes provisions for Environmental Impact Assessments (EIAs) that relate to environmental protection in new development ventures or projects undertaken by various stakeholders, including the local community. This strengthens the protection, conservation, and rehabilitation of sensitive environments, including wetlands (Herbst, 2015). EIA regulations and integrated management are regarded as key references for the protection and conservation of wetlands.

Local residents of Budeli, Mutoti, and Mphego are utilising wetlands and their resources. However, as evidenced by key informant responses, they are not using these resources equitably. The ecological character of the wetlands in these villages is being altered, which results in pollution, degradation, and an ineffective approach to policy enforcement. As a result, remedial measures to control and mitigate wetland violations are proving to be a dead end.

The Water Services Act, No. 108 of 1997

The policy applies to defined categories of development undertaken near watercourses, whether natural or constructed, within the boundaries of the Thulamela Local Municipality. In urban or peri-urban contexts, watercourses, whether natural rivers or constructed canals, serve the important function of draining stormwater runoff from both developed and undeveloped land, as well as providing natural habitats. The Act advocates for catchment planning, and

states that any development, particularly those within or immediately adjacent to floodplain areas, should adhere to the recommendations contained in the approved catchment and river management plan.

The Conservation of Agricultural Resources Act (CARA), No. 43 of 1983

The agricultural sector remains one of the main drivers of wetland degradation and loss in South Africa (Dini & Everard, 2016). Against this background, the CARA (RSA, 1983) is the most dominant legal instrument that protects and conserves wetlands located outside protected areas, prior to the introduction of the current suite of environmental and water legislation. The Act has the full authority to prescribe how natural agricultural resources should be used in the country (Herbst, 2015). In the 1980s, the CARA gained recognition for its relevance and effectiveness regarding wetland protection and conservation, as it was the only legislation that directly addressed these issues despite its primary objective being the conservation of agricultural resources (Breedt & Dippenaar, 2013). In fact, the CARA is said to have been a crucial law that governed wetland use up until 1997 (Lizamore, 2005). It remains relevant and effective even today.

The Act aims to provide control over the utilisation of the natural agricultural resources of the Republic to promote the conservation of soil, water sources, and vegetation, and to combat weeds and invasive plants (RSA, 1983). It also has direct implications for wetlands in terms of recognising their important role in the agricultural sector. The Act includes provisions for control measures considered crucial for achieving its objectives, as outlined in Section 6(1) (RSA, 1983). These control measures, explained in section 6(2), relate to various activities that are aimed at maintaining the production potential of land, combatting and preventing the erosion and destruction of water resources, protecting vegetation, and addressing weeds and invasive plant species, or any other activities deemed necessary at the minister's discretion to fulfil the objectives of the Act (Siyaya, 2015).

Some of the specific provisions in Section 6(1) where the minister may prescribe required control measures include (e) the utilisation and protection of vleis, marshes, water sponges, water courses and water sources; (f) regulating of the flow pattern of runoff water; and (g) the utilisation and protection of the vegetation (RSA, 1983). These provisions are relevant for wetlands.

Regulation 15B(9) states that unless authorised in terms of the National Water Act, no land user shall allow Category 2 plants or invasive plant species to occur within 30 metres of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam, or wetland (RSA, 1983, p. 5). With all the institutional and governance changes that South Africa has undergone in the new democratic dispensation, another concern regarding the CARA is that it does not have jurisdiction in urban areas located in municipal boundaries, due to the exclusions stated in Section 2(1) of the Act. The country was demarcated in 2002 into district areas that fall under district municipalities, separate from metropolitan municipalities.

This concern arises from the growing subsistence farming occurring in urban and peri-urban areas. However, according to the Department of Agriculture, Fisheries and Forestry, this concern is not valid, as no such case has been tested in court thus far (Lizamore, 2005).

In the peri-urban villages of Nandoni, it is evident from the key informants that subsistence farming is practised extensively, to the point of expanding onto wetlands. Enforcement is close to minimal, as peri-urban land is owned by traditional leaders and some of the land has not yet been promulgated by the Thulamela Local Municipality. This situation makes control difficult. Furthermore, what is enshrined in the CARA is not being met on the ground. In Budeli and Mutoti, the flood line is not being upheld in terms of restricting development activities close to it. Residential development is expanding beyond the stipulated flood line in

these villages, which has been reported to pose future threats in the event of flooding.

