

A STUDY ON THE DEVELOPMENT OF URBAN LAND USE INFORMATION SYSTEM FOR SUSTAINABLE LAND MANAGEMENT

Prof. Junehwan KOH, Korea

Keywords: GIS, Sustainable Urban Management, Land Use Information System, and Land Information System

ABSTRACT

Cities try to have more effective information systems which can manage themselves more effectively. Especially in the field of land management, to manage urban land in a sustainable way is connected to understand the present situation of land use comprehensively. We usually use the areal photographs or remote sensing data to know the land use changes. It is very useful for low density cities that are developed horizontally dispersed. But in the case of the highly densed urban area, it will not be useful to understand the land use pattern. It will be possible by the development of parcel based land use information system which consisted by parcels, buildings and their users. Seoul, which has more than 10 million people within the 600 square km, has different land use patterns with other small cities.

Seoul's land use patterns are characterized by highly densed land use pattern, vertical land use differentiation and mixed land use. They need more accurate and scientific information for efficient management and planning. They cover all kind of data, such as socio-economic, land use, traffic and environmental information. Land use is the presentation of human activities on the land. So, land use information is very important to manage the city efficiently. We think that they can be integrated with land use information system. They make difficult to understand land use pattern by existing land use information, such as parcel's land category and building's use classification. The purpose of this paper is to suggest the land use information system model for Seoul which can integrate land use information systematically. In this study, existing research results of Korea and abroad for land use information and land use information system are widely reviewed. Also present situations of production and maintenance about land use information are analyzed to make clear the problems and improvement suggestions. Finally, Land use information system model for Seoul which is organized by parcels, buildings and users, are suggested and tested by the prototype development. According to the study, Land use information system has the subsystems, such as collection, storage, analysis and output. The basic components (entity) are parcels, buildings and users. They are already computerized by file type in our country, but it has some problems to utilize in association with others. In the case of map data, the topographic map which has the boundary of building and the cadastral map which has the boundary of parcel are difficult to be overlaid as an one base map. In the case of attribute data, we have to prepare schemes that data can be utilized commonly. It needs the standardization of land use classification and the quantification. The construction of

comprehensive land use information system will be possible by the land use census and the building of parcel based information system. As short-term policy recommendations, the followings are suggested; 1) continuous research and applications of land use information system and the arrangement of researchers for that purposes, 2) preparation of the system which existing data can be utilized by others users (computer network system and standardization of codes will be needed), 3) improvements of information utilization control(preparation of laws or codes for information openness, the utilization of data by internet is essential). As long-term policy recommendations, the followings are suggested;

- 1) the build-up of related organization and build-up of land use information center which can manage the information system continuously.
- 2) the execution of land use census which can be used as an assistance of computerized land use related data files.

The funds for census will come from the subsidy of project which need land use information, such as urban planning, urban design and traffic impact assessment, etc. Finally, with these strategies, parcel based land use information system which contains users of buildings as the major components, will be operationalized and contributed to the efficient and sustainable land management at highly densely developed urban area, such as Seoul.

CONTACT

Prof. Junehwan Koh
Department of Geoinformatics
College of Urban Sciences
University of Seoul
90 Jeonnong-dong
Dongdaemoon-Gu
Seoul, 130-743
KOREA
Tel: + 82 2 210 2182
Fax + 82 2 248 8278
E-mail: jhkoh@uoscc.uos.ac.kr