

BIOLOGY GRADE 10

UNIT 5 SUMMARY

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UNIT 5

CONSRVATION AND NATURAL RESOURCE

5.1 Definition of resource

5.2 Conservation and biodiversity

5.3 Vegetation

5.4 Wildlife

5.5 Air

UNIT 5

CONSRVATION AND NATURAL RESOURCE

5.1 Definition of resource

- ❖ **Natural recourses** are resource that exist in nature and are useful for human beings.
- ❖ **Resource supplied by nature**
- ❖ Natural resource classified into two
 - 1) **Renewable**
 - 2) **Non renewable**

Renewable natural resource

- ❖ Include mainly **living things** and their **products**
- ❖ With management, they can be **used, reused** and **replaced** easily in a short span time
- ❖ Are resource capable of **producing indefinitely**
- ❖ They are found in **unlimited quantity**
- ❖ Examples: **Plants, animal, water , air, soil, solar energy, micro organism**

Nonrenewable natural resource

- ❖ Include mostly **not living things**.
- ❖ Are resource that **cannot be easily made** or **replaced by nature** or take a very long geological time to be formed again.
- ❖ They are **found in limited quantity**
- ❖ Example ; **minerals, fossil fuels like (natural gas, oil and coal), diamond**

Conservation

- ❖ The **wise and sustainable** use of natural resource
- ❖ Involves **protection** and **preservation** of **natural environment**
- ❖ If natural resource are not wisely used their number declines become extinct
- ❖ **Extinct** is the loss of a species everywhere in the world or particular habitat

Biodiversity

- ❖ Is the **measure of wealth of species** in a given habitat.
- ❖ Biodiversity is the **variability of living things.**
- ❖ Includes from smallest microbes and large animal and plants

Importance of biodiversity

- ❖ **Maintain the balance** in an ecosystem
- ❖ Produce **genetic variety**
- ❖ **Make place look good** with a mixture of different species rather than monoculture
- ❖ Help to **reduce the spread of diseases**

Monoculture its impact on biodiversity

- ❖ **Monoculture** is the cultivation of a single crop
- ❖ **Monocultures are:**
 - not attractive to look at
 - does not support wide range of plants and animals
 - increase the risk of diseases to spread to quickly

Biodiversity of an area lost by;

- ❖ **undervaluation** of the biodiversity resources
- ❖ **deforestation**
- ❖ **fuel wood collection** and illegal logging
- ❖ environmental **pollution** like acid rain
- ❖ growing industrial raw material E.g. sugar
- ❖ **overgrazing** by stock animals
- ❖ **overhunting** (poaching)

Conserving the biodiversity

- ❖ **Maintaining** habitats
- ❖ Using resources in a **sustainable** way
- ❖ **Avoid over exploitation** of natural resource
- ❖ **Reduce pollution**
- ❖ Establish **national parks, sanctuaries** and **zoos**

5.3 Vegetation

- ❖ Vegetation is the general term for the plant life of a region.
- ❖ **Function of vegetation critical in the biosphere:**
 - Regulate the flow of **biochemical cycle**
 - Strongly **affects soil characteristics**
 - Serves as a **wild life habitat**
 - Serves as a global production of **food, wood** and **fuel**

Importance of plant

- ❖ Source of food
- ❖ To make drink such as tella, tej and coffee
- ❖ Export product for the country
- ❖ For building material

- ❖ For timber production
- ❖ Source of medicine
- ❖ Source of oxygen to the atmosphere
- ❖ Absorb atmospheric CO₂

Human effect on vegetation

- ❖ **Deforestation** for various purposes such as **agriculture, fuel consumption, timber production**
- ❖ **Overgrazing** by domestic animals which expose the land for serious wind and soil erosion
- ❖ **Pollution** and by climate change.
- ❖ **Burning**

Endemic species

❖ Some of endemic species in Ethiopia are

- Teff (*Eragrostis teff*)
- Enset (*Ensete ventricosum*)
- Nug (*Guizotia abyssinica*)
- Gomenzer (*Brassica carinata*)
- Suf (*Carthamus tinctorius*)
- Juniper (tid)
- Telba (*Linum usitatissimum*)

Conservation of vegetation

1. Awareness creation
2. **Afforestation** planting young tree
2. Controlled grazing
3. Fire protection

5.4 Wildlife

❖ Importance of wildlife resource

- Economic or commercial value from tourism
- Educational, scientific and recreational value
- Maintenance of natural balance in an ecosystem

Endemic wildlife species in Ethiopia

Mammals

- ❖ Gelada babbon
- ❖ Walia ibex
- ❖ Menlik's bushbuck
- ❖ Mountain Nyala,
- ❖ Swayne's Hartebeest
- ❖ Ethiopian wolf

