SEMESTER – I

GEOTECTONICS AND GEOMORPHOLOGY

UNIT : II

TOPIC: DEGRADATIONAL PROCESS – MASS WASTING

PRESENTED BY

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What is Mass Wasting

Mass wasting is the geomorphic process by which soil, sand, regolith, and rock move downslope typically as a solid, continuous or discontinuous mass, largely under the force of gravity

When it occurs

- When the gravitational force acting on a slope exceeds its resisting force, mass wasting occurs. The slope material's strength and the amount of internal friction within the material help maintain the slope's stability and are known collectively as the slope’s sheer strengths. When the gravitational force exceeds this slope’s shear strength then mass wasting occurs .

Types of Mass Wasting

1. CREEP	2. FLOW	3.FALL/SLIDE	4.SUBSIDENCE
a)Soil Creep	a)Earth Flow	a)Rock Slide	
b)Talas Creep	b)Mud Flow	b)Debris Slide	
c)Rock Creep	c)Debris Flow	c)Soil Slip	
d)Rock Glacier Creep		d)Slump	
e)Solifluction			

Definition of **soil creep**. The gradual, steady downhill movement of **soil** and loose rock material on a slope that may be very gentle but is usually steep.

Definition of **talus creep-** The slow downslope movement of **talus**, either individual rock fragments or the mass as a whole.

Rock Creep- A form of slow flowage in rock materials evident in the downhill bending of layers of bedded or foliated rock and in the slow downslope migration of large blocks of rock away from their parent outcrop.

Rock glaciers are distinctive geomorphological landforms, consisting either of angular rock. Rock glaciers may move or *creep* at a very slow rate in part dependent on the amount of ice present.

Solifluction- Mass movement of soil and regolith affected by alternate freezing and thawing. Characteristic of saturated soils in high latitudes, both within and beyond the permafrost zone

An **earthflow** is a downslope viscous flow of fine-grained materials that have been saturated with water and moves under the pull of gravity. It is an intermediate type of mass wasting that is between downhill creep and mudflow.

A **mudflow** is a form of mass wasting involving "very rapid to extremely rapid surging flow" of debris that has become partially or fully liquified by the addition of significant amounts of water to the source material.

Debris flows are geological phenomena in which water-laden masses of soil and fragmented rock rush down mountainsides, funnel into stream channels, entrain objects in their paths, and form thick, muddy deposits on valley floors.

A **rockslide** is a type of landslide. While a landslide occurs when loose dirt or sediment falls down a slope, a rockslide occurs only when solid rocks are transported down slope. The rocks tumble downhill, loosening other rocks on their way and smashing everything in their path.

Debris-slide: A mass of predominantly unconsolidated and incoherent soil and rock fragments that has slid or rolled rapidly down a steep slope when comparatively dry to form an irregular hummocky deposit.

Soil slips are shallow failures of colluvial **soil** and ravine fill. They have in common several characteristics and associations with rain storms.

A slump is a form of mass wasting that occurs when a coherent mass of loosely consolidated materials or rock layers moves a short distance down a slope. Movement is characterized by sliding along a concave-upward or planar surface.

Subsidence

Subsidence is the vertical displacement of rock with very little or no horizontal movement. It is slow settling movement resulting from mining or draining but on occasions can be very rapid.

THE END