Sub Saharan Africa's response to climate change, an analysis of juxtaposing laws in three selected countries

Iman Lalani

Laidlaw Scholars Program

Supervisor: Vincent Z. Kuuire

September 24, 2021

Research Question: How has the post-colonial context of sub-Saharan Africa affected the region's response to climate change? An analysis of the laws implemented by South Africa, Kenya, and Ghana.

Background

Sub-Saharan Africa (SSA) is a geographically, ecologically, and culturally diverse region that consists of forty-six countries. Despite only producing 4% of global carbon dioxide emissions, it remains one of the planet's most vulnerable regions to climate change (Fields, 2005). The IPCC (2007) defines vulnerability to climate change as "the degree to which a system is susceptible to, unable to cope with, adverse effects of climate change, including climate variability and extremes". The intersection of SSA's existing environmental, political, and socioeconomic conditions causes the region to be disproportionately affected by climate change (Connolly-Boutin & Smit B, 2016).

As a result of climate change, SSA is experiencing temperature rises, variations in rainfall intensity, an increase in desertification, a greater number of extreme weather events, higher rates of disease transmission, reductions in biodiversity and changes in wildlife migration patterns (Connolly-Boutin & Smit, 2016; Fields, 2005). As summarized in Table I, it is predicted that SSA will experience a dipole pattern of wetting with East Africa facing a greater risk of flooding and its associated health and infrastructural implications whilst South Africa will experience more aridity and drought. In addition, West Africa will continue to experience a reduction in oceanic productivity, heightening its food insecurity and unemployment rates. Furthermore, as rural livelihoods become more difficult to sustain, there is expected to be an influx of migration into coastal cities, augmenting the threat posed by sea-level rise (Serdeczny et al., 2017).

TABLE I
Expected impacts of climate change on selected Sub Saharan African countries (Hamilton et al.).

Countries analysed	Crop yields (2050)	Sea level rise (2080)	Diseases (expected to spread)
South Africa, Namibia, Mozambique, Botswana, Zambia, Zimbabwe, Tanzania, Uganda, Kenya, Nigeria, Cameroon, Ghana, Sierra Leone, The Gambia	Decline (10–20%) in Mozambique, Tanzania, Uganda, Botswana and Namibia, Up to 10% decrease in other African Countries.	10 to 50 million people expected to be affected along the coast stretching through Namibia, South Africa, Mozambique, Tanzania, Kenya. Major impact also on Nigeria, Cameroon, Ghana, Sierra Leone and The Gambia.	• Trypanosomiasis • Onchocerciasis • Yellow Fever • Malaria • Schistosomiasis • Filiariasis • Leishmaniasis • Dengue

The projected climate change impacts have significant social and economic costs with dire consequences for human capital and economic development (Ikeme, 2003). The economic implications of climate change are intensified by the region's dependence on agriculture as this source of livelihood is highly susceptible to climate variability. Climate change is shortening SSA's growing seasons as well as diminishing its soil moisture and fertility. The region's agricultural yields are predicted to drop 10-20% by 2050, in the same year SSA's population is expected to reach 2 billion. This will be particularly detrimental as 70% of Africa's workforce is employed in the agricultural sector suggesting that climate change will intensify poverty rates, diminish food security, and initiate a greater number of resource conflicts (Connolly-Boutin & Smit, 2016; Serdeczny et al., 2017).

SSA's colonial history of exploitation and extraction has created structural disadvantages which are evident through the region's inadequate provision and access to public services, weak governance structures, dilapidated infrastructure, existing gender and cultural norms, lack of potable water and food security, reliance on foreign aid and prevalence of poverty. These conditions have reduced the region's adaptive capacity to tackle climate change (Connolly-

Boutin & Smit, 2016; Parks & Roberts, 2006). Thus, this paper addresses the following question: how has the post-colonial context of SSA affected the region's response to climate change? An analysis of the laws implemented by South Africa, Kenya, and Ghana. I chose these countries because they represent perspectives from different geographic areas within SSA and they are of the region's most economically and politically stable nations. In the paper, I detail ecological imperialism in SSA and discuss how post-independent SSA has positioned itself in terms of environmental governance. The paper then provides three case studies' contradictory responses to climate change and how they link back to the colonial experience. In each selected country laws enacted to positively impact the fight against climate change are presented. This is immediately followed by an analysis of laws that are still on the books that have the potential to contribute negatively to the climate response.

