



Analysing the Impact of Flood Caused By Improper Land Use Activities in Muttur DS Division

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Abstract

Flood occurs due to both natural and man-made causes. Among these two most highlighted causes are conversions of natural landscapes for human usage. Muttur experiences severe flood hazards due to the North East Monsoon and exhaust of doubles with the Mahaweli River in rainy seasons. Flood damage increases as a result of inappropriate land use practices. The primary objective of the study were to analyze the relationship between the impact of the flood and improper land use activities. To achieve the objective of the study, the data were collected based on a questionnaire survey, furthermore, the landsat images were used to identify, how the land cover changes occurred in Muttur, with the help of the matrix method using ARC GIS 10.1 software. The study found that the built-up land in Muttur is rapidly increasing annually about 141, 50. The land area of water bodies is (-91, 82) and the non-built lands (49, 68) continuously decreased. It is because water bodies and non-built-up lands are converted into urbanization and tourism development activities, therefore, rainy season water flowing directions are blocked, and it caused a high impact of the flood. Furthermore, Chisquare analysis strongly proves improper land use activity is the reason for the high impact of the flood in Muttur. The total sample population is a hundred with a df value of 3 and a pvalue is about 0.001. The Chi of the impact of the flood and the improper drainage system is 37.079, flood impact and urbanization chi respectively 23.775, Chi of the flood impacts and the deforestation/overgrazing of natural vegetation is 17.045, Flood impacts and the wetland converted into buildup/ development chi is 33.333, flood and the Mining of sand and other resources Chi is 12.676, and flood impacts and over-pumping of groundwater Chi is 28.671. To overcome this situation, the study recommends for reducing the building construction in wetland areas, providing pipeline drinking water facilities to reduce the over-pumping of groundwater, banning sand mining activity in hazardous areas, and implementing visible landuse management strategies in the research area.

Keywords: Chi-square, flood, improper land-use, landsat images, matrix analysis