

Shrinking Land Priority: Kenya's Implementation of Conservation Areas

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Abstract

While the world witnesses the overall warming of the globe and environmental destruction, due to human activity, conservation areas have become a popular model for environmental preservation and regeneration. This thesis takes an in-depth look at the empirical case of Kenya and how the Government has implemented conservation areas as a model of environmental protection. The Kenyan Government has both made environmental conservation a priority as well as prioritized the participation of local communities, in these conservation areas. However, private land encroachment and human-animal conflict threaten the success of these conservation projects. In particular, the stagnation of nomadic pastoralist groups and the lack of prioritization of conserved land can be accused as successors to the aforementioned issues. This thesis attempts to address these issues and how they can be modified through governmental legislation.

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Chapter 1: Environmental Conservation

Introduction

For those who have the most intimate relationships with the environment, who handle soil and monitor rainfall patterns religiously, the luxury of ambivalence towards environmental degradation and climate change is not available, nor realistic. The reality of unsustainable industrial and farming practices has resulted in significant degradation of the environment. However, is it fair to suggest that countries, who have not yet been able to take advantage of technological advances and modern infrastructure, reduce development in order to mitigate damage that has been done by already developed countries? Whatever the answer may be, developing countries will bare the brunt of climate change and environmental degradation (Mattoo and Subramanian 2013, 2). Developing countries are estimated to lose a significant amount of food crop production which will largely impact their economies and, by extension, cause food insecurity, and water shortages causing internal conflict (IPCC, 2007).

The public is looking towards its leaders to implement legislation that will lift the human race out of this downward spiral of environmental degradation and global

warming. However, discussion and collaboration is only the first step. Implementation of these policies is arguably the meat of the solution to mitigating climate change and reversing environmental degradation.

It is for this reason that I have decided to explore the political implementation of policies that are attempting to mitigate climate change, restore environmentally degraded areas, and preserve flourishingly healthy ecosystems, through the use of conservation areas. Conservation areas are popular models meant to act as long-term solutions to the regeneration and conservation of both degraded and healthy environments and ecosystems (Sayer and Campbell, 2004). However, they are an interesting topic, in developing countries specifically, because they stall the ability for a certain area to produce and sell natural resources. For a developing country to have implemented a conservation area demonstrates the prioritization of earth and the environment in a difficult economic situation. While a country must make these difficult decisions, I was interested in the effects that conservation projects have on local communities that are most intimately intertwined with the environment.

Through my research, I found that local communities have been actively managing and participating within these

conservation models. However, in some cases, failure to include local communities has resulted in contention among conservation stakeholders, poaching and marginalization of local communities (Gibbs et al. 2011, 329). It is important that local farmers be considered in conservation projects and that they are properly consulted in management of these areas. Were they also to give up their relationship with the environment, and shift their livelihoods from that of farming to the diversification of their economic revenue, by means of park ranger, it is important that communities do so with adequate compensation and proper consultation.

This model has been successfully implemented, in the Maasai Mara, through a political framework, in the country of Kenya. It is for this reason that I have chosen Kenya as my empirical area of focus. I have conducted research based on the research question "How and to what extent has the Kenyan government implemented conservation areas as a development model for environmental conservation". I have found that while the Government of Kenya has been successful in constructing policies to implement conservation program models, and decentralize government in order to further incorporate local communities in conservation efforts, the particular model of the Maasai Mara is fearful of continued environmental degradation in that they are threatened by

encroaching private land holders and improper stagnation, resulting in animal-human conflict.

Literature review

Environment and Development

To developed and developing countries, environmental degradation, and the exacerbation of degradation due to climate change, are felt globally and in each sector—political, economic, and social (UNFCCC, 2007). Although these are two separate issues, it is important to note that Climate Change acts as a multiplier to existing environmental degradation.

Carbon emissions, due to human development, has resulted in the overall warming of earth's atmosphere and an upward shift in climate. As a result, the Intergovernmental Panel on Climate Change reports that "the atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea level has risen, and the concentrations of greenhouse gases have increased" (IPCC 2013,4). Since that time, the United Nations Framework Convention on Climate change confirmed that global warming is, predominantly, due to anthropogenic activity (UNFCCC 2007, 8). Extreme weather events, including flooding, drought, rainfall variability, and extreme heat will result in aftermath shocks such as

extreme poverty, hunger, rural-urban migration and conflict due to social instability (IPCC 2007, 1). These effects are argued to have extensive and wide-ranging effects on both the environment, as well as socio-economic sectors such as water resources, agriculture, and food-security (UNFCCC 2007, 8). Therefore, it is important that each country attempt to mitigate carbon emissions and practices that deplete resources, "from each according to its ability", for planetary survival (Mattoo and Subramanian 2013, 2).

The recognition of each countries' ability to mitigate carbon emissions is important to note because, although climate change is a global issue, developing countries have played a different role in the history of carbon emissions and they will be affected differently by climate change in the future. Although they have not played the same role in carbon emissions, developing countries are burdened with a rising climate and conserving the environment is an issue that governments in developing areas have had to address, regardless of their role in its implementation.

For this reason, environmental degradation is linked to development because it causes the depletion of many resources without chance for regeneration. For developing countries specifically, environmental degradation could

result in degraded food crop production which could cause internal strife, particularly among "nomadic-sedentary cleavages" (Homer-Dixon 1991, 77). This loss of food crop production is argued to largely impact the economies of many developing countries. Per annum, due to environmental degradation, developing countries will have reduced economic growth by 2-4% until 2040—after which, the number will increase to a 10% loss (IPCC, 2007).

Much of rural populations depend on forest resources and soil nutrients. Because of environmental degradation, these rural communities have been forced to migrate to urban areas in search of livelihoods and food (Chaturvedi A. et al. 2015, 806). Both degradation and pollution demonstrate that there are limits to development (Wilson et al. 2010, 3). The question remains, how can governments achieve development for countries' that require it the most while being affected by negative impacts of previous development projects, like environmental degradation and climate change.

The World Commission on Environment and Development's Brundtland report has attempted to address this question through the concept of Sustainable Development. It is defined as development that "ensures that it meets the needs of the present without compromising the ability of future

generations to meet their own needs" (World Commission on Environment and Development 1984, section I, sub-section 3).

An equally important debate in sustainable development, is what governments hope to achieve in the end. Should they be aiming for an overall sustainable development practice that would address issues of development waste and pollution? Or, are we attempting to address our current economic system as it is this system that is ultimately unsustainable? Gordon Wilson's book *Making the connections between environment, development and sustainability* addresses this issue further (Wilson et al., 2010).

Although Africa has contributed less to environmental pollution than other continents such as Asia, North America and South America, its countries will be more vulnerable to climate change effects than the others (IPCC, 2007). However, due to two decades of economic growth and the inability to implement sustainable development programmes, scholars like Asongu et al. argue that sub-Saharan Africa is also a participant in environmental degradation and pollution and therefore should participate in emissions mitigation (Asongu et al. 2017, 354). This aforementioned economic growth, resulted in further issues for sub-Saharan countries including deforestation, biodiversity loss and

pollution—deforestation being the leading cause of environmental degradation (Akokpari 2012, 29).