Understanding the post-colonial context of climate change response in SSA

The history of SSA's ecological imperialism

Under colonial rule, SSA experienced environmental degradation and the relentless extraction of raw materials such as gold, oil, rubber, and timber. This process of ecological imperialism allowed Europe to accumulate capital and simultaneously burdened SSA with the consequences of their affluent lifestyles through the exploitation of colonial land, labor and resources (Frame, 2016). This asymmetrical chain of extraction is evidence of Andre Gunder Frank's dependency theory which argues that "Third World development under capitalism is based on unequal transactions with the First World" (Pacione, 2013, p.452). Large-scale mining, the privatization of forests and the use of invasive species to grow crops are a few examples of this ecological imperialism. Available evidence indicates that the colonial legacy is also linked to

modern issues of materialism, consumption, pollution, and waste as the extraction of resources by colonial powers widened the range of commodities available for purchase in the west, creating a perceived ideal of what items, clothing, foods etc. are deemed desirable by society (Murphy, 2009).

In pre-colonial SSA, property ownership was community centered. This meant decisions regarding access to resources and control over land were made collectively and were based on cultural norms that valued sustainability (Kameri-Mbote & Cullet, 1997). Colonialism dramatically altered the practice of common ownership through the implementation of property rights and the emphasis on resources being privatized and under state control. It hindered environmental preservation, created issues of wealth inequality as more resources and land were given to those who could afford them and facilitated greater extraction of the region's commodities. Post-colonial redistribution initiatives during the 1960s such as the Million Acre Area Settlement Scheme in Kenya disproportionately benefited the wealthy. Richardson (2000) writes that "the Kenyan government has simply extended colonial policies by 'Africianizing' previously white areas without altering the basic policy of concentrating development on a restricted land-owning class in the areas with high potential farmland" (p. 37). These land reforms across SSA have created significant social and environmental injustices, destroyed the relationship locals had with their physical environment as well as the intracommunity trust that ensured communal resources would not be depleted (Kameri-Mbote & Cullet, 1997; Richardson, 2000).

Colonialism also led to the establishment of reserves for indigenous peoples. Nelson (2003) argues that "the advocates of the exclusion of people were driven by the familiar myths of a 'wild Africa' that must be maintained in its 'original wilderness' condition" (p.80). This

alienated locals from their land and stripped them of their ability to hunt and gather. Furthermore, as large numbers of people were restricted to small regions of land it put localized pressure on the environment (Kameri-Mbote & Cullet, 1997). Between 1890 to 1923 the land north of the Limpopo River in South Africa was alienated under the jurisdiction of Cecil Rhode's British South Africa (BSA) company that capitalized on commercial farming and the country's mineral wealth. Their conquest pushed the Matabele and Mashona people out of their 'high veld' (tsetse-free) land and into lower-lying more arid areas with lower agro-ecological value (Potts, 2012).

The decline in genetic diversity and the introduction of exotic species and diseases also occurred during colonialism. To establish an agricultural economy with monocultures of cash crops, much of SSA's forests and indigenous plants were removed and replaced by exotic species. This, coupled with the harvesting of timber led to mass deforestation contributing to the issues of desertification and climate change. These practices reduced the ability of several crops to adapt to changing climatic conditions (Kameri-Mbote & Cullet, 1997).

Colonial understandings and ways of managing nature are derived from Christian theology. Murphy (2009) argues that the greatest epistemological legacy of colonial times is the notion of the environment itself "as a realm external to people and society which requires institutions and policies to manage it" (p.17). The proliferation of this theology across SSA coupled with the emergence of western scientific knowledge led to the erasure of local indigenous knowledge, culture, identities, and values surrounding the environment (Murphy, 2009). Colonial ecological control eventually led to growing resentment amongst locals in the region, propelling them to fight for independence.

Despite SSA being politically liberated, the region was left plagued by political instability and economic hardship, or as described by the former president of Ghana, Kwame Nkrumah, in a "neo-colonial" state (Frame, 2014). Under colonial rule, traditional forms of leadership had been dismantled, consequently, most post-colonial governments simply adopted the values, practices, and institutions of their colonial powers. Murphy (2009) labels this "internal colonialism" as SSA countries are "pursuing national development which exploits their peripheries" (p.23). The adoption of neoliberal policies such as Structural Adjustment Programs (SAPs) to augment economic efficiency has facilitated the ongoing ecological imperialism within the region as it has exacerbated the issues of debt, corruption, hyperinflation, wealth inequality and over-dependence on natural resource exploitation (Konadu-Agyemang, 2010).

SSA's post-colonial approaches to environmental protection

Environmental conservation was not a concept in pre-colonial African societies as locals lived in harmony with their environment. Under colonial rule, there was a sharp decline in wildlife populations mostly because of sport hunting carried out by Europeans, this sparked the introduction of conservation laws in the 1900s as colonialists wanted to preserve the pristine nature of Africa's wilderness. Ironically, it was assumed that Africans were responsible for the environmental destruction that was taking place. European environmentalists found it easier to promote conservation and preservation in SSA compared to their own countries as the region had not yet undergone industrialization (Kameri-Mbote & Cullet, 1997).