Birds

- ❖ Thick-billed raven (kura)
- ❖ White colored pigeon
- ❖ The black winged lovebird,

Human impact on wildlife

- Distraction of forest habitat
- Uncontrolled hunting
- Human settlement

Wildlife conservation

- Establishing park, zoos, sanctuaries
- Preventing the spread of disease
- Controlling human settlement
- Awareness creation

National park

- ❖ **National park** is conservation area designed to give maximum protection to wild animal
- ❖ Below are listed many of the main National Parks of Ethiopia
 - **Abijatta-Shalla** Lakes National Park
 - **Awash** National Park
 - **Bale Mountain** National Park
 - **Gambela** National Park
 - **Rift Valley** Lakes National Park
 - **Mago** National Park
 - **Omo** National Park
 - **Nechisar** National Park
 - **Simien** Mountains National Park

Sanctuaries

- ❖ **Sanctuaries** are conservation area establish to focus on a particular species, some example of wildlife sanctuary
 - **Harer wild life sanctuaries**; set up to conserve and protect native elephant species, *Laxodonta African oleansie*
 - **Kuni-muktar mountain neyala sanctuaries**; set up to protect mountain neyala
 - **Senkelle Sewayne' heart beest sanctuaries**; close to lake rift valley national park which is dedicated for protection of heart beest

5.5 Air

❖ **Pollution;**

- The **contamination of the natural environment** by harmful substances as a result of human activity.
- **Adding of any substance** (solid, liquid or gas) and any form of energy to the environment.
- The major kind of pollution are air, water and soil pollution

❖ **Pollutant;** a harmful substance

Air pollution

- ❖ Air pollution occurs when **harmful or excessive quantities of substance** added to the atmosphere
- ❖ The **major of air pollutants are**
 - ❖ Carbon dioxide
 - ❖ Methane
 - ❖ Sulfur dioxide
 - ❖ Nitrous oxides
 - ❖ Chlorofluorocarbons
 - ❖ Hydrocarbons

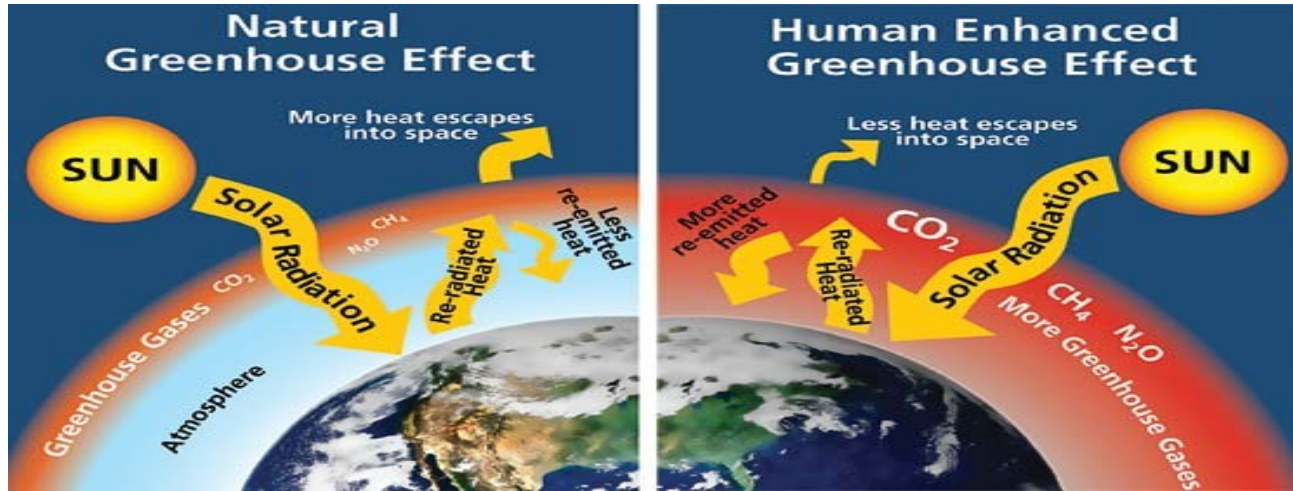
Different forms of air pollution

1. Global dimming;

- ❖ It is the **reduction in the amount of sunlight** from reaching the earth's surface.
- ❖ The **by product of fossil fuels or pollutant** which absorb solar radiation and reflect back sunlight to space
- ❖ Fossil fuels release incomplete combustion **hydrocarbon** in the atmosphere in the form of smoke which cause global dimming.

2. Global warming

- ❖ **Global warming**; is the rising of temperature on earth's surface as a result of **accumulation of green house** gas like **carbon dioxide** and **methane**.



