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The purpose of the *Kuveza neKuumba - Zimbabwe Ezekiel Guti University Journal of Design, Innovative Thinking and Practice* is to provide a forum for design and innovative solutions to daily challenges in communities.

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Names of authors: beginning with the first name and ending with the surname

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Abstract: must be 200 words

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Body: Where the authors are more than three, use *et al.*, 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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Wildlife Conservation and the Law under the Impact of Climate Change in Zimbabwe

MARKNOUGHLER CHIPETIWA¹ AND NOAH MARINGE²

Abstract

The inarticulate major premise of the article is to examine the role of wildlife conservation in mitigating the impact of climate change. This article is premised on the foundation that wildlife plays a pivotal role in mitigating climate change. Since the beginning of time, humans have regarded wildlife as a means to an end. However, in the fight against climate change, there is need for a significant shift of the human mindset as wildlife is important in fighting climate change. This article discusses the effects of climate change, especially on wildlife and also how wildlife can contribute to mitigating climate change in Zimbabwe. It seeks to show how the law can be used as an instrument to protect wildlife threatened by the impact of climate change. The article focuses on wildlife conservation and the law under the impact of climate change in Zimbabwe. The study will show the current legal regime relating to wildlife conservation and determine whether the prevailing laws are sufficient to deal with wildlife conservation, especially under the impact of climate change.

Keywords: legal provisions, climate variability, policy, management

INTRODUCTION

The modern world is battling with the phenomena of climate change. Climate change has been a phenomenon since time immemorial. Human activities such as the burning of fossil fuels and agricultural activities leading to the production of

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greenhouse gases have been linked with climate change. The effects of climate change are being felt in the current contemporary world. Climate change has had various effects on the global environment such as frequent droughts, increases in rainfall from tropical cyclones and rampant wildfires. Wildlife has been directly affected by climate change as it affects the natural environment of the wildlife and wildlife must adapt to suit the changing environment. This has led to diseases, death, increased migration of wildlife and a decrease in wildlife reproduction, just to mention a few. The law is of paramount importance in regulating human conduct. The law has been instrumental in wildlife conservation by regulating human conduct towards wildlife. This is the reason for laws that criminalise conduct that endangers wildlife. It is the inarticulate major premise of this article to determine how the interplay of wildlife conservation and the law can be used against climate change. Therefore, this article discusses the role of wildlife conservation and the law under the impact of climate change in Zimbabwe.

CONCEPTUAL FRAMEWORK

DEFINITION OF KEYWORDS AND CONCEPT

Keywords identified in this study are wildlife, wildlife conservation, law, climate change and the impact of climate change. Wildlife refers to animal and plant species occurring within natural ecosystems and habitats (Protocol on Wildlife Conservation and Law Enforcement, 1999). In this study, wildlife is restricted to undomesticated animals and plants in their natural habitat. Wildlife includes animals, birds and insects that live on their own in the natural environment. Wildlife conservation is the protection, maintenance, rehabilitation, restoration and enhancement of wildlife and includes the management and use of wildlife to ensure the sustainability of such use (Schmitz, 2023).

The law refers to a set of rules and regulations that govern human conduct and other societal relations and is enforceable by the state (Madhuku, 2010). The law, in this case, is seen as a medium which can be used to mitigate the effects of climate change towards wildlife conservation. The law is regarded as a

social catalyst for reform. Climate change means a change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and is in addition to natural variability, observed over comparable periods (United Nations Framework Convention on Climate Change, 1992).

The impact of climate change means adverse changes in the physical environment or biota which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or the operation of socio-economic systems or on human health and welfare. The impact of climate change will be focused on the effects of climate change such as increased global temperatures and changes in rainfall and wind patterns (*ibid.*).

RESEARCH METHODOLOGY

The desk research methodology was used since there was no need to conduct physical research such as interviews and questionnaires. The study made use of secondary information such as textbooks, online articles and publications. Legislation, international conventions, case law and newspaper articles were used as sources of information.

