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Climate Change and Health in Zimbabwe: A Legal Perspective

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Abstract
Climate change is becoming a topic of increasing contention in Zimbabwe, especially because its effects are becoming more visible. The effects of climate change are evident in agriculture, water, energy, biodiversity, infrastructure and health. Although legislation exists to address the effects of climate change on health, it is important to assess the adequacy of such, in its mitigation and adaptation responses. The new Zimbabwe Climate Policy provides a long-term response strategy to the impact of climate change and its provisions are commendable. However, successful implementation of legislation and policy is needed to combat the impact of climate change on health in Zimbabwe.
Keywords: climate change, law, malaria, cholera

1. Introduction

Until 2016, Zimbabwe did not have an integrated policy document which regulated its long-term response strategy to climate change. However, there had been various strategies like the Medium-Term Plan (MTP), effective from 2012 to 2015, whose main objective was to develop a National Climate Change Strategy, Climate Change Policy and a National Action Plan for Adaptation and Mitigation. However, the most instrumental piece of legislation in environmental management in Zimbabwe has been the Environmental Management Act of 2002 which doubles as both framework and sector specific legislation.

Located in the southern part of Africa, Zimbabwe is characterized by inconsistent weather patterns. This makes it one of the most vulnerable countries to the impacts of climate change. The Zimbabwe Climate Policy (2016) observes climate to be the main driving force behind most of the country's economic activities. The major socio-economic areas that are susceptible to the effects of climate change are agriculture, water, energy, biodiversity, infrastructure and health. This article will focus on the impact of climate change on health and whether legislative and policy responses have been adequate in addressing this. Hartmann (2002) projects that by 2100, changes in temperature and precipitation could well modify the topographical distribution of malaria resulting in areas which were previously not suitable for dense human population becoming fit for transmission. Other diseases, whose spread is largely attributed to ever-changing weather conditions are expected to spread faster due to climatic changes. Incidences of flooding will intensify occurrences on waterborne diseases like cholera, bilharzia and typhoid, while warmer temperatures will increase the spread of meningitis (Government of Zimbabwe 2015).

2. Climate change in Zimbabwe

Zimbabwe is in a semi-arid region which experiences undependable rainfall patterns. It is a landlocked country bordered by South Africa, Mozambique, Bostwana and Zambia. Unganai (2009) observes that the general average annual rainfall is 650mm but ranges from 350-450mm a year in the Southern Lowveldt to about 1000mm in the Eastern Highlands. Due to climate change early onset of rains, floods and mostly droughts have been the norm for years and this has had a significant bearing on water availability and food security. Mutasa (2008) notes that tropical cyclones and extended dry-spells have increased, both in frequency and intensity, due to climate change. Thus, the climate in Zimbabwe is increasingly becoming warmer with irregular rainfall patterns.

