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IMPACTS OF LAND COVER CHANGE AND SOCIOECONOMIC DEVELOPMENT ON ECOSYSTEM SERVICE VALUES

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Abstract

Social and economic development can cause land cover changes that significantly affect ecosystem services and functions. This study investigated the temporal variation in ecosystem service values in response to land cover changes caused mainly by human activities in Harbin City, one of the fastest growing metropolitan areas in northeast China. The aim was to provide guidance for regional sustainable development. An evaluation method for ecosystem service values based on land cover change was applied in 1996 and 2008. Sensitivity analysis was used to discuss driving forces triggering the change of land cover and ecosystem service values. The results showed that the total ecosystem service value increased from 20945.53 million \$ in 1996 to 21030.83 million \$ in 2008, mainly due to the increasing areas of woodland, water body and urban green land. Over 97% of the total value was attributable to woodland, farmland and water body. Hydrological regulation and biodiversity maintenance were the two largest service functions, contributing about 30.62% of the total value. Population growth, urban expansion, and economic development were three major driving forces for the change of land cover and ecosystem service value. The results suggest that future land use planning should emphasis on protecting woodland, water body and urban green land that have the highest ecosystem service values, and continue the policy of ecological protection, to achieve regional sustainable development.

Key words: driving forces, ecosystem service value, land cover, sensitivity analysis

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