This leads into the debate of environmental protection at the cost of development. While the need for environmental regeneration and the mitigation of carbon emissions has been established, the problem remains that developing countries carry a significant amount of poverty. An alternative economy first approach argues that one should consider that communities living in poverty are dependent on the depleted resource, or a certain farming method, for basic sustenance. In these cases, impoverished people are often food-insecure and less resilient to such stresses and disasters. Therefore, reinforcing a cycle of vulnerability and making it harder for individuals to prioritize the environment over their own lives (Oluoko-Odingo, 2011, 2).

What is more, due to the technological increases of large agro-business, like genetically modified organisms and mono-crop culture, it is becoming increasingly difficult for small-scale agriculture to compete on the global scale. Were small-scale farmers to acquire more technology to compete with these large agro-businesses, they would still be facing issues of increased weather systems, large swings in market prices, and health epidemics (Sayer and Campbell 2004, 10).

Arguably, there needs to be more focus on long-term sustainability and not short-term band aid solutions that will address poverty alleviation without maintaining agricultural yields for future generations.

Conservation areas

A long term solution to environmental regeneration and sustainable economic practices is the conservation area model. These models generally aim to both alleviate poverty in developing countries and attempt to conserve the environment at the same time. This trend began in the 1960s with the concept of integrated rural-development; however, this was abandoned in the 1970s due to its westernized mindset and top-down practices. Integrated conservation and development projects were later implemented throughout the seventies and into the twenty-first century (Sayer and Campbell, 2004).

Participation in Governmental Conservation Policy

Community based resource management

A particularly popular model of conservation is community based resource management. This model is largely used when integrating community participation in conservation or implementing conservation projects. Integrated conservation and development projects focus on

areas that are required for pastoral grazing or farming, however are environmentally degraded (Oldekop J. et al 2009, 462). The resources inside of the common areas are termed Common property resources and are constituted as shared resources among the community (Chaturvedi A. et al. 2015, 806). However, the area is not available to anyone like that of open access resource management. It is required that those who enter the areas are recognized members of the community who participate in management (Chaturvedi, A. et al. 2015, 807). These management models, sometimes referred to as community based resource management or common-pool resource management, attempts to amalgamate all stakeholders in the utilization of common-pool resources. Of particular importance, in these areas, is the easement of tensions among the actors involved and participation of local communities. These projects highlight the relationship, among humans and the environment, as constantly changing alongside various environmental influxes. Because of this constant shift, common-pool resource management depends on continued consultation of all members within the conservation project (Oldekop J. et al, 2009, 462).

Although these models have become popular in sustainable resource management, there have been questions raised as to whether development and environmental

protection can coexist. Successful cases have been studied, however, and emphasize the requirement of strong institutional management (Oldekop J. et al 2009, Chaturvedi A. et al., 2015). Regional bias should also be considered in that certain community based resource management projects can be successful or unsuccessful depending on their grounded situation (Oldekop J. et al 2009, 467).

Why is it important to include local groups in conservation efforts?

Failure to include local communities, in conservation area projects, has resulted in various contentions intensified by mistrust and lack of communication. These include poaching and exploitation of resources. Recently, environmental justice authors have focused more on environmental conservation, specifically in the area of illegal poaching, in these protected areas. Gibbs et al. argue that it is necessary to include social aspects in conservation efforts especially in cases where local, impoverished communities are dependent on depleted resources. Failure to do so can result in the exploitation of natural resources and issues of illegal livelihoods among the local population (Gibbs et al. 2011, 329). Failure to include the local farmers, adjacent communities, and fishers

can lead to the mistrust of local officials in protected area enforcement and "Poachers may perceive scientific assessments... as inaccurate because they mistrust the regulatory agency that traditionally conducted the assessments" (Gibbs et al. 2011, 338). Thus, the continuation of deception of conservation laws could continue until that line of connection has been made and trust has been fostered.

However, improper participation has also produced difficulties for local communities. Borrini- Feyerabend et al. argue that local groups have faced various issues by both resisting and engaging in conservation efforts. These include the lack of proper compensation for their engagement and the loss of their culture and self autonomy to provide for themselves, and their families, in their traditional way. Nomadic pastoralist farmers, in the Maasailand, particularly, are forced to remain stagnant in a bordered conservation area. This has inadvertently lead to the dependency of imported feed for nomadic herds as they cannot move from one plot of grazing land to the other. This is also forcing nomadic farmers to link to the market economy where they otherwise would have been self-sufficient (Borrini- Feyerabend et al. 2004).

On the other hand, conservation programs and protected areas are not only robbing locals of their cultural practices, but their money as well. While farmers are giving up opportunity costs to continue their agro practices, wildlife are also destroying the crops that farmers are producing and attacking pastoralist herds. This loss of revenue is not equal to the compensation that farmers are afforded from conservation areas (Kayaa et al, 2017). This view is also held among Louie Rivers and Carole Gibbs, who argue, alongside Hauck and Kroese, that the exclusion of local communities in policy implementation "has reinforced and exacerbated the social and economic marginalization of poor and/or minority populations, often leading to their traditional interactions with natural resources being labeled as deviant or criminal" (Hauck and Kroese, 2006). Alternative sources of income are recommended among conservation programs including partnering with micro-finance initiatives. This is because local communities are receiving wages from the initial implementation of the conservation project and not expected to wait for compensation. In this way, local farmers are given an incentive to conserve the environment and arguably reduce the necessity for poaching (Kayaa et al. 2017).

Market based versus governmental based conservation

Although governmental implementation of conservation areas has proven problematic, Van der Linde et al. argue that privatized conservation areas "Enable economies of scale to be exploited, they allow for regional marketing and provide an opportunity for the private sector (and donors) to benefit from a politically correct 'green image' by investing in nature related activities" (Van der Linde et al. 2001). Wolmer argues that "Large conservation organizations are becoming increasingly business-like - developing funding strategies in conjunction with multilateral development banks and building corporate linkages... these funding structures... privilege 'big conservation' (transnational conservation organizations) at the expense of grassroots or even national conservation organizations" (Wolmer 2003, 4). This "business-like" development model may lead to a top-down approach and power asymmetries in that "the private sector is almost always the stronger partner and initiator of joint-ventures, with communities often relegated to the role of landowner" (Wolmer 2003, 5). Wolmer fears that under advantaged local community leaders, and NGO's, will be unable to hold the corporate stakeholders accountable for poor decision making

in conservation efforts. This problem is magnified when governments fail to empower local communities with the capital necessary to challenge powerful stakeholders (Wolmer 2003, 5).

However, in many cases, private projects may be the only option as developing countries do not have the funding to implement their own conservation projects. Through Neo-Liberal methods, Ruderaas argues that the exclusion of grazing rights, implemented through the conservation policies, have forced business efforts to grow the national economy, and have turned to the tourism sector to generate revenue (Ruderaas 2011, 44).

