



Impact of Human Activities on Wetlands in Kampala: Critical Reconciliation of Ecological Sustainability and Human Development

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Abstract. Wetland ecosystem services are central to a nation's sustained growth and development. For this reason, human development ought to be undertaken while maintaining the ecological character of wetlands if meaningful sustainable development is to be achieved. However, in Kampala, we are witnessing unwise use of wetland resources, ranging from pouring of untreated wastes (sewerage and industrial effluent) and reclamation (for settlement and industrial construction). This article examines the impact of these activities on the wetlands in the city. Within the framework of deep ecology and systems thinking, the article maintains that reconciliation of human development and ecological sustainability is vital to the wellbeing of both the humans and wetland ecosystems.

Keywords: Ecosystem services, Economic Growth, Sustainable development

Introduction

The natural environment is central to a country's economic growth and development. In particular, wetlands provide a large array of ecosystem services to humankind. These include: regulating, provisioning, supporting and cultural ecosystem services. Kampala city wetland section is made up of twelve wetlands, many of which drain into Lake Victoria (NWCMP 1996). We chose to investigate the impact of human development on wetlands in

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Kampala city because of their strategic importance to human wellbeing and their centrality to the city's economic growth and development.

The 2002 Uganda Statistical abstract (UBOS, 2002) revealed that Kampala's annual growth rate was 5.61% absorbing 40% of the total national urban population. Kampala is not only the political seat of the country but also the industrial and commercial hub of Uganda. As Lwasa (2005) rightly points out, policies for Uganda's economic transformation have mainly been pursued from and around Kampala through industrialization. This has paved way for rural to urban migration in search of employment and 'better standards of living' thus causing stress on the city's resources.

Grounded in deep ecology theoretical underpinnings, this article explores the impact of human development on wetlands in Kampala city. With reference to views of eminent scholars, we endeavour to advance our critical thoughts as to why there is need to reconcile ecological sustainability and human development. Our argument is that there ought to be a trade-off between the two if the city is to achieve meaningful sustainable development.

The methodology approaches used in the collection of relevant data included documentary review, observation techniques and key informants interviews. We critically reviewed reports on wetlands from Kampala Capital City Authority (KCCA), National Environment Management Authority (NEMA) as well as documents from Uganda Bureau of Statistics (UBOS). Also, secondary data on similar case studies both within Uganda and in other countries was referred to. Observing the human activities taking place along wetlands gave us a deeper appreciation of the benefits, opportunities and challenges associated with reconciliation of human development with ecological sustainability. In view of this, Kaplan (1996, p.11) underscores the importance of unbiased observation in 'allowing us experience the effects of development as they manifest around us.'

Key Terms

According to the Uganda National Environment Act, Cap 153 under Section 2 (quoted in Aryamanya-Mugisha 2011, p.11) wetlands as areas permanently or seasonally flooded by water where plants and animals have become adapted to the prevailing conditions. For the purposes of this paper, wetlands will take on the definition of the Ramsar Convention (Article 1.1) as,

'...areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres' (www.ramsar.org).

Economic growth will hereafter be conceived as improvements in productivity, which involves producing more goods and services with the same inputs of labour, capital, energy and materials (Concise Encyclopaedia of Economics 2007). Conversely, economic development will refer to the multidimensional process through which an economy is transformed from a backward state into a modern state where people can easily access enough life sustaining requirements (or basic needs of life) without compromising the ability of future generations to meet their own needs.

Cognizant of the fact that the social, economic and environmental aspirations of any nation are interrelated and complementary, sustainable development will be conceived as development which meets the needs of the present generation without compromising the ability of future generations to meet their own needs. This was also the position taken by the world leaders in the 1987 Brundtland report. Thus, we (humankind) ought to take into account the impact of present decisions on the options of future generations. In the context of Uganda and probably in other developing countries, political will of the leaders is equally essential if ecological sustainability is to be realized.

The concept of ecological sustainability will be interpreted basing on the New Zealand Resource Management Act of 1991, section 6, wherein ecological sustainability refers to,

“...managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while sustaining the potential of natural and physical resources to meet the reasonably foreseeable needs of future generations; safeguarding the life supporting capacity of air, soil and ecosystems; avoiding, remedying, or mitigating any adverse effects of activities on the environment....”

From the above definition, what is evidently clear is that the diversity of life and the foundation of its productivity have got to be maintained. Also, ecological sustainability entails meeting human needs without compromising the health of ecosystems.

Human development is defined in the Human Development Report (1990, p.10) as a process of enlarging people's choices, namely: a long and healthy life, to be educated and to enjoy a decent standard of living. The report further recognizes that 'whereas income is a good proxy for all other human choices, it is only a means and not an end'. In our view, enlarging people's choices so that they can live full and creative lives is a very good idea which would even carry more meaning if it were linked to ecological sustainability.

