

玛纳斯河流域生态问题的潜在风险性评估 (PDF)

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Title: Potential risk assessment of ecological problems of Manas River Basin

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关键词: [玛纳斯河流域](#); [生态经济功能区划](#); [生态问题](#); [生态风险评估](#)

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摘要: 玛纳斯河流域是中国干旱区最具代表性的山地-绿洲-荒漠生态系统,三大生态系统表现出的区域生态、经济要素的空间状况有所分异,所存在的生态安全问题的表现形式也各不相同。根据流域土地利用和水资源数据库,在生态经济功能分区的基础上,针对流域不同分区存在的生态安全问题,选取相应的17个生态风险评估指标,建立了生态-经济风险性评价模型,对流域各个生态经济功能亚区的生态问题潜在的风险性进行了生态风险评估。结果表明: I₁, II₁, II₂, II₃, III₁, III₂和 III₃亚区的生态问题潜在的风险性在增大,说明生态问题日益突出,而 I₁和 II₄亚区生态问题潜在的风险性指数存在波动; I, II 和 III三个大区中生态问题潜在的风险性指数最高的分别是 I₁, II₁和 III₁亚区。评价结果能够较为客观地反映了当地的实际情况,因而对流域可能出现的灾害性的环境问题及由此引起的巨大的经济损失提出了警示。

Abstract: Manas River Basin is one of the most representative mountain-oasis-desert ecosystems in arid region of China. There are some differences between the spatial status of regional ecology and economy of the three ecosystems, i.e. mountain ecosystem, oasis ecosystems and desert ecosystem. Thus, the representations of eco-economic security problems are different. Based on subdivided eco-economic functional regions, and make use of the land-use and water resource database of the basin, this paper established the ecological and economic risk assessment model by 17 ecological risk assessment indices and assessed the potential risk of the ecological problems with different subdivided eco-economic functional regions, The results indicate that the risk of ecological

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problems in the sub-regions $I_1, II_1, II_2, II_3, III_1, III_2$ and III_3 is increasing from 1997 to 2007, which suggests the ecological problems become increasingly prominent, and the risk exponents of sub-regions I_1 and II_4 are fluctuated from 1997 to 2007. The result also shows the top ecological potential risk exponents in the three region I, II and III are in sub-regions I_1, II_1 and III_1 , respectively. The assessment results can reflect the actual state objectively, therefore, it brings forward a caution in the occurrence of calamitous environmental issues and a huge economical loss resulting from the environment issues.

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