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## How Far Are Mangrove Ecosystems Conserved by the Ramsar Convention in Benin (West Africa) ?

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### Abstract

Mangroves provide humanity with a variety of ecosystem services worldwide. Mangrove sites in Benin are embedded in the internationally recognised wetlands of Ramsar sites 1017 also known as West Complex. These mangrove ecosystems are characterised by high biological productivity, which translates into significant biodiversity that benefits many animal and plant species. It offers abundant timber and fishery resources for various agricultural, aquaculture and other activities. In addition, it serves as a refuge for many endangered species and is an essential link in the course of migratory birdlife. However, the rising demography coupled with human activities jeopardises the sustainable management of these ecosystems. In addition, climate change is also expected to have a severe impact on the mangrove ecosystems especially in Benin. Several initiatives were set with the Ramsar Convention on Wetlands for mangroves conservation since 2000. Land use/land cover changes (LULC) were used at Ramsar Site 1017 in Benin for the periods 1995, 2005 and 2015 to assess the impact of the Ramsar Convention on mangrove ecosystems conservation. The observed changes during 1995–2005 and 2005–2015 were considered to predict LULC change towards 2070 using Markovian chain. From 1995 to 2005, a total area of 3.43 ha of mangroves was degraded while 2.65 ha were restored during the 2005–2015 period. Future scenarios predicted that the mangroves area was expected to decrease more than half of the area of 1995 by 2070 assuming the dynamic of 1995–2005 and increase by 1.1 % of the area of 2005 by 2070 with the dynamic of 2005–2015. Implementation of conservation policies, projects and awareness raising activities could contribute to effective restoration of the mangrove ecosystems.

**Keywords:** Land use/land cover, mangroves, policy, Ramsar site 1017, West Africa