



# Policy Brief

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## Rapid Population Growth Likely to Compound Impacts of Climate Change

**F**orty years ago, there were fewer than 11 million Kenyans. Today, according to the latest Kenya Demographic and Health survey (KDHS 2008-09) there are nearly 40 million, and the number is projected to increase to about 65 million by 2030 (KNBS and ICF Macro, 2010). The rapid population growth is intimately connected to climate change.

Climate change has seen an increased demand and competition for resources, which is causing conflict among some communities (UNFPA and WEDO, 2009). Across Africa, the phenomenon is also playing havoc with subsistence agriculture – the mainstay of the bulk of Kenya’s population – because rainfall patterns are unpredictable and smallholders can no longer count on traditional knowledge of when to sow and when to reap (UNFPA, 2009).

As suggested by the model in Figure 1, it is of utmost importance to contain the growth of the population and put in place measures to ensure environmental sustainability.

### Changes in Population and Climate Have Been Rapid

**I**n 1969, Kenya’s population was only 10.9 million people. The percentage of people living in urban areas was only 9.9, while the population density was only 19 persons per square kilometre. By 2009 – only 40 years later – the population had soared to 39.4 million, the density to 67.7 and the percentage of city dwellers to 21%. Although the overall fertility rate has declined, improved maternal and child health care and low contraceptive use have seen the population rise substantially (see Table 1).

Kenya’s dramatic population increase has had a pronounced



and severe impact on the natural environment – and consequently on the climate, both locally and globally. Intermittent drought and flooding experienced in many parts of the country, rapid rise and fall of temperatures, and major disruptions in agriculture are all related to climate change. Climate change is also affecting the health of the population through water- and air-borne diseases, and by abetting multiplication of disease vectors such as mosquitoes.

This Policy Brief describes some of the interlinkages between rapid population growth and climate change, and the resultant effect on the economy and people’s lives. Urgent action is needed to mitigate the impacts of climate change and help people cope effectively.





the extent of the impact depends on how quickly and successfully global greenhouse gas emissions are reduced as well as the ability to adapt to climate change (UNICEF, 2010).

## Climate Change Poses Multi-Faceted Risks

**R**apid population growth has led to increased demand for land for farming and building settlements. About 75% of Kenyans rely on agriculture for survival and the demand for arable land is occasioning destruction of forests as people migrate in search of land and other natural resources.

Globally, deforestation accounts for about 20% of the annual greenhouse gas (GHG) emissions (MOE, 2010). Forests, which as “sinks” for carbon dioxide (meaning that they absorb the CO<sub>2</sub>), account for only 1.7% of Kenya’s total land area, against an international benchmark of 10%. Shimba Hills, Arabuko-Sokoke, Chyulu, Aberdares, Mau Complex, Taita Hills, Karura, Ololua, Mt. Kenya and Mt. Elgon make up the 1.7 million hectares of gazetted forests (NCAPD, 2010).

A report by Population Action International (PAI, 2009) says that Kenya’s factories, deforestation and the increasing number of motor vehicles (8 cars per 1,000 people) are responsible for the 12,151 metric tonnes of CO<sub>2</sub> that pour into Kenya’s atmosphere every year. This is the highest level in East Africa.

Deforestation is gradually leading to desertification as people strive to derive their livelihoods from diminishing resources. Scarce resources are also prompting people to move

“Greenhouse gases” – GHGs – are so named because the effect they have of trapping heat is similar to that of a greenhouse. The major GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O). CO<sub>2</sub>, for example, is produced when fossil fuels like petrol, coal and oil are burned. Methane is released by livestock, among other things. The concentration of these gases in the Earth’s atmosphere has raised average temperatures, distorted normal weather patterns, increased the temperature of the oceans, and begun to melt glaciers and polar ice. Among the effects are increasing incidence of weather extremes – violent storms, prolonged droughts, more and longer floods – and a wide range of health and economic impacts.

to urban areas (UNFPA and WEDO, 2009) and this is contributing to the growth of slums.

According to the Stockholm Environmental Institute (SEI, 2009), another effect of climate change is being manifested at the Coast, where rising sea levels will potentially flood 10,000 to 86,000 people a year by 2030.