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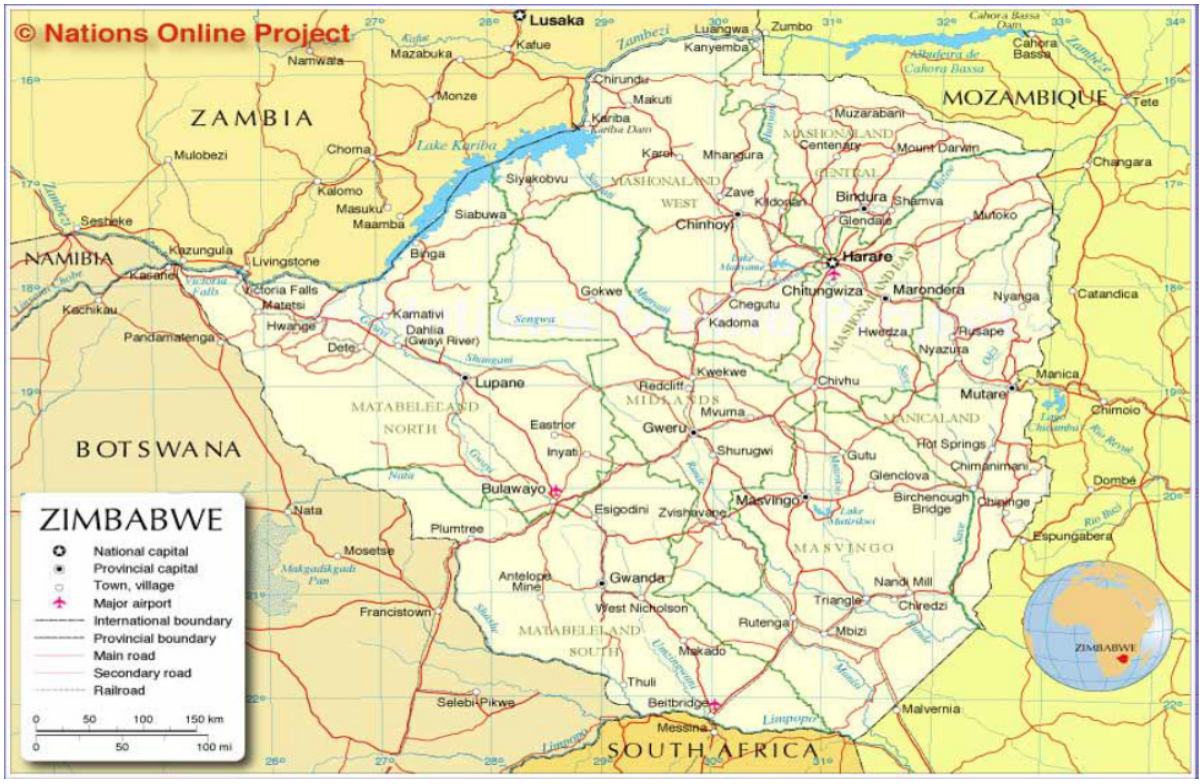

The fact that climate change directly influences the hydrological cycle thereby changing rainfall patterns, runoff and evapotranspiration means that it significantly affects the dynamics of water availability (McMichael 2009). This, in turn, not only affects agriculture and livestock production but also extends to energy and greatly limits livelihood options. In 2008, a cholera outbreak led to human fatalities and this was a direct consequence of extended dry-spells and erratic rains mainly caused by climate change.

3. The impact of climate change on health

Young et.al. (2010) note that complex relationships exist between climate change and health and that these can be challenging to model in a fully integrated way. Frumkin and McMichael (2008) point out that health risks which exist at different levels, like in urban areas and rural areas, may have a direct or indirect impact on the overall health of the population. Therefore, the general state of the population's health is largely influenced by local environmental conditions, socio-economic factors, biological factors and an assortment of social, institutional, behavioral and technological interventions which are implemented to reduce the impact of climate change. Young et.al. (2010) observe that this impact differs by region and will affect certain populations more than it does others.

Climate sensitive diseases like malaria, cholera and bilharzia are a direct consequence of climate change. Luber (2008) states that protracted exposure to high temperatures can result in heat-related diseases like heat cramps, heat exhaustion, heat syncope and heat stroke, which may result in death. The elderly and people with pre-existing medical conditions like cardiovascular disease or those who are on medication, which has a bearing on water and salt balance, are at greater risk of death due to heat-related illnesses (Young et.al. 2010). The consumption of alcoholic beverages, ingestion of narcotics and even manual labour in hot weather are also related to heat-related illnesses (Luber 2008). Kjellstrom et.al. (2009) suggest that high temperatures, which are a common feature of the climate in Sub-Saharan Africa, also affect physiological functioning, accident-proneness, aggressiveness and workplace productivity.

This is by no means an exhaustive list of diseases closely linked to changes in climate. There are many other diseases which may be directly or indirectly caused by unpredictable changes in weather conditions. For the purposes of this article, only malaria and cholera, in the context of Zimbabwe, will be considered as diseases which are related to climate change.

3.1. Malaria

Based on the bioclimatic (BIOCLIM) GIS models for 1992, 1996, and 2000, there is a strong connection between the incidences of malaria, rainfall and high temperatures (GoZ 2015). The years 1992, 1996 and 2000 represented extreme weather conditions such as drought, excessive rainfall and floods, respectively. Furthermore, understanding malaria occurrence in the face of ever-changing weather conditions is of paramount importance in

Zimbabwe as 75% of the country is prone to malaria. GoZ (2015) projects that the malaria hazard for 2080, under the best and worst-case scenario shows that malaria will be more prevalent in the low-lying parts of the country which include Zambezi valley and the South-east lowveld.

