

Research note :

Flood induced soil erosion and its management in Thar desert

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Soil erosion is defined as the detachment of soil particles, their transportation from one place to another place and deposition elsewhere through water, wind and other forces. Soil erosion involves detachment of soil particles from main body, their transportation by splashing, floating, rolling, dragging and deposition at another place. The major factors, which encourage detachment of soil particles, are rainfall, vegetation destruction, freezing and thawing, flowing water, wind velocity and lack of soil aggregation. The soil erosion accompanying runoff is usually more serious (Singh *et.al.*, 2007)

Barmer district located in the western part of Rajasthan, receives 100 to 400 mm rainfall annually. Sand dune and sandy plain are dominant formations but at places, in interdune plains there are massive formation of calcrete, gypsum, bentonite and lignite which restrict deep percolation of

water. The Luni basin in the eastern fringe of Thar along Aravallis has integrated drainage net work. In rest of the desert disorganized drainage causes pounding of water in lowlying areas.

Ecosystem Barmer districts is fragile and vulnerable to harsh environmental fluctuations including flash floods. People and the ecosystem are not prepared to receive sudden torrential down pour. Therefore, floods in arid region are more devastating taking toll of human and animal life and huge loss of infra structure. During the period of heavy storm stream bank erosion, scouring and deepening of channels through runoff water is dominantly observed in the region. The thick gypsum layer, rhyolite, bentonite clay, calcrets and granite below the surface at some depth restrict the downward movement of rainwater thereby aggravating their cutting efficacy. A high frequency of drought and absence of vegetative cover are the other factors, which enhance the efficacy of runoff water to detach and transport the soil particles (Singh *et. al.*, 2007, Joshi, 2007

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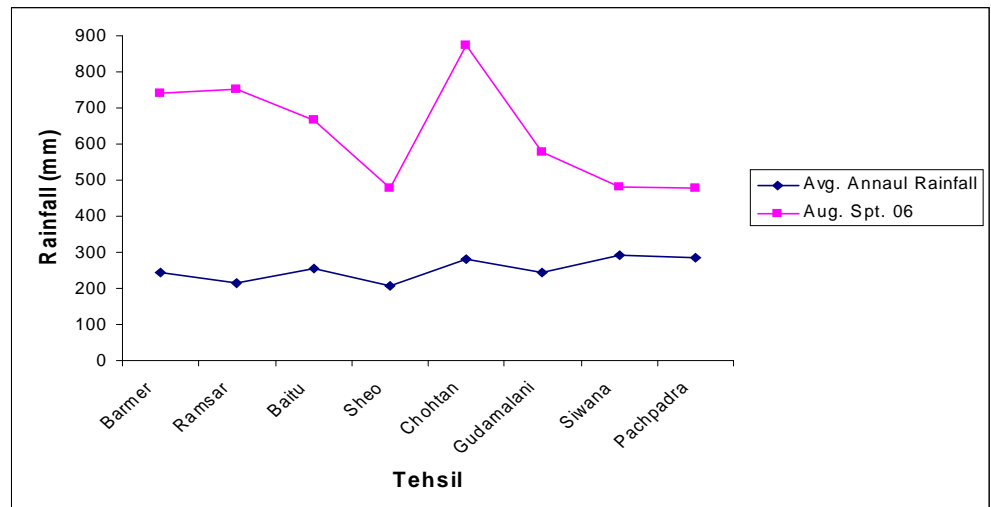


Fig. 1 : Monsoon chronological Scenario