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Environmental Science

General Instructions

1. Give numbering to headings
2. Do not write lengthy paragraphs. Write medium sized paragraphs with headings.
3. Do not use table for comparison and contrast questions.
4. Draw figures, diagram/flowchart where needed.
5. Start new question from fresh page.
6. Give around 15 headings for 20 marks question.
7. Every question should have introduction and conclusion paragraphs.
8. Change colour scheme for references to give them more visibility.
9. Manage time well.
10. Wide page borders are discouraged. Should be reasonable.
11. Avoid writing wrong references.
12. Give more weightage to expressly asked part/s of the question.

The period between 1983 to 1991 turned out to be the most effective period for environmental legislation in the country. The first of such laws to be enacted was the National Conservation Strategy 1992, which provided a broad framework for the conservation of natural resources by promoting sustainable development which would lead to improved efficiency in the use of resources.

II Background and enactment :-
In 1985-86 the Pakistan government

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formally requested the International Union for the conservation of nature (IUCN) to provide technical expertise for the formulation of a comprehensive environmental conservation plan. The primary donor agency which agreed to provide funds for this venture was CIDA (Canadian international development agency)

III Enactment :-

On March 1st 1992, the Pakistan National conservation strategy (PNCS), was approved by the cabinet of Pakistan. It provided the agenda for action and implementation strategy for 10 years.

IV Main objectives of PNCS :-

It consisted of 3 main

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objectives .

- i. Conservation of Natural resources
- ii. Making the process of development sustainable
- iii. Improving efficiency in the use and management of resources.

IV Contents of the PNCS document.

It is a 406 page document which consists of three parts

- i. Part 1 deal with the state of Pakistan's environment.
- ii. Part II gives various recommendations for different sectors of the economy
- iii. Part 3 contains the details of various programmes being undertaken under this strategy and investment required over the period of next ten years.

V Main attributes of the programme
 It consisted of 14 broad areas including 68 specific programmes. The document recommended Rs 150 billion investment including Rs 2 billion from the private sector.

VI Programmes areas under PNCs

i. Monitoring cropland soils:-

To ensure that the soil contains adequate nutrients for the production of healthy crops and high yield.

If any deficiency occurs in the quality of soil, necessary amendments should be made.

ii. Increasing energy efficiency:-
 By introducing renewable

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energy projects, the damage to the environment can be mitigated

iii. Increasing irrigation efficiency:-
Upgradation of the existing irrigation network is highly recommended. Moreover adoption of modern agricultural techniques can help in conservation of water resources.

iv. Supporting forestry:-

It includes measures for the conservation of existing forest cover including declaration of new national parks. Also, projects of afforestation hold high significance for increasing the minuscule forest cover of the country.

v. Protecting watersheds:-

Protecting lakes, ravines, springs and other water bodies to ensure the purity of water.

vi. Protecting water bodies and fisheries:- Protecting the water resource of the country from pollution and excessive fishing. Promoting sustainable fishing for the conservation of diversity in aquatic life.

vii. Restoring rangelands and improving ~~of~~ livestock:-

Taking steps to prevent overgrazing of grassland and regulating the quality of fodder to ensure high yields in livestock sector.

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vii. Conserving biodiversity :- By conservation of natural habitat and regulations on hunting

viii. Increasing energy efficiency :-
By using modern energy efficient equipment eg tractors, threshers etc

ix. Developing renewable sources :-
to mitigate pollution and GHGs

x. Controlling pollution :- By monitoring emissions from industries, vehicles etc

xi. Managing urban waste :-

~~Re:~~ Developing new and strengthening existing solid waste management policies. Adopting modern techniques of handling, storing and disposing of urban waste

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Your analysis on its implementation and efficacy?

xii. Supporting institutions :-

In the implementation of conservation measures.

xiii. Integrating population and environmental programmes :- due to multiple overlapping areas, and similarities in objectives of these programmes.

xiv. Preserving cultural heritage :-

By promotion of indigenous cultures and protection and restoration of historical monument.

Conclusion : The PNCS was a successful endeavour as it helped in bringing awareness about the importance of conservation of the environment. It managed to ~~initiate~~ initiate a consultative process for achieving goals at various levels. It also proved to be the harbinger of many future environmental laws.

Q) What are the effects of environmental pollution.