In the year 1900 the Convention for the Preservation of Wild Animals, Birds and Fish was signed in London, its goal was to limit the decline of Africa's wildlife populations (Kameri-Mbote & Cullet, 1997). The convention, however, failed to comprehensively protect the

environment as animals that were deemed “dangerous” did not receive protection and it was stipulated that the convention worked to preserve the game for skin dealers, ivory traders, and trophy hunters. In 1933 the London Convention was replaced by the Convention Relative to the Preservation of Fauna and Flora in their Natural state, this worked to prohibit the hunting and killing of economically valuable species as well as reduce or prohibit human intervention into the environment. Both conventions were poorly enforced by colonial authorities. In 1968, post-independence, the African Convention on the Conservation of Nature was established. This convention, like those before it, was based on western conservation ethics that did not include integrated management principles, the rights of people to natural resources and wildlife as well as proper administrative structures and therefore also had limited success (Kameri-Mbote & Cullet, 1997).

Colonial empires also shaped early movements of environmental protection and conservation in SSA through the establishment of national parks and nature reserves. These parks were created with little scientific knowledge about land or wildlife (Nelson, 2003). Colonial authorities realized the economic benefits national parks and reserves provide as they ensure a consistent supply of resources as well as control over their colonial subjects. Today the parks serve as a source of foreign tourism, in addition, conservation NGOs across the continent also help fund the parks as well as increase the political legitimacy of their existence (Nelson, 2003). The presence of national parks across SSA today, such as Nairobi National Park, Serengeti National Park, Virunga National Park and Kruger National Park are indicative of these colonial efforts to manage and profit from the region’s nature (Murphy, 2009).

The legal frameworks from colonial times surrounding environmental management also still prevail. As noted by Kameri-Mbote and Cullet (1997) “the conceptual and normative

framework for environmental management established in the 19th century still draws largely from colonial laws and policies and little has been done to tailor domestic laws to the needs of African countries" (p. 27). Once the region gained independence from their colonial powers most SSA governments took control over the access to their country's environmental resources and many implemented policies that were rooted in colonial laws. For example, in Kenya, under the 1976 Wildlife Conservation and Management Act, the government has ownership over all wildlife and the hunting of wildlife for food is prohibited. Similarly, the Kenyan Forests Act of 1982 declares all forests as government land. This demonstrates how the relic of colonial forms of governance remain in Africa as many local communities have lost their ability to use their land for settlements, cultivation, grazing and hunting as well as to access sources of fuelwood, food or medicine. The current approach to environmental protection gives locals no incentive to conserve wildlife as they do not benefit from the existence of nature reserves and their crops are often destroyed by wild animals. Similar approaches have resulted in illegal activities by locals whose livelihoods are impacted by such laws. This has culminated in antagonistic relationships between local communities and their governments throughout SSA (Nelson, 2003; Kameri-Mbote & Cullet, 1997).

Strong ties remain between colonies and their colonizers, facilitating the continuous interference in SSA's agricultural systems, the privatization of their resources and the institutionalization of their property rights. These political systems have encouraged corruption, environmental degradation, the misallocation of resources and the exclusion of indigenous peoples, hindering the region's ability to implement comprehensive environmental management laws (Richardson, 2000).

Case Study 1: South Africa's response to climate change

South Africa was colonized by the Dutch in 1652, then in 1806, the British annexed the Cape Colony. In 1961 South Africa achieved independence from the British. The country's economy is dependent on its primary sectors including agriculture and the extraction of minerals (National Assembly of South Africa, 2019). South Africa's reliance on coal places the country as the 14th largest emitter of greenhouse gases (McSweeny & Timperley, 2021).

Climate change has caused South Africa's annual temperatures to increase by 1.5 times in the past fifty years, it has also led to higher incidences of flooding, drought, and water scarcity. These conditions are posing threats to the country's health, infrastructure, water resources, ecosystem services, food security, poverty levels and biodiversity (Ziervogel et al., 2014).

South Africa's Carbon Tax Act (2019)

South Africa's Carbon Tax Act came into effect on June 1, 2019, and has been labelled a "landmark piece of legislation" and an "essential element of South Africa's commitment to the Paris Agreement" (National Assembly of South Africa, 2019, p. 93). The Act works to incentivize large polluters to adopt cleaner technologies to evade higher costs of production. This works to decrease the demand for fossil fuels and encourage the use of renewables to reduce the production of greenhouse gases and mitigate the effects of climate change (National Assembly of South Africa, 2019). The tax applies to emissions released from the combustion of fossil fuels, industrial processes, mining, and product use. Between June 1 and December 31, 2022, the carbon tax will be exempt from the Agriculture Forestry and Other Land Use (AFOLU) and waste sectors. This gives companies enough time to transition to cleaner technologies, energy-efficient low-carbon practices, and renewables (IEA, 2020). Stage two will have more stringent requirements and run between January 1, 2023, and December 31, 2030. Garidzirai's (2020) analysis of South Africa's Carbon Tax demonstrates that it is effective in reducing carbon

emissions. The study states that “a 1% increase in carbon tax reduces carbon emissions by 0.0910%” as firms and consumers are choosing cleaner alternatives (p.358).

