Abstract

As the manager of Eritrean Cadastral Office (ECO) states in his article with the title "The Challenges of Developing Cadastral System in Eritrea", the spatial data of the ECO database system is not integrated with the non-spatial data, and this gap makes ECO cadastral system incomplete. The objective of this report is to design and implement multi-user cadastral geodatabase using Geographical Information System (GIS) for ECO (Asmara, Eritrea), which is a perceived technical solution to the problem of integrating spatial data with textual data in the collection of information regarding land and lease, registration of properties and its transaction, and registration of owner, mortgage and pledge of the properties, and extracting land information.

To achieve the objectives of this research, all the information products were obtained. The key thematic layers were identified. The tabular structure for every thematic layer was designed and implemented. Multi-user cadastral geodatabase was created using ArcCatalog interface SQL Server as back-end storage. Sample data was loaded to the geodatabase and configured with the appropriate coordinate system suitable to Eritrea. Customized tools were added and integrated with ArcMap to simplify some GIS operations' complexity for non-GIS experts. The loaded sample data of the cadastral geodatabase is then published to ArcGIS Server to be tested. The geodatabase can support versioning and display on web browser for easy access by decision-makers and other customers.

In ECO, zonal branch offices use different identification IDs for the same data. Accordingly, it is recommended that all the branch offices refer to the ECO centralized geodatabase management system in Asmara instead of developing their databases.

Keywords: Geographical Information System, Eritrean Cadastral Office, Enterprise Geodatabase, ArcCatalog