The Spatial Planning and Land use Management Act (SPLUMA), No. 16 of 2013

The SPLUMA provides the framework for all land use management and spatial planning legislation in South Africa. This Act has numerous aims, including the regulation of planning procedures and decisions addressing spatial imbalances that resulted from the apartheid era, and ensuring the integration of sustainable development principles in land use planning and regulatory tools. According to the SPLUMA, all spheres of government must prepare spatial plans; however, land use management is the responsibility of municipalities, in collaboration with local traditional councils. The SPLUMA requires local municipalities to develop land use management systems, including the implementation of IDPs and municipal SDFs, along with associated land use guidelines. In the case of the Nandoni peri-urban villages, which are under municipal jurisdiction, development should adhere to what is outlined in the municipality's SDF and IDP regarding the sustainability goals of equity and inclusiveness.

The Local Government: Municipal Systems Act, No. 32 of 2000

The Local Government: Municipal Systems Act provides the framework for local government functioning, encompassing integrated development planning, community participation, and service delivery. Under this Act, municipalities are required to prioritise development and service delivery that are financially, socially, and environmentally sustainable. Environmentally sustainable development and service delivery should aim to ensure that the risk of harm to the environment and to human health and safety is minimised to the extent reasonably possible under the circumstances, the potential benefits to the environment and to human health and safety are maximised to the extent reasonably possible under the circumstances, and that legislation intended to protect the environment and human health and safety is adhered to. In the case of Nandoni, the

findings from the data sources revealed a mismatch between natural resources and their utilisation, including development pursuits. The utilisation of natural resources in various human activities is surpassing conservation efforts, which compromises the needs of present and future generations.

The Thulamela Spatial Development Framework (SDF), 2019-2023

The SDF is part of a hierarchy of integrated plans that make up the land use management system currently being established to manage land use and development within a municipal jurisdiction, such as the Thulamela Local Municipality. The importance of the SDF lies in its ability to guide all decisions relating to the use, development, and planning of land and providing a strategic framework that spatially indicates how the implementation of the city's IDP should occur. The SDF is a five-year plan, which is revised annually in line with the IDP. It provides strategic multisectoral planning guidance concerning development priorities, transport planning, bulk infrastructure, and environmental directives, and it serves as a guide to more detailed local area plans, functional area plans, detailed precinct plans, and land use schemes.

The Thulamela Integrated Development Plan (IDP), 2021/2022 – 2023/2024

The Thulamela Local Municipality's IDP addresses key strategic issues identified in the National Spatial Vision and the Provincial Growth and Development Strategy. These issues include job creation, reversing the effects of apartheid, and improving access to quality education, healthcare, and social protection, as well as transitioning to a low-carbon economy. The IDP emphasises that to effectively manage development and minimise impacts on the natural environment and its associated ecosystem services, spatial planning must be enhanced and better aligned with the municipality's strategic development plans.

The Thulamela Land Use Scheme, 2020

A scheme is a tool used by municipalities to guide and manage development in accordance with the vision, strategies, and policies of their IDP and SDF, as well as the interests of the public, to promote sustainable development and quality of life. The Thulamela Local Municipality is the authority responsible for enforcing and executing the provisions of this scheme. As outlined in the SPLUMA and the Thulamela Municipality Spatial Planning and Land Use Management By-Laws of 2016, a land use scheme must be consistent with the municipal SDF and determine the use and development of land in the municipal area to which it relates, in order to promote minimal impact on public health, the environment, and natural resources, as well as social inclusion and efficient development. However, considering the study, current development does not sustain the environment and contradicts the principles enshrined in the Act.

Activities That Encroach on Wetlands

Recreational and Fishing Activities

Data collected from most of the key informant interviews revealed that recreational activities are taking place on wetlands in Budeli and Mutoti villages. It was further reported that some of the wetlands associated with these activities are privately owned by influential businesspeople in Thohoyandou. Wetland sites in these villages were noted to attract tourists, as well as recreational events such as Flower Garden festivals, weddings, and corporate gatherings, inspired by the surrounding nature in the form of vegetation and local species. The key findings highlight that the community members in Budeli and Mutoti engage in fishing activities along the wetland banks and rely on aquatic life, such as fish, as a source of food.