There is also speculation that the carbon tax policy may not be effective in combatting climate change. Currently, the tax is set at R120 ($8.36) per ton of CO2 emissions however, in the first phase, the carbon tax provides significant tax-free emission allowances that range between 60-95%. Therefore, the initial stage will only implement a carbon tax rate between R6-R48 ($0.41-$3.25) and will not result in an increase in electricity prices. Moreover, the Act fails to guarantee that the revenue made from the carbon tax will be used to “increase green spending, compensate adversely affected industries and communities, or be redistributed to the public” (National Assembly of South Africa, 2019, p.87).

South Africa’s Mineral and Petroleum Resources Development (MPRD) Act (2002)

South Africa’s mining industry contributes significantly to the country’s gross domestic product (GDP). The country is a global leader in the mining of precious and ferrous metals as well as coal. The mining industry has left most indigenous communities in South Africa both marginalized and dispossessed, in addition, it is responsible for the creation of waste dumps, air and water pollution, acid mine drainage, habitat destruction, the release of greenhouse gases from the combustion of coal and the creation of ghost towns. Lloyd (2002) reports that the coal electrical generating industry releases 170 million tons of carbon dioxide per year.

The MPRD Act of 2002 aims to expand mining and petroleum development to promote economic growth and employment opportunities. Despite the Act’s commitment to “ensuring that the nation's mineral and petroleum resources are developed in an orderly and ecologically sustainable manner” it directly contradicts the objectives of the Carbon Tax Act as it encourages the extraction of resources and production of greenhouse gas emissions (Republic of South

Africa, 2002). Murombo (2013) writes that the Act has been largely ineffective as the environmental reforms have been met with institutional resistance and inadequate enforcement. This position was apparent when South Africa's Minister of Mineral Resources stated that the government could not regulate the activities of a mining company once it has been issued a license, regardless of its detrimental environmental impacts (Murombo, 2013).

The MPRD Act nationalized the country's mineral resources by making the state the trustee over all South Africa's resources. The government's autonomy over providing licenses to mining companies along with its inability to regulate it demonstrates how corporate imperial interests "marginalize local and indigenous communities while favoring the state and multinationals" (Murombo, 2013, p. 48). Moreover, the laws that work to increase opportunities for public participation and consultation in the mining process are also proving ineffective. For example, despite the company CoAl failing to complete its consultation and environmental impact assessment processes their mining activities still went ahead in Limpopo. Furthermore, several South African mines operate without water licenses which is a breach of the country's 1998 National Water Act (Murombo, 2013).

Murombo (2013) writes that "a review of the legal regulation of mining in South Africa shows that the focus of their laws and policies was and remains to facilitate extraction with little regard to the impacts of mining on the environment, communities and local development" (p. 39). He also denotes that most corporate social responsibility initiatives in the mining sector are driven by philanthropic gestures rather than legal frameworks. Although in recent years some of South Africa's mining laws have changed to incorporate sustainability, they remain premised on regulatory frameworks developed during the colonial era that emphasize the continuous appropriation of resources.

Case Study 2: Kenya's response to climate change

In 1920 Kenya was colonized by the British for forty-three years, until 1963. The country's leading sources of greenhouse gases are agriculture, the rearing of livestock, energy for fuel and transportation as well as industrial processes (USAID, 2017). As a consequence of climate change, Kenya is experiencing higher temperatures, extended periods of droughts, a decrease in precipitation, melting glaciers, rising sea levels and a decline in biodiversity. This is causing greater food insecurity, rates of hunger and migration, livestock deaths, water stress and resource-based conflicts (Ndambiri et al., 2012; Njiru, 2012).

The implementation of neo-colonial forest policies has resulted in the loss of forest cover, a rise in conflicts over forest land and resources, greater greenhouse gas emissions, the displacement of indigenous populations and forest squatters as well as more tension between the forest department and local administration (Kenya Ministry of Environment and Forestry, 2018).

Kenya's Climate Change Act (2016) and National Climate Change Action Plan (NCCAP) (2018-2022)

In 2016, Kenya enacted the Climate Change Act which is "the first climate change dedicated legislation in Africa" (Kenya Ministry of Environment and Forestry, 2018, p.5). This Act is the legal foundation of the country's NCCAP which sets targets to achieve between 2018-2022. The plan works to minimize the risk posed by climate-related disasters, improve food, nutrition, and water security, increase forest cover to 10% of the country's total land area, ameliorate the resilience of human settlements and health sectors to the effects of climate change, better the country's waste management system, enhance the use of renewables and energy-efficient technologies as well as establish sustainable transport systems (Kenya Ministry of Environment and Forestry, 2018).

