Developing Land Registry and Cadastre Base Data Model for Land Management Applications

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SUMMARY

Content about land registry and cadastre data in Turkey is being developed based on the Land Registry and Cadastre Information System Project (TAKBIS). In this project, software development and pilot application studies were performed for the automation of services served by central and local bodies of General Directorate of Land Registry and Cadastre (TKGM). But, this project has some deficiencies regarding managing geographic data because of the inclination of preserving traditional data management approaches, poor quality of geographic data, and problems about temporal changes. Turkey National GIS (TUCBS) is an e-government project aiming at establishing Turkey National Spatial Data Infrastructure that enables effective geographic data management and meets national level requirements and the INSPIRE implementation rules. Designing Land Registry-Cadastre Data Theme (TUCBS.TK), one of the base data themes of Turkey National GIS (TUCBS), is discussed in this study. Specifications for base geo-data themes including land registry and cadastre were designed by considering all stakeholders of TUCBS. Requirement analysis for TUCBS.TK was conducted by TUCBS stakeholders including 10 of ministries, 24 of general directorates, 25 of departments. It was declared that land registry and cadastre data is used in 77 GIS-related works. In this context, existing geographic data, data requirement, and international standards such as ISO/TC211, INSPIRE, and OGC were analysed. In developing TUCBS.TK data theme standard, ISO 19152 Land Administration Domain Model (LADM) which was accepted as international standard with the leadership of International Federation of Surveyors (FIG) is used as the base international standard. Features of INSPIRE Cadastral Parcels data theme were also taken into account. In addition, scientific studies (Kaufmann and Steudler, 1998; UN-ECE, 1996; van Oosterom et al., 2006; Inan, 2010) and data modeling foresights of TAKBIS were considered. To design geographic data model; temporal data management, topological data structure, administrative units, non-registered areas, etc. were added to TUCBS.TK data theme beside requirement analysis. In this study, TUCBS.TK application schema compatible with the LADM was summarized and evaluated. Its similarities and differences and accordingly the basic contribution to further LADM development for Turkish land administration system were presented and discussed. Example feature types within TUCBS:TK data theme are spatial easement, group of full-partition parcels (surrounded by natural or man-made features) used for legal indexing or conventional data management, group of parcels for the designation of a land management activity, basic land parcel types and geodetic control points.

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