



Study on Formation Mechanism and Change of Land Use

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Jinghe basin of Xinjiang is a typical arid inland river basin with medium size in scale, threatened by the wind and desertification. the ecosystem of arid inland river basin is very fragile. In recent years, because of rapidly increasing population and unreasonable human activity, the land use and land cover changes play an important role in the deterioration of the arid land ecosystem. The paper analyzes the spacio-temporal variability of the land use and the soil quality changes by the application of remote sensing interpretation from 1990 to 2001, The conclusions as follows: (1)From 1990 to 2001, the total area of land cover conversion was 315972.99hm², which was 33.44% of the study area. The main transforming processes included: the low-density grassland and farmland were convert to desert, farmland and desert were convert to high-density grassland, desert was convert to farmland. All above conversion area summed up to 166683.69hm², which was 52.75% of the land cover conversions area. (2)Through the impact research on soil qulity by four land use types, which included natural oasis, artificial oasis, wasteland and desert, the following conclusions could be drawn: ① The soil salinization presented the gradient change, namely from the underpart of diluvial fan,the alluvial plain to the desert, the soil types alternatedly presented medium salinized soil, highly salinized soil, salinized soil and non-salinized soil.② The average contents of soil organic matter, available potassium, available phosphorus and available nitrogen in natural oasis were higher than the contents of the other three kinds of land use patterns. The content of nutrient in the desert was very low, but the content of nutrient had positive correlation to saltilization, so it was an important means to improve land productive potentialities to prevent and con-

trol the salinization by utilizing salt catch plant resource, increasing salt vegetation coverage. The contents of soil organic matter and available potassium in the artificial oasis were relatively low. The main reason was that more emphasis was taken on chemical fertilizer during the agriculture production, but ignored the combination with chemical fertilizer and organic fat which was helpful the accumulation of organic matter and potassium. Owing to the comparatively unanimous chemical fertilization on cotton which was the main crop in Jinghe basin, each nutrient element in the artificial oasis presented lower variance coefficient than other three kinds of land use patterns. (3) Jinghe basin LUCC was commonly affected by natural and human factors. The natural factors limited the land use pattern. The human factors such as policy, economic development and population growth and so on, were the direct driving force. The rapidly increasing population caused severe farmland changes, and then caused serial land use changes.