

Development of land aptitude evaluation programs for strategic land use management

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(Keywords) city, compact, population decline, land aptitude evaluation

1. Foreword

Compacting cities is an important issue currently facing cities, and with the current population decline, there is a pressing need for an effective switchover in urban structures to effectively compact suburban districts that were expanded during the economic growth of the past.

In this case, local public bodies must for the sake of locating appropriate sites for life services functions, indicate areas that these functions should be guiding. As well, regarding its setting in the regions concerned, information should be provided in an understandable manner to the local residents, and it is also an extremely important issue that consensus building be promoted among its residents.

Because of this, a land aptitude evaluation program was developed by NILIM as a technical support measure to provide an objective basis for regional settings of local public bodies involved with urban planning duties.

2. Overview of the land aptitude evaluation program

The land aptitude evaluation program uses geospatial data like the nation's numerical land information and base map information arranged by the country that can easily be obtained by local public bodies as its basic information, and using data such as the basic city planning surveys possessed by each local public body, analysis and evaluations based on the land, are enabled.

The data in geospatial data from which land aptitude evaluations are based upon (for example topographic conditions, the present land use situation, road conditions, the distribution of public interest facilities, hazard maps etc.) have various spatial units, forms and scales, however, in order to enable their comparative evaluation in the same spatial units, we are developing a method to convert them into quantified evaluation values using the unified spatial units (mesh).

In this program, urban land use is largely divided into five categories (1) Residence systems, (2) Customer collecting systems, (3) Industrial/physical distribution systems, (4) Agricultural systems and (5) Natural systems. From this, the large number of spatial elements which influence land aptitude (topography incline, integration degree of land use, road conditions, accessibility etc.) can be indexed, measured in 10m mesh units and scored for an overall evaluation. As well, in order to attain the

results of operations suitable for use in urban planning administrations, indications can be shown in 10m mesh (building site scale equivalency) as well as zonally integrated 100m mesh and block units.

The land aptitude evaluation values that have been quantized using this program are expected to provide an objective basis to support administrative judgments and contribute to the promotion of urban consolidation efforts by local public bodies.

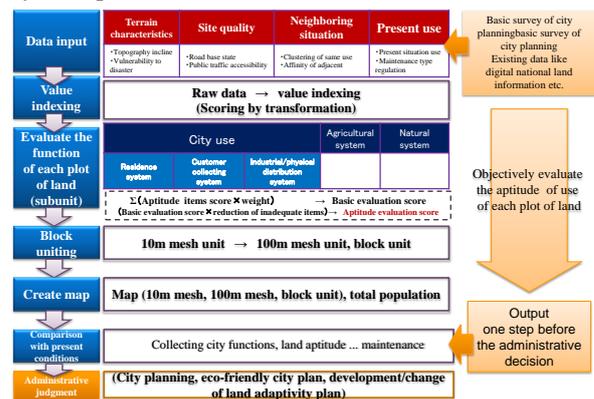


Figure 1: Land aptitude evaluation flow chart



Figure 2: Example of a land aptitude evaluation of a residence system