There has not been a direct connection found between schistosomiasis, diarrhea and climate (GoZ 2015). However, the fact that there has not been a direct connection established between these does not mean that no connection exists at all. GoZ (2015) suggests that the high occurrence of these diseases can be attributed to sociodemographic factors like high incidence areas, poor sanitation and limited access to clean, safe water. In its grouping of diseases according to regions, WHO (2015) categorizes schistosomiasis under the diseases which strive among the poorest parts of the world, with populations without access to adequate sanitation and extremely limited safe water. Under its Third Communication to the UNFCC, the government of Zimbabwe states that Zimbabwe is committed to reducing the occurrence of schistosomiasis through interventions such as advocating for safe water and sanitation, mass drug administration and school based health education.

3.2. Cholera

WHO (2009) defines cholera as a severe infection that is caused by the ingestion of bacterium vibrio cholerae commonly found in faecally contaminated food and water. Cholera is characterized by a sudden commencement of acute watery diarrhea that can possibly lead to death due to dehydration. Inadequate sanitation facilities during periods of drought or floods is a main contributor cholera outbreaks. According to WHO (2009) cholera has a short incubation period and a high number of infections can be recorded in less than 5days. Cholera affects both adults and children but adults with compromised immune systems, like those living with HIV, are at a greater risk of infection and death.

During the period of August 2008 to July 2009, 98,592 cases and 4,288 cholera deaths were reported by the Zimbabwe Ministry of Health and Child Welfare, with most of cases (61.4%) occurring in communities furthest from health centres (Morof et. al. 2013). However, Nelson et.al. (2009) question the accuracy of these figures due to the real possibility of unreported cases. This suspicion of underestimation originates from the fact that during the cholera outbreak, most reporting clinics were either on strike or closed, therefore, communities, especially those in rural areas, buried their own without informing relevant authorities. Epidemiological data showed an increase in the number of rural cases reported with high death rates amongst the communities in which clinics were shut down (Nelson et.al. 2009)

According to Kapp (2009), Zimbabwe's epidemic proved exceptional due to the excessively high fatality rate of 5.7%- 9% against a target of not more than 1%. In 2008, Africa alone accounted for 94% of cholera cases reported to WHO (WHO 2009). Until recently, Zimbabwe used to be subjected to outbreaks that had started in its neighbouring countries, but it has become the epicentre of cholera outbreaks (Manzungu and Chioreso, 2012). Although Zimbabwe managed to contain the 2008-2009 cholera outbreak with the aid of the international community, whose involvement become dominant from late 2008, a more prepared response to future outbreaks should be adopted to avoid human fatalities.

4. Legislative framework and policy relating to climate change and health

Until recently, issues relating to climate change were addressed mainly through the Environmental Management Act (EMA) of 2002. This law acknowledges the reality of climate change and its impact on the environment and human beings. In as much as there have been policies to address climate change related issues, Brownet.al. (2012) points out that such policies have not been adequate in considering the anticipated impacts and scope of climate change. Zimbabwe has a new climate policy, released in 2016, which is somewhat of a continuation of the Medium-Term Plan (MTP) which was effective from 2011-2015. However, the new Climate Policy of 2016 does not have a limited timeframe but is framed as a long-term response to the effects of climate change. Chagutah (2010) observes that the possible reason why Zimbabwe has not had a long-term response strategy to climate change is characteristic of many developing countries, which is that climate change is usually treated as a secondary issue, both in terms of policy direction and resource allocation. The norm is fragmented sectoral policies in agriculture, water resource management and natural resource management, which would tend to acknowledge the impact of climate change and make accommodation for these but not provide for any form of coordination in terms of responses to climate change. Although a harmonized response strategy to climate change is commendable, resource allocation and implementation are what is vital in combating the effects of climate change on health in Zimbabwe.

