

BIODIVERSITY CONSERVATION UNDER A CHANGING CLIMATE



Building Capacity for Sustaining Ecosystem Services in the Albertine Rift

START's Program on Biodiversity Conservation under a Changing Climate promotes experiential learning, awareness building and networking for managing emerging risks from climate change and other drivers in the Albertine Rift biodiversity hotspot in Eastern Africa. Comprising parts of Tanzania, Burundi, Rwanda, DR Congo and Uganda, the region is known for its enormous diversity of flora and fauna and its unique ecosystems and habitat. It is also a source of vital ecosystem services. Current conservation strategies designed for a more static climate may not adequately address new and additional risks from climate change. Managing for greater resilience requires targeted capacity building of local individuals and institutions to enable a continuous process of learning for the assessment of multiple risks and the development of context specific adaptation responses.

More information at: www.start.org/programs/biodiv

Education and Training Program in Climate Change and Biodiversity Conservation

The Education and Training program supports capacity building through Master's level courses and externships for regional conservation practitioners, researchers and university faculty. Course modules, implemented at the University of Dar es Salaam, foster interactive learning about the implications of climate change and other drivers for biodiversity and human well-being. Follow-on externships enable the application of this knowledge to field research assessments, thereby adding to the emerging understanding of multiple challenges to conservation in the Albertine Rift region. A separate training session for participating university faculty along with online course modules enables them to incorporate program related learning into conservation curricula at their own universities.

Two rounds of the program have been implemented, in 2008 and 2010.

Stakeholder Dialogue

A Stakeholder Dialogue held in Dar es Salaam for regional scientists, practitioners and policy-makers highlighted the significant role of anthropogenic drivers in reducing resilience of natural and managed systems to climate change in the Albertine Rift. It also provided a platform for sharing findings from regional externships assessments conducted by participants from the Education and Training program. Dialogue participants identified an urgent need for: a) continued capacity building through education, training and awareness building; b) increased support for research and assessment to inform adaptation; and c) collaboration and networking among regional institutions and key stakeholders from communities of science, policy and practice.



Externship Assessments



Burundi: In **Kibira National Park**, warmer temperatures, changing seasonality of rains and increased incidences of extreme events will likely cause species loss, disappearance of sub-alpine vegetation, degradation of cloud forest and worsening of bush fires. Agriculture, livestock grazing, deforestation and resource extraction contribute to habitat degradation and loss of vital ecological functions. The increased risk of run-off, floods, siltation and disturbed river regimes also makes subsistence agriculture highly vulnerable.

Left: Cloud forest in Kibira National Park

Rwanda: In **Volcanoes National Park**, home range sizes of mountain gorillas vary seasonally with significantly larger distances covered in search of food in the dry season. Habitat loss, due to rising demographic pressure and increasing resource extraction, also influences altitudinal zones occupied by gorillas. Further habitat modification due to climate change is likely and may cause gorillas to respond by altering home ranges or initiating a shift in diet to accommodate other plant species.

Right: Mountain gorilla in Volcanoes National Park



Uganda: Prolonged droughts, unpredictable rainfall and unsustainable extraction of natural resources have brought about ecosystem level changes and affected local livelihoods in **Queen Elizabeth National Park**. Current management strategies are only symptomatic and fail to address root causes of challenges. An integrated adaptation response that actively engages stakeholders and meets livelihood needs will likely prove more effective.

Left: Deforestation in Queen Elizabeth National Park

DR Congo: In **Virunga National Park**, anthropogenic stresses from poaching, deforestation, population growth and political instability pose the biggest threats to biodiversity. Agricultural yields in surrounding communities have also suffered from erratic rainfall patterns in recent years. However, the absence of meteorological stations and the lack of climate data pose a major hurdle to planning for the adaptation of biodiversity and livelihoods.

Right: Subsistence farming outside Virunga National Park



Tanzania: Water shortage in the dry season is a critical management challenge in **Katavi National Park**. Unpredictable rainfall, deforestation, unsustainable extraction of river water for farming and increasing livestock pressures are primarily to blame. Aquatic animals, amphibians and water dependent animals such as hippopotamus, crocodiles and buffaloes are the most vulnerable.

Left: Hippopotamus congregating in small pools during drought in Katavi National Park



Program Partners

The Albertine Rift capacity building program was jointly implemented by:

- The International START (the global change SysTem for Analysis Research and Training) Secretariat, Washington DC
- The Pan-African START Secretariat based at the Institute of Resource Assessment, University of Dar es Salaam, Tanzania

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Program Outcomes



Master's curriculum on Climate Change and Biodiversity Conservation



Curriculum integrated into the University of Dar es Salaam's Masters in Natural Resource Assessment and Management program



Online Distance Learning modules on Climate Change and Biodiversity Conservation



Assessments of existing and emerging challenges to Albertine Rift biodiversity and implications for human well-being



Regional Stakeholder Dialogue identified multiple risks to biodiversity and urgent priorities for action



Regional network of individuals and institutions to enable cooperation on conservation