LANDUSE/ LANDCOVER CLASSIFICATION AREA WITH QUICKBIRD IMAGERY

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Multi-Purpose planning, inventory and management of land resources and environmental monitoring we need the 'current situation' of the land resources. To meet these needs successive mapping at appropriate time intervals is necessary. At present approximately 40% of the earth's total land surface, remains to be mapped at scales ranging from 1:40,000 to 1:125,000. In addition 20% of the earth's land surface has not yet been mapped at a scale greater than 1:140,000. Further, there is an increased need for digital base maps as an input in geocoded land information systems.

The present update rate for the 1:50,000 maps is only 2.3% and that of a 1:25,000 map is 4.9%.Thus the average age of a map is 25 years. It becomes clear that the existing map technology based on aerial photography and ground methods is too slow to provide the required data sets. As Satellite remote sensing is capable of satisfying this requirement it is necessary to ensure an accelerated and improved application of remote sensing technology in mapping.

High spatial resolution images have been increasingly used for urban land-use/land-cover classification, but the high spectral variation within the same land cover, the spectral confusion among different land covers, and the shadow problem often lead to poor classification performance based on the traditional per pixel spectral based classification methods. Therefore this paper explored approaches to improve urban land cover classification with QUICKBIRD imagery. This research discussed that use of spatial information during the image classification procedure, either through the integrated use of overlay GIS Inputs (Roads, Water Area and Open Area) to classified combined NDVI image with multispectral QUICKBIRD image with supervised classification. That method, can significantly improve land cover classification performance.

Supervised, Fuzzy and Hybrid pixel based classifications were carried out to extract five urban land covers, namely: Built up Area, Roads, Green Area, Open area and water. Based on this classifications, overall accuracy of 60.00% with a Kappa coefficient of 0.500 in Supervised classification, overall accuracy of 67.00% with a Kappa coefficient of 0.5917 in Fuzzy classification and Overall accuracy of 96.67% with a Kappa coefficient of 0.9583 in Hybrid classification.

Results confirmed that Fuzzy classification performs better than supervised classification and Hybrid classification performs better than supervised classification. Better accuracy results achieved in using satellite images with high spatial resolution.