ENVIRONMENTAL PROBLEMS (Hazards)

MEANING AND TYPES OF ENVIRONMENTAL PROBLEMS

Environmental problems can be referred to as any natural or human-induced event which poses a serious danger or risk to lives and properties of people in their environment. In other words, environmental hazards are disasters caused by nature or man which pose a serious danger or risk to lives and properties of people in their environment.

TYPES OF ENVIRONMENTAL PROBLEMS

i. Volcanic eruptions
ii. Earth quakes
iii. Drought
iv. Pollution
v. Soil erosion
vi. Flooding
vii. Hurricanes
viii. Lightning
ix. Hail
x. Mining
xi. Desert encroachment
xii. Coastal erosion
xiii. Tornadoes
xiv. Blizzards
xv. Oil spillage
xvi. Mass wasting

The causes, effects and control measures of some popular environmental hazards common in West Africa are discussed in this book.

SOIL EROSION

Definition: Soil erosion may be defined as a process whereby the top soil gradually removed, that is, transported away by erosion water, wind, ice. In other words, it can also be defined as the gradual removal of the top layer of the soil through the action of wind and water.

Causes

1. Bush Burning: This exposes the soil to erosion
2. Over Grazing: This is the excessive removal of grasses by animals that feed on them, thereby exposing the soil to erosion.
3. Excessive rainfall: This act increases the rate of soil erosion.
4. Deforestation: This is the removal of vegetation thereby allowing soil erosion to take place.
5. Shifting cultivation: This is a major agricultural practice in some areas which also lead to soil erosion
6. Excavation of soil building and construction: This equally leads to soil erosion.

EFFECTS

1. It leads to reduction or loss of farmlands
2. The removal of sub soil by erosion reduces the soil fertility.
3. Soil erosion brings about environmental imbalance.
4. It leads to destruction of roads and other track ways.
5. Severe soil erosion in an area lead to loss of lives and properties as experienced in Ibadan metropolis.
6. Soil erosion can lead to land and water pollution through deposition of sediments.

CONTROLS

1. Afforestation: This can be done through planting of trees.
2. Through contour ploughing or making ridges across slopes
3. Fallowing of farmlands is to be encouraged or practiced.
4. Measures should be adopted for controlling the grazing of lands.
5. Planting of cover crops such as legumes, melon, cowpea etc. to cover the soil.
6. Public enlightenment campaign to educate people on hazards of soil erosion and on the soil conservation measures.
7. Through terracing this is the method of cutting steps on hills sides to reduce the velocity of water running down slopes.
8. The use of urban master plan as in the case of Oyo state (Ibadan) and Lagos to check development in the area.

TYPES OF SOIL EROSION

The major types of soil erosion include:

i. **SHEET EROSION:** This is the system and uniform wearing away of the top soil, which usually occurs on low-lying and gentle surface

ii. **GULLY EROSION:** It occurs when erosion is concentrated on definite channels. When the channels eventually becomes dependent and steep-sided. They are referred to as GULLIES.

iii. **RILL EROSION:** This is the process whereby soil erosion takes place through a complex pattern of many shallow channels are referred to as RILLS. Rill erosion usually takes place on slopes. Several rills could manage to initiate the development of a gully.

iv. **SPLASH EROSION:** This is soil erosion caused by the impact of rain drops. Splash erosion is quite significant during rainstorm in areas unprotected by vegetation.

DROUGHT

Drought simply refers to dryness which occurs as a result of lack of precipitation or rainfall received within an area at any given period of time.

CAUSES

Drought is often caused as a result of the following:

1. Absence of rainfall.
2. Over-grazing leaves the soil bare and makes wind erosion very effective.
3. Over cultivation of the soil, most especially in the Sahel region.
4. Deforestation i.e. cutting down of trees can also encourage desert encroachment.
5. Changes in climate from wet to dry may result in desert encroachment.

EFFECTS

1. Desert encroachment exposes the soil to wind erosion.
2. Desert encroachment brings about hot and dusty environment.
3. Desert encroachment brings about dryness of the environment.
4. It brings about shortage of water and crop cultivation thereby affecting their yield.
5. It brings about displacement of people and settlement.

CONTROLS

Desert encroachment can be controlled through the following ways:

1. Afforestation: Planting of trees to reduce the hard ship.
2. Irrigation scheme could be introduced to encourage growth of vegetations.
3. Conservation of trees, surface and underground water.

4. Conservation of shelter belts.
5. Rotational grazing can reduce desert encroachment.

FLOODING

Flooding can be defined as the accumulation of excessive quantity of water in areas not usually waterlogged. Flooding is also defined as the accumulation of an abnormal large volume of water in an area which has refused to percolate or flow away.

CAUSES

1. Flooding occurs mostly when there is heavy rainfall in an area.
2. Damping of refuse along adverts which eventually breaks the channel of flow.
3. Poor drain age system within an area.
4. Inadequate urban planning
5. Erection of building along the drainage channels e.g. Advert road and water sheds.
6. Establishment of settlements along river channels as in the case of Lagos metropolis.
7. Poor construction of embarkment and dams may result in flood as in the case of the Ogunpa River.

