ANALYZING THE TRANSFORMATION OF PRE AND POST-DEVELOPMENT WETLAND AREAS IN PURBACHAL NEW TOWN, BANGLADESH

DATTA, UDDAY
West Virginia University, usd0001@mix.wvu.edu

JIANG, SHAN
West Virginia University, Shan.Jiang@mail.wvu.edu

BUTLER, PETER
West Virginia University, Peter.Butler@mail.wvu.edu

MANDAL, DEBSREE
Chittagong University of Engineering and Technology, debsree2004@yahoo.com

1   ABSTRACT

Dhaka, the capital city of Bangladesh, is one of the fastest-growing metropolitan regions in the world. Around 18 km away from Dhaka, Purbachal satellite city was planned in 1995 to solve the ever-increasing need for housing. Purbachal is the largest planned township in Bangladesh, with an area of over 25 square kilometers. Historically a low-lying wetland, Purbachal has gone through a rapid transformation in past decades. This study investigates the transformation of wetland areas in Purbachal New Town using Supervised Classification for Land Use and Land Cover (LULC) Change and Water Flow and Watershed Analysis. The study Investigates whether the new developments in the Purbachal New Town followed a natural topography or was drastically modified from its natural conditions. The result shows wetlands around the new town have been filled in to create new developable land. As a result, the existing water flow patterns drastically altered, making the satellite city susceptible to flooding. By combining geospatial modeling with impact simulation, the study demonstrated a feedback process that facilitates the development of sustainable design strategies. The study's outcomes will guide the formulation of an alternative city planning process aided by Geodesign tools and the establishment of a systematic urban planning approach for this region guided by the natural land transformation analysis to create cities where people will be able to live in harmony with nature.

1.1   Keywords:
Wetland transformation, remote sensing, watershed analysis, GIS