Kenya's forestry sector contributes to 32% of the country's greenhouse gas emissions. The NCCAP is committed to afforesting 10,000 hectares of land, planting one million trees per county per year, restoring 200,000 hectares of degraded landscapes, implementing ecosystem-based adaptation, and conserving 30,000 hectares of wildlife habitats. These changes will enhance Kenya's resilience to climate change as the country's ecosystems, wildlife habitats and hydrological services will be better protected, moreover, it will increase rates of carbon sequestration and reduce the occurrence of coastal erosion (Ministry of Environment and Forestry, 2018).

Kenya's Forest Act (1982)

Under colonial rule, the construction of railways, expansion of Kenya's industrial and agricultural sectors, the creation of an export market for firewood, and the outbreak of the Second World War fueled the rapid depletion of its forests. Between 1990 to 2005 Kenya lost approximately 12,000 hectares of its forest cover each year. This is because post-colonization, there was an acceleration of destructive practices as population growth led to a greater demand for agricultural, housing and wood products (Ofcansky, 1984).

Mwangi (1998) argues that the impact of colonialism in Kenya was "so pervasive … that many of Kenya's post-independence policies and practices are predicated upon strategies formulated in the colonial era" (p.136). The Kenya Forest Act of 1982 is evidence of this as its "purpose of reservation, protection, centralization and control of forestry within government echoes that of colonial forestry objectives in Kenya in the late 19th to mid 20th Century" (p.11). The Forest Act gives the Minister a significant amount of discretion to develop regulations that encourage the sale of forest products for export and declare forest areas as unalienated government land or nature reserves to prevent the practice of other land-use activities such as

cultivation, grazing, hunting and settlement from occurring. Similarly, under colonial rule, the British used their monopolistic power to alienate indigenous populations from their land and create chains of agrarian extraction which benefitted the west but exploited local Kenyans (Mwangi, 1998).

The Forest Act has had limited success in conserving Kenya's forest as it lacks proper legislation, coordination, and government support. Its regulations only apply to public land leaving forests on private land unprotected (Mwangi, 1998). In addition, the Act's penalties for breaking laws that restrict access to forests are poorly enforced and the fines are low making illegal forest conversions common. Moreover, the Forest Act fails to require environmental impact assessments or stakeholder consultation processes before development takes place on forested land. This lack of public participation and incorporation of traditional knowledge further exhibits colonial practices as colonialists imposed a "monolithic world view that placed power and control in the hands of Europeans" and "delegitimized other ways of knowing as savage, superstitious and primitive" (Akena, 2012, p.600).

Case study 3: Ghana's response to climate change

Ghana was under British rule between 1874 to 1957. During, and post-colonialism, several companies were engaged in exploring the country's hydrocarbon resources. In 1957 Ghana only had twenty-one wells, by 1985 the number had grown to fifty-four (Asante & Amuakwa-Mensah, 2014). Ghana's greenhouse gas emissions can be mainly attributed to the country's agricultural sector, rearing of domestic livestock, use of landfills, burning of biomass, conversion of forest and grassland and use of fuel for travel and electricity. Between 1990 and 2011 Ghana's greenhouse gas emissions increased by 20% (USAID, 2016). The effects of climate change in Ghana are evident as temperatures have increased by 1-degree Celsius, rainfall

has declined, and desertification has increased. This is worsening the country's agricultural production, food security, poverty rates, fish stocks, supply of groundwater, the spread of diseases and occurrences of natural disasters (Asante & Amuakwa-Mensah, 2014; Dumenu & Obeng, 2016).

Ghana's Renewable Energy Act (2011)

In 2011 Ghana's Renewable Energy Act passed. It set a target to increase renewable energy outputs to 10% by 2020, however, in 2018 the deadline for this target was extended to 2030. The Act has been cited as "real evidence of Ghana's policy effort when it comes to promoting renewable electricity" (Ashong, 2016, p.138). Its objective is to develop the use of sustainable and efficient renewable energy sources for heat and power production. The Act requires distribution utilities and bulk electricity consumers to ensure a proportion of their energy is generated from renewable resources, it also established a feed-in tariff which was amended in 2020 to ensure Ghana's electricity consumers can benefit from the reduction in renewable energy production costs through competitive procurement. Moreover, the money from the Act's Fund is used for the provision of capacity building, financial incentives, production subsidies, equity participation as well as renewable energy infrastructure and research (Parliament of the Republic of Ghana, 2011).

Ghana's National Petroleum Corporation Act, 1983

In 1983, Ghana's government introduced the Ghana National Petroleum Corporation (GNPC) Act. The Act gives the oil company GNPC the responsibility to regulate, explore develop and promote the production and exportation of upstream oil and gas activities. It also allows GNPC to take equity stakes in petroleum activities on the behalf of the Ghanaian government (Adadzi et al, 2020). Further, GNPC provides contracts and concessionary rights to

oil companies and guarantees that the government receives royalties and taxes from Ghana's oil production activities (Owusu, 2018).

