



Tracking and quantifying recent soil erosion in a semi-arid catchment area at Lanzarote (Canary Islands)

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Soil erosion is a widespread phenomenon on the semi-humid to semi-arid Canary Islands, where about 40% of the total surface are affected (Rodríguez-Rodríguez et al. 1993). In order to further investigate this phenomenon, we analyze rate, pathways and spatial intensity of recent soil erosion in a catchment area covering about 5 km² in the north of the island of Lanzarote. The dam of the water reservoir "Presa de Mala" at the outlet of this catchment area was built in 1975 but never worked due to construction defects, causing a loss of water but leaving eroded sediments in the basin. This allows an estimation of the total amount of eroded material leaving the catchment area from 1975 till 2010. Furthermore, using field mapping and GIS we determined the intensity of soil erosion and the amount of remaining, easily erodible material on the slopes depending on land use, vegetation cover, slope and soil protecting measures, allowing the build-up of a semi-quantitative sedimentary balance for this catchment area and the estimation of future soil erosion. The role of nutrients and contaminants in the erosional process is examined using geochemical data of nutrient elements and heavy metals from areas of different geomorphological position (slopes, erosional pathways, temporary sediment storages) and land use (active land use, land use given up during the last decades, land use given up ca. 190 years ago), as well as from the sediment body trapped in the water reservoir.

Reference:

Rodríguez-Rodríguez, A., González-Soto, M.C., Hernández-Hernández, L.A., Jiménez-Mendoza, C.C., Ortega-González, M.J., Padrón-Padrón, P.A., Torres-Cabrera, J.M. & G.E. Vargas-Chávez (1993): Assessment of soil degradation in the Canary Islands (Spain). *Land Degradation and Rehabilitation* 4, 11-20.