Comparison of conventional and artificial fallout radionuclide (FRNs) methods in assessing soil erosion

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Abstract

Soil erosion is a major global environmental problem. The objective of this paper is to review conventional and non-conventional-artificial radionuclide techniques for soil erosion assessment using secondary data. Data gathered reveal that accurate assessment of soil erosion rates is a pre-requirement for environmental planning and soil conservation strategies. Nevertheless, estimating rates of soil erosion is still challenging despite availability of numerous assessing methods. Many assessing methods were developed at localized scales therefore limited applications in other areas. This review compared effectiveness of different soil erosion assessing methods in different areas. Generally, soil erosion can be assessed by conventional methods and non-conventional methods e.g use of artificial fallout Radionuclide (FRNs). FRNs quantifie relatively long-term (>30 years) soil erosion and deposition, however, not suitable for short-term and individual soil erosion events. Conventional methods are associated with point data, do not provide information on spatial distribution, labor-intensive and require long monitoring periods. Assessing soil erosion method should be site-specific rather than generalizing. Therefore, there is no one take for all methods in assessing soil erosion but choice of a method to use should depend on prevailing climatic conditions, resources available and time period (short or long term) of erosion data required.

Key Words: accuracy, conservation, deposition, erosion, fallout radionuclides, runoff**.**