



论文摘要

中南大学学报(自然科学版)

ZHONGNAN DAXUE XUEBAO(ZIRAN KEXUE BAN)

Vol.40 No.4 Aug.2009

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文章编号: 1672-7207(2009)04-1059-07

基于主客观赋权法的山区高速公路边坡防护决策与生态环境

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摘 要: 针对山区高速公路建设导致原生植被和动物栖息地破坏、水土流失以及局部环境恶化等系列生态环境问题, 对山区高速公路边坡防护决策与生态环境进行研究。采用综合主观赋权法和客观赋权法后的主客观赋权法进行理论分析, 对分目标值构成矩阵和定性指标进行规格化处理, 并对主客观赋权法数学模型进行理论求解; 利用均衡度变权创建山区高速公路边坡防护方案决策的主客观赋权综合评价模型; 建立边坡防护方案综合评价指标体系, 对山区常张高速公路张家界段进行实证研究。研究表明: 从生态环境评价角度用主客观赋权法综合评价法得出三维网植草防护为最优方案, 因此, 采用主客观赋权综合评价法对边坡防护方案决策和保护生态环境是合理的、可行的。

关键字: 主客观赋权法; 边坡防护; 评价模型; 生态环境; 评价指标

Slope protective decision and ecological environment research of expressway in mountainous area based on objective and subjective weighting method

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Abstract: In order to solve the eco-environmental problems such as the damage of original vegetation and animal's habitat, soil erosion and local environmental deterioration caused by the constructions of expressway in mountainous area, mountainous expressway slope protection and ecological environment protection were studied. Subjective and objective evaluation method was introduced which was integrated with subjective weight method and objective weight method; divisional target value matrix and qualitative index were standardized on the basis of subjective and objective evaluation analysis, and the mathematical model was established; subjective and objective evaluation model was established for the decision of mountainous expressway slope protection project by variable weight of equilibrium degree; the index system of slope protective decision of expressway in mountainous area was built. In addition, empirical research about section of Zhangjiajie of Changde-Zhangjiajie expressway was carried out. Planting grasses protection in three-dimensional network was decided as the optimal scheme by subjective and objective evaluation method from ecological environment evaluation view. The results show that it is reasonable and feasible to use subjective and objective evaluation method to make the decision on the general slope protection and protect the ecological environment.

Key words:objective and subjective weighting method; slope protection; evaluation model; ecological environment; evaluation index

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