Carbon dioxide (C O₂)

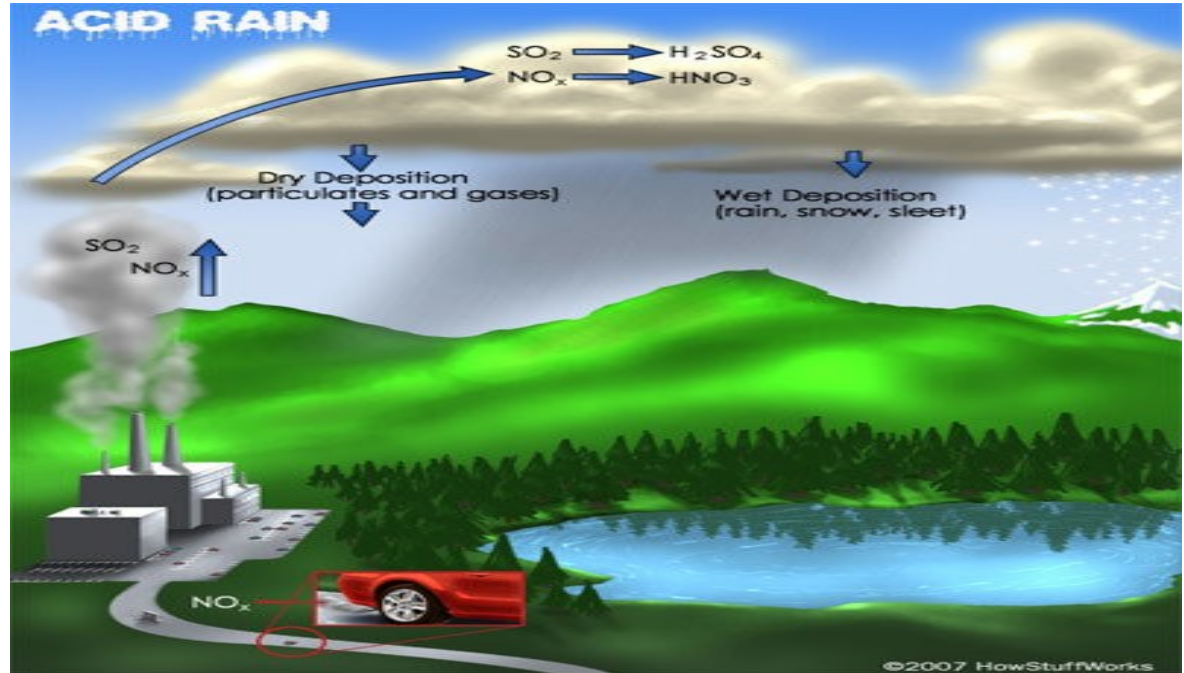
- ❖ **CO₂** is a colorless, odorless, non-toxic green house gas which produce by natural source and human activity
- ❖ The **amount of carbon dioxide increase as a result of :**
 1. Combustion of fissile fuel
 2. Deforestation
 3. Respiration
 4. Decomposition

Methane (CH₄)

- ❖ The **second most abundant green house gas** that is released from human activities.
- ❖ Like carbon dioxide, methane absorbs solar radiation and warms the atmosphere.
- ❖ **Methane increased in the atmosphere** as a result of
 - Growth of rice in swampy condition
 - Digestive activity of cattle produce methane

3. Acid rain

- ❖ Caused by sulfur and nitrogen oxide
- ❖ Formed when rain water react with these oxide



Effect of acid rain

- ❖ **Acid rain damages our environment by;**
 - Killing leaves
 - Depletion of soil
 - Destroys roots of tree
 - Pollution of lake, river and stream water

Cause of acid rain

❖ Natural cause of acid rain

- Water vapors from clouds
- Volcanic eruption and lightning

❖ Human cause of acid rain

- Burning of fossil fuels from industries and vehicles

Effect of air pollution on human

- ❖ Chronic respiratory problems
- ❖ Lung cancer
- ❖ Heart disease
- ❖ Brain damage
- ❖ Nerve, kidney. Liver damage

- ❖ **Chlorofluorocarbon (CFC'S)** cause ozone depletion
- ❖ CFCs has caused an increase in harmful ultraviolet light reaching the surface of the earth.

Unit summary

1. What is natural resource?
2. Explain the difference between renewable and non renewable resource?
3. Explain biodiversity, its importance, how it lost, method of conservation?
4. What is method of conserving biodiversity?
5. What is the anthropogenic effect on vegetation?
6. What is the method of conserving Vegetation?
7. What is the different forms of air pollution?