Decentralization of Government

Government-lead projects are argued to be a more successful conservation model. However, these models require decentralization of government to smaller and more effective bodies of implementation. The act of decentralizing government is recommended for natural resource based conservation programs only "If institutional arrangements include local authorities who represent and are accountable to the local population and hold discretionary power over public resources. Then, the decisions they make will lead to more efficient and equitable outcomes than if central

authorities made those decisions" (Ribot 2004, 1).

Decentralization depends on the effective infrastructure of a downwardly accountable local actor or actors with significant discretionary power (Ribot 2004).

The issue remains, as argued by Ribot that governments are reluctant to decentralize power over natural resources, to local communities, because of an "entrenched resistance" that government officials have for letting go of their power (Ribot 2004, 2). If local officials are given any sort of authority it will not be the power to adequately manage natural resources or the use of forests, but it is a transfer of burdens with little or no funding. These transfers are also done informally and therefore are easy to take back and easily manipulated by higher powers (Ribot 2004, 3).

Ribot argues against popular development trends like privatization and civil-based-society interventions as they have "avoided, weakened, and delegitimized representative local-government institutions" (Ribot 2004, 3). Instead, in order to remedy this trend, local governments must be empowered with natural resource based management (Ribot 2004, 3).

The decentralization of power over conservation projects, to local actors, is arguably a means for the government to implement a façade of downward accountability, meaning the ability of local populations to hold their elected officials accountable (Oyono 2004, 3-4). By allowing regional or county officials to maintain governance over the project it gives the illusion that local people, who consider the conservation area to be their ancestral land, are managing the project (Oyono 2004, 4). Local accountability is very important in implementing conservation projects as without this ability, local communities will not be able to adequately control the resources and revenue of the conservation area.

In Kenya specifically, the attempt to decentralize conservation project implementation and decision making is weak. The government has attempted to decentralize power by allowing locals to participate by acting as monitors of various parks and act as park rangers; however, they are left out of decision-making including deciding how revenue from the parks should be divided, even though the locals work much of the park (Mogoi et al 2012, Chomba et al. 2015).

Methodology

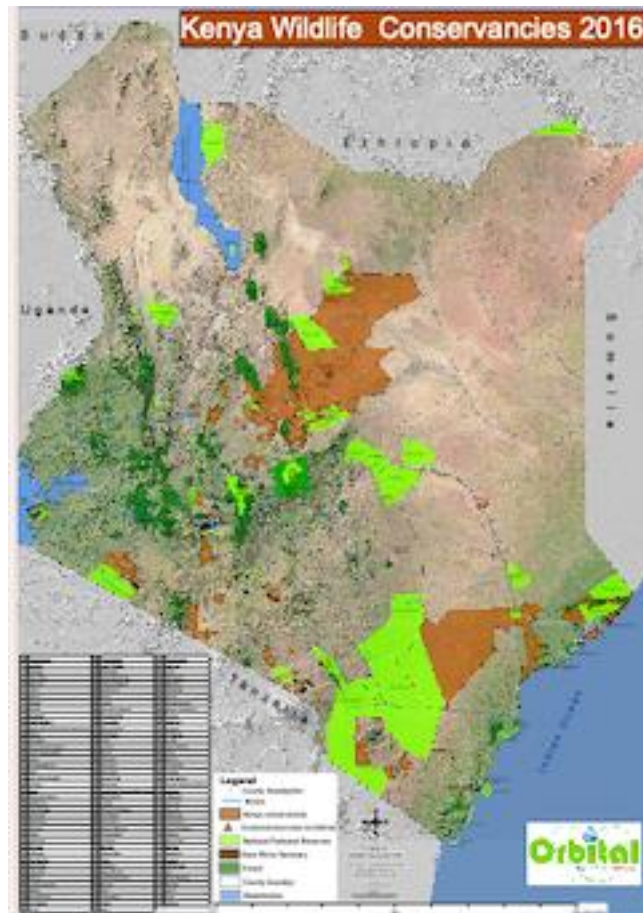
In order to conduct research, based on my research question, I will require data as to whether there is a necessity for conservation areas, in Kenya. I will need to establish the extent to which Kenya is affected by both environmental degradation and climate change as a multiplier of environmental ills. I will then prove that this environmental destruction is a development issue in that it will affect economic and societal growth, negatively. Once this has been proven I will research the extent to which the Government has been addressing these issues and whether or not conservation plays a role in this strategy. Upon this conclusion I will then require data as to the success of conservation projects in protecting the environment and benefitting local communities. I will also require a definition as to what a successful conservation project is meant to achieve and how best to implement a conservation project.

I will need to research both primary and secondary sources including various Government documents, resolutions from international organizations, online reports from various non-governmental organizations and peer-reviewed journals. In order to conduct my analysis of the

governmental implementation process, in Kenya, I will require qualitative data based on primary sources such as governmental documents including policies and policy implementation. These documents include "The Climate Change Act" and others from Kenya's Ministry of the Environment. I also will need to compare these Government documents with resolutions constructed by the United Nations Environmental Assembly, the United Nations International Panel on Climate Change, the Food and Agriculture Organization of the United Nations Regional Office for Africa and the United Nations Convention to Combat Desertification in order to argue for Kenya's dedication to address environmental degradation as both a national and global issue. I will then need to give evidence from secondary sources of research conducted on various conservation areas, in Kenya, including organizations like the Kenya Wildlife Conservancies Association, the Kenya Wildlife Service and the Maasai Mara Wildlife Conservancy. I will also draw information from various non-governmental organizations including the African Wildlife Foundation, the International Union for the Conservation of Nature, and the Center for Global Development. Finally, I will require case studies from various scholars in journals like "Energy Policy", "Conservation and Society", and "Ecology and Society".

Chapter #2- The Government of Kenya and conservation implementation

Kenya's adoption of environmental policies



The map pictured above displays the conservation areas in Kenya (Orbital Africa Limited, 2018).

Introduction

This chapter will provide evidence as to the ongoing environmental challenges faced by Kenya. I will then discuss the Government of Kenya's implementation process in the use

of conservation areas as a response to mitigate climate change and address issues of environmental degradation. Following this discussion, I will look more in depth as to how local communities have been affected and incorporated in governmental conservation efforts and discuss the challenges faced by communities.

Kenya

The Republic of Kenya is a vastly, environmentally diverse country in East Africa. Its climate varies from tropical to arid, from low plains to central highlands and fertile plateau in the west (CIA, 2018). Kenya resides North West of the Indian Ocean, borders Somalia to the East, Ethiopia and South Sudan to the North, Uganda to the West and Tanzania to the south. With an area of 580,400 km², a population of 49.7 million people (World bank, 2019), as well as two official languages—Swahili and English. Kenya has a presidential republic governmental system and achieved independence from British colonizers on the 12th of December, 1963 (CIA, 2018).