4.1. Constitution of Zimbabwe

The Constitution is the supreme law of the land and every other law must be consistent with it (section 2.1). Before a law is passed, it should be tested for constitutional validity meaning that an assessment is done to ensure that each provision in the proposed law is in harmony with the Constitution. If a law is not consistent to the purport and the spirit of the Constitution, then it is deemed invalid and therefore unconstitutional. Section 2

(2) states that the provisions in the Constitution apply to every citizen, institution or agency. No-one is exempt from the rights and obligations imposed by the Constitution, regardless of their post.

Section 73 of the Constitution makes provision for environmental rights and it explicitly states that everyone has the right to an environment that is not harmful to their health or wellbeing. The section states further that it is the right of every person to have the environment protected for the benefit of present and future generations. An obligation is imposed on the state through reasonable legislation as well as other measures that guard against pollution and ecological degradation, promote conservation, and ensure the use of natural resources in a sustainable manner (section 73.1.b). It is of paramount importance to ensure that the environment, within which people exist, is conserved and protected for the sake of present and future generations. This provision ensures that this is realized and the state is placed under an obligation to bring about the progressive realization of these rights.

A legal interpretation of section 73 of the Constitution can be derived from the South African case of *The Director: Mineral Development, Guateng Region and Sasol Mining v Save the Vaal Environment and Others* which explains section 24 of the Constitution of the Republic of South Africa. In South Africa, section 24 of their Constitution is a replica of the Zimbabwean section 73. The court pointed out that the inclusion of environmental rights in the Constitution ensures that these rights are accorded the same recognition and protection as any other rights and are administered through procedures that are clearly set out according to the law.

This environmental right can be enforced through approaching a court of law and alleging that it is being infringed. The court will grant appropriate relief which includes a declaration of rights and an award for compensation. Section 85 of the Constitution lists the capacities of people who can be heard in court alleging such an infringement and these include any individual acting in their own interests, any person who is acting on behalf of a person who is incapable of acting for themselves, any person acting on behalf of the interests of a group or class of people, any person acting in the public interest or any association acting on behalf of its members. Therefore, not only does the Constitution entrench environmental rights, it goes further to ensure that relief can be sought if such rights are violated.

4.2. Environmental Management Act

The Environmental Management Act (EMA) has been the key environmental legislation since its enactment. The main characteristic of EMA is its integrated approach to environmental management, touching on natural resources management, water management, waste management (section 69), pollution control (section 63), access to information and public participation. Although EMA is often viewed as framework environmental legislation, it also provides regulatory elements that are sector specific.

In the principles of environmental management, Section 4 (2) of EMA stipulates that whatever negative effects on the environment that are anticipated must be prevented. In instances where this is not possible, the Act goes further to state that such negative impacts should be minimized and remedied. It can be argued that climate change applies to this section. It is, therefore, the duty of the government to ensure that the negative effects of climate change are minimized and remedied. Also, in environmental management principles, the Act embraces the precautionary principle (section 4 (2) (a), the polluter pays principle (section 4 (2) (f) and the principle of sustainable development (section 4 (2) (g), all of which are pivotal in the era of climate change.

National Environmental Plans are provided for in section 87 to 96. This is a document that spells out the strategies and policies for the protection, restoration and rehabilitation of the environment in Zimbabwe. EMA states that the National Environmental Plan should include the prevention and mitigation of activities that contribute to global climate change and encourage the protection of the ozone layer. The Act acknowledges differences in geographical formation by the provision that states that every local authority must have its own environmental plan for the area under its jurisdiction (section 95). This document ensures that the country is adequately prepared for any changes anticipated due to climate change and that response strategies are in place to face such changes head-on.

4.3. Public Health Act

The Public Health Act seeks to promote the prevention, limitation of infectious and contagious diseases in Zimbabwe. This is to be done through conducting research on the prevention and treatment of human diseases and publishing statistics and reports relative to public health (section 2). In conducting research on the diseases that affect human health, research on the effects of climate change and health falls directly within the scope of the work to be done, under the Act. Furthermore, section 64 of the Act stipulates that local authorities should be responsible for the provision of safe water and the maintenance of water plants. A Chief Health Officer is responsible for making assessments to ensure that the water from these plants is safe for human use (section 67). This guards against contamination of water sources which can also be attributable to the outbreaks of cholera.

