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# Change of Land Use and Ecosystem Services Value in Different Landscape Belts in the Northern Slope of Tianshan Mountains

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The northern slope of Tianshan Mountains, known as a typical wide-range, multi-hierarchy, regular mountain-basin system (MODS), is the center of politics, economy and culture in the Xinjiang Uygur Autonomous Region. In recent years, environmental problems caused by population growth, industrialization and unreasonable land use have posed great challenges to regional sustainable development. Based on land use/cover data in 1989 and 2000, the change of land use and ecosystem service value in mountainous, oasis and desert area in the northern slope of Tianshan Mountains was analyzed. The intensity of land use change in mountainous areas from 1989 to 2000 was obviously higher than that in oasis and desert areas. Regional land use change was dominated by Grassland in the three regions, and cropland and forestland in mountain area, unused land in desert and oasis area, and farmland in oasis were major types causing the change. Grassland area decreased in the three regions, while water coverage, construction land and cropland increased. Forestland reduced in oasis area and increased in mountain and desert area. Total values of ecosystem service in study area increased slightly from  $214.26 \times 10^8$  Yuan to  $217.20 \times 10^8$  Yuan, with an increase of 1.37%, which demonstrated that ecological environment in the region maintained stable. In some areas such as Manas River basin, ecological environment deteriorated seriously. Ecosystem services values in mountain, oasis and desert areas increased by  $0.91 \times 10^8$  Yuan,  $1.92 \times 10^8$  Yuan and  $0.11 \times 10^8$  Yuan respectively, and net increase rates were 0.78%, 2.44% and 0.56% respectively. Oasis suffered the most severe disturbance, and then followed by mountain region and desert region orderly. Various strategies for land consolidation and utilization should be adopted in different regions. Eco-environment protection should be enforced in mountain area and eco-economic function should be shifted partly. Oasis is the core zone of human activities and economic development. The industrial adjustment and establishment of an optimized land use/cover structure and pattern must be undertaken to solve the contradiction between economic development and ecological protection. Desert areas are with more vulnerable ecosystem, and human activities should be restricted.

**[Key Words]** : Land use/cover change Ecosystem service values Tianshan Mountains Mountain\_-Oasis\_-Desert

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