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FACULTY OF ENGINEERING AND
TECHNOLOGY

Lecture- 11

Land Resources- Part 1



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Land as a resource

- Land is a finite and very essential natural resources needed for human survival and well-being.
- We depend on land for resources to fulfill our basic needs such as food, fiber, fuel, minerals, area to build shelter, etc.
- Top soil is a part of land resources which is though a renewable resource, however, its production rate is low and at present pace of soil erosion soon this resource will be depleted.
- Increasing pressure on land resources has declined its fertility, promoted soil degradation, reduced crop productivity, increased competition among individuals, and many more.

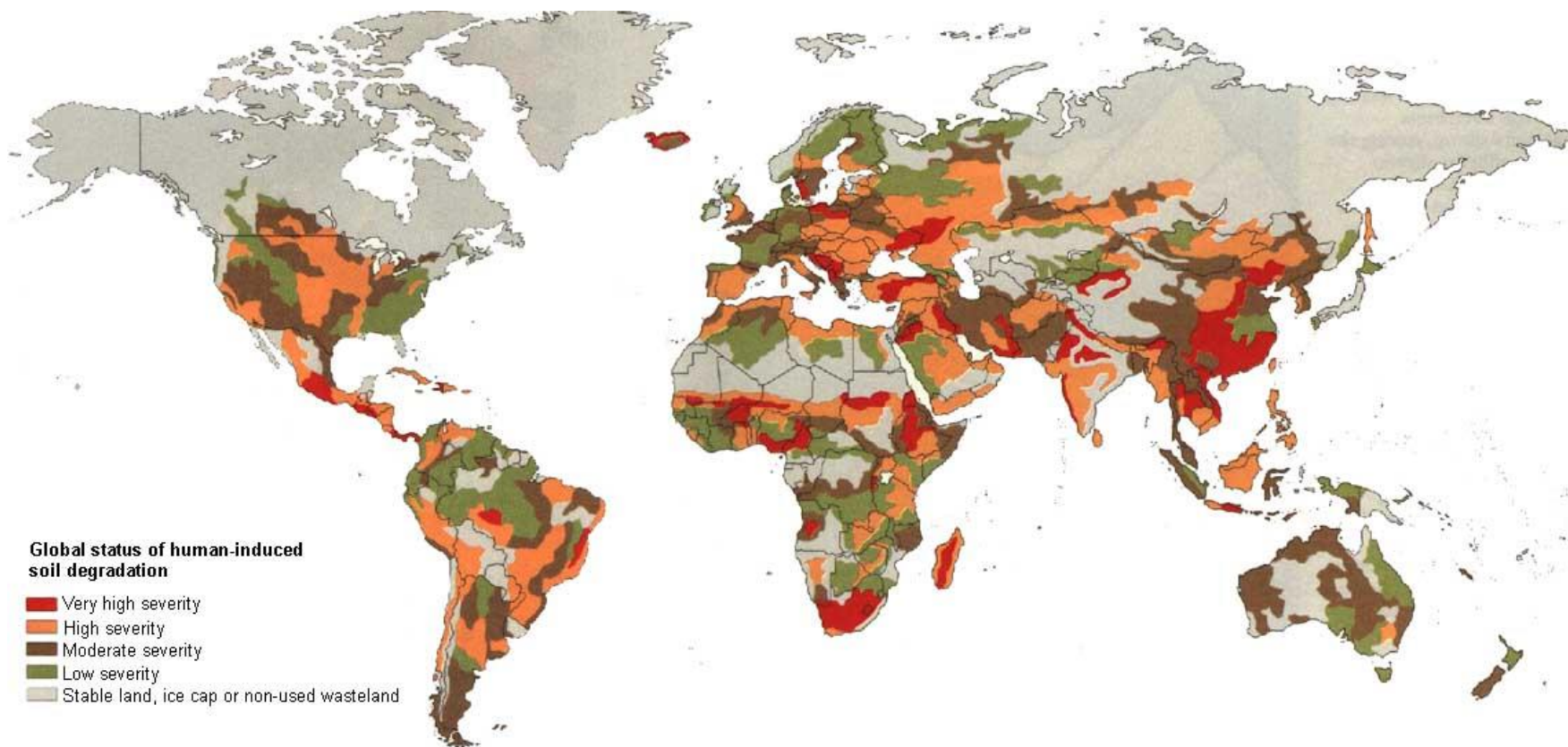


Land degradation

- With rapid increase in human population the demands for cultivable land for producing food, fiber and fuel wood has also increased.
- The excess pressure on land resources due to over-exploitation has resulted in Land degradation.
- The processes that result in degradation of land include:
 - ✓ Soil erosion,
 - ✓ water-logging,
 - ✓ salinization, and
 - ✓ soil contamination with toxic materials



- Land degradation affect ability of soil to perform its activities like quantity as well as quality of crop product decreases; efficiency to recycle water, energy and nutrients will be reduced.
- Due to reduce crop productivity, national food security is threatened and may result in malnutrition
- Land degradation also affects the wealth and the economic growth of the country.