EFFECTS

1. Flooding often results in the loss of lives and properties as in the case of the Ogunpa River flood in Ibadan in 1987.
2. Flooding also interrupts socio-economic activities
3. Flooding results in health hazards.
4. It causes pollution of the environment due to disposition of debris.
5. It makes human and vehicle movement difficult.
6. It leads to diversion of public.

CONTROL

i. Flooding can be controlled through channelization of floods from city centers.
ii. Through the construction of bridges and wider divert.
iii. Avoiding refuse dumping along river channels.
iv. Carrying out public enlightment campaign on the effect of flooding.
v. Proper urban planning to avoid urban flooding.
vi. Providing forest reserves on strategic watershed.
vii. Environmental sanitation to drain adverts.

viii. Legislation against indiscriminate dumping and erection of buildings in swampy areas.

5. Deforestation: This can be seen as an act of indiscriminate feeling of lumbering trees such as timber and for agricultural purpose thereby leading to the destruction of natural forest.

CAUSES

Deforestation often occurs when:

1. Trees are cut down for timber.
2. Trees are cut down for agricultural purpose such as crop cultivation.
3. The bush is subject to excessive burning and grazing.

EFFECTS

The major effects of deforestation are as follows:

1. It brings about deterioration of environment.
2. It exposes the land to soil erosion.
3. It leads to reduction in soil nutrients.
4. It discourages the act of keeping wild life.
5. It leads to decrease in transportation and increase in evaporation.

CONTROL

Deforestation can be controlled through the following process

i. Through Afforestation: This is the act of planting trees to replace those that have been cut down.
ii. Decrees: This act will help to legislative against indiscriminate feeling of trees
iii. Development of other sources of fuel for generating power.
iv. Public enlightment campaign: Through this people will be well informed about the effects of deforestation.
v. License: The issuance of license to authorized body and persons to fell trees as practiced in Edo and Delta state of Nigeria.

6. Pollution: It simply refers to the release of substances into the environment in quantities that are harmful to man and animals. These substances released are called pollutants which include waste products of industries: refuse and even human waste.

TYPES OF ENVIRONMENTAL POLLUTION

1. Water pollution
2. Air pollution

3. Land pollution

WATER POLLUTION

Water pollution can be defined as the release of pollutant into various water bodies such as oceans, river, streams, lakes and springs.

CAUSES

i. Oil spillage in the lower Niger Delta areas of Nigeria
ii. Chemical discharge from various industries.
iii. The discharge of domestic waste into the various water bodies.
iv. Discharge of industrial wastes.
v. The use of agro-chemicals such as fertilizers into water bodies.
vi. Discharge of effluents from ships at their various harbors.

EFFECTS

i. It leads to the destruction of aquatic animals and plants.
ii. It leads to water borne diseases.
iii. It creates unemployment among the fishermen.
iv. It leads to lack of good water for domestic purposes.
v. It leads to possible3 migration of people.
vi. It leads to inadequate water supply for industrial use.

CONTROL OF WATR POLLUTION

i. Public enlighten campaign on the dangers of water pollution.
ii. Discouraging the use of chemicals for fishing.
iii. Legislating against waste discharge into water.
iv. Building of public-toilets.
v. Control of pipeline in drilling areas; ships and chemical discharge.
vi. Effective erosion control.
vii. Treatment of industrial waste.
viii. Provision of pipe borne water for the public

AIR POLLUTION

Air pollution refers to the release or injection of substances into the air in quantities or to the level that is harmful to man, animals and plants.

CAUSES

i. The discharges of substances such as smokes and dust into the atmosphere from industries, machine and mining centers.
ii. Noise from loud speakers, cars, sirens, construction works and mining.

iii. Fumes from industrial process such as sulphuric acid from coal and cement factories.
iv. The spraying of liquid and gaseous pesticides and herbicides.

EFFECTS

i. Noise pollution can lead to hearing problems or may cause temporary deafness.
ii. It may lead to respiratory diseases.
iii. Air pollution causes suffocation and reddening of the eyes.
iv. Air pollution may cause a severe damage.

CONTROL

1. Air pollution can be controlled using absorbers to reduce pollutant from waste gases.
2. Enacting of edicts to control noise from public address system.
3. Total removal of industrial areas from residential places.
4. Channelization of fumes chambers to check chemical waste.
5. The use of public enlighten campaign.

LAND POLLUTION

The land can be polluted through the following process:

1. Through the dumping of toxic waste as in the case of Koko near sapele in Delta state.
2. Through the dumping of refuse and sewage wastes.
3. Through oil spillage as seen in oil producing areas of the world.
4. Through the use of pesticides, fertilizers and dumping of metal scraps.

EFFECTS

i. It may lead to the destruction of micro-organisms present in the soil.
ii. Most of the pollutant are very dangerous to man and other living organism.
iii. It may lead to soil infertility

CONTROL

a) Enacting of edict to check illegal dumping of dangerous substances.
b) The introduction of incinerator to get rid of refuse.
c) Proper sewage disposal should be encouraged.
d) Proper monitoring of the various oil pipelines to check oil spillage.