

Economic Consequences of Converting Rangelands to Dry Farmlands, Focusing on Soil and Water Conservation Services

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Abstract

Severe natural resources utilizations, disregarding their real value and environmental potency, pose many hazards in developing countries. Many rangelands have been converted to agricultural fields to achieve more immediate income. This study, aimed to investigate the economic impacts of converting good and poor rangelands to dry farmlands in terms of soil and water conservation services in Fereidounshar- Isfahan. Hydraulic properties and infiltration status of various land uses were studied using tension infiltrometer. MPSIAC model was also used to estimate soil erosion and sediment yield in the studied area. Economic values of different soil and water conservative services were calculated using Replacement Cost approach. According to the results, good rangeland had the least amount of run off (6.66 mm), erosion ($298.14 \text{ m}^3.\text{km}^{-2}.\text{year}^{-1}$) and sediment yield ($129.42 \text{ ton. km}^{-2}.\text{year}^{-1}$) compared to the other land uses. The economic gains of soil and water conservative services from each hectare of good and poor rangelands compared to dry farmlands were at least more than 20.38 and 13.19 million Rials in a year, respectively, which is equal to economic gains of not converting each hectare of rangelands in a year. Consequently, in order to manage the lands holistically, based on principles of sustainable development, it is proposed to maintain rangelands.

Keywords: Land use change, Infiltration, Erosion, Holistic management, Replacement cost approach.

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