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PUTTACHAD KITTIPONGPATTANA : A SELECTION OF RESIDENTIAL SETTLEMENT BY GEOGRAPHIC INFORMATION SYSTEMS : A CASE STUDY SUPHANBURI PROVINCE. THESIS ADVISOR : RUNGJARAT HUTACHAROEN, M.Sc., PEERAPONG SIRIKASEM, Ph.D., MANEE PANICHKARN, M.Sc., PIYAKARN TIERTISRUP, M.Sc. 130 p. ISBN 974-589-702-7

This study has been designed in order to select suitable areas for residential settlement by utilizing factors that influence the development of residential areas. These analysis factors, obtained from documentary reviews and expert consultation, include topography, geology, soil, hydrology, watershed class, hydrogeology, conservation area, existing land use and transportation. The analyses were performed to determine the suitability of each physical-environmental factor analyzed by the experts, and the importance of factors by using statistical techniques. The data were then stored in the computer using a geographic information systems (GIS) program, ARC/INFO, which is capable of storing, organizing, and analyzing the data with an overlay analysis technique in the multiple regression equation ($S=W_1R_1+W_2R_2+\ldots+W_nR_n$). The use of this geographic information systems tremendously increases the efficiency in analyzing and updating the data.

According to this result, the areas suitable for residential settlement can be categorized into five levels. 1) The very highly-suitable areas, mostly connected to the old community, located north to south along both sides of the superhighway # 340, Ma-Lai-Man road and along the river banks.2) The highly suitable areas are generally the agricultural lands. 3) The moderately-suitable areas are those of the semi-agricultural lands and the forest lands. 4) The lowly-suitable areas are those of the economic forest and the agricultural forest. 5) The very lowly-suitable areas are those of the steeply-high land and the area of the forest for conservation. The result from this study is valuable for planning the preliminary management of residential settlement in Suphanburi province to support the possible population increase in the future.