

## Analysis of Mangrove Cover Change in Rufiji Delta from 1991 to 2015 and Projection to 2045

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Mangroves are well known for the goods and services they provide to coastal communities. They are however increasingly degraded and deforested by anthropogenic activities such as conversion to agriculture, salt making, aquaculture, cutting for timber and poles and other coastal development. Rufiji Delta contains 50% of mangrove cover in Tanzania, of which 50% is in the most active northern block of the delta where clearance for rice farming is a major threat. For proper management of mangroves, information on historical and future trend of land use and land cover changes is important. We used IMPACT toolbox, ArcGIS and Idrisa Selva software to analyze Landsat imageries from 1991, 2000, 2009 and 2015 to (i) estimate total current mangrove area in the northern block of the delta, and (ii) predict land use and land cover changes by 2025, 2035 and 2045. There has been loss of mangroves in the northern block of the delta from 22,892 ha in 1991 to 19,199 ha in 2015 and predicted 15,381 ha by 2045. Annual loss was estimated to be 158 ha between 1991 and 2015 and predicted to be 127 ha between 2015 and 2045. Expansion of agricultural practices was the main cause of mangroves loss, where rice farming expanded from 2,690 ha in 1991 to 5,710 ha in 2015 and expected to expand to 8,865 ha in 2045. The results call for engagement of multiple actors from the government, local authorities, development partners and communities to devise appropriate integrated management prescriptions that address the multiple interests on the Rufiji Delta to secure the future of mangroves.