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Possibilities and Limitations of using Remote Sensing and GIS as tools to monitor land use changes in the peri-urban areas of Ghana

Peri-urban areas present a complex land use pattern with diverse implications for land management. This study was undertaken to analyse the possibilities of remote sensing and Geographic Information Systems (GIS) to provide information that guide land managers to make sound land policies with spatial perspective.

Land use planning in Ghana has largely been done manually. The process is not only slow and cumbersome but also not able to keep in tune with the rapidly and uncontrollable developments that take place in the peri-urban areas of the country. Mandela, a peri-urban area of Accra, was selected as study area. It is located outside the Accra city area and is faced with environmental hazards due to the rapid rate of peri-urban expansion that took place over the last decade. The built up area of Mandela has spread into potential flood and inundation zones. This development has not been effectively monitored; let alone controlled. It therefore presents potential hazards to people and their property in the area.

This study demonstrates that remote sensing and GIS technologies provide vital information for decision makers on current land use, land uses changes and trends which are needed to support sound and effective policies and guidelines for land use and environmental management in peri-urban areas. Adapting remote sensing and GIS technologies, however, is not just a technical software matter, but involves institutional issues which need to be addressed before remote sensing and GIS applications can be adapted for land use monitoring on an operational basis.

Key words: peri-urban areas, land use changes, land use patterns, environmental management, remote sensing, GIS, Ghana