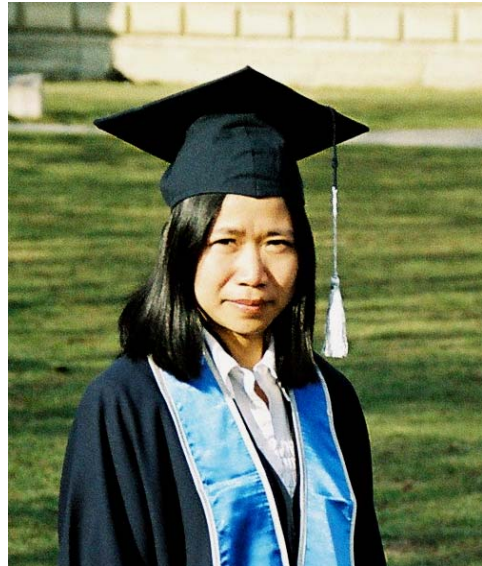


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Geographic Information System (GIS): Conceptual Design and Database Management Structure for Urban Land Supply and Capacity Monitoring in Quezon City, Philippines

Bearing the brunt of environmental deterioration and growth of informal settlements, big urban areas should improve the monitoring of land supply and capacity as part of their land use planning in order to facilitate a more efficient use of land. This requires more accurate and reliable land information based on a Geographic Information System (GIS).

The study explores how GIS can be employed for purposes of monitoring urban land supply and capacity to attain “smart” urban growth. The general objective of this research study is to conceptualize a GIS data model (at a high level) and data management structure for Urban Land Supply and Capacity Monitoring in the fast-growing City of Quezon, Philippines. In addition, this study seeks to assess data sharing, institutional and organizational issues and establish opportunities for the GIS database development.

Qualitative research methods within a case study approach such as standardized questionnaire survey, semi-structured interviews, observation and document screening are used in this study since the phenomena to be explored are complex human and organizational interactions. The conceptual model is designed using the object-oriented approach. The Unified Modeling Language is used to draw the conceptual schema.

The conceptual schema represents the real world phenomenon of Quezon City and objects modeled are based on the smart growth theory. This schema shows that GIS for smart urban growth encompasses directing urban growth by conducting a buildable land inventory, assessing the potential future uses of land and evaluating urban land policies.

The organizational issues that emerged from this study pertain to the identification of the lead entity, organizational roles, cooperation and commitment of the different departments/offices for data sharing, power and politics, and the determination of who benefits from GIS as well as a scheme for the equitable distribution of benefits among the participants or constituents.

Key words: Geographic Information System (GIS), monitoring land supply/capacity, urban land use planning, smart urban growth, Quezon City, Philippines.