



Soil conservation through sediment trapping: A review

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Preventing the off-site effects of soil erosion is an essential part of good catchment management. Most efforts are in the form of on-site soil and water conservation measures. However, sediment trapping (ST) can be an alternative (or additional) measure to prevent the negative off-site effects of soil erosion. Therefore, not all efforts should focus solely on on-site soil conservation, but also on the safe routing of sediment-laden flows and on creating sites and conditions where sediment can be trapped, preferably in a cost effective or even profitable way. ST can be applied on-site (in-field) and off-site and involves both vegetative and structural measures. The main vegetative measures include grass strips, tree or bush buffers, grassed waterways and restoration of the waterways and their riparian zone; while structural measures include terraces, ponds and check dams. This paper provides a review of studies that have assessed the sediment trapping efficacy (STE) of such vegetative and structural measures. Vegetation type and integration of two or more measures (vegetative as well as structural) are important factors influencing STE. In this review, the STE of most measures was evaluated either individually or in such combinations. In real landscape situations, it is not only important to select the most efficient erosion control measures, but also to determine their optimum location in the catchment. Hence, there is a need for research that shows a more integrated determination of STE at the catchment scale. If integrated measures are implemented at the most appropriate spatial locations within a catchment where they can disconnect landscape units from each other, they will decrease runoff velocity and sediment transport and, subsequently, reduce downstream flooding and sedimentation problems.

KEY WORDS: Integrated sediment trapping, sediment trapping efficacy, vegetative, structural, on-site and off-site measures.