

# IMPACT OF CLIMATE CHANGE ON MAASAI IN AFRICA

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## ABSTRACT

*Climate change is severely affecting the weather patterns thus raising concerns for livelihoods, socio-economic and environmental sustainability. The Maasai Mara ecosystem is experiencing unprecedented changes associated with climate change. Owing to changes in seasonal cycles, the Maasai pastoralists in recent years have experienced the full impact of prolonged droughts leading to drying of water sources, poor crop yields and livestock losses, all resulting in food insecurity. Solutions to environmental issues stem from a number of policies that have been initiated by the Government of Kenya assisted by international stakeholders. Indigenous people are used to large proportions of land surface per head of the population; there is a strong correlation between the location of indigenous territories and areas with highest biodiversity and natural resource conservation.*

**Keywords:** *Climate Change, Environment, Sustainability etc.*

## INTRODUCTION

Climate change is severely affecting the weather patterns thus raising concerns for livelihoods, socio-economic and environmental sustainability. Owing to changes in seasonal cycles, the Maasai pastoralists in recent years have experienced the full impact of prolonged droughts leading to drying of water sources, poor crop yields and livestock losses, all resulting in food insecurity.

The Maasai Mara ecosystem is experiencing unprecedented changes associated with climate change. The Maasai people who call the MAASAI Mara their home have in the past been able to predict and respond to changes in weather conditions as the seasons and rainfall patterns in the Mara were well understood. It shaped the grazing patterns of livestock and interaction with wildlife in the Mara. However, changes in climatic patterns have thrown everything out of kilter and Maasai in the Mara have had to adjust their lifestyles accordingly. The Maasai Mara is famous for its annual wildebeest migration when millions of wildebeest follow the rains and green grass from the Serengeti in Tanzania to the Maasai Mara in Kenya and back. In the past the wildebeest migration pattern was consistent but in the last few years this pattern has shifted due to irregular rainfall. This

means that the wildebeest now give birth in the Maasai Mara and by doing so are spreading Malignant Catarrhal Fever which is fatal to the Maasai livestock

## **II. CONCEPTUAL FRAMEWORK**

The United Nations Framework Convention on Climate Change (UNFCCC) defines it as a change of climate that is attributed directly or indirectly to human activity, altering the composition of the global atmosphere. Human activity includes the pollution that arises from industrial activity and other sources that produce greenhouse gases. These gases, such as carbon dioxide, have the ability to absorb the spectrum of infrared light and contribute to the warming of our atmosphere. Once produced, these gases can remain trapped in the atmosphere for tens or hundreds of years. As with most socio-economic problems in the world, climate change is an issue that will prove most damaging for those least able to adapt – the poor, the young and old. But nobody is immune to climatological change – making it a truly global problem.

## **III. MASSAI IN AFRICA**

Maasai is a main tribe in eastern Africa. They live in southern Kenya and northern Tanzania along with the arid and semi-arid region of rift valley. The Maasai occupy a total land area of 160,000 square kilometres with a population of approximately one half million people. The Maasai society is comprised of sixteen sections (known in Maasai as *Iloshon*): Ildamat, Ilpurko, Ilkeekonyokie, Iloitai, Ilkaputiei, Ilkankere, Isiria, Ilmoitanik, Iloodokilani, Iloitokitoki, Ilarusa, Ilmatatapatato, Ilwuasinkishu, Kore, Parakuyu, and Ilkisonko, also known as Isikirari (Tanzania's Maasai). There was also once Iltorobo section but was assimilated by other sections. A majority of the Maasai population lives in Kenya. Sections such as Isikirari, Parakuyu, Kore and Ilarusa live in Tanganyika.

## **IV. IMPACT OF CLIMATE CHANGE ON MASSAI**

More interestingly, however, the consequences of climate change have not only affected the social, economic and political aspects of Maasai in Africa, it has also impacted on the traditional religious practices of Maasai. It has distorted the weather which was traditionally predictable, affected the patterns of their migration, and altered the seasons of rituals and festivities. The idea is that African traditional religion finds expression in nature, which goes to establish that anything that affects nature affects the religion, and anything that distorts the natural course of events, affects the traditional religious practices of Africans.

### ***Land Use Challenges***

The vulnerability of the Maasai Mara ecosystem is exacerbated by the recent changes in land ranches being divided into small parcels (averaging 60Ha) with title deeds being granted to individual Maasai households. Socioeconomic incentives are now driving a number of these parcels to be further sub-divided, developed and/or sold to commercial wheat farmers and speculators. These community lands are not only known to be key

wildlife dispersal areas but also support a greater number of wildlife as the Maasai Mara National Reserve. Therefore, curbing fragmentation of this area outside the National Reserve and ensuring continual landscapes for wildlife and pastoralism is essential for long-term resilience of the Maasai Mara ecosystem.