LITERATURE REVIEW

The world's wildlife population has declined significantly in the last century. On average, wildlife numbers declined by 68% between 1997 and 2016 (Chami *et al.*, 2020). Causes of the wildlife decline include exponential human population growth, increasing livestock number, declining rainfall and a striking rise in temperature, but the fundamental cause seems to be policy, institutional and market failures (Ogutu *et al.*, 2016). If such a state of affairs is allowed to continue in the next 50 years, there will be no wildlife to talk about in this world.

The New York Times (Rogers, 2015) reported the killing by Andrew Palmer, an American dentist, of Cecil the iconic black-maned alpha male lion from Hwange National Park and this sparked debate on the issue of trophy-hunting. Cecil is just part of the statistics as a vast number of animals are killed due to trophy-hunting in Africa. From a disinterested perspective,

trophy-hunting can be a source of revenue for economically less developed countries such as Zimbabwe. However, the reality is that trophy-hunting is significantly contributing to the wildlife population decline in Africa. The population of African lions has markedly declined as research shows that there has been a decline of 75% over the last five decades (Loveridge *et al.*, 2022).

The African elephant is being threatened by severe poaching. It is estimated that more than 25 000 elephants were poached in 2011 (Convention on International Trade in Endangered Species of Wild Fauna and Flora, 2011). Even if the current onslaught of poaching stopped, viable populations of *in situ* wildlife in Africa will not survive due to habitat loss. Habitat loss is an African wildlife silent killer (Fitzgerald, 2015). Plants are also part of wildlife. The importance of plants in the natural ecosystem is underestimated. Plants are key for food and habitat that they provide. Plants are key in the purification of air. The world is recording significant declines in plant populations. Half of Britain and Ireland native plants have declined in the past 20 years (Horton, 2023).

Climate change and biodiversity crises are not separate issues and the restoration of animal populations should be included in the scope of nature-based climate solutions. Rewilding animal populations to enhance natural carbon capture and storage is known as animating the carbon cycle (Cromsigt *et al.*, 2018). Wild animals play a critical role in controlling the carbon cycle in terrestrial freshwater and marine ecosystems through a wide range of processes, including foraging, nutrient deposition, disturbance, organic carbon deposition and social dispersal. The dynamics of carbon uptake and storage fundamentally change with the presence or absence of animals (Schmitz *et al.*, 2023). This shows that wildlife is key in reducing climate change and there is need to fight climate change through nature-based solutions such as rewilding.

Wildlife is crucial in fighting climate change. This can be seen by wildlife such as African forest elephants helping reduce carbon by trampling smaller aggressive growing plants and allowing slower-growing trees to become well established and grow taller and such trees store more carbon from the air than

smaller trees (*ibid.*). The African forest elephants have been nicknamed the ‘Gardeners of the Congo’. African forest elephants also been termed ‘environmental engineers’, are providing \$150 billion worth of carbon capture services every year (Chami *et al.*, 2020).

IMPORTANCE OF WILDLIFE CONSERVATION

Wildlife has existed since the beginning of time. Biblical reference shows that wildlife existence predates the creation of human beings (King James Version, 1769). Humans and wildlife have existed together since creation. Wildlife is usually sought by humans for skins, horns and as a source of food. As human needs increased, wildlife has been diminished as these needs have to be satisfied at all costs. The major cause of wildlife destruction is the conversion of natural wildlife habitats into agricultural land and related infrastructure. Vast tracks of forests are being cleared to pave way for human settlement.

Wildlife plays an important role in the existence of human beings. Wildlife is crucial in the maintenance of ecological balance and biological diversity. The term ‘biological diversity’ means the variability among living organisms from all sources, *inter alia*, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems (Convention on Biological Diversity, 1993).

