

Impact of Land Cover Conversion on the Biophysical Environment and Livelihood in Uruan Local Government Area

By

Usenekong P. Ntuk, Uwem J. Ituen

Department of Geography and Natural Resources Management

University of Uyo, Uyo, Nigeria.

uwemituen@gmail.com

&

Unwana S. Koffi

Marine Biology Unit, Department of Biological Sciences,

Akwa Ibom State University, Nigeria

Abstract

This study assessed the impact of land cover conversion and its implications on the biophysical environment as well as livelihood opportunities in Uruan L.G.A. Landsat TM imageries of 1986, 2003 and 2013 were used for the study. A total of five broad land cover classes were identified and mapped; Open water, swamp forest, bush fallow, compound farmland and built up. The maps were used to assess changes in land cover for 1986, 2003 and 2013. The images were processed using unsupervised classification algorithm in Erdas Imagine 9.2 and post classification change detection technique in ArcGIS 9.2. Furthermore, a field survey was carried out from selected 10 villages in the study area, with a structured questionnaire administered to households purposively within the selected villages. 75 ground points using GPS receiver were also sampled across the identified 5 broad land cover classes. The study revealed that, these land cover classes have experienced various forms of conversion with built up and swamp forest reducing in at a higher rate than other land uses over time because of some socio-economic drivers such agriculture, transportation, commercial, residential, and recreational land uses. Other land cover types experienced changes too. The study identified tremendous reduction of swamp forest in the area thereby putting the existing ecosystem and biodiversity in danger of reduction in diversity and abundance of both animal and plant species, decreasing crop yields and loss of means of livelihood. Based on these findings, effective policy implementation is recommended to check unsustainable practices such as unnecessary deforestation and wood extraction from the natural forest, which have been found

to increase the rate of land degradation in the study area. The socio-economic drivers of land cover change should be studied regularly rather than just the impact for environmental and socio-economic change detection. Sustainable economic development and conservation of natural forest as well as fertile agricultural land should be encouraged. Finally, remote sensing and GIS technology should be integrated into land cover planning, monitoring and management in the study area.

Key Words: Land cover conversion, biophysical environment, livelihood, socio-economic drivers.