After 1995, Kenya's GDP spiked to 5.7 billion USD in 1993 to 79 billion USD in 2017. In 2015, Kenya's poverty headcount ratio was measured at 36.8—an arguably large drop from 46.8 in 2005 (Worldbank, 2019). Because of Kenya's

momentum in developing GDP and lowering the rate of poverty, it is interesting to study this growth given the environmental challenges that developing countries are facing.

Environmental degradation and developing countries

In developing countries, both armed conflict and natural disasters can result in aftermath shocks of food insecurity. This is of particular significance if a country is facing issues of poverty, scarce resources, and unstable governmental systems. Without a proper foundation to mitigate natural disaster and armed conflict events, the issues are only exacerbated and this can result in cyclical poverty—a self-perpetuating cycle (Semeno and Gennari 2013, 68).

Africa is the second continent to have been the most affected by natural disasters, after Asia. For Africa specifically, drought is the most significant natural disaster. 7 million people were directly impacted by drought while 3 million suffered the effects from flooding. This resulted in significant loss of land and, because over half of Africa's population earns livelihoods from agricultural practices, food insecurity. However, deforestation, land use

intensification, loss of land cover, and climate change has exacerbated these issues (Semenov and Gennari 2013, 188).

Kenya and Environmental Degradation due to Climate Change

Because of a large climate influx, in September of 2011, Kenya was a major victim of the Horn of Africa food crisis. This crisis was a result of the driest spell since 1950, affecting 12 million people. The food crisis caused food insecurity due to loss of livestock, inflation of food prices, restricted humanitarian access and local conflict (Semenov and Gennari 2013, 70). However, the problem of increasing natural disasters continues. In the Marsabit, one of the driest regions in Kenya, there are severe challenges including access to water and pasture. These issues are exacerbated due to variable climate resulting in longer dry spells negatively impacting pastoralists who require water for their herds (Hazard and Adongo 2016, 42).

Recognizing that Kenya is affected by global climate change, the Government of Kenya's environment sector committed, in the Climate Act of 2016, to "Adapt... natural or human systems in response to actual or expected climatic stimuli or their effects which moderates harm or exploits beneficial opportunities" (Government of Kenya part 1 section 2, 2016). In order to respond to the threat of

Climate Change the Kenyan government established the National Climate Change Council chaired by the president. The Council oversees the implementation of the National Climate Change Action Plan (Kenya 5.1, 2016). The Executive Summary of the National Climate Change Action Plan, coordinated by the National Climate Change Council, recognizes that climate change has resulted in unprecedented losses to both Kenya's environment and economy. This is because Kenya's vulnerability to climate change is at an increased rate due to large dependence of natural resources (National Climate Change Action Plan 2013-2017, 5).

Given the Kenyan governments recognition that Climate Change poses a threat to Kenya, and their participation in agreeing to implement sustainable land management practices, environmental protection is a priority for the Kenyan Government. Given their history with drought and food insecurity it is also apparent that the protection of the environment is important for the maintenance of both food security and economic security for their farmers and pastoralists.

Sustainable Forest Management

The United Nations recommends the use of sustainable forest management in order to mitigate climate change and

abate environmental degradation. The Food and Agricultural Organization of the United Nations "Environment and Natural Resources Management Working Paper No. 62" considers sustainable forest management to be forests that "sustainably increase their benefits...to meet society's needs in a way that conserves and maintains forest ecosystems for the benefit of present and future generations" (FAO, 2016). It is this definition that Kenya, as a member of the FAO, has agreed to adopt on the basis of sustainable forest management.

Rehabilitation is the goal of conservation efforts that wish to enhance environmental services, however continue to produce goods and services. This model enhances productivity of the area without restoring the original biodiversity. This model is useful when a conservation project requires the continuation of agricultural or resource extraction methods to "justify the rehabilitation effort" (Sanz et al. 2017, 64). This model is of particular suitability for Kenya given their dependence on the production of natural resources for economic revenue. Without this revenue, the conservation area will fail to meet the needs of societal demand and therefore would not be considered a sustainable forest management program, as argued under the definition of sustainable forest management agreed upon by the FAO.

Kenya and Conservation Projects

In 2010, Kenya took the first big step, towards environmental conservation management, by devolution of government centrality. This dispersal of power resulted in the formation of 47 county governments. Government decentralization is representative of Kenya's attempts to incorporate community participation and consultation, in conservation projects, due to the ability of regional governments to represent a smaller group and their specific environmental needs.

The Kenyan Government implemented a Forest Conservation and Management Act through recommendation of the Intergovernmental Forum on Forests: Commission on Sustainable Development. This forum recognizes the importance of protecting ecosystems through the usage of conservation and protection. The Act stipulates that the Kenyan government recognizes four types of forests: A national forest, county forest, community forest and private forests. National forests are both owned and managed by the governmental Kenya Forest Service. The county forests are managed and owned by the county government, community forests are managed and owned by the community land committee established under the Community Land Act, and

private forests are managed and owned by the private corporation, individual, association or institution (Forest Conservation and Management Bill 2015, 7).

For community conservation specifically, the Kenyan government passed the Wildlife Conservation and Management Act of 2013. This act recognized the important role that local communities play in conserving wildlife and legally recognized conservation as a way to maintain biodiversity. In 2016, the community land act was established which strengthened the legitimacy of community land tenure rights (Maasai Mara Wildlife Conservancies 2017, 2). The government recognizes the need for "indigenous knowledge and intellectual property rights embodied in forest biodiversity and genetic resources" to be protected and help in guiding the implementation of the Forest Conservation Management Act (Forest Conservation and Management Bill 2015, 9g).

County forests

County forests include land that is not owned by the government. These lands were previously left unclaimed and therefore allotted to the county in which they reside (Forest Conservation and Management Bill 2015, 23). As ordered by the government of Kenya, County Governments are required to ensure that each forest, under its jurisdiction,

is managed on a sustainable basis. They are also responsible for the creation of county forests and to increase tree cover within their county (Forest Conservation and Management Bill 2015, 24).

An association, registered under subsection 1, may apply to participate in the management of a national or county forest. Once approved by the director general, the participant is eligible to "protect, conserve and manage such forest... formulate and implement forest programmes... protect sacred groves and protected trees... assist the service or the county department...keep the service or the county department...informed of any developments, changes and occurrences... help in fire fighting" (Forest Conservation and Management Bill 2015, 36).

Private forests

The Government also allows for the implementation of conservation programs by private groups or individuals. Private forests include forests that are situated on registered land. The owner of the forests includes any person under freehold tenure, leasehold tenure, or previously owned by an individual or institution, for commercial or non commercial purposes (Forest Conservation and Management Bill 2015, 23-24). Once registered, private

forests are entitled both technical forestry advice and funding from the Kenya Forest Service. Private forests may also apply for exemption from land taxes and other charges (Forest Conservation and Management Bill 2015, 25).

