

SOIL EROSION

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SOIL EROSION

The top layer of the soil is the vital component. Since all the nutrients required by plants are present in this layer. This top layer of soil is therefore said to be the feeding zone of plants. This fertile top soil is most valuable natural resource & it usually lies at most places at a depth of 15-20 cm. Over the face of the land. Healthy soil is indeed alive & dynamic consisting of microorganisms such as bacteria, fungi, algae, protozoa, worms & insects.

Although soil erosion is a natural process yet soil erosion problems exceed natural formation of soil. There are several ways by which this fertile top soil is lost & wasted. This loss of top soil or disturbance of the soil sub structure is known as Erosion. ODUM (1966) included soil erosion as a part of soil pollution. Soon after rain begins, the cream of soil is skimmed off with every spell of showers.

Soil loss is maximum in regions with high population density. Continuous cultivation of same crop also adds to soil loss. The present rate of soil erosion is about 2500 million tonnes per year i.e. over half a tonne of soil every man, woman & child on the planet. Soil erosion is one of the most difficult problems facing the world,

particularly in Country on own. The Indian sub continent is faced with severe silting problems in Bhakra, Pichand & other multi purpose dams. The life of Bhakra dam is forecast to be reduced by 200 years due to silting.

Sediment loads from major rivers of the world show that they carry billion tones of soil to the ocean every year.

KINDS OF SOIL EROSION

Based on the rate at which soil loss takes place there are mainly 2 types of Erosions.

(1) NORMAL OR GEOLOGICAL — Erosion occurs under normal natural cond^{ns} by itself. As it is natural the process is slow & the equilibrium bet^h loss & built up is hardly lost.

(2) ACCELERATED SOIL EROSION — is very rapid & never keeps pace with the soil formation. This is the most serious type of loss created by some foreign agency like man.

AGENT OF SOIL EROSION

(1) Water Erosion: is caused by the action of water which removes the soil by falling on as rain drops as well as

(i) surface flow action. It is of soil types

(a) Sheet Erosion: removes soil in a thin covering in large areas.

(b) Rill Erosion: When sheet erosion occurs with full force, the run off water over the soil surface cutting well defined finger shaped grooves appearing as thin channels or streams. These are known as rill erosion.

(c) Gully erosion: occurs due to the convergence of several rills towards the steep slope, which forms together under channels of water known as gullies.

(ii) Wind Erosion: is common in dry (arid) regions where soil is sandy & vegetation very poor. The high velocity of wind blows away the soil particles. It may be of the fall types.

(a) Saltation: In arid regions where rainfall is low, drainage poor & temp. high, water evaporates leaving behind the salts. The major portion of such salty soil is carried away by wind in leaps.

(b) Suspension: The wind throws away smallest soil particles into air, which move as fine dust with the wind.

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(C) Surface Creep : The heavier particles of soil that are not easily thrown up by wind are simply pushed or spread along the surface by wind.

(3) Landslide or slip Erosion : The hydraulic pressure caused by heavy rains increases the wt. of the rocks at cliffs which come under the gravitational force & finally slip & fall off.

(4) Stream bank Erosion : The rivers during floods splash against their banks & cut through them. Water strikes with great speed at bank corners.

(5) Deforestation & Overgrazing : are the most serious & well known causes for soil erosion.