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## **MONITORING MANGROVE BIO-SHIELD USING GEOSPATIAL TECHNOLOGY: A CASE STUDY IN POTTUVIL COASTAL ZONE OF SRI LANKA**

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### **Abstract**

Mangroves are one of the most productive and biologically diverse ecosystems, but they have gradually been declined due to anthropogenic pressure. They are highly threatened in most developing countries, including Sri Lanka. The coastal development activities make mangrove ecosystems seriously vulnerable. There is an increased need to assess and monitor this ecosystem in order to help guide conservation and restoration efforts. In this study, an attempt was made to investigate mangrove stands in Pottuvil coastal zone bio-shield. The objective of the study is to define the image texture in discriminating mangrove species with landsat imageries in Pottuvil coastal area in Ampara District. The graphical visual pattern is very complex in the texture analysis with important quality characteristics of various image products. The image classification was executed by the quality of characteristics of the image. The mangrove studies typically involve intensive field surveys. However, geospatial technology is a cost-effective means of mapping and monitoring mangrove bio-shield at large scale. K-mean classification method was employed to define vegetation indices by Normalized Difference Vegetation Index (NDVI), which is an important quality characteristic of various image products. The study revealed that the overall accuracy assessment of the texture image classification was 5 percent more than the non-texture image classification. Also, the analysis revealed that the extent of the mangrove vegetation has reduced by 34.5 ha over the 10 year's period. This approach will be important in the process of decision-making and policy implementation in mangrove ecosystem conservation efforts.

**Keywords:** mangrove bio-shield, textured image, accuracy assessment, geospatial technology