The dilemma of marginal land for biofuels strategy in China

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Under the pressure of increasing energy demand and reducing greenhouse gas emissions, many scholars proposed that China should plant energy crops on marginal land to implement biofuel strategy. In order to analyze the comprehensive feasibility of bioenergy strategy with marginal land in China, this paper begins with the quantitative analysis of marginal land with the latest and most authoritative land use data, then presents a national-level evaluation of using geospatial information technologies for an optimal utilization of the marginal land. At last, this paper analyzes the input-output of energy crops planting from the farmers’ perspective and earnings of biofuel production from the companies’ perspective. The results show that if the shrub land, bare land, inland beach, other grassland, other woodland, sandy land, coastal beach, saline land and wetland can be defined as marginal land, the total amount of marginal land in China is 53071.89 million hm$^2$. However, because of the weather, terrain and soil restrictions, only 30.85 million hm$^2$ can be used for the five important energy crops’ planting (Cassava, Jatropha curcas, Pistacia chinensis, Jerusalem artichoke, Xanthoceras sorbifolia Bunge). In China, farmers make the land use decisions based on economic benefits. Because of the harsh natural environment, extensive management and low agricultural prices, the economic benefits of energy crops are low, especially the perennial crops. According to the rural survey, almost all of the energy corps have negative returns if labor and land costs are taken into account. Farmers’ lack of enthusiasm on energy crops’ planting restricted biofuel strategy.

Biography
Chen Yuqi has completed her PhD from Institute of Geographic Sciences and Natural Resources Resources Research, Chinese Acedemic of Sciences. She is the Research Associate in China Land Surveying and Planning Institute, Key Laboratory of Land Use, Ministry of Land and Resource. She has published more than 20 papers.

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