Likewise, the Uganda Human Development Report (2005, p.7) recognizes the importance and close linkage of the environment to sustainable human development by affirming that human beings are the focus of sustainable development. Hence, they have a human right to a healthy and productive life in accord with the natural world.

Theoretical Review

This paper is underpinned within the framework of deep ecology. In his paper 'The Shallow and the Deep, Long-Range Ecology Movement', Naess (1973) called for an environmental orientation that would go beyond anthropocentrism (human-centeredness) and reform conservationism that was only inclined to adjusting environmental policy. Similarly, Sessions (1995) advances another critical aspect rooted in the deep ecology school of thought-the need for deep questioning about 'environmental issues and policies, fundamental cultural beliefs and probing the fundamental causes of environmental problems facing the world with the aim of generating deep ecological solutions. Naess' ontology (Diehm 2006, p.21) advocates for humanity that does not view itself as separate and distinct from the natural world. Similarly, Devall and Sessions 1985 (quoted in Capra, 1996) contend that the deep questioning intrinsic in deep ecology bolsters human belongingness to the ecological system of the earth. This means that humans do not exist autonomously in the environment but are part of a broader sphere of relationships. One major hallmark of deep ecology, therefore, is its ability to blend well with systems thinking.

We find the idea of 'deep questioning' very essential in critiquing cultural and religious world views about ecological sustainability. In fact, Barnhill (2006) presents a similar argument in his paper 'Deep Ecology' wherein he mentions certain religious philosophies (Buddhism, Native American spirituality, Daoism and Hinduism) as having strong influences on deep ecology. In other words, it can be argued that some religions and cultures inform deep ecology and as such, they could be central in promoting ecological sustainability due to the multitudes of believers they attract.

In support of the above argument, Anderson (1996, p.161) points out that traditional societies used religion to sanction their resource management strategies and that this was largely successful. In a similar way, among the Baganda (largest ethnic group in Uganda) swamps are of both cultural and spiritual importance. They are home to many of our (Baganda) totems (e.g. lung fish, frogs, elephant snout fish and hippopotamuses). According to Ganda spirituality, many wetlands are associated with gods (guardians) who

are believed to punish unsustainable use of wetland/river resources. As a result, clan members have an obligation to protect the wetland ecosystem. The totemic system of the Baganda thus depicts a strong ethical connection between human beings and nature. In light of the above analysis, we strongly concur with the deep ecology theorists insofar as critiquing and questioning religious and cultural beliefs is concerned; those that inform ecological sustainability are promoted and those that do not are rejected.

Countries today are steadily becoming aware of the dangers of environmental degradation as evidenced by the millennium development goal of achieving environmental sustainability (MDG7) by 2015. From observation in both the local and international media, many of the environmental sustainability initiatives are inclined towards shallow (weak) ecology. Shallow ecology perspectives according to Sessions (1995) tend to portray humankind as a master of the environment; all efforts to mitigate ecological problems are geared towards satisfying human interest. We entirely agree with his view which is fast eating up our nations every passing day. For instance, if pouring of effluent into wetlands leads to death of fish stocks-then the right thing to do would be to pass an environmental law barring such an activity so that humans may continue having fish supplies. If wetland reclamation for agricultural use or settlement has caused floods, then it would be wise to resettle the affected people so as to prevent further destruction to property and loss of human life. This is the belief of shallow ecologists. Noble though their initiative to conserve the environment might seem it is highly human centred.

From the above theoretical review, it is evident that the deep ecology school of thought is a more pragmatic approach to solving the environmental problems facing the world today as compared to shallow ecology. Some critics have argued that deep ecology tends to subdue humans (Pepper 1996) to the level of nature in a bid to address ecological challenges. Whereas we agree that some form of human influence over the natural world would be pivotal in addressing ecological concerns (because of the highly developed human mental power), humans are a part of the earth system (Naues 1990, p.88) and cannot survive without the other subsystems (no ontological divide). In support of this argument, Grey (1993 p.463) rightly contends that 'we need to correct an anthropocentric bias in our attitudes to the nonhuman world, and in particular to extend moral concern across time and across species.'

The unwise use (degradation) of wetland resources could partly be attributed to the 'customary arrogance which we display towards the world around us (Kaplan 1996, p.15)' as well as to the prevailing social economic challenges faced by the people of Uganda (particularly the urban dwellers). It

is upon this background that we keen on uncovering the impact of government neo-liberal policies on the health of wetland ecosystems.

Situation of Kampala's Wetlands

Wetlands contribute towards the economic growth of a nation by providing goods and services essential to human well-being. Wetlands offer functional, provisional, cultural and regulatory services.

