Tropentag, September 20-22, 2023, hybrid conference

"Competing pathways for equitable food systems transformation: Trade-offs and synergies"

Flood risk reduction nature-based solutions: potential forest restoration and agricultural land use in búzi, mozambique

Yamile Mariel Salame Villafani, Udo Nehren, Sabine Schlüter

TH Köln - University of Applied Sciences, Inst. for Technology and Resources Management in the Tropics and Subtropics, Germany

Abstract

Floods are increasing in frequency and severity in several parts of the world, mainly as a result of the effects of climate change and contextual conditions. They occur more intensively in the tropics and subtropics, where areas are mapped as risk zones with high vulnerability. This is the case of the study area: Mozambique, one of the poorest countries in the region and the world. Therefore, the application of nature-based solutions (NbS) presents an opportunity that can lead to the reduction of the intrinsic risks of floods by utilising and harnessing elements, services and processes of ecosystems. This research's primary focus is on analysing the potential of the implementation of the restoration of natural forests and floodplain and riparian woodland creation, a measure under the concept of NbS, as a way to reduce the risk of flood disaster in the district of Búzi in Mozambique. Furthermore, from the total area of the district, bare land and areas with sparse vegetation are presumed usable. These could contemplate transformation as part of interventions related to the NbS, including revegetation and providing suitable agricultural land. The study involves the evaluation of the potential of risk reduction through the application of on-site semi-structured and expert interviews, the analysis of assessment criteria, the processing of satellite imagery and field observation undertaken in various district localities. Results of this study showed that the restoration and creation of floodplain and riparian forests present a high potential to reduce the risk of flood disaster in the Búzi district through a number of provisioned ecosystem services and other co-benefits. Moreover, an area dedicated to production would expand as an intervention entailed in the measure. Consequently, an increase in production poses economic opportunities in the region, contributing, among other factors, to overall resilience.

Keywords: Agricultural land, flood risk, forests, nature-based solutions, resilience

Contact Address: Yamile Mariel Salame Villafani, TH Köln - University of Applied Sciences, Inst. for Technology and Resources Management in the Tropics and Subtropics, Robertstraße 2, 51105 Köln, Germany, e-mail: yamile.villafani@th-koeln.de