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Check dam is an effective engineering for soil and water conservation, carbon sequestration on the Loess Plateau of China

Peng Li¹, Kunxia Yu², and Lie Xiao³

¹Xi'an University of Technology (lipeng74@163.com)

²Xi'an University of Technology (523545846@qq.com)

³Xi'an University of Technology (523545846@qq.com)

Check dam is widely used in the soil erosion control in the gully on the Loess Plateau of China. Check dam has significant effects in sedimentation, erosion control, land formation, water storage, and vegetation restoration. This result shows that the main dams and medium-sized dams on the Loess Plateau had deposited 5.12 million tons of sediment by the end of 2011, reducing sediment transportation to the Yellow River. The check dam system decreases the probability of gravity erosion. Check dams increases cropland in the gully-hilly area of the Loess Plateau, thus increases grain production. The check dam project is a carbon pool. On the Loess Plateau, 123 million tons of soil carbon is stored in the check dam, accounting for 17.08% of the carbon sequestration in afforestation projects in China from 1994 to 1998. Check dam construction increases regional vegetational coverage, and the NDVI in the Dali River watershed increased by 28.4% after the dam project. The results provide a scientific basis for the assessment of the eco-environmental benefit of check dam on the Loess Plateau of China.