

EGU22-11889

<https://doi.org/10.5194/egusphere-egu22-11889>

EGU General Assembly 2022

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A Review of Sediment Reduction Benefits of Soil and Water Conservation Measures in China

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Abstract: Making clear the sediment reduction benefits of soil and water conservation measures is the primary in the researches of ecological benefits of soil and water conservation. In order to make the sediment reduction benefits of China clear, relevant monitoring and research results were collected which focus on determining the amount of sediment reduction per unit area for single measure by provincial administrative units. Taking the average of all the results of sediment reduction benefits when single measure exists more than one result. Then, the basic characteristics and factors in the existed measures in eight soil and water loss zones dominated by water erosion in China have been discussed. The results indicated that the sediment reduction modulus of soil and water conservation measures in the order: 4146.17 t·km⁻²·a⁻¹ in terraces < 3064.73 t·km⁻²·a⁻¹ in soil and water conservation forests < 2819.16 t·km⁻²·a⁻¹ in fruit-bearing forests < 2273.77 t·km⁻²·a⁻¹ in artificial grass planting < 1973.31 t·km⁻²·a⁻¹ in blockading administration; the sediment reduction modulus of eight soil and water loss zones in the order: 2400.87 t·km⁻²·a⁻¹ in the Southwest Karst Region < 2493.93 t·km⁻²·a⁻¹ in the Northern Earth and Rock Mountain Region < 2741.69 t·km⁻²·a⁻¹ in the Southern Red Soil Region < 2831.48 t·km⁻²·a⁻¹ in the Northern Wind-blown Sandland Region < 3061.22 t·km⁻²·a⁻¹ in the Southwest Purple Soil Region < 3088.04 t·km⁻²·a⁻¹ in the Northeast Black Soil Region < 3187.89 t·km⁻²·a⁻¹ in the Loess Plateau Region < 3259.82 t·km⁻²·a⁻¹ in the Qinghai-Tibet Plateau Region. Therefore, terrace was completely worthy of promotion in suitable regions. This review reflected the effect of the soil and water conservation in China in recent years, and provided substantial contribution on the control of regional water and soil loss. This work was supported by the National Key Research and Development Program [grant number 2016YFC0500802].

Key words: sediment reduction benefits; soil and water conservation measures; soil and water loss zones; China