4.4. Medium-Term Plan (MTP)

The Medium-Term Plan (MTP) was a strategic development response to climate change which incorporated both the social and economic aspects. This was one of the first attempts of having an integrated response strategy to the county's response to climate change. This document put climate change concerns at the center of developmental strategies and acknowledged the disadvantages that were evident because of climate change. Although, the MTP sought to develop a national climate change strategy and a national climate change policy by the end of 2013, this did not happen until 2014. In 2014, the National Climate Change Response Strategy (NCCRS) was adopted. However, it is important to draw attention to the challenges that the MTP highlighted in terms of policy, in the adaptation and mitigation responses to climate change.

The challenges encountered with the MTP included the uncoordinated policy and institutional framework governing climate change issues. The lack of harmony in most government ministries will always prove counter-productive in responding to the effects of climate change. Another challenge identified was the lack of sufficient funds and technical capacity to conduct relevant research for any long-term planning for responses to the effects of climate change. Resource allocation is as important as capacity to conduct research for climate change. This is because research conducted 10years ago of the extent of the effects of climate change on health may be relevant today, as a point of reference but the results of such a study will be significantly different to the results of the same study, were it to be conducted today. The realization that nothing stays stagnant, in all sectors be it agriculture, health or energy, in the face of climate change is critical in resource allocation.

4.5. Zimbabwe Climate Policy

The main objective of the policy is to climate-proof all the socio-economic sectors to reduce the country's vulnerability to climate change and develop a low carbon pathway (GoZ 2016). The policy has 8 goals which include investment in technical capacity, keeping abreast with everchanging information exchanges and research and honoring international agreements which the country is a signatory of.

Goal 3 of the policy aims to reduce climate variability and climate related disasters by strengthening adaptive capacity. This goal acknowledges the relationship between the economic sectors and the hydrological cycle. These sectors include health and infrastructure and this goal seeks to strengthen surveillance programmes to monitor human health under a changing climate, particularly operational knowledge on climate-disease relationships. Also, under this goal, the government of Zimbabwe, seeks to improve of the provision of early warning systems on droughts, floods and outbreak of diseases associated with these. The importance of coordinated efforts in providing emergency and relief services during droughts or floods, which are already anticipated effects of climate change, cannot be overstated.

Goal 5 of the policy seeks to increase public awareness on climate change and its effects. This awareness is meant to ensure that the public meaningfully participates in making decisions that affect them. This goal seeks to empower the public so that there is successful policy adaptation and implementation of climate adaptation and mitigation projects in Zimbabwe. People need to know why they are supposed to do what climate policies encourage them to do in agriculture, energy and health, to achieve positive results.

Although these goals are noble and would be commendable steps in ensuring that the main objective of the policy is met, it is important to have the resources needed to implement the goals of the policy. Goal 6 seeks to find solutions to financial resource allocation, mobilization and management. As identified in the Medium-Term Plan in 2011, there is still a huge gap in resource allocation for mitigation and adaptation projects. In 2016, the Climate Policy still acknowledges the fact that communities at risk of climatic events like floods and drought still contend with the paucity in adaptation and mitigation funding. Although, the international climate regime provides opportunities for funding, the country still must have the technical capacity to be able to apply for such funding and the know-how to run the adaptation and mitigation projects. At a national level, the government has set out to establish a National Climate Fund which will be supported by a 10% budgetary allocation from the national budget to finance the climate strategies and implementation of this policy. However, it is still questionable if 10% of the national budget will be sufficient to adequately fund the implementation of this policy.

5. Conclusion

The Climate Policy is new, and the success of its objectives is yet to be measured. However, one can deduce from the challenges faced from the previous policies like the Medium-Term Plan, which include gaps in resource allocation that make it impossible to implement the policy, that there is a likelihood that this challenge will be carried over to the Climate Policy. Laws like the Constitution and the Environmental Management Act adequately address concerns related to climate change and health through the environmental right. Although legislation and policy may be adequate to address issues related to climate change and health, there still is a paucity of cases in this area. This may be a suggestion of the public's lack of awareness of its environmental rights under law. The connection between climate change and diseases like malaria and cholera is clear. The mere existence of legislative and policy responses addressing the impact of climate change on health is

commendable but not sufficient. Implementation of these is the key to adequate adaptation and mitigation responses to climate change and health in Zimbabwe.

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