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ECONOMICS NOTES
TOPIC: ENVIRONMENTAL
SUSTAINABILITY
GRADE: 12
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TOPIC 14: ENVIRONMENTAL SUSTAINABILITY

- **Environmental sustainability:** the ability of the environment to survive its use for economic activity.
- **Sustainable development:** refers to meeting the needs of the present generation without compromising the needs of future generations

UNIT 1: THE STATE OF THE ENVIRONMENT.

Environment refers to the physical surroundings and conditions that affect people's lives. This includes land, sea, and the atmosphere.

The state of the environment is affected by the following:

- **Pollution**
 - Pollution is the introduction of waste matter into the environment.
 - Four main types of pollution are air pollution, water pollution, land pollution and noise pollution.
 - Water pollution is when people dump waste material into rivers.
 - Air pollution is caused by the emission of poisonous gases into the atmosphere
 - Land pollution occurs when waste materials are dumped on the land surface,
 - Noise pollution is any excessive and unwanted sounds that disturb the well-being of people and other organisms.
- **Soil erosion**
 - It is the wearing away of the top soil by water or wind from one location of the earth surface to another location.
 - It affects the environment negatively as it reduces the fertility of soil and can cause pollution of water sources.
- **Deforestation**
 - It is the cutting down of trees or removal of forests from land.
 - It can result in an increase in soil erosion and climate change.
- **Conservation**
 - Conservation is the usage of the environment in a way that it is prevented from being damaged.
 - It has a positive effect on the environment, as it represents measures to save the environment from harm.
 - Conservation of certain plants and animals is of importance for their survival. Certain endangered species e.g. Rhinoceros are conserved through legislation.
- **Preservation**
 - Preservation is the process of keeping the environment unharmed (intact).
 - it also has a positive effect on the state of the environment as it protects elements of the environment that are threatened by extinction.
 - Government can use measures such as buying or expropriation, subsidies, and controls to implement preservation.
 - This is often done when conservation efforts are not successful.

UNIT 2: MEASURES TO ENSURE SUSTAINABILITY

1. Market-related measures

- Market can have a contribution to ensuring that the environment is protected.
- Numerous private sector bodies are involved in conservation activities e.g.:
Collect A Can encourage recycling,
World Wild Life is involved conservation of endangered animals.
Earth Life Africa encourages the reduction of pollution and protect natural resources.
- However, in general, market participants are not really concerned with protecting the environment.
- **The market does not capture social costs and benefit**
 - The market participants are driven by self-interest e.g. profit.
 - They view the environment as a resource to use for their own benefit.
 - Sustainability is possible if businesses can be interested in using environmentally friendly technology in production
 - If social costs and benefits of using the environment are not taken into consideration by the market, the environment can be less harmed.
- **Reasons why the market fails to ensure ENVIRONMENTAL sustainability:**
 - The market sees the **environment as a common resource**.
 - **Externalities:** such as air pollution caused by factories cannot be stopped without restrictive policies.
 - **Lack of knowledge:** Businesses cause damage without realising it, e.g. companies making aerosol (perfume spray) cans did not know the damaging effect they had on the ozone layer.
 - **Carelessness:** People continue with harmful practices and leave future generations to worry about the consequences.
- **The mechanism of market and social costs and benefits**
 - Market forces fail to produce the desired result of environmental sustainability.
 - All costs and benefits are not captured in the market price.
 - The market captures only the private costs of production and private benefit of consumption.
 - This means the social costs and social benefits are ignored.
 - the price does not take into consideration external costs and external benefits of production and consumption

2. GOVERNMENT-RELATED MEASURES TO ENVIRONMENTAL SUSTAINABILITY (possible essay)

2.1 PUBLIC SECTOR INTERVENTION

- **Granting of property rights**

- Granting of property rights has conservation effect as people take care of things that belong to them.
- To prevent plants and animals from being extinct, people can be given property rights over them.
- The plants and animals would then be preserved at little cost to the taxpayer/government.
- If property rights could be expanded to common goods like clean air, those suffering from pollution could charge the polluters for the right to pollute.
- For example, if one has property right to clean air in one's land, one can sue a power station for the smoke it produces.
- However, extending private property rights to air is impractical and therefore hypothetical (just for theoretical purposes).
- But the principle of polluters paying victims to reduce pollution is sometimes followed by governments.