The Convention on Biological Diversity echoes the importance of biological diversity in the economic and social life of human beings. Wildlife plays a key role in biological diversity through processes such as pollination, seed dispersal and decomposition. Wildlife is an asset in biological diversity as can be seen by the way some animals prevent overpopulation in an ecosystem. Herbivores are crucial to biodiversity as they help plant reproduction. Carnivores, on the other hand, are crucial in keeping herbivore populations in check. Decomposers and scavengers are key in breaking down dead organic matter.

Wildlife plays an important part in most countries’ economic activities through wildlife tourism. Wildlife tourism can be a catalyst for community development and benefit rural

communities by stemming rural-urban migration. Wildlife tourism facilitates investments in infrastructure and livelihood opportunities in rural areas, increases demand for agricultural and artisanal goods, employs and empowers women and provides an economic incentive for conservation for communities living alongside wildlife (World Bank, 2018). It is estimated that 80% of trips to Africa are for wildlife watching, making it the most important tourism segment in the region (United Nations Trade World Organisation, 2015).

It is of paramount importance to note that wildlife conservation and climate change are seen as different issues in most cases, but both are intrinsically connected. Fighting climate change positively saves wildlife across the world and while wildlife conservation helps in dealing with climate change. Humans should be aware of the logical fact that climate change harms the very existence of human beings and also wildlife. Ironically, humans and wildlife now have a mutual enemy as the survival of wildlife is key to fighting climate change and, hence, humans have to be the custodians of wildlife.

IMPACT OF CLIMATE CHANGE AND WILDLIFE

The impact of climate change is being felt across all facets of the human existence. The ozone layer is being depleted by greenhouse gases. Temperatures are increasing, leading to the world being warmer. Glaciers are melting resulting in increased sea levels. Droughts are now frequently more prolonged and severe. Wildlife, which has since time immemorial been under human threat, is now suffering a double jeopardy as wildlife is now also being affected by the impacts of climate change.

The rising of global temperatures negatively affects vegetation and water. Wildlife is affected by the changes in temperatures. Herbivores, which depend on the plants, lose their primary source of food. Once there is a problem in any part of the ecosystem, the whole ecosystem is affected. Water challenges in an ecosystem affect the whole ecosystem. Animals require drinking water and any shortages will be detrimental. In 2019, it was reported that 55 elephants had died in Zimbabwe at watering holes showing that such elephants would have walked a great distance to access the water (Al-Jazeera, 2019). In the

year 2022, hundreds of animals died in Kenya preserves as a result of lack of food and water (France24, 2022) This shows that the impacts of climate change are being felt by wildlife significantly.

Most rural communities in Zimbabwe are now battling with the issue of human-wildlife conflict as wild animals are coming into their communities scavenging for food and water. In Kariba, it is common to find elephants and zebras in human settlements (Svotwai *et al.*, 2007). Thus, from this, it can be deduced that there is now increased human-wildlife conflict due to climate change. Humans and wildlife are now in fierce competition for resources required for both their survival such as food and water. Wildlife that finds itself in human settlement is killed in most cases, leading to further losses of wildlife.

In Mberengwa District, hyenas invaded local communities and decimated donkeys, goats and cattle, leading to the impoverishment of the affected people (Ndlovhu, 2023). In November 2020, it was reported that an elderly man had been killed by a pack of hyenas after they pulled him from his bed while sleeping in Chirumanzu central Zimbabwe (Kolirin, 2020). Climate change has had a significant impact on wildlife reproduction (Pilakout, 2023). The shifts in season affect the reproduction of wildlife as some animals can reproduce only during wet seasons and others in dry seasons. As such, the shifts in the weather greatly affect the reproduction of wildlife leading to a decrease in wildlife population. Due to climate change, heat waves have become normal. Heat stress can affect all aspects of reproduction, including gamete development, fertilisation success, parental care and offspring survival (Pilakout, 2023). The net effect of reduced reproduction of wildlife is that there will be an inevitable wildlife population decline.

