



Integrating preferences and social values for ecosystem services in local ecological management: A framework applied in Xiaojiang Basin, Southwest of China

Xiuqin Wu¹, Weixin Zhang¹, Yang Yu², and Paulo Pereira³

¹School of Soil and Water Conservation, Beijing Forestry University, Beijing 100083, China

²Department of Sediment Research, China Institute of Water Resources and Hydropower Research, Beijing 100048, China

³Environmental Management Laboratory, Mykolas Romeris University, Ateitis Street, 20, LT-08303, Vilnius, Lithuania

Ecosystem services (ES) are defined as material and non-material benefits that people derive directly or indirectly from nature, normally divided in provisioning, regulating and cultural. Previous works have made great progress in mapping and assessing ecosystem services (ES) that are directed toward exploring various aspects of ecological changes and economic values. These preferences, however, may neglect the important role of people who are the direct beneficiaries in this ecosystem. Therefore, including these stakeholders in ecosystem services assessment identifies their relations and perceptions between ecosystem services and society. In order to quantify and map these relations and perceptions, we designed and implemented an analytical framework based on the Public Participatory Geographic Information System (PPGIS) method to explore local stakeholders' (Farmers, Government managers/Experts, and Company employees) similarities and differences in recognition of preferences and social values for ecosystem services in a typical Karst basin. Our results showed that remarkable differences appeared in preferences for ecosystem services across three groups. Farmers gave more preferences to provisioning services, Government managers/Experts to regulating and cultural services, and Company employees' preferences were individualized. The spatial distributions and relations of social values for ecosystem services also showed great differentials. Provisioning services were always related to specific natural conditions, regulating services to forests, and cultural services to specific locations around tourism localities, forest, and wetland parks. The three stakeholder groups perceived more synergies than tradeoffs between the different ecosystem services. Landscape beauty was the most influential service in Farmers' and Company employees' perceptions, while Local climate change regulation was the most influential service in those of Government managers/Experts. The local stakeholders' surveys can improve the enthusiasm of the local people to participate in environmental management and provide more socio-ecological information to help the managers alleviate the conflicts among different stakeholders.