新竹市海岸生態環境與土地使用整合模式之建立與應用

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摘要

Coastal environments are essential to the integrity of Taiwan's ecological systems. However, due to limited land availability in Taiwan, coastal development is inevitable. Nevertheless, over-development can have irreversible effects on coastal environments and indirectly contribute to ecological disasters. Therefore, finding a balance between the natural environment and socio-economic benefits is a major policy goal. If land-use planning for Taiwan's coasts focuses on one goal only, that is, if policy-makers decide to accept or abandon projects simply based on evaluation results by analysts, many improper land use policies are likely to be implemented. Within multi-objective programs, multiple objects can be considered when developing policies or determining the optimal balance among multiple conflicting objects. Analysts can provide policy-makers with information and practical alternatives, such that policy is based on the judgments of policy-makers. Ecological and economic considerations in land-use policy can be modeled using a multi-objective program. This study focuses on coastal areas in Hsinchu City and uses Multiple-Object Mathematical Programming (MOMP) to establish a programming mathematical model for land use in Hsinchu City's coastal environment. Compromise Programming is applied to construct a multi-object programming solution. By balancing and considering different objects, the proposed method finds the best balance among programming objectives such as ecological conservation, economic benefits, visual landscape and environmental protection to determine the appropriate quantity of land for development as a reference for future land-use planning for Taiwan's coastal areas.

關鍵字：Coast, Ecological environment, Land use, Integrated model