Wildfires are caused mostly by increased temperatures and heat waves (Chinembiri, 2022). Wildfires harm wildlife habitats and, as such, fires consume large areas of forests which are the primary habitats for wildlife (Chinamatira, Mtetwa, Nyamadzawo, 2016). The direct effects of wildfires can be seen through the high mortality of animals, especially slow-moving

animals through flames and smoke. Once animals lose their natural habitats, they become vulnerable to starvation and predation.

Emerging infectious diseases are now on the rise due to climate change and wildlife is on the receiving end. Increases in temperature and humidity affect wildlife and make them susceptible to infectious diseases. The danger of infectious diseases, such as Sars and influenza, is that they are easily communicable to humans..

Through wildlife migration, infectious diseases are easily transmitted from one geographical location to another. The diseases contribute massively to the death of animals causing an increase in wildlife population decline. Wildlife cannot be immunised or vaccinated against infectious diseases as can be done for humans. In 1994, a climate change-linked canine distemper virus (CDV) decimated a third of the lion's population in the Serengeti National Park in Tanzania (Yong, 2008).

THE FUNCTIONS OF LAW IN SOCIETY

Laws have been in existence since time immemorial. The emergency of the law can be traced back to creation. All human societies have had laws in one form or another. The law qualitatively changed as societies progressed in the course of history. Then, the law was primitive in communal societies. However, it progressed qualitatively over time and the law in the modern world is sophisticated. The major function of the law has been to preserve law and order (Madhuku, 2010). It is propounded that without law, the society would break into unprecedented chaos and anarchy. It is propagated that society is much safer and more civilised through the medium of the law. Without law, it would be survival of the fittest.

The development of the law has been linked to the rise of private property (Marx and Engels, 1847). It is argued that in primitive societies, the law was less developed as all affairs of the society were communal. In a communal setup, there was no private property and the resources and means of production were all shared. This changed drastically with the introduction of private property. There was no great need for law to protect

those with private property. The law changed from being communal to protecting the interests of those with property (Marx and Engels, 1848). This theory is evidenced by the way the law has been protecting a particular group at all stages of human development, from feudalism to modern-day capitalism. During the feudal period, the law protected feudalism. In the slave era, the law protected the slaves. Colonialists were also protected through the medium of the law. In the modern-day capitalist era, the law favours capitalism.

The law has also been seen as a function to oppress certain groups in society (Engels and Marx, 1848). Radical feminists argue that the law has been a means to promote patriarchy since the historical defeat of matriarchy. This argument is given life by how the law has historically oppressed women systematically (Thomas, 2021) It was only in 1920 that there was women's suffrage in the United States (United States Constitution, 19th Amendment). In South Africa, the law was used to entrench apartheid, a system that legitimised racial segregation resulting in political, economic and social domination of native South Africans by the white minority population (Constitution of Republic of South Africa, 1988).

THE LAW AND WILDLIFE CONSERVATION UNDER THE IMPACT OF CLIMATE CHANGE

The law can be used as a positive tool in the fight for wildlife conservation under the impact of climate change. The law is useful in setting standards for wildlife conservation. It is submitted that the law is reactionary in most cases and comes into play only after a problem has emerged. Most laws are promulgated to deal with a particular mischief. This can be seen by the way governments reacted to the global Covid-19 pandemic and set out laws to mitigate its effects.

It is submitted that the law has not responded swiftly to the worldwide reality of climate change. The law has been silent on wildlife conservation under climate change. As such, there is a gap in the law concerning wildlife conservation. The laws on wildlife conservation with particular attention on the impact of climate change are not enough or do not exist at all. There is need for the law to react to and address the challenges being

actuated by climate change so that wildlife protection and conservation can be possible. The way the law may prescribe the amount of carbon content being released to mitigate the depletion of the ozone law, is the same way the law should have measures in place to protect wildlife under the impact of climate change.

