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HELP MOUNTAIN COMMUNITIES AND ECOSYSTEMS
ADAPT TO CLIMATE CHANGE

ARCOS October 2015

Policy Brief



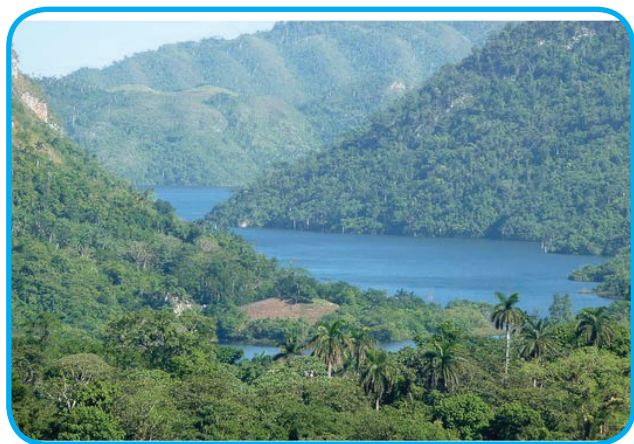
Pressure from increasing human activities and climate change amongst others, are leading to rapid montane biodiversity loss, land degradation and natural disasters, jeopardizing the ability of mountain ecosystems to balance people's needs. African nations need to develop and support policies, investments and activities that build the adaptive capacity of mountain people and ecosystems.

Collaborative action for nature and people

Introduction

Mountains provide indispensable goods and services for people who live in and around them. African mountains particularly harbour unique biodiversity, provide non-timber forest products: water, food and energy security at local, national, and regional levels. However, pressure from increasing human activities and climate change amongst others, are leading to rapid montane biodiversity loss, land degradation and natural disasters, jeopardizing the ability of mountain ecosystems to balance people's needs.

According to reports by the Intergovernmental Panel on Climate Change (IPCCC), the scientific intergovernmental authoritative body that advises Governments on climate change issues, average global temperatures are expected to rise from 1.4-5.8°C by the end of the 21st century. IPCC further asserts that warming occurred at a rate of 0.7 over most of Africa during the 20th century though not all areas warmed at the same rate. Several projections suggest that a 4°C rise in temperature would eliminate nearly all of the world's glaciers.



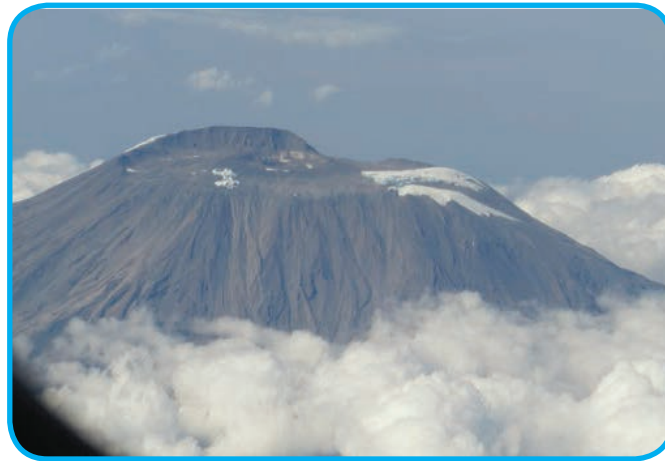
Mountains are a good source of water. Photo credit: Salome Alweny

Regional climate projections for East Africa over the next 40 years for example indicate increased rainfall variability, increased temperature, increased frequency and intensity of extreme events (droughts, floods, sea level rise).

Africa and other developing countries will particularly be most affected by climate change because of the limited adaptive capacity exacerbated by widespread poverty and the existing low levels of development. Predicted impacts are likely to be far more challenging in mountain regions than in the surrounding

lowlands though detailed predictions of future mountain climates remain difficult due to the complexity of mountain regions and insufficient long-term data.

Some of the impacts of climate change in African mountains



Reduction of ice on Mount Kilimanjaro. Photo Credit: Dr. Sam Kanyamibwa

According to UNEP2007, Africa's glaciers began to recede in the 1880s and between 1906 and 2006, they lost about 82 per cent of their area and the larger glaciers became fragmented. In Mount Kilimanjaro since at least the 1880s, the ice on Mount Kilimanjaro has been retreating both in thickness and in area, with the latter's decline most dramatic (Campbell 2008) compared to 1800 when the ice covered about 20 km², by 2003, the area had shrunk to about 2.51 km² (Cullen *et al.* 2006). An estimated 82 per cent of the ice cap that crowned the mountain when it was first thoroughly surveyed in 1912 is now gone, and the remaining ice is thinning as well-by as much as a metre per year in one area. According to some projections, if recession continues at the present rate, the majority of the remaining glaciers on Kilimanjaro could vanish in the next decade (UNEP 2005).