The increase in livestock puts pressure on the grazing areas where livestock compete with wildlife. In order to avoid human-wildlife conflicts, some conservancies like Mara North have set up specific initiatives to manage livestock grazing and to accommodate the diverse needs of wildlife, local communities and tourism partners. To do so the Mara North Conservancy maintains specific zones, and periods, for livestock grazing. Furthermore, the increasing sub-division of land implies that more families will have to share the land lease fee resulting in less income per family and lower incentive to support the conservation agreement with the Mara ecosystem have changed from nomadic pastoralism to sedentary pastoralism to agropastoralism and in some cases pure agriculture or cultivation.

### ***Ecosystem challenges***

Populations of many wild ungulate species in Africa are currently declining largely because of intensified human activity. Analyses that monitor these declines and give insight into their underlying causes are critical to (cost-) effective management and conservation of natural ungulates. Temporal trends in abundance of wildlife and livestock populations in the Maasai Mara ecosystem with a few exceptions show that wildlife populations have declined progressively after 1977.

In this region, the Amala and Nyangores rivers provide a primary water resource for local communities, particularly during the dry seasons; however, they are increasingly impacted by degradation of riparian forests through cultivation and livestock watering, increasing rates of extraction for irrigation, and development of urban centres that lack sufficient facilities for sewage treatment or solid waste disposal. The two tributaries join to form the Mara River in a more arid region in which annual rainfall is below 1000 mm. Here, the Mara River becomes the only permanent source of flowing water, providing a critical resource for the pastoralist Maasai community for watering of their livestock and for wildlife inhabiting the surrounding savannah grasslands. However, high livestock density and resulting overgrazing on this fragile land have led to declines in grassland cover, bringing rapid runoff and high sediment loads into the Mara River. Furthermore, it is also important to assess the impact of the emerging agricultural activities on the Mara River.

As a result of intensive agricultural activity and land overuse, soil resources are suffering degradation and these include erosion compaction and hard setting, acidification, declining soil organic matter, soil fertility depletion, biological degradation, and soil pollution. The Maasai Mara ecosystem has suffered most of these effects especially through deforestation, clearing of land for cultivation and overgrazing during the dry season, and when it rains there are flash floods which result in soil erosion. As a result, investigative research must be carried out to determine the macro and micro-nutrients and micro-organism biodiversity in the soil.

### ***Human and Cultural Challenges***

Whereas the Maasai used to depend largely on their livestock and environment for their food needs, the recent past has witnessed the community depending on food produced in other areas, a pattern pronounced during protracted drought. The contribution of traditional diets to energy and nutrients is declining. In addition, indigenous medicine-based knowledge is equally declining.

### ***Political Challenges***

Functioning governance structures, legal and policy instruments as well as institutional capacity for judicious implementation and enforcement are a prerequisite for effective environmental governance. Policies and legislation provide direction in governance of the environment and its interactions. Solutions to environmental issues stem from a number of policies that have been initiated by the Government of Kenya assisted by international stakeholders. These include the Constitution of Kenya (2010), Vision 2030, Forest Policy 2014, Wildlife Policy 2011, National Environment Policy 2014, conservation policies and wetlands management policies, among others. The Government of Kenya is also a signatory to several international conventions and protocols on the conservation of the environment. However, some of these provisions need review, harmonization and clarity of institutional mandates to be effective.

The Maasai Mara ecosystem is a fragile ecosystem facing a number of environmental challenges that need to be urgently addressed. These challenges emanate from the fact that this multiplicity of policies is found at different levels, with different interests and addressing different issues. This is aggravated by lack of inclusiveness in policy formulation and implementation procedures. The multi-faceted nature of the environment and the need to integrate environmental considerations in all development planning and activities calls for cooperation and consultation among responsible government agencies and stakeholders at all levels. It is particularly important to recognize the existing institutional mechanisms and consider ways and means by which coordination and cooperation can be enhanced among the many institutions whose mandates relate to all aspects of the environment.

## **V.MITIGATION MEASURE FOR CLIMATE CHANGE**

Governments are committed to minimizing adverse social, economic and environmental impacts resulting from the implementation of measures taken to mitigate or adapt to climate change impacts. While mitigation measures are important to prevent further impacts from climate change, such measures offers both opportunities and concerns to indigenous communities.

Indigenous people are used to large proportions of land surface per head of the population; there is a strong correlation between the location of indigenous territories and areas with highest biodiversity and natural resource conservation. As a result they have the potential to be key players in designing and implementing mitigation measures such as carbon sequestration, forests protection, renewable energy production, conservation and rehabilitation degraded agricultural and pastoral lands.

## VI.CONCLUSION

Due to indigenous people's relationship with their environment, they have been observing and reporting the impacts of weather changes for several decades. Indigenous people are trying to cope with adaptation to these changes using their indigenous knowledge with varying degrees of success bearing in mind the dynamic capacities and influences driven by a variety of factors ranging from availability of resource, recognition of rights, entitlement, human resources, governance etc.

In the context of climate change impacts to indigenous livelihoods and related indigenous knowledge on adaptation and mitigation, research with local knowledge and communities are proving an important source of climate history and baseline data are already playing a valuable role in providing local scale expertise in formulating research questions and hypotheses and also monitoring impacts and implementing adaptive responses at local level.

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