Retrieval of Medicinal Plants

The findings from the key informants, namely spatial planners, environmentalists, and traditional leaders, revealed that in Mutoti, wetland vegetation is primarily used as a source of medicinal plants by traditional herbalists and local villagers.

The collection of these wetland medicinal plants is often accompanied by worship activities around the wetland area. This indicates that wetlands, in this case, provide a dual function of provisioning and cultural ecosystem services. However, this practice is leading to the disappearance of native medicinal herbs due to overharvesting, with negative effects on the surrounding wetland ecosystems.

Grazing of Wetland Vegetation

The study results, based on key informant interviews with spatial planners, environmentalists, and traditional leaders, suggest that there is overgrazing of wetland vegetation by local community livestock, such as cattle, in Budeli. This practice, cited as being intensive, is leading to the deterioration of the quality of wetland vegetation.

Residential Development

The data collected from the key informant interviews revealed that the Budeli, Mutoti, and Mphego communities have benefitted from residential development, which has, however, adversely led to expansion onto wetland sites. In Budeli, some of this residential development has extended beyond the flood line. These expansions are deemed illegal by the local authority, and the traditional leaders are responsible for land allocation regarding rural or peri-urban land.

Brickmaking

The findings revealed that Mphego village is experiencing a unique activity of brickmaking that benefits the local community while contributing to wetland encroachment in the area. The key informants highlighted that brickmaking is considered a mining activity and is therefore deemed illegal by the Thulamela Local Municipality. The process involves digging up soil to manufacture bricks, and water from the wetland is also used in brick moulding.

Farming

The data collected from the interviews disclosed that farming activities in Mutoti, in addition to residential development, are leading to wetland encroachment. This process has resulted in the conversion of wetland areas being cleared for the cultivation of various crops that the villagers rely on for food.

Causes of Wetland Encroachment Activities

Poverty

The findings from the key informant interviews revealed that poverty leads to wetland encroachment, as villagers engage in activities close to wetlands to augment their livelihoods. Data collected through the interviews indicate that most people residing in Budeli, Mutoti, and Mphego are unemployed and lack decent sources of income, which contributes to their poverty. To earn a living, the residents turn to the environment for livelihood activities as an adaptive measure, which includes brickmaking, carpet weaving, and farming. While these activities sustain them, they have serious consequences for the environment. Activities are carried out on wetlands due to the availability of natural resources such as water, soil and reed vegetation found in these areas.

Population Expansion

The findings from the data collected from the key sources revealed that population expansion, which has led to new household formation, is also a contributing factor to wetland encroachment. The historical background on the relocation of affected households when the Nandoni Dam was built from 1998 to 2005 indicates that people were settled in villages close to the dam as a proactive measure. All the key informants highlighted the Nandoni land compensation issue as a contributing factor to population expansion, as there was no readily available land to offer as an alternative, and following the land resettlement and compensation, the population increased in the peri-urban villages of Budeli, Mutoti, and Mphego. This resulted in the creation of inequalities that affect the locals' quality of life.

Wetland encroachment is viewed as a coping strategy to make good use of the natural resources found within them. It was reported that this arises from the understanding that wetlands are naturally occurring, free, and not owned by anyone, from the villagers' perspectives, thus allowing anyone in the villages to access them for their own benefit without facing any confrontation.

Poor Planning

Poor planning in the context of land resettlement during the construction of the Nandoni Dam was a significant finding regarding the causes of wetland encroachment identified in the study. It was noted that people were not supposed to be resettled close to the Nandoni Dam in the first place, as this area is characterised by wetlands. The planning process was viewed as reactionary, leaving villagers with little or no option other than to settle in environmentally sensitive areas. It was emphasised that a proper resettlement plan is needed to preserve the area near the Nandoni Dam to ensure that the wetlands remain in their natural state without any (further) development.

Weak Enforcement Coupled With Greed

The findings also revealed that weak enforcement by the local authority is a cause of continued wetland encroachment. Data collected from the key study sources showed that the issue of land ownership, coupled with land tenure systems that facilitate easy and cheap land transactions, has increased the level of wetland encroachment in the selected peri-urban villages. Traditional leaders have the mandate over rural land allocation; the local authority therefore has no voice but comes in to manage what has been deliberated. It was highlighted that this disjointed incremental planning approach in the selected peri-urban villages under study, particularly regarding enforcement by the local authority, leads to a dead end in the case of Mphego, which is characterised by brickmaking (a mining activity by law) and involves notice issuance in cases of non-compliance. The issuance of three notices implies litigation as the next stage of dispute resolution, and due to the fragmented

power of the local authority, the case will not yield a desirable outcome, as the local authority lacks the land mandate in the area of jurisdiction. The process of law enforcement therefore becomes a repetitive cycle.