- **Charging for the use of the environment**

- Consumers and producers pay a monthly fee to the government for the waste they produce and dispose of in the environment.
- Consumers pay municipal charges for rubbish collection and sewage disposal
- Industries might also be levied emission charges and vehicle owners for gas emissions.
- For best results, the charges should be proportional to the waste produced.
- A fixed total charge such as a monthly charge will not encourage waste producers to reduce waste.

- **Environmental taxes/ green taxes**

- Government levies taxes on the output or consumption where environmental costs were generated e.g. tyres.

- **Paying environmental subsidies**

The government can provide subsidies to encourage activities that reduce environmental damage.

Subsidies could be for:

- Developing a new technique or equipment e.g. to save energy, reduce smoke or to use environmentally friendly energy such as wind, tide or sun energy.
- Encouraging the production of environmentally friendly substitutes such as unleaded petrol.
- Encouraging recycling of wastes such as bottles, cans and cardboard

- **Marketable permit**

- The government gives each business a license to pollute to a certain degree.
- Businesses can sell their licenses to other businesses.

2.2 PUBLIC SECTOR CONTROL MEASURES

Governments can use the following ways if normal interventions do not give results.

- **Education:** people can be made aware of environmental problems and the importance of the environment to their survival.
- **Voluntary agreements:** instead of regulations, the government can enter into voluntary agreements with enterprises for them to cut pollution.
- **Command and control (CAC)**
- The government enforces **policy** by setting maximum levels of the emission of pollution.
- Most developed countries have **regulations** that control air and water pollution.
- There are **3 approaches** in CAC systems:
- Quantity standards: These focus on the amount of pollution emitted.
- Quality standards: These focus on the environmental impact of the pollution emitted.
- Social impact standards: These focus on the effect on people of the pollution emitted

UNIT 4: MAJOR ENVIRONMENTAL PROBLEMS AND INTERNATIONAL MEASURES TAKEN TO ENSURE SUSTAINABLE DEVELOPMENT: (possible essay)

- Environmental sustainability is a global issue as it affects the whole world.
- The following are some of the world's biggest environmental problems and measures taken to deal with such problems.

- **CLIMATE CHANGE**

- Climate change is the change in the composition of the atmosphere that is related to human activity.
- A build-up of greenhouse gases causes the heat from the sun to be trapped in the atmosphere leading to global warming.
- Global warming has an effect on the world's weather patterns which include extreme temperatures and changes in rainfall patterns.

Measures taken:

- In 1992 the United Nations Framework Convention on Climate Change (UNFCCC)
- Formulated measures that were aimed at stabilising greenhouse gases.
- In 1997 the Kyoto Protocol was signed due to the lack of success of the UNFCCC.
- The aim of Kyoto Protocol was for developed countries to reduce their greenhouse emissions by 5.2% by 2012. Developed countries were also to provide some financial assistance to developing countries to use clean technologies.

- These targets were never met and the agreement was not renewed.
- **LOSS OF BIODIVERSITY**
 - Biodiversity refers to a number of different species and sub-species found in a specific area.
 - Due to extinction the diversity of life forms on the planet decreases.
 - Extinction is an irreversible process which means once those species are lost it is forever.
 - Measures taken: The Convention on International Trade in Endangered Species (CITES) bans trade in endangered species on an agreed list of plants and animals.
 - Control is executed through the issue of permits and quotas to regulate trade in certain species.
 - CITES's 17th meeting was held in Johannesburg in South Africa in 2016.
- **Chemical wastes**
 - Exposure to certain chemicals can lead to toxicity in living organisms.
 - Such exposures can lead to immediate death, death after time, or infertility in human beings, plants, and animals.
 - In normal concentration some chemicals are not toxic, while others such as DDT which is an insecticide are toxic by nature.
 - Chemical waste needs to be carefully managed to ensure it does not seep into the groundwater.
 - Production of chemicals leads to chemical waste and getting rid of such waste always creates environmental problems.
 - **Measures were taken:** Stockholm Protocol on Persistent Organic Pollutants bans the most dangerous manufactured substances such as DDT.
 - The Rotterdam Convention protects countries that lack adequate infrastructure to monitor the imports and exports of dangerous chemicals.
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- **HAZARDOUS WASTE**
 - It is not limited to chemical wastes but includes toxic metal waste such as lead and mercury, radioactive waste, and inorganic compounds such as pesticides.
 - These wastes are dangerous to the ecosystem as a whole.
 - Due to their slow decomposition process, they tend to accumulate in the environment for a very long time.
 - **Measures taken:** The Basel Convention controls the import and export of hazardous waste.
 - Trade can only take place between countries that signed the convention.
 - Trade can only take place if the wastes are handled in an environmentally friendly manner.
 - South Africa is a party to the Basel Convention
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- **Loss of indigenous knowledge**
 - Indigenous knowledge refers to the knowledge that indigenous people in a particular area use to make a living.
 - Traditional people used organic methods and natural processes in production.
 - Local capacity building among indigenous people is important aspects of sustaining the environment.

