Assessment of climate change adaptation options and their implications on mangrove resources and management in Bagamoyo district

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The study assessed climate change adaptation options and their implications on mangrove resources in Bagamoyo District. A total of three villages and 158 respondents were involved. Close and open-ended questions and FGDs were used to collect quantitative and qualitative data. Content analysis was used for qualitative data while SPSS (Version 20) and Microsoft excel were used for quantitative data. Results indicated that, majority of respondents (>80 %) were aware of the climate changes and majority perceived rainfall (Kaole 72.7 %, Kondo 70 % and Mbegani 43.9 %) as a major climate change indicator. The remaining proportion perceived climate change as an increase in temperature and outbreak of diseases. Analysis of the empirical data from TMA showed a decline of rainfall ($y = -3.8748x + 978.1$) and an increase of surface temperature of an average of 0.8 ^{0}C ($y = 0.4142x + 21.655$) from 1985-2015. Unpredictable and shortage of rainfall and increased temperature in combination acted to reduce agricultural yields and fish catch in the surveyed villages. Different climate change adaptation strategies were identified in the surveyed villages including; expansion of farms, modifying fishing activities and engagement into different income generating activities such as casual labour, and petty businesses. The identified adaptation options in Kaole seemed to have positive implications on mangroves resources i.e. effective mangrove restoration programmes while those identified in Mbegani and Kondo i.e. commercial firewood and charcoal making were unsustainable and had negative implications on mangroves resources. Further studies on climate change adaptation, awareness raising and scientific studies on mangroves species composition, richness and restoration in a changing climate are recommended to enhance coastal community adaptive capacity and effective management of coastal resources.