Lack of Education on the Benefits of Wetlands to the Environment

The findings from the key sources indicate that a lack of education or awareness of the benefits of wetlands to the environment is another cause of wetland encroachment. It was noted that local residents need to be continuously educated on the advantages of the natural environment in contrast to development activities that lead to environmental deterioration. All the key informants strongly agreed that being equipped with adequate knowledge would foster a change in mindset in seeking to balance the competing demands of livelihoods with the sustainable use of natural resources.

Effects of Activities Expanding Onto Wetland Ecosystems

Alteration of the Size and Quality of Wetland Sites

The findings from the data collected from the key sources revealed that adverse effects from urban development encroachment activities are compromising the size and quality of wetlands surrounding ecosystems. Brickmaking in Mphego village was cited as having detrimental effects on both the surrounding ecosystem and the wetland itself. These effects include water pollution affecting water quality, the removal of soil from wetland bodies and banks, which leads to wetland degradation, and the destruction of natural vegetation during the soil excavation process for brickmaking, which affects the ecosystem balance. The findings also revealed that Budeli and Mutoti are experiencing solid waste dumping in some of their wetland bodies, which affects water quality, aquatic life, and aesthetic quality.

Conversion of Wetland Sites to Other Uses

The alteration of wetland sites through conversion to other uses, such as farmland, and their subsequent disappearance have

been identified by the key informants as having a significant effect through the activities conducted on the wetlands by local villagers. Farming, as a human activity in Mphego, has also been highlighted as a factor that leads to the conversion of some seasonal inland wetlands into agricultural land, which results in the disappearance or drying up of these wetlands. This has led to the introduction of new plant species that may not co-exist harmoniously with natural wetland vegetation; as a result, some invasive species have been introduced in the process. The use of fertilisers in these agricultural activities has affected the mineral composition of the wetland soil, which in turn influences the type of vegetation and how it copes in the altered soil environment.

It was also noted that in Budeli and Mutoti, land clearing to accommodate recreational facilities has destroyed the natural vegetation. Furthermore, some visitors to these areas (tourists) dump solid waste, such as plastic and metal, which may not be biodegradable. This waste negatively affects the aesthetic beauty of these wetlands and harms or interferes with the aquatic life in these wetland systems.

Grazing of livestock is another human activity that has led to instances of overgrazing, which affects the state of natural vegetation. The turnaround time for vegetation growth is lengthy, which impacts the ecosystem; other wetland organisms that rely on such vegetation for survival could be affected, potentially leading to extinction.

Land Tenure System

The key findings revealed that the land tenure system that allows cheaper and easier land transactions in Budeli and Mutoti has led to illegal residential development, which results in the destruction and eventual disappearance of the wetlands. This is primarily due to the use of impervious building materials that prevent water seepage to their foundational structures and surrounding properties. Additionally, it was noted that some of the residential and commercial developments do not follow proper EIA procedures; consequently, these projects incur more costs than benefits to the surrounding ecosystem.

Conclusion and Policy Directions

This study concludes that the reviewed policies advocate for wetland conservation or protection; however, in practice, there is a mismatch due to human engagement with the local villagers residing in the selected peri-urban villages. This is evidenced by documented activities taking place on wetlands and the negative effects they produce. The policy directions proposed in this study recommend that there should be a balance between environmental protection and the pursuit of socio-economic development. The neighbouring peri-urban communities should co-exist with wetland ecosystems, using them wisely and sustainably in a manner that reduces pollution and ecological degradation. Continuous monitoring of the interactions between neighbouring communities and natural landscapes is essential, and must be supported by enforcement, fines, and incentives aimed at reducing wetland degradation. Furthermore, there is an interdependence between property ownership and the environment, and the local municipality, in this case, the Thulamela Local Municipality, has the legal right to enforce activities that it deems detrimental to the environment.

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