



EFFECTS OF POPULATION GROWTH AND UNCONTROLLED LAND USE ON CLIMATE CHANGE IN KENYA

Overview

Kenya's population size was estimated at 38,474 million in 2010 and projected to almost double and reach 63,560 million in the year 2030¹. This is true given the fact that despite the effectiveness of family planning in reducing the rate of birth performance, in Kenya the population momentum created by past high birth rates will continue increasing the population size in the next 12 years, the target of our Kenya's Vision 2030.

Thus, the demand for food is bound to increase twofold to feed the growing population especially in the developing countries including Kenya. This calls for increasing the productivity of the Kenya's land resources in the next 12 years if the country is going to meet the growing needs for food.

In addition, available evidence indicates that land use change which involves transfer of land from one class of management to another for example, from forest to farmlands or farm land to urban settlement has occurred at much faster rates and on larger scales in the last 2 years².

Moreover, the increasing population and industrialization of agriculture has been a main contributor to climate change being witnessed in many countries. In Kenya, the interplay of population, land use and climate change has caused profound impact on the socio-economic performance in the country. Rapid population growth has exerted pressure on the natural resources through increasing encroachment in protected areas (water catchment areas, forests, game parks) and also rapid fragmentation of high potential agricultural land into economical units.³

Links between Population, land use and climate change

Reduction in farm size;

Available evidence shows that landholding sizes and areas under cultivation in Kenya are inversely related to population density and have been declining over time. Landholdings among smallholders in the most densely populated areas has been decreasing and in some counties such as Kiambu, there is a likelihood that in the near future, there will be no land for small scale farming⁴. In addition, more agricultural land is now increasingly being converted into settlement use in various counties in Kenya due to rapid population increase.⁵ Increasing population as well as increasing family sizes has led to land fragmentation –where land is divided among the adult members of the family, leading to a steady decline in farm size. When farm size becomes too small to be viable, there are negative impacts on agricultural production, food security and social welfare, which lead to limited investments in land improvement especially in Arid and Semi-Arid areas (ASALs) leading to land degradation and out-migration in Kenya. Consequently, it is now becoming difficult to grow food crops for the population on the already degraded agricultural land in most parts of Kenya.

Expansion of cultivation in unsuitable areas

Rapid population growth has increased demand for land for cultivation impacting negatively on forest land

land and grassland leading to the degradation of these resources. Moreover, farming activities on the steep slopes using poor agricultural practices increases risks to landslides and soil erosion especially in Counties in Central and Rift Valley regions in Kenya.⁶

A further population increase will exacerbate the situation, with many unemployed people willing to take risks, such as encroaching on forest reserves and expanding farming on the unstable mountain slopes.⁷

This is likely to reverse the modest success in restoring the forests in various parts in Kenya including the 88 now gazetted water towers.

Conversion of wetland areas, resulting in downstream water shortage

Some parts of Kenya still have a significant number of wetlands that have not been overly impacted by man's activities. However, many wetlands are experiencing immense pressure as a result of human activities within the wetlands themselves or in the catchment areas of the streams and rivers that drain into the wetlands.⁸ These activities include: drainage for agricultural use and settlement, unsustainable extraction of wetland resources, dumping of wastes, and introduction of alien animal and invasive plant species. These activities are accentuated by land use and land cover changes, recession of lake levels mainly due to water over-abstraction and prolonged droughts, climate change that is causing terrestrialisation of wetland areas and excessive flooding in others. Moreover, these negative influences are expected to increase as human populations grow, unless deliberate steps are taken to halt encroachment and conserve and restore degraded areas. Encroachment of forests that are the major sources of streams and rivers that feed major wetlands in Kenya is a major threat to the existence of freshwater wetlands.

Over-harvest of woody biomass causing degradation of woodland and forest Ecosystems;

Forest cover in Kenya including the area of publicly owned plantations, which has been the backbone of Kenya's once thriving wood based industry, has progressively reduced over the years and so have large swathes and pockets of natural forests. The high population growth rate has interacted with other underlying drivers and the manifestation of that has taken the form of agricultural expansion, which is considered a major driver of forest cover loss in Kenya.

At the national level, the principal drivers are summarized in order of importance as clearance for agriculture; linked to rural poverty and rapid population growth, unsustainable utilization (including timber harvesting, charcoal production, grazing in forests), and past governance and institutional failures in the forest sector.⁹ The capacity of the forest to absorb carbon dioxide and reduce global warming associated with climate change is now seriously compromised by the excessive destruction of forest in Kenya.

Climate Change

Rapid population growth has led to land and environmental degradation, which in turn has led to alteration of the weather conditions being experienced globally as well as in Kenya. Climate change is now exerting considerable pressure on agricultural systems in Kenya. It has led to shifts in the duration and timing of growing seasons caused by warmer temperatures and this has affected crop production and made it difficult to grow some crops in areas that they used to do well due to reduction of rainfall high temperatures. Further, it has led to decrease for land available for cultivation or grazing and the quantity and quality of food production due to emergence of invasive weeds, pests and diseases.¹⁰ Moreover, increasing demand for land has intensified human activities leading to land use changes that has altered the ability of the local population to adapt to the largely exogenous driver of climate change.¹¹

Policy and Program Implications

The rapid population growth being witnessed in Kenya is likely to compromise the ability of the agricultural systems to produce adequate food for the Kenyan citizens. As the government continues protecting more catchment areas through the gazettelement of more water towers, there is a likelihood of conflicts between the law enforcement officers and the citizens who will be displaced from their ancestral land.

There have been no integrated approaches in the government efforts to address population, land use and climate change. Moreover, given the paucity of data on the impact of population on the land use, land cover and climate change, the development of integrated approaches to address population, land use and climate change issues may not be possible.

The decreasing farm sizes in the country is likely to compromise investments in land improvement especially in Arid and Semi-Arid areas (ASALs) leading to land degradation and out-migration in these areas. Moreover, this may make it difficult to grow food crops for the population on the already degraded agricultural land in most parts of the country.

The rising encroachment of forests that are the major

sources of streams and rivers that feed major wetlands in Kenya due to increasing demand for land because of rapid population growth is a major threat to the existence of freshwater wetlands.

Policy Recommendations

- = There is a need for Ministry of agriculture and irrigation to scale up small scale irrigation facilities to increase production and reduce vulnerability as it offers the expansion of agriculture into drier ecological zones
 - = There is a need for Ministry of agriculture and irrigation to encourage the adoption of heat and drought tolerant crops varieties and also develop and disseminate them to help farmers build resilience to climate change
 - = There is a need for the National Council for Population and Development to scale up advocacy activities on mainstreaming population issues into land use and climate change policies both at national and county levels
1. There is a need for the Ministry of Lands to enforce the implementation of the National Spatial Plan 2015-2045 in order to ensure optimal productivity, sustainability, efficiency and equity in land use and territorial space in the country.

Program recommendations

- = There is a need for the National Council for Population and Development in collaboration with other stakeholders to document the impact of population on land use, land cover and climate change in order to generate data and information for decision making
- = There a need for the National Council for Population and Development to scale up advocacy activities to promote adoption of integrated approaches in population, land use and climate change interventions by the programme implementers

Conclusion

Population growth, land fragmentation for settlement, culture and norms of land tenure will continue having remarkable effects on land use land cover changes and climate change and ultimately food production in Kenya.

NCPD is a semi-autonomous government agency that formulates and Promotes population policy and coordinates related activities for sustainable development in Kenya.

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