

## An investigation of common sense about land use in Japan

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Recently, advancements of the remote sensing technology have triggered prevalence of diverse geographic information. Because the geographic information is, however, produced along each purpose of production, their data format or content would not be consistent with each other. The developments of spatial data infrastructure which manage and use such geographic information have been address by study field of GIS. Ontology has been known as a one of the approach of critical contribution to establishment of semantic interoperability between such geographic information. Since each culture has its own culture-specific common sense beliefs pertaining to own environment and circumstance, the ontologies to be developed in different culture should be different. However, because this kind of common sense would include perceptions and cognitions in everyday and non-scientific folk theory which is shared among people in a community, a methodology to develop culture-specific ontologies have not been proposed.

In this study, the common sense about land use category in Japanese community were investigated by the questionnaire which was carried out for 60 graduate and undergraduate student majoring in earth science and the evaluation of accuracy about determining land use category in land use data which is *Detailed Digital Information (10m Grid Land Use)*. The questionnaire is contents which make 38 facility classes submitted to classify into four classes, *Public facility*, *Commercial facility*, *Residence*, and *Others*, and is intended to investigate the common sense of land use category among these students. On the other hand, the accuracy about determining land use category using land use data produced by land use interpretation by human beings was evaluated, the common sense about land use category among interpreters were investigated. The facility classes which are in common in the two investigations were extracted, both of results were compared. The facility classes which scored relative high in both investigations are *Library*, *Fire department*, and *Public school* etc. (Fig.) and would be central members of *Public facility* land use category in common sense of Japanese community. Similarly, the facility classes which scored relative low in both investigations are *Welfare house for aged*, and *Vocational school*, etc. (Fig.) and would be peripheral members.

This study pointed out the distinctions and characteristics of common sense about land use categories in Japanese community, would contribute the development of spatial data infrastructure in Japan. Also, it can be considered to contribute the comparison between Japanese land use data and the other countries data. Moreover, in order to develop worldwide spatial data infrastructure, it is necessary to investigate this kind of common sense in various culture or linguistic community.

Keywords: land use cognition, land use determination, ontologies

