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Soil erosion and sediment transport in South Africa: an overview

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We have few direct measurements of erosion in the country and those that we have are for relatively small areas (badlands) or for experimental plots. We therefore have to rely on sediment yields from rivers and reservoirs, mapping based on remote sensing (gullies) and some modelling. All methods have their disadvantages. With sediment yields the problem of scale is acute and estimates range from <5 to $> 11,000$ t km⁻² yr⁻¹. The great range of estimates partly reflects rainfall/runoff variability but it also strongly reflects the intensity of land use and connectivity or dis-connectivity within catchments. Elements in the landscape such as gullies (dongas) were initiated under conditions in the past of intense land-use (overstocking) and perhaps climatic pressure. Many gullies are inactive at the present day but have been shown to improve landscape connectivity. However, overgrazed land continues to contribute large quantities of sediment to freshwater systems and to the infilling of reservoirs. The protection of inadequate water resources, threatened by erosion, is a currently urgent problem. More information is needed about the origin of sediments using techniques such as fingerprinting.