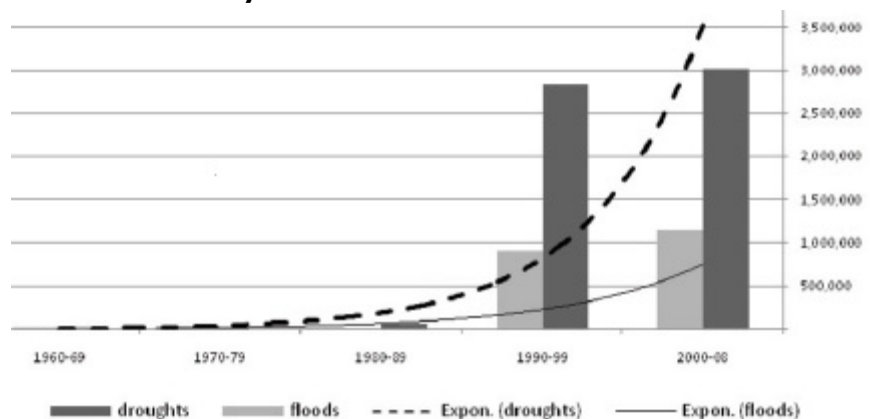
Climate change is also affecting the health of the population. The Division of Malaria Control in the Ministry of Public Health and Sanitation (MOPHS) reports that increasing temperatures and changes in the hydrological cycle related to climate change “are likely to increase the areas suitable for malaria vector breeding with the introduction of malaria transmission in areas

where it had not existed before” (MOPHS, 2009). Already, 23 million people are living at risk of malaria. As the average temperatures continue to rise, the risk of more people contracting the disease is expected to increase by between 36% and 89% by the 2050s (SEI, 2009).

Water-borne diseases such as diarrhoea and typhoid, transmitted through contaminated flood water, are also being attributed to climate change. These diseases are among the most prevalent opportunistic infections afflicting people living with HIV/AIDS. Climate change is therefore negatively affecting the management of this scourge.

Drought induced food shortages and harvests destroyed

**Figure 2: Total population affected by droughts and flooding in Kenya since the 1960s**



Source: Kinuthia-Njenga and Blanco (2009).

Deforestation is gradually leading to desertification as increasing numbers of people strive to derive their livelihoods from diminishing resources. Scarce resources are also prompting people to move to urban areas. Rapid population growth means that more people are affected.

maintain their health status (MOPHS, 2008). Moreover, the rising levels of GHGs resulting from the destruction of forests and increased burning of fossil fuels are leading to increased cases of cardiovascular and respiratory diseases (MOE, 2010).

## Climate Change Affects Kenya's Economy

Economic consequences of climate change are potentially huge. Climate change is expected to cost the country the equivalent of 3% of GDP each year by 2030 (SEI,

by flooding, coupled with recent fluctuations in the international commodity markets, challenge food security strategies, with negative implications for nutrition and the ability of people to

2009). There are six key economic sectors that have enormous impact on the environment, and that are in turn affected by environmental changes:

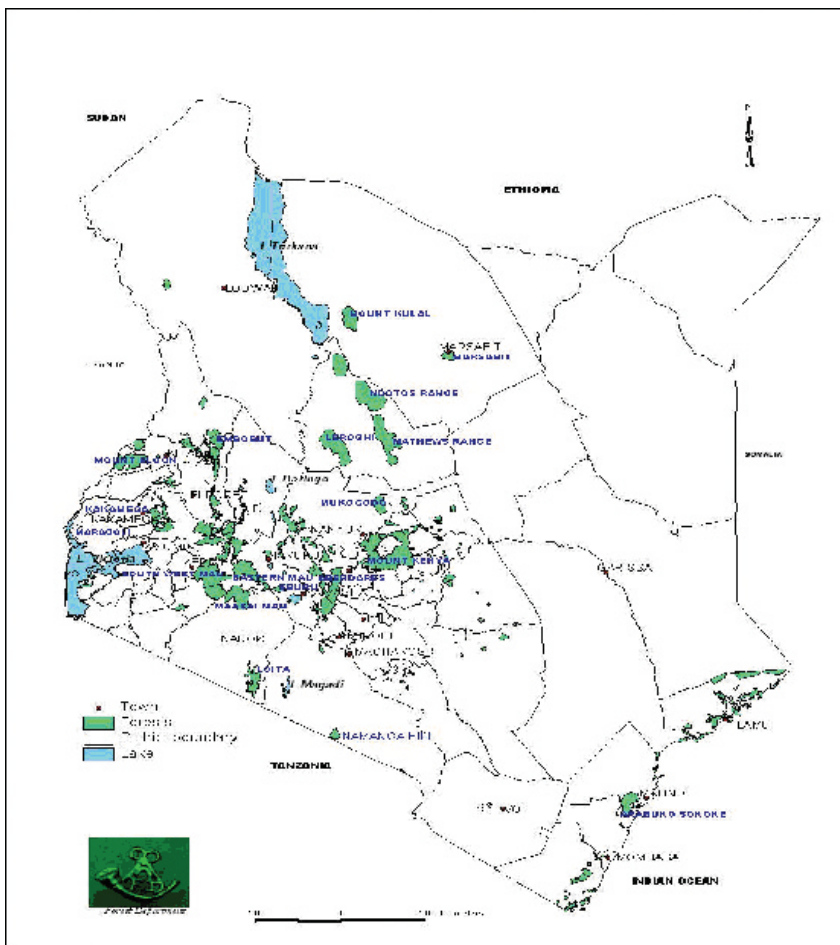
1) **Agriculture**, which accounts for 25% of GDP, has led to deforestation (as trees pave way for crops) and increased water pollution, notably in large-scale horticultural farming areas. A growing population, naturally, requires greater and greater amounts of food. Climate change, in turn, can lead to decreased yields, lower economic returns and food insecurity.

