**SÉANCE N° 9**

**COURS: SOIL DEGRADATION**

Soil degradation is one of the most serious and widespread environmental problems on a global scale.

**DEFINITION OF SOIL DEGRADATION**

There are many factors contributing to soil degradation, among which the most recognized are **deforestation, shifting cultivation, overgrazing, monocropping**, and the use of **agrochemicals.**

**CAUSES OF SOIL DEGRADATION**

**Physical factors**

**The physical forces and weathering processes( wind erosion, floods) lead to a decline in soil fertility and adverse changes in the soil’s composition or structure.**

**Biological factors**

 **Human and plant activities that tend to reduce the quality of the soil.**

**Human activities such as poor farming practices may deplete soil nutrients thus diminishing soil fertility. The biological factors affect lessens the microbial activity of the soil.**

**Chemical factors**

**alterations in the soil’s chemical property that find out nutrient availability**

**The reduction of soil nutrients because of alkalinity or acidity of waterlogging are all grouped under the chemical components of soil degradation.**

**Deforestation** Vegetation cover promotes the binding of the soil together and soil formation, hence when it is removed it considerably affects the capabilities of the soil such as aeration, water holding capacity, and biological activity.

**Waterlogging**

Water balance of an area is disturbed because of excess recharge.

Conditions cause waterlogging is low permeability of subsurface horizons, low intake rate of surface soils and obstructions to the natural flow of rainwater, etc.

**Shifting cultivation**

 It is an old farming practice, where the “slash-and-burn” technique is applied to clear land, followed by a long fallow period for the restoration of soil fertility.

Crop burning has harmful effects on soil, such as an increased susceptibility to soil erosion and a reduction in nutrients.

A better alternative is “chop-and-mulch,” i.e...., the cutting of the plants (crops) that are then used as mulch. This signiﬁcantly increases the concentration of nutrients and the content of organic matter.

**Overgrazing**.

 It is intensive grazing that leads to a signiﬁcant disturbance of the growth, quality, and composition of vegetation. Grasslands with the high pressure of livestock lose vegetation cover and, therefore, fertility of the soil, which becomes susceptible to erosion, a change in soil moisture, organic matter, nitrogen content, and microbial activity. The total carbon in the soil is permanently reduced and causes soil erosion and desertiﬁcation.

**Monocropping :absence of crop rotation**

**Over a long period of time under the same culture (Intensive cultivation) leads to the removal of large quantities of nutrients from the soil which effects to loss of soil fertility.**

**The use of agrochemicals**

 The use of artiﬁcial fertilizers, pesticides, and other chemicals introduces heavy metals and often very toxic chemicals into the land.

Their nonselective and excessive use has a permanent negative effect on the quality of soil and represents one of the most signiﬁcant forms of degradation.

In addition, other causes of soil degradation include industrial and mining activities, and unsound waste disposal.