Kenya Wildlife Conservancies Association

The Kenya Wildlife Conservancies Associations acts as a bridge between the Kenyan government and local, community conservation areas. They both advocate for conservation policies at the government level and facilitate information sharing among community conservations as well as external stakeholders (Kenya Wildlife Conservancies Association, 2018). The goal of the Kenya Wildlife Conservancies Association Community is to place communities at the centre of conservation programs. While the aim is to conserve the environment, the Kenya Wildlife Conservancies Association also hopes to use conservations to "transform communities while safeguarding iconic wildlife by uniting communities, promoting peace and security and improving livelihoods" (Kenya Wildlife Conservancies Association, "Our missions" 2018, 1).

Community Conservancies account for 48 percent of the Kenya Wildlife Conservancies association. The remaining conservation projects are both local and group

conservations, which is a smaller group of private land holders who have come together to form a conservation area (Kenya Wildlife Conservancies Association, 2018). The communities democratically elect a representative board of community members also containing ex-officio board members of the Kenya Wildlife Service, as well as conservation and tourism partners. This board determines benefit-sharing mechanisms, development strategies and oversees the operational management

Community forests or Community Based Forest Management or Participatory Forest Management

Community forests consist of land that has been lawfully registered, by their respectful counties, and designated to a communal group. These forests can be situated on ancestral land and traditionally occupied by hunter-gatherer communities. These lands can be held as a trust land as issued by county governments (Forest Conservation and Management Bill 2015, 23). Community forests are lawfully permitted both technical advice in regards to forestry practices and funding from their County government. Communities are permitted to apply for exemption from land rates and other charges (Forest Conservation and Management Bill 2015, 24- 25).

However, the community cannot invent new rules and regulations for their forest. This privilege is left to state actors including the Kenya Forest Service, the Minister of Water and Natural Resources and the Ministry for the Environment. These actors implement regulations such as the banning of charcoal burning, at the national level, and expect them to be followed at the local level. However, in Kenyan community forests, there was inflation due to charcoal scarcity and it resulted in illegal poaching of charcoal in protected areas, therefore the ban was lifted (Chomba 2015, 5, Mogoi et al. 2012).

Local groups and land dependency

Kenyan farmers and pastoralists depend on the land for various reasons. Smallholder groups like the Maasai, Samburu, and Turkana are more dependent on pastoralism and the forest for grazing. On the other hand, the Meru and Kikuyu people are more dependent on farming and crop cultivation with particular dependence on the forest for irrigation water. Both tribal livelihoods, however, depend on forests for firewood collection, construction materials, medicinal plants and beekeeping (Chomba et al. 2015, 4-5). This has had a large impact on the type of community based conservation areas that have been implemented and applied

for, by local groups. Community Wildlife conservancies receive 80 percent of their revenue from foreign donors, 11 percent from commercial activities including wildlife-based tourism, selling livestock, and the remainder from payment for ecosystem services. These funds are used towards building both institutions and infrastructure used towards both operations and program support (Kenya Wildlife Conservancies Association 2018, 10).

Mechanized medium and large farming, as well as conservation areas implemented during colonial times, are mostly owned and operated by families of European descent. Although these models are owned by individual families or local European farmers, they are registered under community conservation programs. The farmers grow various crops for export including flowers while others cater to tourism (Chomba et al. 2015, 5).

Community participation

In order for a community to register as a legally recognized community forest, a representative must submit an application under the societies act (Forest Conservation and Management Bill 2015, 34). If in agreement with the management of either the national or county management, the association is eligible to collect medicinal herbs, harvest

honey, fuel wood, grass, produce for community based industries, ecotourism, scientific and education activities, plantation establishment, for a maximum of 3 years, and other benefits (Forest Conservation and Management Bill 2015, 36).

Community Conservation representatives gathered for the 2018 annual conservancy leaders conference organized by The Kenya Wildlife Conservancies Association. The association divided leaders into the twelve regions of Kenya and asked them to highlight the key achievements in their conservancies. 90 percent of participants responded that they were the proudest of the enhanced well-being and improved relationships within the conservation area. Enhancing wildlife followed at over 60 percent, then both increased wildlife and improved wildlife. Under 30 percent responded that reducing poaching and improved conservancy were their proudest achievements and less than 10 percent voted for enhanced land tenure.

The conservancy leaders were then asked what the main challenges were that they faced in their community based conservation areas. Competing land priorities were voted as the largest challenge, to community based conservation, by over 90 percent of participants. This was described as the

issue of competing for land priority with “mega infrastructure projects, land sub division/ fragmentation and other factors associated with population growth” (Kenya Wildlife Conservancies Association 2018, 18). This statistic was followed by the effects of climate change, inadequate funding, limited knowledge and human-wildlife conflict (Kenya Wildlife Conservancies Association 2018, 18).

Arguably, the positive response of conservation leaders demonstrates that conflict among stakeholders and community members has lowered as a result of successful conservation implementation. This result is a commendable feat by the Kenyan Government to implement community based conservation programs. However, the largest threat to community based conservation is competing land priorities. The Kenyan Government has failed to adequately ensure that conserved land will not be sold to private actors for infrastructure projects or for families in land-subdivision. This problem is of large significance to nomadic pastoralists who require the ability to move freely across their historical plains. By selling plots of land to private actors, the mobility of nomadic pastoralists is restricted.

Conservation in practice

Nomadic practices and indigenous knowledge

The traditional practice of nomadic pastoralism is a “tightly coupled human-environment system in which human livelihoods are derived substantially or wholly from livestock that forage on naturally occurring rangelands” (Kaye-Zwiebel and King 2014, 1). Because of their mobility, pastoralists are able to “buffer themselves” from temporary shifts in weather and use rangelands as common pool resources managed through polycentric governance systems (Kaye-Zwiebel and King 2014, 1). Both their environmentally adaptive, migratory practices and societal norms are resilient, adaptive strategies to human resource dependence and harsh ecological conditions (Kaye-Zwiebel and King 2014, 1). However, land appropriation, mobility restriction, population increase and livestock density have put significant pressure on the nomadic systems (Kaye-Zwiebel and King 2014, 1).

Tourism has been a significant pressure, as it falls under the category of private land appropriation, in the case that tourist programs are implemented by outside actors. In some cases, tourist efforts can be economically beneficial to conservation programs as long as the

conservation area receives the revenue and has significant management control (African Wildlife Foundation Report, 2017).

As reported by the Africa Wildlife Foundation, Eco-tourism is an aspect of community-based conservation projects. This concept results in the construction of Eco-lodges in places like Kenya's Satao Elerai Camp. These lodges are owned by local communities and private-sector operators and often help to pay for construction. In this partnership, the community would allow for their land to be host to private eco-lodges (African Wildlife Foundation Report, 2017). These Eco-lodges have seen success stories in places like Sabyinyo in Rwanda that have accrued up to 3 million USD for the local community and conservation efforts. In one conservation area, they had expanded their borders more than seven-fold through agreements with neighboring communities in order to construct multiple lodges (African Wildlife Foundation Report, 2017).

