REMOTE SENSING AND GIS APPROACH IN CHANNEL SHIFTING IMPACTS ON URBAN DEVELOPMENT: A CASE STUDY OF LAE URBAN IN PAPUA NEW GUINEA

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Abstract - River systems are crucial for the Earth system. Study of river course dynamism is very important in understanding the flow pattern characteristics of river, especially the erosion activity of the river, modification of flood plains, bank cutting, channel shifting, etc. They assist in identifying and estimating the man-made as well as the natural erosion by river. The study area 'Lae' city which is surrounded by three major rivers. Thus, the activity of rivers in shaping and altering the 'available land' of city is one of the objectives of the study. People are migrating to city for their being employment and for having a better living standard. They cater to the demand of expanding factories, business firms, industrial activity that are expanding with the passing time in Lae city. Remote sensing and GIS technology was used to identify and estimate how fast the available land in the city is being gnawed by three (3) major rivers between year 2000, 2012 and 2018 which trend to the implication to expansion of the city. These result provide a reliable foundation for the Lae Urban Planners and Lae City Council as major concern lies behind them to know how the river is migrating its paths in what direction the city is to be expanded and how to manage the river system.

Keywords - Channel Shifting, GIS, Lae City, Land Availability, Remote Sensing, Spatio-Temporal Change.