In Mount Kenya, only 10 of the 18 glaciers that covered Mount Kenya's summit a century ago remain, leaving less than one third of the previous ice cover. The ice on Mount Kenya has also become thinner. Emerging evidence suggests the decline has accelerated since the 1970s (UNEP 2009). The remaining glaciers in the Rwenzori Mountains of Uganda and the Democratic Republic of Congo are also melting rapidly. During the 20th century an area ranging from 53% (Mt Speke) to 90% (Mt Moore) was lost.

This glacial loss is already affecting water supply and tourism, a major source of livelihood for most

mountains people in the region.

The recent increase in temperature by 30 degrees centigrade in some African mountains led to an outbreak of mosquitoes where they never existed before, causing malaria outbreak and consequent dramatic increase in mortality rates.

Climate change will also have an impact on the suitability of Arabica coffee growing areas in Africa since it requires a rather cool tropical climate that is only found in high altitude areas. Most areas (particularly in Mozambique, Uganda and Tanzania) are already less suitable, and particularly those at lower altitudes (1500m) will be severely affected.

The most dramatic impacts of climate change predicted in mountain regions will be an increase in the frequency of extreme events such as floods and landslides. Increased extreme events such as floods and landslides are already observed in African mountainous areas of Cameroon, Kenya, Malawi, Rwanda and Uganda resulting into massive loss of property and lives.

Projected impacts of climate change in Africa

1. The length of time that mountains' snow packs remain will be reduced, altering the timing and amplitude of runoff from snow, and increasing evaporation. These changes would affect water storage and delivery infrastructure around the world. Changes in extreme events (floods and droughts) could affect the frequency of natural hazards such as avalanches and mudslides. Downstream consequences of altered mountain hydrology are likely to be highly significant to economies dependent on this water.
2. There is a high probability that climate change will exacerbate fragmentation and reduce key habitats in mountain regions. There is cause for concern that mountain top-endemic species may disappear.
3. The disruption of mountain resources needed for subsistence would have major consequences and the competition between alternative mountain land uses is likely to increase under climate-change and population-rise scenarios .

Source: *Impacts of climate change in mountain regions. IPCC, 2007*

Mountains and the international, regional and national policy

Mountains have been recognized in Chapter 13 of UNCED's Agenda 21 and in the Rio+20 Outcome Document where mountains are mentioned in a special chapter in the UN Convention of

Biodiversity Conservation (UNCBD) including the post-2015 sustainable development agenda.

At the regional level, management of mountain ecosystems is provided for under Chapter 19 of the Treaty establishing the East African Community, entitled Cooperation in Environment and Natural Resource Management. From Chapters 19 and 20 of the Treaty, the Protocol on Environment and Natural Resources Management was drafted in 2005 and article 20 of the protocol specifically calls for harmonized policies for the sustainable development and protection of mountain ecosystems, recognising their role as water catchments and their value as areas for conservation and heritage. Amidst all these policy calls, Sustainable Mountain Development has not yet been addressed adequately in national and regional development policies and mountains have remained neglected, remote and inaccessible areas. The combination of government neglect and lack of investment, coupled with the specificities of mountain environments have all contributed to the multiple problems of mountain communities.

What we would like to see in African mountains

1. Since mountain regions will be most affected by the impacts of climate change, African nations need to develop and support policies, investments and activities that build the adaptive capacity of human and wildlife mountain populations.
2. More financing mechanisms to help mountains people adapt to the changing conditions and for conservation of mountain resources as they are a source of livelihood for mountain people.
3. Increased investment, infrastructural development in mountain areas and diversification of sources of livelihoods for mountain people.
4. Develop national and regional climate change adaptation plans that take into consideration the special vulnerability of mountain regions to climate change
5. Climate Change and Sustainable Mountain Development mainstreamed in all key sectors (water, agriculture, renewable energy and energy efficiency).
6. Develop legal/institutional frameworks at the national, sub regional and regional levels to guide sustainable mountain development and ensure that mountains are included and considered in applicable regional, national and local level development and strategic planning processes.
7. Recognise and address poverty in mountain areas as it can lead to overexploitation of natural resources that are a source of livelihood.

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