

MASS WASTING:

Mass wasting is the downhill/down slope movement of materials i.e. rock debris and soil under the influence of gravity. It is the creeping, flowing, sliding or falling of rocks and other weathered materials downhill under the influence of gravity. The movement may be gradual or sudden depending on the gradient of the slope, weight of weathered rocks and where there is any lubricant/moisture supplied by water.

Types of Mass Wasting:

Soil Creep. This is a slow downhill movement of soil on a sloping land. The movement is not very noticeable but the only evidence of soil creep is telephone and telegram posts leaning downhill, bent trees and bulging walls.

Talus Creep. This is a slow downhill movement of angular rocks of all sizes along the slope. It occurs in steep areas such as mountains.

Solfluction/Soil Flow. This type of mass wasting occurs in areas where the soil is permanently frozen. The melting snow lubricates the movement causing the movement of sand, gravel and weathered saturated materials over frozen ground.

Mud Flow. This is a rapid movement of mud, gravel and unconsolidated materials supersaturated with water over a steep slope.

Earth Flow. This is the movement of water with its associated power to erode and transport materials over the surface of the land when not confined to distinctive channels.

Landslide. This is a sudden movement of large masses of soil or rock debris down a steep slope. Landslides usually take place after heavy rains in mountainous areas such as in the Kenyan highlands Mt Elgon, Mt Rwenzori and Kigezi highlands.

Rock Fall. This occurs when a rock falls from a steep cliff. Is the most rapid of all mass wasting types. If it continues for long, fallen rocks pile up at the floor of the slope in a mound.

Causes of Mass Wasting:

- ✓ Heavy rainfall causes rock materials to move down hill faster because water lubricates the materials enabling it to creep, slide or fall faster than drier rocks debris.
- ✓ Hot temperatures make the soil so dry that soil creep is able to take place.
- ✓ Presence of steep slope in mountainous areas cause rock materials to move much faster.
- ✓ Nature of the rocks for example limestone rocks that are permeable take in a lot of water which lubricates them leading to their downhill movement.
- ✓ Overloading of the slope with debris which increase weight leading to their downhill movement.
- ✓ Occurrence of earthquakes in highland areas which shakes and breaks rocks and soil resulting into their fall.
- ✓ Volcanic eruption common in volcanic mountains which leads to accumulation of lava and later its down movement.
- ✓ Man's activities e.g. mining, road construction which creates steep slopes enabling materials to move.
- ✓ Deforestation along steep slopes/ absence of vegetation cover.

Effects of Mass Wasting:

- ✓ Leads to loss of lives and property.
- ✓ Blockage of roads and bridges.
- ✓ Displacement of people hence destructing social order.
- ✓ Contamination of water bodies hence waterborne diseases.
- ✓ Destruction of forests which are natural habitants of wildlife for example on Mt Elgon.
- ✓ Destruction of agricultural farm lands leading to losses for farmers and ultimate famine.
- ✓ Landslides often dam/block streams leading to the formation of temporary lakes e.g. Lake Mbaka in Tanzania.
- ✓ It leads to deposition of fertile soils in lowlands/valleys which promote crop cultivation.
- ✓ Expose underlying minerals which promote mining activities in Kyamuhunga in Bushenyi where gold is often exposed by landslides.

- ✓ Mass wasting facilitates soil formation by exposing the parent rock weathering processes which lead to crop cultivation.
- ✓ Promote research and study for example students learning about landslides normally go to Kigezi highland which is a source of information.
- ✓ Promote tourism through the formation of step like landforms called terraces and scars on Mt Rwenzori and Kilimanjaro hence a source of foreign exchange used to provide social services.
- ✓ Fill pits and depressions left after mining for example in Bushenyi. This helps to prevent the breeding of mosquitoes which may be dangerous to human life.

Measures of Controlling Mass Wasting:

- ✓ Afforestation and reforestation along the slopes.
- ✓ Resettling of the displaced people to less affected areas.
- ✓ Education and awareness programmes on the dangers of mass wasting.
- ✓ Practicing better farming methods like terracing in hilly areas.
- ✓ Gazette areas susceptible to landslides as forest reserves and Game parks eg Mt. Elgon forest reserve.
- ✓ Create drainage channels along the slopes and reduce the chances of water logging which offset landslides.
- ✓ Building protective concrete on cliffs and revetment.

PHOTOGRAPH INTERPRETATION:

Study the photograph provided below and answer the questions that follow:



- Identify the catastrophic event taking place in the photograph.
- Explain the factors which have contributed to the catastrophic event identified in (a) above.
- State effects of the catastrophic event to the people living in the surrounding area.
- Suggest the solutions that can be undertaken to prevent the catastrophic event.
- Suggest an area in East Africa where the photograph could have been taken.

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