In Zimbabwe, the Parks and Wildlife Act [Chapter 20:14] commenced on the 1st of November 1975. This is the principal legislation on wildlife in Zimbabwe. It is important to note that this piece of legislation was promulgated during the colonial era. During this historical period, there were no international legal instruments on wildlife conservation and climate change.

The prevailing international instrument dealing with wildlife in 1975 was the Convention on International Trade in Endangered Species (CITES) (1975), which was meant to ensure that international trade in species would not threaten the survival of such species. The CITES does not make any reference to species being endangered by climate change. The spirit of the CITES probably informed the text of the Parks and Wildlife Act. It is important to note that the Stockholm Declaration (1972) focused only on the environment and did not pay special attention to wildlife and climate change.

It was only in the early 1990s that the world started realising that the natural environment was changing due to climate change. The world was caught unprepared. The Rio Declaration and the United Nations Framework on Convention on Climate Change (UNFCCC) (1992) were internationally promulgated. The Convention on Biological Diversity (1993) was targeted at biodiversity and not specifically related to climate change and wildlife conservation.

The Paris Agreement (2015), also known as the Paris Accords, is an international treaty under the UNFCCC, which is concerned with mitigation of climate change effects such as reduction of carbon and temperatures. Zimbabwe is a signatory to the Rio Declaration, the UFCCC, the Convention on Biological Diversity and the Paris Agreement. Zimbabwe is a dualist state and all international treaties have to be signed first at international

level and then domesticated in Zimbabwe through an Act of Parliament (Constitution of Zimbabwe, 2013).

The Protocol on Wildlife Conservation and Law Enforcement was promulgated by the Southern African Development Community (SADC). Zimbabwe is a signatory to this Protocol. However, the Protocol has not been made law in Zimbabwe. The thematic concern of this Protocol was to establish a common framework for the conservation and sustainable use of wildlife in Southern Africa. This was a positive Protocol as far as wildlife is concerned, but it did not pay attention to how climate change was affecting wildlife conservation. This was a significant drawback given that the greatest threat to wildlife, alongside humans, is climate change. The UNFCCC had already shown how climate change was a reality and affecting the world and, as such, the Protocol ought to have recognised the issue of climate change. This shows that climate change was not regarded as an issue in Africa from the onset. The effects of climate change which are now being felt more in this day were present two decades ago.

Apart from the Parks and Wildlife Act, the Environmental Management Act [Chapter 20:27] is also another principal legislation that is concerned with the environment. The Environmental Management Act, despite being promulgated in 2002 and being amended in 2004 and 2006, fails to acknowledge climate change. This is a significant drawback of the Act. Equally important is that the Act does not concern itself with wildlife conservation.

Not to escape mention is the Forestry Act [Chapter 19:05], which came into force on the 9th of December 1945. This piece of legislation is supposed to be the one dealing with the conservation of forests in Zimbabwe. Forests are important because they are the natural habitats for wildlife. The conservation of forests is key for the preservation and conservation of wildlife. The Forestry Act is silent on climate change and wildlife conservation.

There is an international legal framework focused on climate change as can be seen from the UNFCCC and Paris Agreement.

The international community has responded swiftly to the issue of climate change. The international community is now aware of the fact that there is great need to take urgent action against climate change. In as much as the international community has been alive to the reality of climate change, there has not been much emphasis on wildlife conservation under climate change. Wildlife has not been given full attention, yet it is key in fighting climate change.

At a municipal level, there is no legal framework to deal with climate change. The legal regime in Zimbabwe does not refer to climate change at all. The conventions, protocols and declarations that have been held and made at an international level, have not been made part of the municipal law. There is great need for having these international instruments made part of the Zimbabwean law for purposes of enforcement. The effects of climate change are being felt in Zimbabwe and there is no justification why there should not be urgent action to be taken in the fight against climate change.

