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Sayeda Humaira Ahmed Koly

April, 2021

ENHANCING SCENARIOS OF LAND USE LAND COVER CHANGE OF MOHESHKHALI AND KUTUBDIA ISLAND, BANGLADESH

Sayeda Humaira Ahmed Koly

Roll No. 0119/14

Registration No. 0713

Session: 2019-2020

This is to certify that we have examined the above Master's thesis and have found that is complete and satisfactory in all respects, and that all revisions required by the thesis examination committee have been made.

----------	**----------**
Avijit Talukder	**Prof. Dr. M. Nurul Absar Khan**
Supervisor	**Co-supervisor**

Dr. Mohammad Sadequr Rahman Khan

Chairman of the Examination Committee

Department of Marine Bioresource Science

Faculty of Fisheries

Chattogram Veterinary and Animal Sciences University Khulshi,

Chattogram 4225, Bangladesh

April 2021

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LIST OF ABBREVIATIONS

Words	Abbreviation
LULC	Land Use Land Cover
LULCC	Land Use/Land Cover Change
LST	Land Surface Temperature
MHK	Moheshkhali
KDI	Kutubdia
GIS	Geographical Information System
GBM	Ganges Brahmaputra Meghna
BoB	Bay of Bengal
AEZ	Agro-environmental zones
DMP	Dhaka Metropolitan
BBS	Bangladesh Bureau of Statistics
Sq. km	Square Kilometer
USGS	United States Geological Survey
LPDAAC	Land Processes Distributed Active Archive Center
NASA	The National Aeronautics and Space Administration
EOSDIS	Earth Observing System Data and Information System
MODIS	The Moderate Resolution Imaging Spectroradiometer
QGIS	Quantum Geographical Information System
WGS84	The World Geodetic System 1984
ETM+	Enhanced Thematic Mapper Plus

ABSTRACT

Land Use / Land Cover (LULC) refers specifically to the categorization or designation within a particular time frame of human activities and natural elements on the landscape based on established scientific and statistical methods of analysis of suitable source materials. This study describes the Kutubdia Island and the Moheskhali Island Land use/Land cover analysis and the most likely causes of spatial land changes from 2001 to 2019. Moderate Resolution Imaging Spectroradiometer (MODIS), Sentinel and Landsat8 OLI imageries were used for land cover change analysis. Using remote sensing, nine distinct land classes with their related physical characteristics were identified and quantitative analysis was summarized in this study in order to find out the changes of each land class over the last 19 years. The most troubling situation occurred in the field of land-class mangrove forest, which decreased about of 21.38 sq. km in Kutubdia and 61.65sq.km in Moheshkhali from 2001 to 2019. At the same time period, the dramatic rise in salt fields was found which are about 27.52sq.km in Kutubdia and 8.88sq.km in Moheshkhali. For proper planning and management of Kutubdia Island and Moheshkhali Island, the outcome of this particular analysis may be useful. Those LULC maps will play a significant and key role in planning, management and monitoring programmers at local, regional and national levels. For the safety of Moheshkhali Island, further mangrove planting is strongly recommended in newly developing tidal flats as it falls into a strong cyclonic zone in the Bay of Bengal.

Keywords: Land use, Land cover, Remote sensing, Kutubdia Island, Moheshkhali Island.