

Thesis Title	Assessment of Changes in Mangrove Forests after Nargis Cyclone Using Remote Sensing and GIS: A Case Study of Kadonkani Reserved Forests in Bogalay, Myanmar
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ABSTRACT

This study focused on the impact of the cyclone Nargis on Kadonkani Reserved Forests, Bogalay Township, Ayeyarwady Division in Myanmar. The area covered about 605.06 km² including about 202.22 km² of mangrove forests (FD, 2000). The objectives of this research are to determine the conditions of mangrove forests after the cyclone and to support management of these mangrove forests.

Remote Sensing and GIS were used as tools for assessment of the Landsat 5 images. Three of Landsat 5 satellite images with world-wide reference system path 133 and row 49 were also used. By using ENVI 4.5, the calculations of NDVI values for each image were carried out. The degraded condition of mangroves during 2006-2009 and the recovery condition of mangroves during 2009-2011 were determined with the NDVI value differences. Unsupervised and supervised classification methods were applied for the land cover classifications with ENVI 4.5, ERDAS IMAGINES 9.1 and ArcViewGIS. The analysis showed that the mangroves forests were highly

degraded after the cyclone. The northwestern part was more degraded than lower southeastern part because of the distance of cyclone tract. The image study estimated the recovery rate of mangroves forests in 2009-2011 at 0.3730 km²/yrs. The analysis of field data estimated the basal area growth rate was at 0.0165 m²/ha/yrs. However, despite of regeneration, the mangroves forests covers in the Integrated Resources management (IRM) area of Kadonkani Reserved forest were still less than that of before the cyclone.

This study confirms a need for further restoration and plantations under the management plans of Forest Department in the IRM. The use of Remote Sensing and GIS is recommended as a reliable and cost-effective way to generate detailed spatial and temporal information to support the restoration program and future decision making.

Keywords: Change Detection/GIS/Mangroves /Reforestation/Remote Sensing