In 2007, the company Kosmos Energy announced the discovery of significant oil reserves in Ghana and in 2010 oil production began. This discovery has curtailed Ghana's efforts to tackle climate change as the prospect of two billion barrels of oil as well as 5000 billion cubic feet of gas with expected revenue of one billion dollars a year serves as a significant economic opportunity. Ghana's former President Kufuor announced that the oil reserves would help Ghana 'fly' (Langan, 2018).

There are several oil companies that operate in Ghana, namely, the British company Tullow Oil and the American firms Kosmos Energy and Anadarko (Owusu, 2018). The Kufuor government failed to create a Production Sharing Agreement (PSA) with foreign oil companies and instead signed a Hybrid Model Concession which facilitates the extraction of oil by giving select companies access to oil blocks. It is speculated that this decision lost Ghana $4 billion in the first 4 years of oil production (Langan, 2018). In addition, it was revealed that Kosmos used its ties with the E.O. Group to receive its oil license in an accelerated time period. Furthermore, the U.K. Department for International Development (DFID) has been known to support groups within Ghana that have promoted the creation of the 2016 Oil Exploration and Production (E&P) Bill which ensures the continuation of the Hybrid Model Concession and gives the Minister of Energy significant discretionary power to "bypass competitive tendering for new oil resources" (Langan, 2018, p.45). Moreover, the DIFD is responsible for the launch of the Ghana Oil and Gas for Inclusive Gas (GOGIG) programme (Langan, 2018). These actions have ultimately ensured the longevity of the foreign corporate extraction of Ghana's oil resources.

The Ghanaian government engages in a significant amount of corruption which results in the misuse of the country's oil revenue. In 2015 Ghana was ranked 7th in SSA on the world transparency corruption index. Owusu (2018) denotes that the funds generated from Ghana's oil industry are often "appropriated at the national level before reaching the local level" (p.156). In 2016, the Policy Think Tank IMANI reported that the government misused US$1.6 billion between 2012 and 2016. The Public Interest and Accountability Committee (PIAC) for oil revenue in Ghana confirmed this as they discovered discrepancies in the accounting of oil revenue in northern Ghana. The environmental degradation brought by the extraction of oil coupled with Ghana's existing high rates of unemployment and corruption is contributing to the country's persistent poverty (Owusu, 2018).

More recently, in 2012, China received a $3 billion loan from President John Dramani Mahama from the Chinese Development Bank Corporation in exchange for 13,000 barrels of oil a day. The President also negotiated an $850 million deal for the China Petroleum and Chemical Corporation to partner with its Ghanaian counterpart in constructing one of the country's major pipelines (Langan, 2018). This partnership has been labelled the "new scramble for Africa" (p.49). Moreover, it is assumed that the Ghanaian government is also receiving side payments from Chinese oil corporations. As noted by Langan (2018) "The emergence of China does not liberate Ghanaian society from the situation of neo-colonialism but instead entrenches it through new regressive linkages to the external" (p.45). In addition to lower-than-expected societal and economic benefits, these interferences also ensure Ghana's transition to renewable energy is slow.

Discussion

It is evident that SSA countries have tried to implement laws to mitigate the effects of climate change. South Africa's Carbon Tax Act (2019), Kenya's Climate Change Act (2016) and Ghana's Renewable Energy Act (2011) are examples of these efforts. However, contradictions arise when these laws are juxtaposed with resource extraction laws, a situation that is related to post-colonial legacy. There are several similarities between the contradictory laws that have been implemented in the selected countries. South Africa's Mining and Petroleum Development Act (2002), Kenya's Forest Act (1982) and Ghana's National Petroleum Act (1983) all give their government and foreign companies a significant amount of discretionary power to decide how the country's resources and their profits are used and distributed; under colonial rule colonial powers held this responsibility. This has resulted in much of SSA's indigenous populations being consistently dispossessed, marginalized, stripped of their resources, and excluded from decision-making processes. The acceleration of logging and mining practices primarily benefits foreign nations whilst encouraging corruption and environmental destruction in SSA. This is a form of environmental racism and imperialism which are both part of the broader neoliberal paradigm of development (Waldron, 2018).

The case of these three countries can be used to analyze how the post-colonial context affects the rest of SSA's response to climate change. Landgrabs, the flow of resources out of the continent and worsened situations for locals is not limited to South Africa, Kenya and Ghana but are prevalent throughout SSA. The colonial regime in Liberia has led to the American company, Firestone, creating tea, coffee, groundnut, sisal, and rubber plantations across the country which has resulted in mass devastation to their ecosystems and landscape. Furthermore, once oil was discovered on the Niger River delta in 1956, Africa's largest wetland ecosystem, as well as the livelihoods of the locals that inhabit it, were destroyed. Moreover, under Belgian rule, King

Leopold consolidated Congo's rubber production by enslaving several Congolese (Wood, 2015). It is clear that "there has been a significant normalization of death, destruction and deepening inequalities" that "sustain carbon footprints and underpin further growth" (Stanley, 2021, p.3). These patterns of displacement, land repurposing, ecosystem collapse and loss of culture continue past exploitative colonial relationships, to the present.

