

INTISARI

Sistem Administrasi Pertanahan (SAP) merupakan salah satu infrastruktur penting dalam pengelolaan pertanahan yang mencakup aspek yuridis, fiskal dan zonasi bidang tanah. Dalam suatu SAP, Informasi Geospasial (IG) bidang tanah tunggal sangat dibutuhkan terutama untuk memfasilitasi berbagai tema layanan dan tukar-guna data. Di Indonesia kondisi ideal tersebut belum bisa dipenuhi karena setiap institusi pengelola informasi pertanahan (seperti: Badan Pertanahan Nasional/BPN, Badan Perencanaan Pembangunan Daerah/BAPPEDA) menggunakan IG yang berbeda. Adanya keberagaman IG pertanahan menjadikan pengelolaan informasi pertanahan terpadu untuk pengambilan keputusan sulit dilakukan. Penelitian ini berupaya menyelesaikan masalah keberagaman IG yang berbeda sintak dan struktur agar mudah dipadukan. Problem tersebut diselesaikan dengan membuat model asesmen interoperabilitas IG dan perangkatnya berbasis elemen metadata, sehingga IG yang beragam dapat diasas, diselaraskan, dibagi-pakai dan cocok saat dipadukan.

Penelitian ini mengambil studi kasus di Kabupaten Sleman, Propinsi DIY. Di Kabupaten Sleman ada tiga institusi yang mengelola informasi pertanahan yaitu BPN, BAPPEDA dan Dinas Pengendalian Pertanahan Daerah (DPPD). Tahap pertama penelitian adalah melakukan identifikasi dan analisis standar dasar IG dan standar layanan IG yang dipergunakan pada penyelenggaraan SAP di setiap institusi. Hasil identifikasi dijadikan sebagai dasar pembentukan model asesmen interoperabilitas IG berdasarkan metadata. Model asesmen berisi komponen komparasi untuk penyelarasan sintak dan struktur IG sebagai dasar dalam penyusunan basisdata *repository*. Agar dapat diterapkan, purwarupa perangkat asesmen dibangun berdasarkan desain model yang dihasilkan. Evaluasi model dilakukan oleh pakar di bidang IG dengan kriteria ekspresif, sederhana, minimalis, formal, dan berguna, sedangkan evaluasi purwarupa dilakukan oleh pengguna. Rancangan basisdata *repository* IG dan uji kegunaannya mengambil skenario proses perizinan perubahan penggunaan tanah.

Hasil penelitian menunjukkan bahwa di daerah kajian belum menerapkan standar dasar yang sama dan standar layanan IG dalam menangani administrasi pertanahan. Standar dasar mencakup standar spesifikasi produk data, standar metadata, standar sistem referensi koordinat, standar model data dan katalog fitur. Standar layanan data WFS dan GML dapat digunakan untuk memfasilitasi akses dan berbagi-pakai IG. Elemen metadata berbasis ISO 19115:2003 berupa skala, sistem referensi koordinat dan *bounding box*, format data dan fitur data dapat digunakan untuk melakukan asesmen interoperabilitas sintak dan struktur IG yang akan dipadukan. Berdasarkan elemen metadata tersebut telah berhasil dibuat model asesmen dan purwarupa perangkat asesmen interoperabilitas data. Hasil evaluasi model oleh pakar dinyatakan memenuhi kriteria ekspresif, sederhana, minimalis, formal, berguna. Hasil uji kegunaan purwarupa oleh pengguna dinyatakan mudah digunakan dan informasinya jelas. Berdasarkan hasil uji *query* dan uji kegunaan, hasil perancangan basisdata *repository* IG institusi dapat melayani akses dan tukar-guna IG sesuai skenario. Merujuk pada hasil, model asesmen interoperabilitas data dapat diterapkan dalam pengembangan IIP di Indonesia.

ABSTRACT

Land Administration System (LAS) is one of the critical infrastructures in land management that includes juridical, fiscal and zoning aspects of land parcels. In LAS, single Geospatial Information (GI) of land parcel is needed, especially to facilitate a variety of themes and exchange services for the data. In Indonesia the ideal condition has not been met since most of the land information management institutions (such as Land Office/BPN, Planning Office/BAPPEDA) use different GI. The heterogeneity of land GI causes difficulties in implementing integrated land information management for decision making. This study aims to resolve the heterogeneity problems of GI which has different syntax and structure to be easily integrated. Such problems are solved by developing a GI interoperability assessment model and tool based on the element of metadata. Having developed such model and tool, the heterogeneous GI can be assessed, harmonized, shared and matched each other when integrated.

The case study of the research is in Sleman, Yogyakarta province where there are three institutions managing land information i.e. BPN, BAPPEDA and Local Agency for Land Control (DPPD). The first stage of the research was the identification and analysis of the basic standards and service standards of GI that are used in the implementation of SAP in each institution. The identification results served as a basis for the establishment of GI interoperability assessment model based on metadata elements. Assessment model contains components for aligning syntax and structure of the GI as a basis for developing a repository database. In order to evaluate the usefulness of the model, a prototype was built based on generated design models. The models were evaluated by experts in GI by utilizing several criteria including expressiveness, simplicity, minimalist, formality, and usefulness. Meanwhile, the prototype was evaluated by targeted users. For the purposes of this research, the design of GI repository database and its usability in the scenario of licensing process of land use conversion was utilized.

The results show that Sleman has not implemented the same basic standards and services of GI in dealing with land administration. The basic standards include standards of data product specification, metadata standards, standards of coordinate reference system, standards of data model and catalog features. Standard data services of WFS and GML can be used to facilitate GI access and sharing. Metadata element pursuant to ISO 19115:2003 standards, the parameters of which are scale, coordinate reference system and the bounding box, data formats and data features, can be used to conduct an assessment of the interoperability of GI syntax and structure that are to be integrated. Based on the metadata elements, an assessment model and a data interoperability assessment prototype have been successfully developed. The evaluation results show that the experts found that the model complies significantly with the criteria of expressiveness, simplicity, minimalist, formality and usefulness. The prototype usability test which was done by the users showed that the model is easy to use and the given information is clear. Based on the query test performed by the users, the institutions GI repository database model can serve the GI access and exchange according to the scenario.

With these results, the data interoperability assessment models can be applied in the development of Land Information Infrastructure (LII) in Indonesia.