

Erosion changes the face of the natural environment and leads to land degradation



Beneficiaries construct gabion structures

Erosion is the process by which soil and rock are removed from the earth's surface by exogenic processes such as wind or water flow, and transported and deposited in another location. It is a natural process. Human activities have increased erosion by 10 to 40 times the rate at which erosion is occurring globally. Excessive erosion causes problems such as desertification, decreases in agricultural productivity owing to land degradation, sedimentation of waterways and ecological collapse because of the loss of nutrient rich upper soil layers. Water and wind erosion are now the two primary causes of land degradation, combined, they are responsible for 84% of degraded areas, making excessive erosion one of the most significant global environmental problems. The factors affecting the ero-

sion rate are precipitation and wind speed because higher intensity rainfall generally results in greater erosion. Saturated soil will not be able to absorb as much rain water, leading to higher levels of surface runoff and therefore higher erodibility for a given volume of rainfall. The removal of vegetation increases the rate of surface erosion and steeper terrain is also more prone to landslides and other forms of gravitational erosion processes. Human activities, such as agricultural practices and deforestation also increase the erosion rate. Water erosion is responsible for about 500 million tons of soil lost per annum. This is equivalent to some 4.1+ha a year across the entire country. The values are not that high when compared with the world average of 4,8 t/ha/yr, however, values at specific sites may be as

low as 5 t/ha/yr, yet can exceed 120 t/ha/yr or in some cases even reach 250 t/ha/yr. Erosion tends to increase with mean annual rainfall, and is greatest in the summer rainfall areas. Without erosion, there would be no landscape and ecological disequilibrium in South Africa is 15 to 18 +.ha /yr. Accelerated erosion is an essentially natural process, occurring at an increased rate under the condition of ecological disequilibrium. Soil erosion is also important for soil regeneration as global per capita arable land regenerated was 0,3 ha in 1985, 0,23 ha in 2000 and by 2050, 0,15 ha will be regenerated. Indicators of erosion susceptibility of the physical environment, including climate, soil erodibility and topography were improved over earlier assessments by feeding the current available data into advanced algorithms. The area of land with a moderate to severe potential risk is found to total approximately 61 million ha (50%). Although more than 91 million ha (75%) are classified as having only a very low to low actual risk, approximately 26 million ha (20%) are eroded at a rate greater than a soil-loss tolerance of 10t/ha/yr, showing the potential to target erosion control at problem areas. The Eastern Cape, Limpopo and KwaZulu-Natal provinces have the highest erosion potential. The Department of Agriculture, Forestry and Fisheries plays significant role through the LandCare Programme to address the problem of erosion across the country by providing funds to provinces to construct innovative structures like gabion structures, terraces, contours or grass ridges, etc., to combat soil erosion and stabilise waterways.



The effect of erosion on the rural area and grazing land



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