UNIVERSITI TEKNOLOGI MARA

CHANGE DETECTION WITH VISUAL INSPECTION AND IMAGE SUBTRACTION FOR DETECTING LAND USE & LAND COVER IN BANDAR BACHOK, KELANTAN

MUHAMMAD FAKHRUDDIN BIN ABDUL RAHMAN
2014537849

BACHELOR OF SURVEYING SCIENCE AND GEOMATICS (HONS)
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING
UNIVERSITI TEKNOLOGI MARA MALAYSIA

JANUARY 2019

AUTHOR'S DECLARATION

I declare that the work in this disertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

Name of Student	:	Muhammad Fakhruddin Bin Abdul Rahman
Student I.D. No.	:	2014537849
Programme	:	AP220-BANCHELOR OF SURVEYING SCIENCE AND GEOMATICS (HONOURS)
Faculty	:	Faculty of Architecture, Planning and Surveying
Thesis	:	CHANGE DETECTION WITH VISUAL INSPECTION AND IMAGE SUBTRACTION FOR DETECTING LAND USED & LAND COVER IN BANDAR BACHOK, KELANTAN
Signature of Student	:	……..
Date	:	January 2019

ABSTRACT

Land use change is a process where human activity changes the landscape. The impact of direct land use changes can affect wildlife habitats and therefore impact local and global biodiversity by changing natural vegetation to any other uses that result in loss of habitat, degradation and fragmentation. The main problem are rapid of land use & cover taking place in the study area has led to environmental problems as well, soil erosion, and water pollution due to deforestation and discharge of municipal garbage and industrial waste. Using satellite imagery from Landsat Thematic Mapper (TM), and Landsat 8 OLI images acquired in 2009 and 2016 respectively to map the land use ad cover change in Bandar Bachok, Kelantan. Each image is separately classified into five classes of use and land cover Built-up, Bare land, forest, agriculture, and water bodies using the most uncontrollable data categorization data with the help of data collected in the field gathered in Padang. By using Normalized Burn Ratio (NBR) was intended to feature consumed zones and gauge fire seriousness. The recipe is like NDVI, then again, actually it utilizes near-infrared (NIR) and shortwave-infrared (SWIR) wavelengths. NBR method will used this transformation to the images for each date, then compare the differences in these images. For detecting building or built-up area Normalized built-up index (NDBI) has been use. Land clearing information collected in the field in 2009 and 2016, and includes a visualized equipped uniqueness that is visually understood to be used to assess the accuracy of the classification decision. The overall accuracy of soil classification for each image is: Built-up (92%), Agriculture (86%), Water Bodies (86.9%), Bare Land (79.5%) and Forest (83.3%). Post-classification change tracking techniques used to generate change images for 2009 to 2016, have been found to have major changes in land / cover usage over a 7-year period. Accordingly, it accounted for about 71% of the total area followed by built-up (15%), Forest (9.3%), Bare Land (2.7%) and Water Bodies occupied the smallest area that are (2.0%). During the 7-year time frame, in 2016 agriculture also in major type of land use and cover but decrease to 64%. Another, type of land cover also shows the decreasing in 2016 that are built-up decrease to 7% and forest decrease to 1%. Another type of land cover show increasing that are Bare Land increase to 24% and water bodies' increase to 4%. Based on this change the differences from year 2009-2016 are for Built-up 17.1% for 2254.61 hectare, agriculture 15.7% for 2067.22 hectare, water bodies 6.0% for 792.14 hectare, bare land 43.9% for 5772.43 hectare and for forest 17.3% for 2690.21 hectare. As a result, this study also demonstrates the importance of Remote Sensing (RS) technology and the Geographical Information System (GIS) to estimate the exact change in land use and cover, and assess their causes to design ecological-based management plans for Bachok Area.

TABLE OF CONTENT