

ABSTRACT

Land cover is the physical material at the surface of the earth. The information regarding land cover is crucial because it can describe the relation between natural and social process in the natural phenomenon which occurs on earth. This information can be obtained by remote sensing technique. However, the remote sensing data need to processed before being used as information sources. One of the processing method that can be undertaken is digital image processing. This utilizes satellite images to classify land covers which possibly can be used to design a land layout at a certain area.

In this research, writer utilized SPOT 6 satellite image around Depok and Bogor. Writer obtained the satellite image from Pusat Teknologi dan Data Penginderaan Jauh (PUSTEKDATA) Lembaga Penerbangan dan Antariksa Nasional (LAPAN). Writer classified the land cover by using Gray Level Co-occurrence Matrix (GLCM) method and K-Nearest Neighbor (KNN) classification to classify five kinds of land covers, i.e. river, deforested hill, forest, settlement and ricefield.

The final result of the research gained 92,4% accuracy by using images in size of 128 x 128 pixel. In extraction process of GLCM using three features, which are contrast, energy and sum average with using 0° pixel orientation and pixel distance = 4, quantization level = 8 and in KNN classification process using K value = 5 and Mahalanobis distance.

Keywords: Land cover, satellite imagery, SPOT satellite, GLCM, KNN.