The most important benefits derived from Kampala's wetlands include improving water quality, conservation of biodiversity, use of papyrus for making crafts (mats) and house thatching (use of papyrus for house thatching is mainly in the city slum areas). Wetlands provide clay for brick making and making of pottery products. Most recently, Makerere University Faculty of Technology started manufacturing affordable sanitary pads (also known as Makapads) using papyrus reeds as a raw material. According to Isingoma, (2006), 90% of the urban poor women and girls do not use (off-the-shelf) sanitary pads but improvise with pieces of cloth and paper due to the exorbitant cost of imported pads.

A report by the UWMD (2009, p.8) on how spatial analysis could benefit wetlands and reduce poverty in Uganda found out that Uganda's 'wetlands supply direct or subsistence employment for over 2.7 million people, almost 10 percent of the population.' The fact that trade and commerce are concentrated around Kampala has resulted into an influx of migrants into the city, majority of whom are from a peasant background.

According to UBOS (2002), 31 out of 172 square kilometres of Kampala city are covered with wetlands. From the time it assumed city status, the population of Kampala has been increasing. Nyakaana *et al* (2004, p.3) contend that,

'...an increase in total population *ceteris paribus* leads to an increase in the demand for goods and services and in turn an increase in demand for environmental resources...'

Whereas the population of Kampala is ever increasing (Table 1), there is no proportionate increase in the amount of social services and housing facilities. This means that provision of adequate social services in rural areas would significantly curb rural to urban migration.

Table 1. Kampala's Population Trends and Projections (1969-2015)

	1969	1980	1991	2002	2006	2010	2015
Population	330,700	458,503	774,241	1,208,544	1,479,741	1,811,790	2,400,000
Growth rate (% p.a.)	-	3.2	4.76	5.61	5.6	5.6	5.6
National Urban Population	747,400	938,503	1,889,622	2,921,981	5,000,000	7,500,000	9,800,000
Kampala as % of national urban population	44.20	48.85	40.97	41.36	29.60	24.20	24.50
National urban population growth rate (% p.a.)	13.73	2.56	10.13	5.46	17.8	12.5	6.1
Kampala % of national population	3.47	3.63	4.64	4.89	5.40	5.51.	6.11

Source: National Population Census Reports 1969 – 2002 and Projections

One of the reasons as to why informal wetland settlements have sprung up in Kampala is partly due to government's neo-liberal development initiatives. In relation to this, Parker (2002) reveals that governments which do not subscribe to the World Bank neo-liberal ideologies are bound to fail in their investment ventures. This is probably why Uganda government opened up the housing sector to private investors. It should be noted that these are profit oriented and many a time, they do not show concern for the ordinary Ugandan (peasant). The 2007 State of Uganda Population Report revealed that Uganda needed 6.1 million houses per annum. Our argument is that whereas engaging (and supporting) private investors in the housing and construction industry might be a good idea, the ideal situation would have been for government to continue providing cheap and affordable housing to the low income earners. This probably explains why certain key social services do not reach the poor communities because they are not priority areas for the private investors. Accordingly, it is no wonder that informal settlements have sprung up in wetlands.

Kampala's wetlands are susceptible to contamination resulting from effluent disposal. Apart from contamination from the informal settlements, there is also large scale pollution emanating from the so many factories that have been constructed in wetlands. This is partly as a result of government

policy of creating industrial parks out of wetlands. In light of this, Wolfgang (2010) observes that Kampala City Council Authority (KCCA) continues to give title deeds and leases for areas recognized as wetlands. Due to the centrality of wetland ecosystems to biodiversity preservation and human wellbeing, reconciling human development and ecological sustainability ought to be integrated in our ways of life. Since wetlands are areas of public interest, neoliberal development perspectives of KCCA (and the government of Uganda) to transfer ownership of large tracts of wetlands to the private sector would put the health of both flora and fauna in jeopardy as well as stifling conservation efforts. We therefore contend that the utilitarian and anthropocentric tendencies of the private sector can better be controlled (and regulated) by governments through their executive, judiciary and the legislative structures.

Uganda Government's Position on Wetlands

In the 1995 constitution of Uganda (Chapter XIII), private ownership of wetlands is prohibited. Anyone operating in a wetland is legally required to have a permit, which is granted by the National Environmental Management Authority (NEMA), after an appraisal is done to determine whether the proposed activity would not 'dent' the environment.

The National Environment Act (Cap. 153) mandates NEMA to be 'the principal Agency in Uganda responsible for the management of the environment by coordinating, monitoring, regulating, and supervising all activities in the field of environment'. However, with the mission of promoting and ensuring sound environmental management practices for sustainable development, neo-liberal tendencies are sometimes reflected in the way NEMA operates. For instance, whereas poor people are easily evicted from wetlands, NEMA has occasionally turned a blind eye on some powerful businessmen and politicians who encroach on wetlands (Tenywa, 2010). Again, this selective law enforcement with regard to environmental management is a clear manifestation of the weak ecology orientation of NEMA.

