

基于CLUE-S和灰色线性规划的嘉兴北部土地利用优化配置研究

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Optimization of Land Use Arrangement in North Jiaxing Based on CLUE-S and Grey Linear Programming Models

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摘要 构建基于CLUE-S与灰色线性规划混合模型的土地利用优化配置方法,在导入区域政策、社会经济、生态目标和土地利用现状等条件下,进行土地利用数量结构与空间布局的统一优化,并以嘉兴北部地区为例进行实证研究,共设置现状趋势情景、规划目标情景和规划可持续情景这3种模拟情景。规划可持续情景侧重社会经济环境效益,故对建设用地快速增长和农用地持续减少起到明显调控作用,可实现生态敏感区环境和粮食安全的双重保护,是理想的土地利用优化方案。CLUE-S模型与灰色线性规划的耦合能够兼顾现状条件和区域发展目标,模拟土地利用的数量和空间变化,是解决土地资源优化配置问题的有效方法。

关键词: CLUE-S 灰色线性规划 土地利用 优化 配置 嘉兴

Abstract: A new model or method for optimizing land use arrangement is invented based on CLUE-S and Grey linear programming (GLP), and can be used to conduct integrated optimization of quantity structure and spatial distribution of land use, after the data of regional policy social economy, ecological targets and land use status quo are imported into the model. The area of North Jiaxing was selected as a case for study. Three different scenarios, i.e. current trend (A), programmed target (B) and programmed sustainable (C), were simulated. Results show that as Scenario A emphasized social, economic and environmental benefits, its effect of controlling rapid growth of construction land and continuous decrease in farmland was significant. Therefore, Scenario A may provide ecologically sensitive areas with dual protections, environment and food safety, and hence is an ideal optimization programme for land use. The use of CLUE-S model coupled with GLP is an effective solution to the problem of optimal arrangement of land resources, because it can be used to simulate variation of land use in quantity and spatial distribution by taking into account the current situation and development targets of a region simultaneously.

Keywords: CLUE-S grey linear programming land use optimization arrangement Jiaxing

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