- Capacity building involves equipping indigenous people with environmental knowledge beyond their traditional beliefs.
- This can provide a foundation from which to develop alternative ways of managing resources.
- **Measures taken:**
- In 2007 the UN's Declaration on Rights of Indigenous Persons was adopted.
- The declaration sets the standard for protection of the rights of Indigenous people

OTHER MAJOR INTERNATIONAL PROTOCOLS AND AGREEMENTS ON SUSTAINABLE DEVELOPMENT (see others in the previous 2 pages above)

• Earth Summit / Rio de Janeiro

- Also called the UNCED (United Nations Conference on Environment and Development), held in June 1992.
- The Earth Summit establishes a new and equitable global partnership through the creation of new levels of cooperation among states, key sectors of societies, and people.
- Agreement that humans are at the center of sustainable development and entitled to a healthy and productive life in harmony with nature.
- Agenda 21 as an action plan originated from the Earth Summit.
- Agenda 21 outlined in detail key issues to ensure sustainable development and aimed at the sustainable development and the protection of the environment
- **Agenda 21 focus on:**
 - ✦ social and economic issues (poverty, consumption patterns, protect and promote health)
 - ✦ conservation and management of resources (atmosphere, deforestation, oceans, freshwater resources, wastes).
- Rio Plus 5 noted that globalization made some countries poorer (low level of growth)
- The summit made countries across the world aware of the dangers that unsustainable development poses to countries.

• Millennium Summit of the United Nations (2000)

- Eight-millennium development goals were developed following the summit.
- **The goals which were to be achieved by 2015 are:**
 - ✦ Halve the number of undernourished people
 - ✦ Achieve universal primary education
 - ✦ Achieve gender equality/ empower women
 - ✦ Reduce child mortality
 - ✦ Improve maternal health
 - ✦ Combat HIV& malaria
 - ✦ Help children by ensuring they go to school
 - ✦ Develop a global partnership for development

- **Johannesburg World Summit on Sustainable Development (2002)**
 - Focus attention on improving people's lives, conserving natural resources, and ever-increasing demand for food, water, shelter, sanitation.
 - African environmental issues were also highlighted, namely to improve access to clean water and to help fight the HIV/Aids pandemic.
 - The gap between rich and poor posed major threat to global prosperity and stability.

- **Paris agreement on Climate Change (2016)**
 - Its goal is to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.
 - To achieve this long-term temperature goal, countries aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by around 2050.
 - Countries were expected to submit their greenhouse emission reduction strategies by the year 2020.

Effectiveness of international agreements on sustainable development

- The agreements seem ineffective as the environmental problems keep on increasing.
- Climate change is taking place with increased speed, evidence being the amount of weather changes experienced worldwide
- Average temperature had gone up by 1.25 degrees Celsius in 2020 compared to ten years earlier, this indicates that the world is becoming warmer.
- The warm globe poses risks of natural disasters such as cyclones and floods.
- Climate change affects the amount of agricultural production as soil fertility gets affected negatively.
- More countries still use fossil fuel e.g. coal to generate energy and this is a major polluter of air.
- The Millennium Development Goals are not achieved e.g. Malaria and HIV are still posing health threats to many people across the world
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