

The 3rd International Geography Symposium - GEOMED2013**Spatial information for sustainable land resources development:
Using technology for informed decision making****Ibrahim Rafindadi Abdulrahman****Department of Remedial Studies, College of Basic & Remedial Studies, Hassan Usman Katsina Polytechnic, Katsina. Nigeria.*

Abstract

With high urbanization and weak financial bases, Local Governments in Nigeria are struggling to keep up with the rapid pace of change. Despite commitment to sustainable development by the Nigeria government, poor or inappropriate data management practices have posed constraints towards realization of its set goals. The potential for digital data technology is therefore being recognized by many government and local authority managers as a necessary aid to informed decision making during planning and delivery of services. However, it is common practice for spatial data within the same authority to be stored in formats not conducive to their effective use as a common resource and information being withheld unnecessarily from other users. With reference to Katsina, this paper draws on Nigeria's relatively well developed cadastre system to explore how a cadastre-based Land development system can be developed for easy identification of properties and their owners/occupiers; and the formation, and implementation of databases to facilitate efficient processing and dissemination of spatial data for sustainable management of Land resources. Despite the initial high cost of implementing a Geographic Information System, and although it might be argued that the circumstances are different, the paper draws parallels with the initial land registration process in Nigeria whose records are still being use by government through data sales many decades later and argues for its (GIS) implementation. The paper focuses on providing technical solutions for better spatial data management as they relate management and delivery of Land resources services in Katsina.

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Selection and peer-review under responsibility of the Organizing Committee of GEOMED2013.

Keywords: Spatial Information; Sustainable; Decision making; Land resources; Technology.

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1. Introduction

Traditional land use and customary ownership regimes that exist throughout Katsina state have sustainably supported food security and the livelihoods of the populations over centuries. Now, however, traditional land use systems are under pressure and changing rapidly. This transformation is mainly due to the new 'opportunities' for land use afforded by change in status from provisional to state status and the expansion of the market economy (e.g. hotels, Administrative structures, urban development and increase in infrastructures) coupled with the breakdown of traditional agricultural systems due to population growth, rural-urban drift, and social and economic changes. The expansion of settlements that result in farming on marginal lands, farming on fragile soils without the use of special conservation measures, shorter fallow periods, deforestation and burning of grassland are causing land degradation, lower crop and pasture yields, and increased food insecurity and poverty. This is occurring against a backdrop of a general lack of long-range planning and policy development and insufficient effort to incorporate environmental protection measures in urban and rural production systems. The effects of climate change have disrupted local weather patterns leading to water shortages on the one hand and more frequent flooding on the other. Water use, as it relates to land use and agriculture, must always be seen as part of a continuum. More than 85 per cent of land in Nigeria, Katsina inclusive is customarily owned by groups, with different rights held by individuals as defined by inheritance and social relationships. Land ownership involves the notion of custodianship, with individuals and society having a joint responsibility to take care of the land for the benefit of current and future generations.

2. Sustainable land management and land use planning

Laudre, 1994 Believes that SLM is a holistic or integrated approach to land resources development and management. It considers technical, physical, sociological, economic and political issues in making land use decisions to achieve the most efficient and non-destructive long-term use of land resources. SLM attempts to balance development with conservation. Land use planning is fundamental to SLM and it underlies the sustainable development and conservation of land resources. Planning must include systematic assessment of physical, social and economic factors in such a way as to encourage and assist land users in selecting options that increase productivity, are sustainable and meet the needs of society. Land use planning must be considered a key component of all agricultural development and conservation. Land resources are limited and finite. The limited amount of arable land available for food and agricultural/forestry production is under increasing pressure from generally high population growth and rural-urban migration. There is an urgent need to match land types and land uses in the most rational way to optimize sustainable development and management of land resources.

3. Critical challenges for sustainable land management (SLM).

A major limiting factor to SLM is the lack of data and information on land use and management. In most cases, the administrative and institutional frameworks used for resource allocation and management are highly sectionalized. Attempts at coordination have often proved ineffective, but lack of coordination constrains the development process, increases friction between ministries, and in many cases promotes unsustainable use of land resources.

Customary and introduced modern land management systems have co-existed, for a long time almost since before independence. It is now generally accepted that individualization of customary ownership rights is not a necessary condition for increased economic activity. Increased economic activity can be achieved by maintaining and protecting customary tenure and allowing individuals to use rights consistent with the requirements of a market-based economy.

Lack of clarity regarding customary landowning and claims plays an important role in the apparent divide between customary and introduced modern land management systems. In most cases, there is limited formal recording of customary landowning and decision-making processes. Efforts to formally record and register customary land have had limited success and have actually contributed to conflict. The use of customary land under informal arrangements has helped landowners achieve some improvements in their economic well-being. However,

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