However, private land owners inside and around the Maasai Mara attempted this project in the 1970's with less than 10 lodges in place. This number increased to under 40 until in 2004, when the government set a moratorium on the construction of new lodges due to their interference with

Maasai migration. This moratorium was lifted a year later and the Mara was home to large amounts of tourism expansion. By 2008 this new expansion included 140 accommodation facilities and in 2017 there was estimated to be 200 (Maasai Mara Wildlife Conservancies Association 2017, 5). In this case, the Maasai Mara conservation program was not under ownership of the Eco-lodges and therefore could not control where they were being built or receive revenue from the tourists. Tourism and outsider private land ownership has proven to be extremely harmful to the conservation of resources as well as the way of life for the Maasai Mara.

Animal conflict in community forests

The communities also established that animal-human conflict have become a problem in community based conservation. Large mega-fauna are under increased risk of depletion due to increased population density, habitat loss, and reduced prey availability. Because of this issue, most large African carnivore species, including the cheetah, and lion have been isolated in governmentally protected parks (Schuette et al. 2013, 148).

Arguably, the issue of competing land priority and human-animal conflict are intertwined. Local pastoralist movements are under the most threat from lack of priority in

land tenure due to the fact that they require movement in order to maintain migratory, nomadic practices. The shrinking of conservation borders, due to the sale of land to private actors, is forcing nomadic pastoralists and their herds to remain stagnant for a longer period of time. Animals who are also forced into one area have come in contact with pastoralists at an increasing rate and has caused more animal-human conflict as farmers attempt to protect their herds (Hazard and Christine 2015,43)

Human-animal conflict correlations can be made between lion migration and herd migration, in conservation areas. A study conducted over a three-year period, on Olkiramatian and Shompole Maasai Group Ranches in the Southern Rift Valley, monitored the results of the community-managed conservation area. The management allowed for nomadic ranching practices within the conservation area and is completely fence-free. The conservation area is trans-boundary with both Kenya and Tanzania (Schuette et al. 2013, 1).

The Maasai community, of Olkiramatian and Shompole, has a low-density population and relies mainly on their herd for livelihood sustainability. Historically, the Maasai Mara only hunted lions for tribal ceremonies, a practice that is

now illegal, and when they are threatening herds or people (Schuette et al. 2013, 2.1). The conservation area is separated by a large river. The study found that the chance of lions entering the conservation area on the east side of the river multiplied five times when the herds were present on the west side of the river. This supported their hypothesis that "lions utilized the conservation area to avoid close interaction with occupied human settlements" (Schuette et al. 2013, 3.2) These findings argue that "seasonal human land use and livestock husbandry practices that include herdsman that oversee herds during the day... likely contribute to low rates of conflict and limit the need for lethal control of lions" (Schuette et al. 2013, 4).

The Maasai Mara

There are 15 conservancies in the Maasai Mara that protect 450,000 acres. These conservancies have doubled the lion population in that area and earn more than \$4 million annually from tourism (Kenya Wildlife Conservancies Association, 2018). The Maasai Mara Wildlife Conservancies Association, formed in 2013, is a network of 14 conservation communities that acts as an umbrella association for the Mara conservancies. The association partners with 49 other

organizations and employs 258 park rangers (Maasai Mara Wildlife Conservancies Association, 2017).

Historically, the Mara has fallen victim to issues of unequal socio-economic development. This is due to colonization, poor governance and corruption as well as land grabbing and lack of transparency. Various land management programs have taken place in the Mara including communal land management by group rangers. This communal management was deemed a failure because of the resulting distrust among group participants. Following this attempt, the land was divided among members leaving only a few individuals receiving most of the benefits (Maasai Mara Wildlife Conservancies Association 2017, 4).

In 2019, due to the success of the 2013 Wildlife Act, the Mara is now a contender for conservation projects. However, various issues undermine this possibility. Overall population growth in the Maasai Mara is estimated at 10.5 percent and youth population growth is estimated at 65 percent. While many of the youth do not have an income, the dependence of the increase in resources is growing while traditional Maasai livelihoods depend on livestock and communal rangelands. The socio-economic shift in needs also threatens the possibility of a conservation area because the

Maasai will require revenue in order to pay for school and medical fees (Maasai Mara Wildlife Conservancies Association 2017, 4).

The Maasai Mara conservation project is also threatened by land subdivision which has allowed for land to be sold to outsiders. This subdivision has resulted in the construction of border fences. These fences have created difficulty for both the Maasai Mara migration as well as wildlife migration and threatens wildlife habitat. This also hinders the Maasai Mara's ability to adapt to climate change given their inability to shift their herds to areas unaffected by drought (Maasai Mara Wildlife Conservancies Association 2017, 4).

Chapter #3- Analysis and Discussion

Discussion

Kenya suffers from both environmental degradation and climate change induced natural disasters, including flooding and drought. These disasters are accompanied with various aftershock affects including extreme poverty, food insecurity, rural-urban migration and conflict (Sarkodie 2018, 1). While these natural disasters continue to aggravate environmentally depleted areas, the need to conserve and regenerate the environment is of significant importance given its plague of socio-economic sectors including agriculture and food security (UNFCCC 2007, 8).

Developing countries, in particular, will be affected by climate induced natural disasters significantly more than developed countries. This is due to the fact that the environment and development are intrinsically linked as the depletion and destruction of natural resources could result in degraded food crop production and therefore both the economy and national food availability (Sarkodie 2018,1, IPCC, 2007). Because of this link, it is argued that there are limits to development. The globe cannot continue to develop business as usual due to the large amounts of environmental degradation and pollution that has caused

climate change and its natural disaster, after-math shocks. The Brundtland report argues for the use of Sustainable Development that "ensures that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development 1984, section I, sub-section 3).

Although Kenya is considered an under-developed country, it has had significant growth throughout the past ten years (Worldbank, 2019). However, Kenya has also been the victim of significant natural disasters including the Horn of Africa food crisis, the driest spell since 1950, affecting 12 million people, in Africa. The Kenyan Government recognized the necessity of sustainable development and the need to adapt natural and human systems, that are negatively affected by climatic stimuli, in the Climate Act of 2016 (The Government of Kenya 1, 2016). Although Kenya has not been able to take advantage of its opportunities of growth, like countries in Europe and the West, legislation shows that the Kenyan Government has made environmental protection a priority.

Through legislation, the Kenyan Government has established the National Climate Change Council in order to address the issue that climate change indeed effects both

the environment and the economy (National Climate Change Action Plan 2013-2017, 5). As a member of the United Nations Conference of the Parties, the Kenyan Government committed to achieve land degradation neutrality in attempts to combat desertification and sustainable forest management as a means to achieve this end (Climate Change Action Plan 2013-2017, 15). Sustainable forest management is meant to abate environmental degradation while also meet the needs of society in a way that conserves and maintains forest ecosystems (FAO, 2016).

