Digital Integration of Land Records through the LADM and STDM

Glendon Newsome (Jamaica) and Charisse Griffith-Charles (Trinidad And Tobago)

Key words: Digital cadastre; Land Records Management System; Cadastral System; Land Registration; Land Administration Domain Model; Free Libre Open Source Software

SUMMARY

Because of the fragmented nature, inequality in accuracy, different forms (formal and informal tenures; analogue and digital records; titles and deeds; fixed and general boundaries; systematic and sporadic adjudication; fiscal and legal foundations, centralised and decentralised operational framework) of cadastral systems that may be in operation in a single jurisdiction, there are issues of duplication, inaccessibility and storage and retrieval of land records. This results in ineffective land management, which stymies economic development, and leads to high cost and inaccuracy in land registration – duplication in registration of land; inappropriate development approval; weak land administration and management; and poor disaster risk reduction and management. Developing countries such as those in the Caribbean are particularly affected and made more vulnerable to economic, social and environmental shock in the presence of such inadequate cadastral systems.

This research therefore leads to the solution to this problem by developing a methodology for, and the establishment of an integrated digital land records management system, by the adoption, modification and application of the International Standards Organization certified ISO 19152: Geographic Information – Land Administration Domain Model (LADM) and the Social Tenure Domain Model (STDM). Using the Case Study approach, with Jamaica as the subject, the thesis demonstrates how the LADM and the STDM may be incorporated using generic Free Libre Open Source Software (FLOSS) technology, to support the solution to the problem of inefficient land records management in developing countries, a first for a Caribbean state.

The result is presented in the form of a new conceptual data model and tested using a prototype created with open source software. It establishes links and relationships between data created by various departments and agencies of the state, which currently, proves cumbersome to access, due to the physical distribution of the data and the multiple formats and models of its structure.

The outcome of the research is a strategic fit-for-purpose implementation of a hybrid of the LADM and STDM named LSTDM. As a result of the ability of the integrated system to deliver a comprehensive view of all available land information, straddling institutional borders, significant improvement in support for land administration will be realized. Concomitantly, there will be reduced, if not zero occurrence of duplicate registration and therefore substantially fewer conflicts over land.