2) **Tourism**, the second largest contributor to GDP, depends on the vast beauty of the Kenyan environment and the abundant wildlife. Climate change is gradually melting away the glaciers on Mt. Kenya and Tanzania's Kilimanjaro, Africa's icons. Population pressures are pushing housing development into wildlife corridors, thus disrupting migrations of one of the main features of the tourism industry. Deforestation similarly affects the presence and variety of wildlife. Conservation, sustainable tourism management, and proper handling of solid and liquid waste pose a big problem.

3) **Livestock production** is a prominent economic activity, particularly in the pastoral areas. It has created conflicts with wildlife species often because of disease transmission, competition for pasture and attacks by predators. Erratic rainfall and prolonged drought result in massive losses of livestock, thus affecting livelihoods and the economy.

4) **Fisheries** account for 0.3% of Kenya's GDP and employ half a million people. Water pollution and improper management of

Figure 3: The forests in Kenya



The map illustrates the sparse forest cover in the country. Forest cover has reduced from 12% to 1.7% in only 30 years. This is having an adverse effect on the climate.

Source: Forests Department; used in KDHS 2008-09 (KNBS and ICF Macro, 2010).

invasive and alien species are major threats to this sector.

**5) Manufacturing and industries** contribute 10% to GDP. There are over 2,000 manufacturing units throughout the country and this figure will increase as the country marches towards industrialization by 2030. The International Energy Agency says Kenya's GHG emissions in 2007 were 11.43 MTCO<sub>2</sub>eq (SEI, 2009).

**6) Energy** use places Kenya in a dilemma. About 63.8% of Kenyan households currently use firewood for cooking and 13.3% use charcoal. Three hundred tonnes of charcoal are used every month, which is extremely expensive to the environment because of the damage to forests (Dyszynski et al., 2009). Reaching the goals of Vision 2030 demands an increase in the use of more efficient energy sources, including fossil fuels, but these will commensurately increase GHGs. Kenya, like much of sub-Saharan Africa, must balance growth with energy demands, through among others greater reliance on renewable energy sources and perhaps bio fuels if appropriate (Shah et al., 2008).

## Workable Strategies Are Already in Place

**T**he Ministry of Environment and Natural Resources, National Coordinating Agency for Population and Development (NCPAD), the National Environment Management Authority (NEMA), Ministry of Public Health and Sanitation, water resource users associations (WRUAs), community forest associations (CFAs), community wildlife associations (CWAs), and



Denuded hillsides and a dry riverbed – indications of the severity of the environmental impact of climate change coupled with high population growth. The stream no longer runs year-round. Forests make up only 1.7% of Kenya's total land area, against an international benchmark of 10%.

village environment committees (VECs) are among the players taking steps to address population and climate change.

A cross-ministry disaster management and reduction policy, for example, takes cognisance of climate change, just as the Division of Malaria Control plans to track the prevalence of the malaria parasite to help gauge the extent of climate induced changes to the vector's environment. The National Climate Change Response Strategy 2010 has identified specific environmental and economic sectors that affect the environment. The 2008-09 KDHS makes vital recommendations on how to control population growth. Proposals from these and other documents should be harmonized in order to mitigate the effects of population growth on climate change.

