

Land use and deforestation modelling of river catchments in Klang Valley Malaysia.

ABSTRACT

This paper presents analyses of the land use and land cover change of the Langat-Dengkil sub-catchment and the deforestation of the Klang-Langat catchment in the context of water resource availability. The Langat-Dengkil sub-catchment lies within the upper catchment of Klang-Langat. For both catchments, the landsat TM and ETM satellite imageries, ERDAS Imagine 8.4 and ArcView/Arc GIS softwares were used to detect spatial and temporal changes in land use and deforestation between the year 1990 and 2001. For Klang-Langat deforestation, CLUE model was used to forecast change up to year 2020 using two set scenarios. Langat-Dengkil sub-catchments experienced multiple changes of land use and land cover at varying quantum for the years 1990 and 2001. It was found that forest land and agriculture were reduced by 9.5% (4,303 ha) and 17.3% (11,598 ha), respectively. During the same period (1990 to 2001), urbanised land has increased by nearly six folds (18,860 ha). Land use change matrix has indicated that the increase of urbanised area was at the expense of agriculture and forest land. For Klang-Langat catchment, the deforestation for 1989 – 1999 were also serious. About 36,351 ha were deforested including 12,244 ha of Permanent Forest Reserve. Deforestation prone areas are located within 1000 m from major access, 2000 m from town, confined to altitude less than 100 m and within slope of less than 5o. Projection for year 2020 has predicted that if the Permanent Forest Reserve is strictly protected, deforestation will be reduced to 22,340 ha or 22%. Otherwise, it will be heavily deforested at 50,851 ha or 50%. Both results showed that the accelerated land use change and deforestation can only be mitigated through stringent management of land conversion, and as for the forest, it has to be through the total protection by law. This can be achieved by strengthening the Permanent Forest Reserve law and the commitment in adopting sustainable resource policy.

Keyword: Deforestation; Land use and land cover; Land use modelling; River catchment