A NOMINAL ASSET VALUE-BASED APPROACH FOR LAND READJUSTMENT AND ITS IMPLEMENTATION USING GEOGRAPHICAL INFORMATION SYSTEMS

by

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ABSTRACT

Land readjustment is a planning tool to assist in systematic urbanisation. The process aims to take rural or unplanned urban land, usually irregularly subdivided, and re-allocate it, in the required balance, for public and private use according to town planning requirements. It has great advantages in solving the land-use problem in urban areas but current land readjustment implementations are limited in many ways: for example, there are technical limitations in handling the wealth of data, economical limitations in compensation for acquire land, and social limitations in minimising the inconvenience and conceived injustices.

To maximise the benefits from land readjustment and to establish an ongoing land information system, a nominal asset value-based land readjustment model called LARES has been developed and implemented using ARC/INFO GIS. This model specifically deals with the land valuation, decision-making, and information management issues of the current land readjustment applications.

While the objective of land valuation is to determine market value, in this approach, a nominal asset value is used to represent a land parcel’s worth when compared to others. Many land valuation factors defining the economical, environment and spatial value of land parcels are analysed before and after the land readjustment project to ensure equality in land redistribution. Various equations and algorithms for land valuation and distribution analysis are investigated and implemented.

The model has been tested with a case study. Data for land valuation analysis are derived from property, land-use, thematic, and topographical maps, and from other related textual records. Using GIS functionality, spatial analysis is performed in order to determine land parcel asset values by the combination of mathematical analysis and subjective judgement.

The thesis describes the design, development and implementation of a nominal asset value-based approach to land readjustment for urban land development. It concludes that this approach improves the qualitative and quantitative ability of land readjustment process.
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