Moreover, Kenya is a signatory to several global and regional multinational environmental agreements (MEAs). Such commitments include the Kyoto Protocol, which encourages public and private investors to generate and sell certified

emission reductions (CERs) that reduce GHG emissions. In a deal that is first of its kind in Africa, the World Bank has bought 900,000 tonnes of carbon credits from Kenya's Olkaria II geothermal power plant.

Additional remedial measures need to be put in place to stem the effects of population growth and climate change; this is essential to inch the country closer to achieving the MDGs and Vision 2030 (NCPAD, 2010).

Projected climate change impacts will only worsen Africa's vulnerability. Although some adaptation to current climate variability is taking place, this may be insufficient for future changes in climate. The vulnerability covers virtually all the important sectors of development in Africa, in particular agriculture, the energy sector and the human health sector.

– Odingo (2008)



The road was originally built not far from the shore of the lake. With watersheds and rivers drying up, the lake is also drying up.

## Only a Holistic Approach Will Work

**R**esilience to climate change can be improved through sustained efforts on various fronts. Of utmost importance, population growth, economic, climate change and development policies should be considered together.

- ♦ Adequate resources for comprehensive research on population dynamics and climate change in Kenya should be allocated to the relevant agencies. The equivalent of about US\$500 million per year is needed.

Many of the policies that affect population trends, such as meeting the demand for family planning and reproductive health services, can play an important role in climate change adaptation and mitigation.

Climate change forces us to ask, What kind of world are we leaving to our children?

- ♦ The government should sustain the education and awareness campaigns on population growth control in order to maintain sustainable growth rates in accordance with the environmental capacity for sustaining the society needs.
- ♦ The government and donor agencies should address poverty, since it directly contributes towards environmental degradation. Although the government and UN-HABITAT have put a lot of effort into improving housing and amenities in the slums, much more needs to be done especially in discouraging rural–urban migration and over-population in certain areas.
- ♦ A major reforestation campaign should be

undertaken urgently to ensure attainment of at least the target 10% forest cover by 2030. Government should also educate the people on importance and ways of rainwater harvesting.

- ♦ The Ministry of Environment and Natural Resources or NEMA should carry out an inventory of degraded environments throughout the country as a planning basis for a rehabilitation programme.
- ♦ NEMA should embrace the spirit of participatory environmental management, to make communities feel they “own” the environment and actively take part in conserving it.
- ♦ The government should encourage the prospecting and use of environmentally friendly energy production technologies such as solar and wind.
- ♦ Kenya’s Disaster Management and Reduction Policy should be reviewed regularly by the government, so as to incorporate risks posed by climate change.
- ♦ A multi-stakeholder trust fund should be set up to enable early and timely action.

“We can’t solve poverty until we stop climate change.”

– Richard S. Odingo,  
Vice Chair of the  
Intergovernmental Panel on  
Climate Change and  
Distinguished Professor of  
Geography at the University of  
Nairobi



What kind of tomorrow awaits these children?

## Prepare Now for the Future

**R**obust strategies are needed to prepare for the future. A deeper analysis of the key population and climate change priorities identified here should be carried out independently. Many of the policies that affect population trends such as meeting the demand for family planning and reproductive health services can play an important role in climate change adaptation and mitigation.

Researchers and policy makers should further explore the impact of population growth and distribution, coastal risks, health burdens, agriculture, water/flood risks, energy supply and demand, etc., so as to set priorities for action.

The risks posed by climate change to the population and by the population to the climate should be routinely monitored and considered in development planning.

There is also a need to build on existing government and donor initiatives, and to collaborate with other countries

in the region, especially in areas of low carbon growth.

The time for action is now, to enable the country to realize the Millennium Development Goals – particularly those on poverty alleviation and environmental sustainability – and to achieve the dream of Vision 2030, including the minimum 10% total forest cover targeted in the Vision (GOK, 2007).



Climate change means that wildlife and livestock are in increasing competition for pasture. The wildlife also frequently carry diseases that are highly detrimental to domestic animals. High population growth brings more livestock, as these are the foundation of family wellbeing. Livelihoods are thus threatened by both disease and drought, while the wildlife habitat becomes increasingly precarious.

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**Risks posed by climate change to the population and by the population to the climate should be routinely monitored and considered in development planning.**



Women carrying firewood, the source of energy for 63.8% of households in Kenya. Deforestation forces women to walk greater distances in search of firewood. Larger populations put more pressure on forest resources.

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The time for action on climate change is now, to enable the country to realize the Millennium Development Goals – particularly those on poverty alleviation and environmental sustainability – and to achieve the dream of Vision 2030.

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