



Land development due to soil conservation on the Loess Plateau, China: A case study in the Jiuyuangou Catchment

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Abstract Since the late 1950s a series of soil conservation practices were implemented on the Loess Plateau to reduce land-degradation. The results obtained with the genetic-analysis method in two representative small watersheds of the Loess Plateau, the Jiuyuangou Catchment and the Nanxiaohegou Catchment, indicate that a large amount of soil nutrients were retained and stored in situ and the soil fertilization in the study areas was obviously improved. The amounts of total phosphorus (TP), total nitrogen (TN) and organic matter (OM) retained by the conservation practices in the Jiuyuangou Catchment during 1953–2005 were 18.40, 76.82 and 308.52 kilotons, respectively. The average retaining efficiencies of the nutrients were 83% in the period. The amounts of TP, TN and OM stored by the conservation practices in the Nanxiaohegou Catchment during 1955–1974 are 0.93, 3.84 and 15.37 kilotons, respectively. The average retaining efficiencies of all nutrients were 98% in the period. Moreover, check dam was the most appropriate conservation practice on the Loess Plateau. The study indicates that the retaining capability of the dam farmland was stronger than those of the farmland, grassland and forest land. In 1963, 1983 and 1997, the retaining capability of dam farmland was 13–360 times in retaining TN, 18–297 times in retaining TP and 22–361 times in retaining OM than those of other measures in the Jiuyuangou Catchment. In 1978, the retaining capability of dam farmland was 695–1009 times in retaining TN, 643–893 times in retaining TP and 785–1067 times in retaining OM than those of other measures in the Nanxiaohegou Catchment. It is suggested that the database of soil and water conservation be set up and free shared to promote the development of the soil and water conservation study in China.

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