According to the Uganda National Policy for the Conservation and Management of Wetland Resources (1995), Uganda is a signatory to the Ramsar Convention which oversees wetlands of international importance. Accordingly, many of these sites are recognized for their unique bird species and other endangered aquatic plants and animals. Ramsar initiatives are guided by the philosophy of 'wise use' which entails maintenance of the

ecological character of wetlands within the confines of sustainable development.



Plate 1: Unplanned settlements in a wetland in Kampala blocking water ways and causing floods

Source: Uganda's environment atlas (2009)

The Uganda National Policy on Conservation and Management of wetlands further emphasizes environmentally sound management of wetlands to ensure that other aspects of the environment are not adversely affected. Whereas we commend our government for drafting such a wonderful policy, there are still challenges with regard to interpretation and implementation of environmental laws and policies within our communities. This is because the concept of ecological sustainability has not yet been well understood by the majority of the rural and urban population including the elite. Our interaction with urban wetland dwellers revealed that some of them were not even aware of certain wetland ecosystem services. To most of them (especially the young generation), wetlands are 'wastelands' or dumping places for garbage. This reflects an anthropocentric mindset of citizens that has partly been brought about by government failure to offer sensitization and awareness campaigns on the impact of human development on wetland ecosystem services.

Ecological Sustainability and Human Development

Principle one of the Rio Declaration on Environment and Development (in Johnson 1994, p.11) emphasizes that humans are entitled to a healthy and productive environment in harmony with nature. Uganda being a signatory to the Rio Declaration ought to harness wetland resources in a sustainable way. This was also echoed by the Ramsar 40th anniversary message, 'healthy

wetlands mean healthy people and sustainable livelihoods' (<http://www.ramsar.org>). Hence, there is need for a critical reconciliation of human development and ecological sustainability.



Plate 2: Thick carpet of algae and green smelly water on the shores of Lake Victoria

Source: Uganda's environment atlas (2009)

The World Resources Institute (1992) pointed out that heavy metals and synthetic organic compounds from industries contaminate wetlands and accumulate in the wetland food resources (fish and wetland agricultural food crops). Carcinogenic compounds in wetland food stuffs are harmful to the health of both humans and aquatic life. This could possibly be the reason why cancer incidents are on the increase in the country.

From observation, the destruction of wetlands and natural drainage areas leading to Lake Victoria has resulted into extensive and severe flooding in low-lying parts of Kampala city (cf. Plate 1). Waste from Kampala city flows into the lake through wetlands. It should be noted that excessive nutrients in sewage and industrial waste cause high rates of algae (Plate 2) and bacterial growth (Grossman and Krueger, 1994) which eventually deplete the water's oxygen content to the detriment of the ecosystem. As illustrated in Uganda's environment atlas of 2009 (<http://www.grida.no/files/publications/uganda-atlas-2009.pdf>), waste water flowing into Lake Victoria has 'become more turbid thus negatively impacting on the fish industry by silting up the breeding grounds for fish'. Fish exports are the second largest foreign

exchange earner in Uganda bringing in almost 90 million US\$ to the country (Ponte, 2005 p4). Given the centrality of the fishing industry to Uganda's economic growth and development, human activities that threaten the ecological character of wetland ecosystems should be strongly discouraged.

The untreated sewage discharged in wetlands carries along with it a variety of bacteria and virus that are detrimental to the health of humans, animals and aquatic life. This is due to the fact that many of the Kampala wetland dwellers use pit latrines that are very shallow as a result of nearness to the water table. In view of this, the Climate Change Assessment for Kampala (2009) stated that during heavy rains, pit latrines get flooded leading to contamination of wetlands by faecal wastes. The unwise use of wetlands has often times boomeranged against humans as evidenced by the rampant spread of water related diseases. Typhoid, amoebic dysentery and cholera are rampant in Kampala's slums as a result of water borne pathogens from human waste (Mutono 2010). It is thus incumbent upon humans to harness wetland resources while maintaining their ecological character.

Conclusion

In this paper, we have endeavoured to critically analyze the importance of reconciling human development and ecological sustainability with regard to wetlands in Kampala city. The current environment management initiatives in the city seem to be inclined towards shallow (weak) ecology with the aim of addressing policy issues and satisfying human interests. We therefore contend that the rampant degradation of wetlands, today, requires a more pragmatic approach to mitigate ecological problems. The pragmatism inherent in deep ecology and its ability to question our attitudes, views and beliefs to the nonhuman world (in this case the wetland ecosystem) through systems approach would be pivotal in enhancing reconciliation of human development and ecological sustainability.

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