

Preliminary evaluation modeling for sustainable development of collective residence environment: scope in Taiwan' s housing community

王維民, 張丁才, 李欣怡

Architecture and Urban Planning

Architecture

weiming@chu.edu.tw

Abstract

When the trend of development and management of human residence environment becomes focusing on the concept of sustainable development (SD) over the world, the concept of “thinking globally, action locally” needs to be transferred into specific and practicable implementations. Hence, in order to fulfill SD to residence environment effectively, local action principle needs to be established based on the location' s characteristics. Besides, in the implementation, the correspondence between the concept and the geographical space must be distinguished firstly, and then the objective and effective evaluation method must be developed. With the rapid changing time and dense population with small land area, the dwelling in Taiwan has been developed toward the type of housing with high-rise, high density and centralization. In addition, industrialization, urbanization and globalization have pushed traditional “community,” which possessed the characteristics of high social interaction, shared ties, and geographical location mixed-use, into “housing community.” The “housing community” emphasizes the satisfaction of personal living quality, privacy and safety, and is in the form of cluster and single-use. In order to guide and implement SD effectively, this paper first searches the relevant possible impact factors of the SD for the housing community. Fuzzy Delphi method (FDM) is applied next to extract the factors for further analysis. Furthermore, since there is complex interdependence among objectives and among criteria, this research examines the relationship thorough expert group discussion and form the evaluation model. The analytic network process (ANP) method, which can solve multi-attribute decision-making (MADM) problems effectively, is employed next to solve the model. Through the systematic analysis, a subjective and qualitative perception problem can

be transformed and solved in an objective and quantitative evaluation model. As a result, the abstract concept of SD can be applied in a distinct network model suitably. The conclusion and results obtained from the operation of the evaluation model not only can be a foundation to implement the sustainable concept and a recommendation for government's related policy making, but also can be a guidance for planning and practicing in the future.

Keyword : Fuzzy delphi method (FDM); Analytic network process (ANP); Collective residence environment sustainable development; Housing community