Conclusion

The case studies of South Africa, Kenya and Ghana evince how the post-colonial context of SSA has affected the region's response to climate change as they have implemented laws that encourage resource monopolization and exploitation, corruption, environmental devastation, and the marginalization of indigenous peoples (Kameri-Mbote & Cullet, 1997). Paradoxically, these laws exist alongside those that promote carbon taxes, afforestation, disaster preparedness, improved food, water and nutrition security, and the use of renewable energy. The prevalence of unequal transactions occurring between SSA and other countries globally is responsible for the ongoing neo-colonial relations which allow foreign countries to reap the benefits of SSA's natural wealth at the expense of their environment and local populations. These asymmetrical relationships are fundamentally responsible for the existence of contradictory laws in SSA (Kameri-Mbote & Cullet, 1997).

The connection between current approaches to the fight against climate change in SSA and the colonial experience is profound. The evidence presented shows that under colonial rule, the commodification of everything approach via capitalist exploitative mechanisms was the pathway to economic deprivation of Africans and environmental degradation. In the post-independent era, two key factors have impacted environmental governance, and consequently the response to climate change. First, the replacement of Europeans with African elites has

maintained hierarchies and colonial governance structures. Second, the influence of Western corporations in enacting legislation favorable for resource exploitation continues to grow. The combined effects of these two situations have contributed to the weak and contradictory responses to climate change as determined by this report.

To improve SSA's adaptive capacity to tackle climate change, the region must undertake structural changes. Corporations that are responsible for fueling climate change in the region must be delegitimized, foreign investment in the unsustainable extraction of resources should not be encouraged by SSA governments, indigenous rights and human rights frameworks related to resource extraction must be implemented, structures that transfer wealth from developed countries into SSA for climate adaptation and mitigation programs should be created and the region's potential for renewable energy must be harnessed. These steps also require the simultaneous creation of new institutions that eradicate capitalist and colonial agendas (Stanley, 2021). "The formally independent countries of Africa need to apply their efforts to rectifying all this exploitation rather than doing favors to the descendants of the former colonial intruders" (Attfield, 2020 p.290).

Works Cited

Adadzi, F., Godson-Amamoo, N. & AB & David Law Affiliates. (2020). *The Oil and Gas Law Review Ghana*. The Law Reviews. https://thelawreviews.co.uk/title/the-oil-and-gas-law-review/ghana

Akena, F. A. (2012). Critical analysis of the production of Western knowledge and its implications for Indigenous knowledge and decolonization. *Journal of Black Studies*, *43*(6), 599-619.

Asante, F. A., & Amuakwa-Mensah, F. (2015). Climate change and variability in Ghana: Stocktaking. *Climate*, *3*(1), 78-99.

Ashong, J. N. T. (2016). How Effectively Has Ghana Implemented Its Policy for Large-Scale Renewable Electricity Deployment: A Qualitative Assessment. *Renewable Energy Law and Policy Review*, *7*(2), 133-144.

Attfield, R. (2020). Africa and Climate Change. *Utafiti*, *14*(2), 281-294.

Connolly-Boutin, L., & Smit, B. (2016). Climate change, food security, and livelihoods in sub-Saharan Africa. *Regional Environmental Change*, *16*(2), 385-399.

Dumenu, W. K., & Obeng, E. A. (2016). Climate change and rural communities in Ghana: Social vulnerability, impacts, adaptations and policy implications. *Environmental Science & Policy*, *55*, 208-217.

Fields, S. (2005). Continental divide: why Africa's climate change burden is greater.

Frame, M. (2014). Foreign investment in African resources: The ecological aspect to imperialism and unequal exchange.

Frame, M. (2016). The neo-liberalization of (African) nature as the current phase of ecological imperialism. *Capitalism Nature Socialism*, *27*(1), 87-105.

Garidzirai, R. (2020). Time Series Analysis of Carbon Dioxide Emission, Population, Carbon Tax and Energy use in South Africa. *International Journal of Energy Economics and Policy*, *10*(5), 353.

IEA. (2021). *South African Carbon Tax Policies*. IEA/IRENA Renewables Policies Database. https://www.iea.org/policies/3041-south-african-carbon-tax

Ikeme, J. (2003). Climate change adaptation deficiencies in developing countries: the case of Sub-Saharan Africa. *Mitigation and Adaptation Strategies for Global Change*, *8*(1), 29-52.

