

A MODULAR STANDARD FOR THE CHINESE CADASTRAL DOMAIN

Weiwei Zhang

School of Resource and Environment Science,
Wuhan university, 129 Luoyu Road, Wuhan, PRC, 430079, China
Email: xiaozhuweiwei1983@yahoo.com.cn

Qingyun Du

School of Resource and Environment Science,
Wuhan university, 129 Luoyu Road, Wuhan, PRC, 430079, China
Email: qingyundu@whu.edu.cn

Zhongjun Zhao

BEITAI IRON&STEEL GROUP CO.,LTD.
Huanshan Road No.36 Mingshan District Benxi Liaoning, PRC, 117022, China
Email: zhaozhongjun198223@126.com

Yan Guo

School of Resource and Environment Science,
Wuhan university, 129 Luoyu Road, Wuhan, PRC, 430079, China
Email: caro1214@sohu.com

Hong Wang

School of Resource and Environment Science,
Wuhan university, 129 Luoyu Road, Wuhan, PRC, 430079, China
Email: j-wanghong@163.com

1. ABSTRACT

Until today most cities of china have developed their own cadastral systems and more cities will develop in the future. And then there is a big problem with the communication and information share of these cadastral systems. There are two basic reasons to this question. The first one is that the systems are supposed to base on different foundations and different organizational forms of data which can be regarded as problems of technical level. And the second is the different understanding of concepts of cadastral domain which is the problems of knowledge level. The difficulties of system communication created by the technology will be solved with the development of computer science. And this article mainly focuses on solving the problems made by the different understanding of concepts which can be solved by establishing a standard of cadastral domain. It is necessary to build a standard for Chinese cadastral domain not only adapting to the situation of china but also according to accepted international standard. The inevitable component of the construction of cadastral information system and communication between systems is to build a modular standard for the cadastral domain. It is the natural consequence of application of GIS and computer technologies in cadastral domain.

The main goal of this article is to present a generalized conceptual model for the Chinese cadastre, developed upon the modular standard presented on the article "Further Progress in the Development of the Core Cadastral Domain Model" [2].

For the Chinese cadastre, both the geometric and legal components will be considered. The FIG core cadastral domain model is the result of an international workshop devoted to standardization in the cadastral domain. It has always been the intention of this model to be compliant with both OGC and ISO TC211. And to specific situations of different countries, not all classes in this model need to be used [2]. According to the cadastral situation of china and existent data structure, this paper modified the core cadastral domain model by an objected-oriented way. The other contribution of this article is identification of the core cadastral model by using it to Chinese cadastral domain, although some specific classed are modified.

The static party of model—the data model of the Chinese Cadastral domain was presented in this paper. The base of the model is the UML class diagrams of the core cadastral model. This model is subdivided in a number of packages and in the subsequent subsections the adoptions of the packages to the Chinese situation is described. First, this paper discusses the three core classes of the model (Real Estate Object, Right Or Restriction, and Person). The fundamental relationship between real objects and persons (natural or not) via legal rights (or restrictions) as the core of the cadastral domain, is a basic relationship that serves as core for the proposed Chinese Cadastre model as well. In the second part the classes from the core cadastral model related to the geometric side of the Cadastre (parcel, geometry, topology, and surveying) are placed in and modified according to the situation in Chinese. Also, this paper will introduce a number of new classes which needed in Chinese cadastral domain model but not presented in current core cadastral model. Finally, the last subsection, the legal components are expressed in detail, because the Chinese land property system are significantly different with other countries. Also the land market and land trade is different. These differences are presented and placed in the model in order to make core cadastre domain model good for china. At the last of this paper, the conclusion and the future works will be presented.

2. REFERENCE

- [1] Christiaan Lemmen, Paul Van Der Molen, “A MODULAR STANDARD FOR THE CADASTRAL DOMIAN,” CATASTRO, pp. 231-245, 2004.10.
- [2] Christiaan Lemmen, Peter VAN OOSTEROM, Jaap ZEVENBERGEN, Wilko QUAK, and Paul Van Der Molen, “Further Progress in the Development of the Core Cadastral Domain Model,” Form Pharaohs to Geoinformatics, FIG Working Week 2005 and GISDI-8, Cairo, Egypt, April 16-21.2005.
- [3] Joao Paulo Hespanha, Peter van Oosterom, Jaap Zevenbergen, Goncalo Paiva Dias, “A Modular for the Cadastral Domian: Application to The Portuguese Cadastre,” Computers, Environment and Urban Systems, 30, pp: 562-584, 2005.