

**A GIS EVALUATION OF LAND MANAGEMENT MODELS AND LAND QUALITY
IN SALIMA AGRICULTURAL DEVELOPMENT DIVISION IN MALAWI**

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By

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ABSTRACT

Mita, Dath Kakole, M.S., Natural Resources Management, Department of Agricultural and Biosystems Engineering, College of Engineering and Architecture, North Dakota State University, December 1997. A GIS Evaluation of Land Management Models and Land Quality in Salima Agricultural Development Division in Malawi.
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The land resources appraisal of Salima Agricultural Development Division (ADD) in Malawi identified and successfully mapped, among other inventories, several land management models (farming systems). The models include traditional management, improved traditional management, wetland rice cultivation, and modern farming systems. Very little, however, is known about how smallholder farmers make choices among the different management models.

This study was conducted to investigate and characterize spatial relationships or patterns of land management models and land quality. The investigation aimed at providing a new understanding of the relationships and/or associations between the two variables that may lead to hypotheses about local farmers' indigenous knowledge about land resources evaluation. IDRISI for Windows, a Geographic Information and Image Processing System, was used to create and analyze a digital database of land resources inventories of Salima ADD.

Traditional management models were distinctly associated with six land quality classes while improved traditional management models were closely associated with 27 land quality classes. In some cases, the two models existed within the same land quality

classes. Spatial patterns, between land management models and land quality, were identified and mapped. Soils and physiography conditions were found to correspond to attributes associated with specific land management models, hence considered as major characterization factors.