The Kenyan Government implemented sustainable forest management through the Forest Conservation and Management Act (Forest Conservation and Management Bill 2015, 7). The Kenyan Government furthered implementation by decentralizing the Government to 47 Counties, in 2010. Ribot argues that decentralizing government is of great importance in Government-lead conservation projects however could result in a transfer of burdens from the central government to lower government officials (Ribot 2004). However, in the 2018 annual Conservancy Leaders Conference organized by the Kenya Wildlife Conservancies Association, leaders reported that they were proud of their ability to enhance well-being amongst the conservation area and improve relationships (Kenya Wildlife Conservancies Association 2018, 18). This

response demonstrates that the Kenyan Government has been successful in decentralizing power and the implementation of community conservation areas in that they have protected livelihoods of the local people and fostered trust among participants and the conservation officials. Had they failed to include communities in conservation, they would not have achieved these successes as argued by Rivers and Gibbs, previously (Gibbs et al. 2011, 329).

After passing the Wildlife Conservation and Management Act, in 2013, conservation areas were legally recognized as a way to maintain biodiversity. Three years later, in 2016, the Kenyan Government recognized the significant role that communities play in managing and participating in environmental conservation through the Land Act. The Land Act was meant to strengthen legitimacy of community land tenure rights and recognize the importance of indigenous knowledge. This act allowed for the creation of Community Based Conservation projects (Forest Conservation and Management Bill 2015, 9g). The Kenyan Government gives support to the Community forests through the Kenya Wildlife Service who prepares management plans, and provides both funding and educational assistant, upon request, to the Community forests (Forest Management Bill 2015, 11).

Unfortunately, while the Kenyan Government has been successful in implementing environmental policies as well as decentralizing government, to further ensure community participation, they have failed to protect communities from shrinking conservation areas including the selling of land to private tourist initiatives as well as others and animal-human conflict. Through the recognition of community based conservation the Kenyan Government has opened the door for communities to use their first-hand experience in managing natural resources and adapting to climate change. The Maasai are particularly successful in mitigating these issues through the use of nomadic pastoralism (Kaye-Zwiebel and King 2014, 1). However, as reported at the Kenya Wildlife Conservancies Association conference, the largest threat to conservation programs, in Kenya, is private land encroachment and human-animal conflict (Kenya Wildlife Conservancies Association 2018, 18).

Land appropriation and the selling of land, by the Government, to private actors results in the shrinking of conservation borders whether physical, through the construction of fences, or theoretical. For nomadic pastoralists the land that is part of the migratory plains is purchased by outside actors and therefore produces restrictions in movement. In some cases, the land is sold

for private tourist ventures, however, land priority has also been given to various outside actors (Schuette et al. 2013, 148).

In cases where tourism initiatives are implemented by the conservation that the program advertises, like Kenya's Satao Elerai Camp, revenue from the tourism initiatives can help to pay for operations costs of the conservation area and give money to the local communities (African Wildlife Foundation Report, 2017). However, in cases like the Maasai Mara, private tourism ventures have not respected the migratory practices of the Maasai people and have built tourist attractions that have acted as obstacles or barriers to their migration (Maasai Mara Wildlife Conservancies Association 2017, 5). Although tourism can bring significant economic benefits to conservation programs the case of the Mara demonstrates that proper consultation is required in order to implement tourist ventures that will not interfere with the livelihoods of the surrounding people. In order for success, tourism initiatives require the cooperation and participation of surrounding communities and the conservation area in which the tourist attraction advertises.

Due to the inability of the Maasai to continue on their regular migratory pathways, and the restriction of conservation areas by political boundaries, the Maasai people have been forced to remain stagnant (Hazard and Christine 2015, 43). This has caused significant animal-human conflict as animals, that are also migratory in practice like the lion dog, cheetah, and lion, have been isolated in government parks (Schuette et al. 2013, 148). The attempt to contain these large carnivores, in a certain area, has resulted in the animals leaving the conservation and attacking the herds of many Maasai pastoralists (Schuette et al. 2013, 1). However, cases like the Shompole and Olkiramation Maasai pastoralists demonstrate the success in fence-free conservation that has allowed for the nomadic pastoralism to continue and, as a result, has controlled attacks from lions in particular. This is due to the fact that the movement helps to protect the herds from the stalking of lions (Schuette et al. 2013, 4).

Conclusion

This paper has discussed the positive as well as negative aspects of Governmental conservation initiatives, in Kenya. While Kenya has made many efforts to participate in discussion around climate change adaptation and

mitigation, land degradation neutrality, and sustainable forest management, both globally and nationally, they have also adopted these discussions in their Governmental policy. Although Kenya is a developing country, the recognition of the need to conserve the environment is unmistakable and the Kenyan Government considers this a priority in their sustainable development initiatives.

In 2005, the Kenyan Government implemented the Forest Conservation and Management Act, recognizing the importance of protecting ecosystems through the utilization of conservation and protection. In that same act, the Government stipulated that it would recognize four types of conservation areas including community based conservation. In 2010, the Kenyan Government decentralized power to 47 county governments in attempts to incorporate local participation in Governmental conservation areas. In 2013, the Kenyan Government implemented the Wildlife Conservation and Management Act that legally recognized the important role that communities play in maintaining biodiversity and strengthened the legitimacy of land tenure rights.

Over the years, Kenya has made great progress in the implementation of conservation areas, however the work is not done. While the Wildlife Conservation and Management Act

is meant to strengthen the legitimacy of land tenure rights, plots of land are continuing to sell to outside actors. This is encroaching on conservation borders, acting as barriers to nomadic pastoralist migration, and containing large carnivore species in areas where they have easy access to the herds of local farmers and the farmers themselves. Open borders and nomadic practices are an untapped resource that is of great significance in conservation practices and should be protected in that it is both a way to adapt to natural disasters like drought and to naturally co-exist with large carnivore species. Priority needs to be given to conservation initiatives, over private landholders, in order to properly conserve the environment and protect the livelihoods of those living inside and around the conservation areas.

Bibliography

Asongu et al. 2017. "Environmental degradation, ICT and inclusive development in Sub-Saharan Africa." *Energy Policy* 111, 353-361.

Author, Unknown. 2018. "CENTRE TIPPED TO MITIGATE ENVIRONMENTAL DEGRADATION." *Ministry of Environment and Forestry*, www.environment.go.ke/?p=3744.

Author, Unknown. 2018. "Conservancies." *Orbital Africa | Maps in Kenya, Uganda, Tanzania, Rwanda, Somalia & South Sudan*, Orbital Africa Limited.
<http://www.orbital.co.ke/imaps>.

Author Unknown. 2018. "Join Us in Our Vision; to Save the Last Great Species and Places on Earth for Humanity." *Kenya Wildlife Service |*, www.kws.go.ke/.

Author, Unknown. 2019. "Kenya." *The World Bank*.
<https://data.worldbank.org/country/kenya?view=chart>

Author Unknown. 2018. "Kenya Forest Service - HOME." *Kenya Forest Service - HOME*, www.kenyaforestservice.org/.

Author Unknown. 2017. "The World Now Protects 15% of Its Land, but Crucial Biodiversity Zones Left Out." *IUCN*, 10, www.iucn.org/news/secretariat/201609/world-now-protects-15-its-land-crucial-biodiversity-zones-left-out.