IPCC. (2007). *Impacts, Adaptation and Vulnerability*. Intergovernmental Panel on Climate Change. https://archive.ipcc.ch/ipccreports/tar/wg2/index.php?idp=8.

Kenya Ministry of Environment and Forestry. (2018). National Climate Change Action Plan (2018-2022). Republic of Kenya. https://www.kenyamarkets.org/wp-content/uploads/2019/02/NCCAP-2018-2022-Online-.pdf

Konadu-Agyemang, K. (2000). The best of times and the worst of times: structural adjustment programs and uneven development in Africa: the case of Ghana. *The Professional Geographer*, *52*(3), 469-483.

Langan, M. (2018). Neo-Colonialism and foreign corporations in Africa. In *Neo-Colonialism and the Poverty of'Development'in Africa* (pp. 33-60). Palgrave Macmillan, Cham.

Lloyd, P. J. (2002). Coal mining and the environment. *Energy Research Institute*.

McSweeny, R., & Timperley, J. (2021). *The Carbon Brief Profile: South Africa*. Carbon Brief. https://www.carbonbrief.org/the-carbon-brief-profile-south-africa.

Ministry of Environment and Forestry. (2018). National Climate Change Action Plan (2018-2022). Republic of Kenya. https://www.kenyamarkets.org/wp-content/uploads/2019/02/NCCAP-2018-2022-Online-.pdf

Murombo, T. (2013). Regulating Mining in South Africa and Zimbabwe: Communities, the environment and perpetual exploitation. *Law Env't & Dev. J.*, *9*, 31.

Murphy, J. (2009). Environment and imperialism: why colonialism still matters. *Sustainability Research Institute*, *20*, 1-27.

Mwangi, E. (1998). Colonialism, self-governance, and forestry in Kenya: Policy, practice, and outcomes.

National Assembly of South Africa. (2020). *Unrevised Hansard*. https://pmg.org.za/hansard/28252/

Nelson, R. H. (2003). Environmental colonialism:" saving" Africa from Africans. *The*

Independent Review, *8*(1), 65-86.

Ndambiri, H. K., Ritho, C., Mbogoh, S. G., Kubowon, P. C. P. C., & Cherotwo, F. H. (2012). Repositioning African agriculture by enhancing productivity, market access, policy dialogue and adapting to climate change.

Njiru, B. N. (2012). Climate change, resource competition, and conflict amongst pastoral communities in Kenya. In *Climate change, human security and violent conflict* (pp. 513-527). Springer, Berlin, Heidelberg.

Ofcansky, T. P. (1984). Kenya forestry under British colonial administration, 1895-1963. *Journal of Forest History*, *28*(3), 136-143.

Owusu, B. (2018). 'Doomed by the 'Resource Curse?'Fish and Oil Conflicts in the Western Gulf of Guinea, Ghana. *Development*, *61*(1), 149-159.

Stanley, E. (2021). Climate Crises and the Creation of 'Undeserving'Victims. *Social Sciences*, *10*(4), 144.

Pacione, M. (2009). *Urban geography: A global perspective*. Routledge.

Parks, B. C., & Roberts, J. T. (2006). Globalization, vulnerability to climate change, and perceived injustice. *Society and Natural Resources*, *19*(4), 337-355.

Parliament of the Republic of Ghana. (2011). *Renewable Energy Act*. https://www.climate-laws.org/geographies/ghana/laws/renewable-energy-act-ad063294-1683-4228-954f-9196076fa690

Potts, D. (2012). Land alienation under colonial and white settler governments in southern Africa: historical land 'grabbing'. In *Handbook of Land and Water Grabs in Africa* (pp. 24-42). Routledge.

Republic of South Africa. (2002). Mineral and Petroleum Resources Development Act 28 of 2002. *Government Gazette*, 448.

Richardson, B. J. (2000). Environmental Law in Postcolonial Societies: Straddling the Local-Global Institutional Spectrum. *Colo. J. Int'l Envtl. L. & Pol'y*, *11*, 1.

Serdeczny, O., Adams, S., Baarsch, F., Coumou, D., Robinson, A., Hare, W., ... & Reinhardt, J. (2017). Climate change impacts in Sub-Saharan Africa: from physical changes to their social repercussions. Regional Environmental Change, 17(6), 1585-1600

USAID. (2016). *Greenhouse Gas Emissions in Ghana*. Climate Links.

USAID. (2017). *Greenhouse Gas Emissions Factsheet: Kenya*. Climate Links.

Waldron, I. (2018). *There's something in the water: Environmental racism in indigenous and black communities*. Fernwood Publishing.

Wood, L. (2015). The environmental impacts of colonialism.

Ziervogel, G., New, M., Archer van Garderen, E., Midgley, G., Taylor, A., Hamann, R., ... & Warburton, M. (2014). Climate change impacts and adaptation in South Africa. *Wiley Interdisciplinary Reviews: Climate Change*, *5*(5), 605-620.