



**Climate Change Impacts, Adaptation
and Mitigation Programme in Tanzania**

Forests are disappearing in coastal Tanzania

Over the last 30 years, the major coastal forests in Tanzania have disappeared by more than 30% due to human activities. This can make the Tanzanian coast more vulnerable to climate change and reduce the forests capacity to take up carbon.

Where have all the trees gone?

“When the researchers visited the Pugu and Kazimzumbwi forest they found a frightening sight. A significant amount of trees was gone and in many parts of what once was thick forest is now bush- and grassland”.

These are words coming from Dr. Makarius Mdemu, a member of the project “*Analysis of the impacts of urban land use and climate change on coastal forest ecosystem and management*”.



While walking through what once was forest the Dr. Mdemu and forest guard Mr. Kusimula could only ask themselves - where have all the trees gone?

Pugu and Kazimzumbwi forest reserves are among the coastal forests of East Africa and make up the centre of origin of unique

indigenous plants in Eastern Tropical Africa. They are located about 20km from Dar es Salaam at Kisarawe District in the Coast Region.

Forest play many important roles

The forest reserves cover a total area of about 70 km². They are the home of high biodiversity and economic values to people surrounding the forest reserves. They are sources of medicinal plants, fuel wood, building materials and food, and they help to maintain a regular water supply for towns and villages. Forests play an important role in reducing soil erosion and impacts of climate change, maintaining the natural processes that govern the exchange of carbon among the atmosphere, ocean and terrestrial systems as well as small-scale climate systems.

Due to the forests' high biological value the Government of Tanzania and the international community recognise their environmental importance and in 1998 the forests were categorised as one of Conservation International's Global Biodiversity Hotspots.

Pugu and Kazimzumbwi forests

Pugu and Kazimzumbwi protected forests suffer high levels of degradation due to urban and peri-urban expansion and forest encroachment from the surrounding communities, as well as shifts in livelihood activities of coastal communities affected by climate change impacts along the coast.

The forests have been actively conserved and protected by the Wildlife Conservation Society of Tanzania and Tanzania Forest Conservation Group in the nearby Ruvu Forest.

CCIAM and REDD

In 2010, the Norwegian Government through its embassy in Dar es Salaam provided funding for the research programme Climate Change Impacts, Adaptation and Mitigation (CCIAM). Sokoine University of Agriculture together with Dar es Salaam University, Ardhi University, the Tanzanian Meteorological Agency with the Norwegian University of Life Sciences as partner joined efforts towards conservation of the protected forests under the CCIAM programme. CCIAM focuses on promoting natural forest conservation, afforestation, reforestation and better agricultural practices for improved livelihoods related to the “Reduced Emissions from Deforestations and Forest Degradation “REDD” initiative.

REDD is a new mechanism where developed countries are encouraging and making payments to developing countries to take better care of their forests thereby reversing climate change, improving the environment and increasing living standards.

Project on Coastal Forests

The CCIAM project “*The analysis of the impacts of coastal urban land use and climate change on coastal forests of Pugu and Kazimzumbwi*” focuses on understanding why parts of the forests are disappearing. This includes the area of land that has disappeared and the effects of deforestation. It aims to advise the Tanzanian Government on how to minimize deforestation. This is linked to joining efforts to clean the environment by having green forests as sinks for CO₂ gas in the atmosphere.

The project has already performed informant meetings in three locations: Buguruni representing the urban setting, Gongo la Mboto representing the peri-urban setting, and Kisarawe rural representing the rural setting.



In Gongo la Mboto, the local community gathered to discuss land use changes they experience and why they think these changes are happening

The local community explained that rural-urban and internal urban migration, existence of land markets in nearby forests, urban growth, climate variability and change, population growth and extraction of forest products were the main causes of disappearing forest reserves.

Lack of alternative energy sources and agriculture drives deforestation

When asked why they have shifted to extracting forest products and do farming near the forests the community said the lack of alternative cheaper energy sources for cooking drives them to use firewood and charcoal which is cheaper and easily available. The increase in price of charcoal and firewood from outside the areas also attracts people to engage in harvesting forest products in Pugu and Kazimzumbwi. For instance, in just one ward of Buguruni area there is almost 50 charcoal-selling stores.

Climate change do not favor agriculture and the outside community now engage in extensive agriculture in the forest areas. The close proximity to Dar es Salaam provides major markets for forest products, and little enforcement of forest law and limited restriction to access forest products by the outside community.



Areas for charcoal making are a common sight in Pugu and Kazimzumbwi Forests Reserves.

The project also found remarkable land cover changes in the forest reserves, such as decreased closed forests and increased open land and grassland. This has seriously reduced the carbon stored in forests and biodiversity value, and these compromise current conservation efforts.

Action is needed to reverse the damage

It has become clear that concrete actions are required to reverse the changes in order to contribute to REDD initiatives and improve community livelihoods. The project is planning to develop, test and propos integrated strategies that could reduce the degradation of coastal forests and ecosystems. Examples of initiatives include developing integrated urban, peri-urban, and rural forest management planning; awareness raising by the nearby communities on the importance of coastal forests; review forest policy to advise the government on how to increase forest products; and promoting alternative socioeconomic activities such as sustainable innovative agriculture (produce more on a small piece of land) and horticulture activities.

These efforts need to be up-scaled to other coastal forest as forest products are supporting the livelihoods of many coastal communities in Tanzania and will continue to support the livelihoods of future generations.

Project title:

Analysis of the impacts of urban land use and climate change on coastal forest ecosystem and management

For more information go to <http://www.suanet.ac.tz/cciam>

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