- Borrini-Feyerabend, G., et al. 2004. "Sharing Power. Learning by doing in co-management of natural resources throughout the world", *IIED and IUCN/ CEESP/ CMWG, Cenesta, Tehran.*
- Chomba et al. 2015. "Illusions of empowerment? Questioning policy and practice of community forestry in Kenya." *Ecology and Society* 20(3):2. <http://dx.doi.org/10.5751/ES-07741-200302>.
- FAO. 2016. "The agriculture sectors in the Intended Nationally Determined Contributions: Analysis by Strohmaier, R., Rioux, J., Seggel, A., Meybeck, A., Bernoux, M., Salvatore, M., Miranda, J., and Agostini, A". *Environment and Natural Resources Management Working Paper No. 62. Rome.* Available online at <http://www.fao.org/3/a-i5687e.pdf>
- Gibbs, et al. 2009. "Introducing Conservation Criminology: Towards Interdisciplinary Scholarship on Environmental Crimes and Risks." *OUP Academic, Oxford University Press*, 16 July 2009, academic.oup.com/bjc/article-abstract/50/1/124/349223/Introducing-Conservation-CriminologyTowards.
- Hazard B., Adongo C. 2015. "Green Grabbing", pastoralism and environmental dynamics in Northern Kenya.: An assessment of conservation models and practices in Marsabit County. Les

cahiers d'Afrique de l'Est, *IFRA Nairobi, Varia Kenya*, pp.40-62.

Homer-Dixon, T. 1991. "On the Threshold: Environmental Changes as Causes of Acute Conflict." *International Security*, vol. 16, No. 2, pp.76-116.

Huack, M. and Kroese, M. 2006. "Fisheries Compliance in South Africa: A Decade of Challenges and Reform 1994-2004". *Marine policy* 30(1): 74-83.

IPCC. 2007. "Climate change 2007: the physical science basis". Retrieved from https://www.ipcc.ch/pdf/addeddment-report/ar4/wgl/ar4_wgl_full_report.pdf.

IPCC. 2013. "Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change" (Stocker, T.F., D. Qin, G.-K. Plattner, M.)

Kaaya E. and Chapman M. 2017. "Micro-Credit and Community Wildlife Management: Complementary Strategies to Improve Conservation Outcomes in Serengeti National Park, Tanzania", *Environmental Management*, Vol. 60, Issue 3, pp 464-475.

Karanja et al. 2018. "Problems of public participation in the Ramsar CEPA programme at the Tana Delta, Kenya."

Wetlands Ecol Manage. 26:525-535.

<https://doi.org/10.1007/s11273-017-9589-0>.

Kaye-Zwiebel and King. 2014. "Kenya pastoralist societies in transition: varying perceptions of the value of ecosystem services" *Ecology and Society* 19(3): 17.

<https://dx.doi.org/10.5751/ES-06753-190317>.

Kenya Wildlife Conservancies Association. 2018. "3rd Annual National Conservancy Leaders Conference Report: Scaling Conservancy Gains for Sustainable Wildlife Conservation." *Kenya Wildlife Conservancies Association*.

Kenya Wildlife Conservancies Association. 2018. "Overview" *Kenya Wildlife Conservation Association*.

<http://kwcakenya.com/conservancies/>.

Maasai Mara Wildlife Conservancies. 2017. "Strategic Plan 2017-2020". *Maasai Mara Wildlife Conservancies*.

https://www.maraconservancies.org/wp-content/uploads/2017/05/MMWCA_Strategy_2017_FINAL1.pdf.

Mattoo and Subramanian. 2013. "Greenprint: A new approach to cooperation on climate change." *Center for Global Development*.

Oluoko-Odingo, A.A. (2011), "Vulnerability and adaptation to food insecurity and poverty in Kenya", *Annals of the*

Association of American Geographers, Vol. 101 No. 1, pp. 1-20.

Oyono, Phil Rene. 2004. "Assessing Accountability in Cameroon's Local Forest Management. Are Representatives Responsive?" *African Journal of Political Science* 9(1), pp. 126-136.

Pirot, J.-Y et al. (2000). "Ecosystem Management: Lessons from Around the World. A Guide for Development and Conservation Practitioners". *IUCN, Gland, Switzerland and Cambridge, UK*. X+ 132 pp.

Republic of Kenya. 2016. "The Climate Change Act" *Kenya Gazette Supplement*. <http://environment.go.ke/wp-content/uploads/2018/08/The Kenya Climate Change Act 2016.pdf>.

Ruderaas, M. 2011. "Implementing New Governance Strategies for Protected Areas: Analysis of the Transboundary Conservation Program on Mt. Elgon in Uganda and Kenya". *Norwegian University of Life Sciences; Department of International Environment and Development Studies Master Thesis*.

Sayer, J. A., and B. M. Campbell. 2004. "The science of sustainable development. Local livelihoods and the global

environment". Cambridge University Press, Cambridge, UK.

Ecology and Society **10**(2): 21.

Schuette P, Creel S & Christianson D 2013. "Coexistence of African lions, livestock, and people in a landscape with variable human land use and seasonal movements". *Biological Conservation* 157: 148-154.

Semeno and Gennari. 2012. "FAO Statistical Yearbook 2012: Africa Food and Agriculture." *Food and Agriculture Organization of the United Nations Regional Office for Africa ACCRA*. <https://fao.org/docrep/018/i3137e.pdf>.

The African Wildlife Foundation. 2017. "Annual Report 2017." *African Wildlife Foundation*, https://www.awf.org/sites/default/files/public%3A//media/Resources_0/Annual%20Reports/AWF_AR17_Spreads_LowRes.pdf.

The World Factbook: Kenya. 2018. Central Intelligence Agency. <http://www.cia.gov/library/publications/resources/the-world-factbook/geos/ke.html>. Date accessed: February 08, 2019.

URL:<http://www.ecologyandsociety.org/vol10/iss2/art21/>

Uddin, K. 2017. "Climate Change and Global Environmental Politics: North-South Divide." *Environmental Policy and Law*, 47/3-4.

Van der Linden et al. 2014. "On the relationship between personal experience, affect and risk perception: The case of climate change" *European journal of social psychology* vol. 44,5: 430-440.

Wilson, et al. 2010. "Environment, development and sustainability: perspectives and cases from around the world." *Oxford University press; Milton Keynes England: In association with the open University.*

Wolmer, W. 2003. "Transboundary Protected Area governance: tensions and paradoxes" *Institute of Development Studies, United Kingdom.*

World Commission on Environment and Development, 1984, "Our Common Future", *United Nations Environmental Assembly.*
<http://www.un-documents.net/our-common-future.pdf>.

UNFCCC. 2007. "Climate Change: Impacts, Vulnerabilities and Adaptation in Developing Countries". *The United Nations Framework Convention on Climate Change.*
<https://unfccc.int/resource/docs/publications/impacts.pdf>.