The legal regime dealing with wildlife conservation in Zimbabwe is limited. The Parks and Wildlife Act is outdated. The Act does not have any provisions on the impact of climate change. It does not have sufficient provisions for wildlife conservation. At the time the Act came into force, the prevailing concern was to reduce the destruction of wildlife by human beings and hence the criminalisation of specific acts. The greatest modern-day threat wildlife is facing is climate change. Most wild animals in Zimbabwe are dying because of drought and diseases. Gone are the days when poaching used to be a major threat to animals.

It is interesting to note that the Act defines wildlife as all forms of animal life, vertebrates or invertebrates, which are indigenous to Zimbabwe and the eggs or young thereof, other than fish. Under this definition, plants are not defined as wildlife and such is incorrect. There is need for the amendment of the Parks and Wildlife Act so that it has a proper working definition of the phrase 'wildlife'.

The legal regime must be sensitive to the plight of wildlife, especially when it comes to climate change. Wildlife is

particularly vulnerable to the effects of climate change. There is need for laws to deal with the conservation of wildlife under the impact of climate change. Law reform can be done through criminalising the commercial sale of wild fruits and wild plants. Humans are making profits through wildlife, while wild animals are suffering due to a lack of food. It should be noted that wild animals are protected only when they are in national parks and once they are outside such boundaries, they are no longer protected. This is how Cecil the iconic lion was killed. Thus, there is need for law reform in this area so that the law is clear on that hunting wild animals, even outside game reserves and national parks, is a criminal offence.

The Parks and Wildlife Act does not have enough financial provisions. For the Act to be administered efficiently, there is need for a Wildlife Fund to be established in the same way the Environmental Management Act creates an Environmental Fund. A Wildlife Fund will then cater for the provision of food and water for wildlife during periods of drought and also veterinarian provisions in cases of diseases.

A Wildlife Fund will also capacitate the Parks and Wildlife financially so that it can have the necessary personnel and equipment. The issue of wild animals escaping can be minimised if there is funding as this can be used to adequately fence parks and protected areas. If there is enough funding, technology can be used through the use of CCTVs and wildlife animal tagging. Rhinos can be saved from poaching through de-horning as dehorned rhinos are not targeted by poachers. Such a process requires funding and hence the need for the law to enable the establishment of the Wildlife Fund. As of this day in Zimbabwe, wildlife protection is dependent on donor funding. The challenge with donor funding is that it is not sustainable as such funding can be withdrawn, hence the need to have a specific Wildlife Fund.

The major challenge wildlife is facing is the loss of their natural habitat. Vast tracks of land are being cleared to pave way for agricultural activities and human settlement. Human settlements are being created in forests and mountains which are the traditional habitats of wildlife. Wildlife is being displaced

from its natural habitat. It is important that before such land is cleared, there be a wildlife impact assessment to consider if such human developments will not affect wildlife and if the same is affected, how best the situation can be ameliorated.

Thousands of wildlife perished during the construction of Lake Kariba (Svotwa, 2007). This could have been easily prevented if there had been a wildlife impact assessment. The wildlife impact assessment can be a provision that is inserted into the Parks and Wildlife Act. The importance of a wildlife impact assessment is that it protects humans settled in traditional animal habitats who are sometimes at the mercy of wildlife such as snakes. Human-wildlife conflicts have been induced by climate change. Wildlife and human beings are now competing for scant resources. Due to limited pastures, communal farmers are now trespassing into parks and protected areas for grazing land. On the other hand, wild animals are now straying into communal areas for food and water. There is need for laws that specify areas for human settlement. Areas close to parks and wildlife should be reserved to prevent human-wildlife conflict.

CONCLUSION

Climate change is a reality. The world is feeling the impact of climate change. Wildlife is especially vulnerable to climate change. There is a significant wildlife decline been actuated by climate change. The climate change and biodiversity crises are interlinked. Wildlife can be used as a tool to combat climate change. There is need for law reform so that the legal regime dealing with wildlife is sensitive to the plight of wildlife under the impact of climate change. The current legal regime as alluded to above, is outdated and does not provide for the protection and conservation of wildlife.

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