

# **Integrated Ecological Effects of land use change during 1986-2006 in Lijiang County of China**

**Jian Peng <sup>1,2</sup>, Yanglin Wang <sup>1</sup>, Jiansheng Wu <sup>1,2</sup>, You Li <sup>1,2</sup>**

(1.College of Urban and Environmental Sciences, Peking University, Beijing 100871, China;  
2.Key Laboratory for Environmental and Urban Sciences, School of Urban Planning & Design, Shenzhen Graduate School, Peking University, Shenzhen 518055, China)

Land use / land cover change (LUCC) is gaining recognitions as one of the key components and driving forces of global environmental change. Ecological effect of LUCC is regarded as the very reason for the importance of LUCC to global environmental change. And ecosystem services assessment of associated land use types are always applied to evaluating the integrated ecological effects of LUCC. However, all the studies failed to discuss the ecological effects of land use change in spatial patterns, but explored the change of ecosystem services associated with area ratio change of land use types.

In this case study in Lijiang County of China, ecological value of each land use type was assessed according to global average value of ecosystem services (Costanza et al., 1997), and the coefficients of spatial neighboring effects on ecosystem services for each land use type were developed to quantify ecological effects of land use pattern change, so as to make an assessment on integrated ecological effects of land use change in quantitative structure and spatial patterns.

The results showed that, along with slow but significant increase of grassland, bare land and forest land, decrease of crop land and glacier or snow-capped land, and patch fragmentation and regularization of land use patterns in Lijiang County during 1986-2006, there is distinct increase of ecosystem services with spatial differentiation. And land use patterns in Lijiang County were proved to be positive to ecosystem services in the study period, through calculating the coefficients of spatial neighboring effects.

## **References:**

Costanza R., d'Arge R., de Groot R., et al. 1997. The value of the world's ecosystem services and natural capital. *Nature*, 387: 253-260