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Assessment of soil particle erodibility and sediment trapping using check dams in small semi-arid catchments

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Check dams can be used as a source of information for studies on sediment characteristics and soil particle erodibility. In this study, sediment yield and grain size distribution (GSD) were measured in twenty small catchments draining into a rock check dam in NW Iran for different runoffs during 2010-2011. Significant correlations were found between sediment yield and slope steepness, vegetation cover and soil erodibility factor (K) of the catchments. The erodibility of soil particles was determined using the comparison of GSD between sediment and original soil. Clay was the most erodible soil particle which showed 2.05 times more percentage in sediment than the original soil. The erodibility of soil particles were strongly affected by the rainfall erosivity (EI30). Check dams showed more effectiveness in trapping coarse particles (sand and gravel). The effectiveness of check dams in trapping coarse particles enhanced with increase in the remaining capacity of check dams.
Keywords: Cement rock check dam; Grain size distribution; Rainfall erosivity; Remaining capacity; Sediment yield