

研究论文

# 广东省生态安全状态及趋势定量评价

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**摘要** 为研究区域生态安全在不同时期的动态变化及发展趋势, 在国内外已有的研究基础上, 根据压力-状态-响应模型框架, 提出了一套完整的区域生态安全水平度量的指标体系和基于熵权法赋权的综合指数评价方法, 从时间尺度上(1990~2004年)对广东省生态安全进行定量评估和动态趋势分析。结果表明, 广东省生态安全综合指数从1990年的0.125增加至2004年的0.402, 生态安全整体水平呈逐年上升趋势, 但发展过程中存在的问题是区域生态压力在不断加大及生态安全现状水平仍处于“较不安全”状态。对广东省环境规划的实施效果进行预测评估, 得出在实现环境目标的情景下, 2010规划年和2020规划年的生态安全综合指数将分别达到0.533(临界安全)和0.691(较安全)。评价方法简单直观, 评价结果客观合理。

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## Quantitative evaluation of ecological security status and trends: a case study of Guangdong Province, China

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**Abstract** Ecological security is one of the foundations of regional security, and is the basis of sustainable development. Regional ecological security includes the natural ecological security, the economic ecological security and the social ecological security. Considering the inadequacies of dynamic analysis of the regional ecological security, based on historical research and related literature, and with the Pressure-State-Response (PSR) model framework as a basis, a 3-layer conceptual assessment index system and calculation model of regional ecological security was carried out. Using entropy weight and integrating index evaluation method, Guangdong Province was taken as a case study and its ecological security situation from 1990-2004 was assessed quantitatively. Furthermore, the prediction models of different ecological indices which include pressure index, state index, response index and ecological security integrated index (ESII) were established. Time series results showed that the ESII tended to increase continually in the last 15 years, from 0.125 to 0.402, while its ecological pressure become more intense. Therefore, this region is still in relatively unsafe ecological security situation according to the criterion of ecological security classification. A forecasting assessment based on the environmental planning scenarios was also made in this paper. It is expected that in 2010 and 2020, the ESII will become 0.533 (critically safe) and 0.691 (relatively safe), respectively. The process of evaluation indicated that the indices system and the assessment method were very simple and easily applied, and the research results were

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e capable of providing useful decision information for evaluation of regional ecological security a  
s well as ecological and environmental management.

**Key words** regional ecological security \_ assessment \_ time series \_ integrated in  
dex \_ Guangdong Province

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