Man-induced landslide

A **landslide** is the movement of rock, **earth**, or debris down a sloped section of **land**.

Several anthropogenic activities like construction activities, hydropower plants, mining, etc. are major cause of landslide.

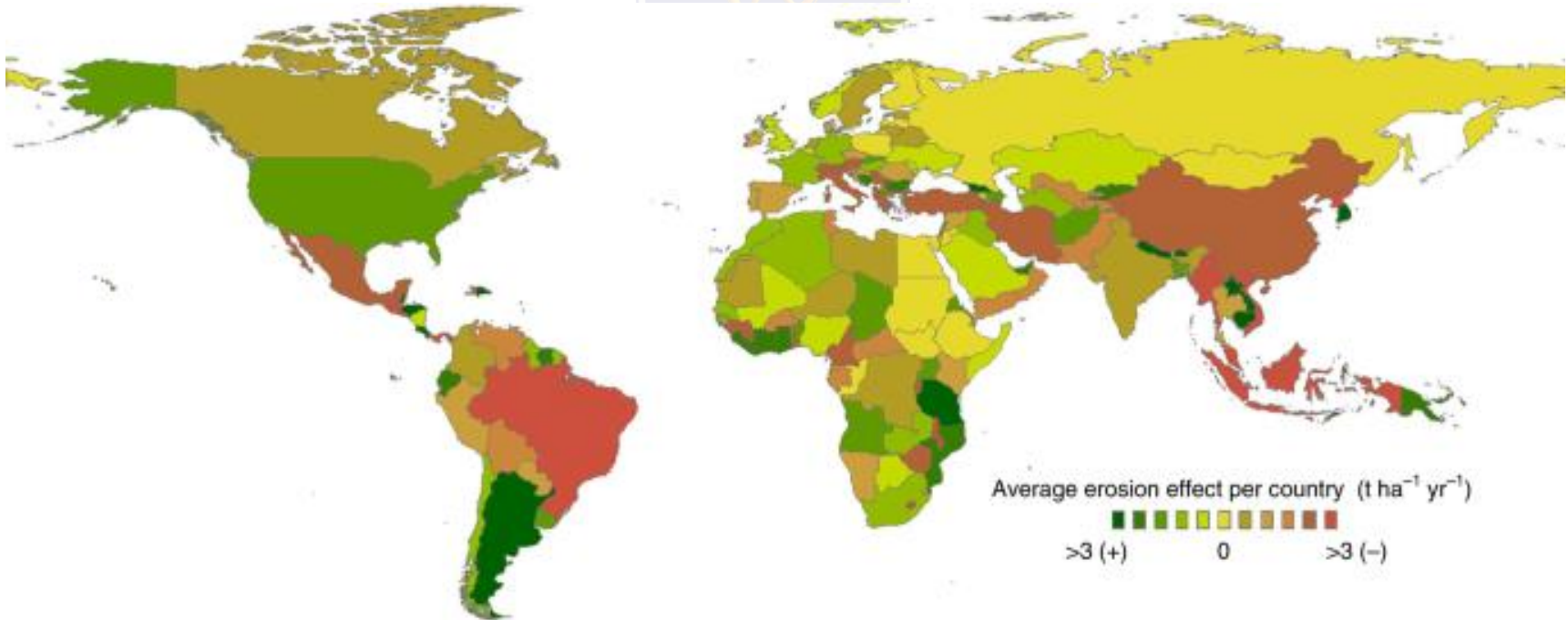
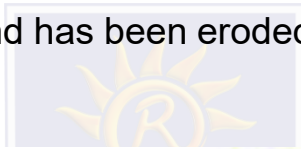
Few incidences of landslides previously have been reported between Rishikesh and Byasi on Badrinath Highway, however, after the construction of highway, 15 landslides occurred in a single year.

During construction activities, mining, etc. large portions of mountains are cut or destroyed. This weaken the fragile mountainous land masses resulting in landslides.



Soil erosion

- Soil erosion refers to wearing away of soil.
- Soil erosion is defined as the movement of soil components, especially surface litter and top soil from one place to another.
- Soil erosion results in the loss of fertility because it is the top soil layer which is fertile.
- One third of the world's cultivable land has been eroded and two thirds of the seriously degraded lands lie in Asia and Africa.



- Soil erosion is basically of two types based upon the cause of erosion:
 - Natural or geologic erosion: It is caused by natural processes
 - Anthropogenic or accelerated erosion: It is caused by anthropogenic (man-made) activities and the rate of erosion is much faster than the rate of formation of soil. Overgrazing, deforestation and mining are some important anthropogenic activities that cause this type of erosion.



