

Evaluation of resources and environment carrying capacity and socio-economic pressure in typical ecological regions, China

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Since the reform and opening up, the socio-economic pressures have led to increasingly tight resource constraints and serious environmental pollution problems in China, especially for typical ecological regions. The ecological system is under a severe situation and resource and environmental issues have become the bottleneck of economic development. Taking the Chen Barag Banner which has been considered as typical ecological regions as an example, the evaluation indexes system of resources and environment carrying capacity was divided into three subsystems: natural driving force, socio-economic pressure and ecological health. On the basis of the indexes system and related data of Chen Barag Banner in 2014, the evaluation model of resources and environment carrying capacity based on spring model were proposed to analysis the state of resources and environment carrying, and an assessment of influence of socio-economic pressure on the resources and environment system has been conducted by using the discretization method of socio-economic data. The results showed that:(1) The resources and environment system of Baorixile Town, Huhenuoer Town and Bayankuren Town were overloaded among the ten towns, the values of Resources and Environment Carrying Capacity(RECC) / Resources and Environment Carrying State(RECS) were 9.86, 1.37 and 1.22, respectively;(2) The natural driving force index of Xiwuzhuer Town, Hadatu state-owned farm and Bayanhada Town were 0.40, 0.42 and 0.43, respectively, which were lower than others and indicated that the natural conditions in these areas were better than others;(3) The situation of ecological environment Ewenke Town, Hadatu state-owned farm and Tenihe state-owned farm were the best due to the result that the ecological health index of these three towns were 0.21, 0.22 and 0.26, respectively, which were lower than others;(4) The influence of socio-economic pressure on the system of resources and environment in Baorixile Town, Hadatu state-owned farm and Tenihe state-owned farm were the heaviest, the values of social and economic pressure index were 0.61, 0.32 and 0.30 respectively;(5) The discretization result of socio-economic pressure in the scale of 10km*10km space unit was helpful to understand the trend of socio-economic pressure within the township, which couldn't be learned from the result based on the scale of the township;(6) The main factors that affected the environmental carrying capacity of Chen Barag Banner were soil moisture content and per capita water resources;(7) Consumption of water resources and land resources, environmental pollution resulted from the production of agriculture and animal husbandry were the main causes of socio-economic pressures.