I Introduction :

Pollution is derived from the Latin word "polluere" which means "to contaminate".

Environmental pollution means the alteration of environment which causes harmful effects to the ecosystem, living organisms and human health.

The agents which cause pollution are called pollutants. If environmental pollution is left unchecked it would result in the destruction and degradation of our world and make it an unlivable place.

II Types of Environmental
Although environmental pollution is

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of many types, it can be classified into 4 broad categories.

- i. Air Pollution
- ii. Water pollution
- iii. Soil pollution
- iv. Noise pollution

Each of these types ~~has~~ results in the degradation of environment.

III Air Pollution :-

It is defined as the presence of one or more pollutants like dust, mist, smoke or gases in the atmosphere that are injurious to human health, plants and animals.

i. Causes of air pollution :-

Air pollution is mainly caused by the burning of organic compounds.

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like fossil fuels, coal, wood exhaust from vehicles and industries, mining operations and natural causes like volcanic eruptions

ii Effects of air pollution

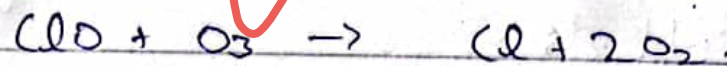
Release of pollutants in the atmosphere causes the following effects.

a. Formation of smog:-

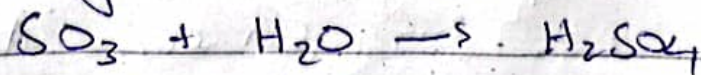
Reaction between primary and secondary pollutants in the presence of sunlight results in the formation of smog. Smog may cause respiratory diseases such as lung cancer, asthma etc

b. Ozone depletion • Release of chlorofluoro carbons into the atmosphere may result in the

depletion of the ozone layer.
 Ozone layer protects humans from the hazardous effects of the UV radiation. The depletion of ozone layer may lead to ~~few~~ diseases such as skin cancer and cataracts.



c. Acid Rain :- The release of SO_2 and NO_2 in the atmosphere causes these compounds to react with water vapour and ultimately causing acid rain.



Acid rain damages trees, foliage, monuments, buildings and degrades the soil.

Moreover, it is harmful to humans and animals.

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d. Greenhouse effect :- The emission of gases such as CO_2 , SO_2 and NO_2 etc causes heat to trap in the atmosphere thereby warming the earth and causing climate change.

IV Water pollution :-

It is defined as the addition of substances in water, which degrades its quality, thereby making it unfit for use and consumption.

Water can be contaminated by household sewage and chemicals, animal waste from farms, application of pesticides, fertilizers ~~and~~ in agriculture and release of industrial waste into water bodies.

i. Effects of water pollution :-

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a. Thermal pollution:- Industrial processes such as use of water for cooling increases the temperature of water which affects aquatic life e.g trout and Salmon eggs fail to hatch in warm water thereby affecting their reproduction.

b. Marine Pollution:- The contamination of ocean water caused by oil spills or ship discharges harms aquatic life and ^{migrating} birds alike. Birds stuck in an oil spill may not be able to fly due to close interlocking of barbs of feathers.

c. Eutrophication:- The increase in nutrient content of water due to the spilling of agricultural chemical fertilizers into the

water results in Algae bloom. which may increase temperature of water and reduce the oxygen. This may have adverse effect on fish.

iv Soil pollution :- Contamination of soil which decreases the quality of soil is called soil pollution. It is caused by agricultural activities, industrial waste, garbage, construction activities and nuclear waste.

ii Effects of soil pollution.

a. Change in climate patterns :-

it indirectly affects the climate due to the loss of ecosystems.

b. Effects on wildlife :- The loss of ecosystem may lead to extinction of species.

c. Deterioration of human health :-

Toxic chemicals can enter into human body through vegetables grown in contaminated soil.

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Social
Economic impacts.

VI Noise Pollution:- Word noise is derived from Latin word "Nausea" which means "sickness, feeling". A sound of 0 to 100 db is bearable for humans. Anything above 120 db affects human health.

i Effects of noise Pollution.

a. Impairment of hearing and deafness.

b. Violent behaviour, ill temper

c. Reduced work efficiency in industrial workers.

VII Conclusion :- Humans are mostly responsible for environmental pollution. The above mentioned effects make it clear that if environmental pollution is not reduced, the progressive degradation will make earth uninhabitable for future generations.