Assignment

Que-1) Explain the sources & health impacts of air & water pollution?

Ans-1) Air pollution:- It refers to the harmful or toxic pollution present in the air is known as air pollution.

Sources

Industrial Emission:- The harmfull or toxicity released by the industries in the form of gases in the air is ~~the~~ polluting our air very much. Some industries are polluting the air agressively which is very dangerous.

Vechicle Exaust:- As the traffic is increasing day by day due to the very much use of private vechicle that emits very harmful gases which is dangerous for ~~helth~~ health & people are facing respiratory problem due to that.

Agricultural Source:- Agriculture play a vital role in our GDP but nowadays hoemfull pesticide are used which degrade the ~~nutrents of~~ fertility of soil

Residential heat & Cooking:- Air pollution from residential heating & cooking is a major environmental & public ~~helt~~ health issue.

→ Cooking → Indoor cooking without proper ventilation lead to high Indoor air pollution level.

→ Heating → In colder climate, people often burn wood, coal or biomass to heat homes

Impacts

① Rispiratory problems → ~~Indoore aire~~ Indore air pollutant such as particulate matter, NO_2 increases the risk of rispiratory problem.

Air Quality Index → The AQI of India specially at North side of our country is getting worst day by day like in new Delhi AQI reached to 1000.

Cancer Risk → Exposure to indore air pollutant such as tabacco smoke from house hold product may increase the risk of cancer.

Water Pollution- On the pollution that cause due to harmful or toxic substances present in the water cause the water pollution.

Cause

Industrial Activity - The waste or dump material in industries are gone to water bodies & aquatic life.

Agricultural Runoff → This runoff occur due to the rain or soil erosion occur which leads to water pollution.

Urbanisation Runoff →

Poor Stormwater Management → In some cities, storm drains dont treat water before releasing it into natural bodies.

Improper Sanitation → The no proper use of sanitation and dumping of waste in water bodies leads to toxicity & dengerous for health.

Impact

① Skin problems - The water which are polluted & we are drinking it leads to skin problem like skin cancer.

② Threat to Aquatic life → A major threat to the aquatic life is happening due to release of biotic substance like plastic or industrial wastes.

Que-2) Discuss the observed & projected impact of climate change on natural ecosystem & human infrastructure.

Ans-2 ① Sea level Rise

Observed:-
- Sea levels have risen by over 20cm (since 1900).
- Increased coastal flooding, erosion & saltwater intrusion into freshwater supply.
- Low-lying areas experiences regular flooding.

Projected:
- By 2100, sea level could rise up to 1 meter or more if emission remain high.
- Major cities & coastal communities at risk
- Potential displacement of millions of people.

② forest Ecosystem:
Observed:-
- More frequent & intense wildfire.
- Drought stress & pest outbreak weakening tree health.
- Shifts in tree ranges toward cooler climate.

Projected
- Some forest may transition to grassland due to heat.
- Loss of biodiversity as species can't adapt or migrate fast enough.

③ Human health:

Observed

- Heatwave leading to higher mortality.
- Increased cases of vector-borne diseases.
- Poor air quality from ~~wildfire~~ wildfires & pollution worsening respiratory issues.

Projected

- Rising heat-related death, especially in vulnerable population.
- Expansion of disease-carrying insect into new ~~of~~ into new regions.
- Increased mental health issue due to disaster

Agriculture

- Observed

→ Reduced crop yield in some region due to drought, heat & extreme weather.

→ Changes in growing season.

→ Damage to crop from flooding & pests

- Projected:-

→ Potential yield decline in major staples, especially in tropical regions.

→ food insecurity & rising prices.

Q-3 Explain the concept of adaptation vs. resilience in the context of climate change. How can indigenous knowledge help in climate adaptation?

Ans-3 - In the context of climate change, adaptation focused on adjusting to the actual or expected impact of climate change, while resilience emphases the capacity of system to absorb shocks, recover from events & continue functioning effectively.

Adaptation

It involve making adjustment to reduce vulnerability to climate change impact. This include actions like drought resistant crop, building stronger defences again floods, or developing early warning system for extreme weather events.

Resilience-

It is about the capacity to withstand absorb & recover from the impact of climate change.

Indigenous Knowledge:-

1) Traditional Resource Management:- Most indigenous communities have develop sustainable resource management practices that enhance their resilience to environmental variability. These practise can be adopted & stratigies.

2) Traditional Practises ⇒ This knowledge can inform adaptation & trategies by providing insights into tradition crop varities, water management, techinique & other practises that proven effective in specific contexts

3) Building Community Regiliences ⇒ By incoporating this knowledge into adaptation planning, communities can enhance their social capital build trust & develop a stronger sense of ownership over adaptation efforts.

Ques-04) Describe the principle & applications of 3Rs (Reduce, Reuse, Recycle) & concept of circular Economy in Waste Management.
(Discuss Sustainability, resource efficiency & real world example)?

Ans-04) The 3Rs are a core framework in sustainable waste management, aimed at minimizing the environmental impact of human activity.

1) Reduce

Principle

Minimize the amount of waste generated in first place.

Goal.

Use fewer resource by making smarter purchasing and production ~~decli~~ decision.

- Sustainability Impact – Reduce energy use, pollution and raw material extraction.
- Resource efficiency → Avoide overconsumption & reduces the burden on natural resource.

Real world Examples

- Lightweight packaging by companies like Coca-cola to reduce plastic.

2) Reuse

Principle → Use Items multiples times before discarding them.

Goal:- Extend the life of products through repurposing or repair.
- Sustainability → Reduces the demand for new resources & cut down on landfill use.
- Resource efficiency → Makes better use of existing material.
- Real World Examples
  - Thrift stores & second-hand market.
  - Refillable water bottles

Recycle

Principle :- Convert waste material into new product.

Goals :- Transform used material into raw input for manufacturing.
- Sustainable Impact → Decrease extraction of material & lower greenhouse gas emissions.
- Resource efficiency :- Creates close loops in material cycles.
- Real world Examples :- Aluminum can being recycled into new cans

Circular Economy → The circular economy is a broader economic model that expand on 3Rs by designing waste out of the system.

Sustainibility

Lower environmental impact through reduced emission & waste
- Social sustainibility, including Job creation in recycling, repair.

Real World Application :-
- IKEA :- offers furniture take-back & repair services.
- Amsterdam :- First city to adopt circular economy.

Que-05) What is ISO 14001? Discuss its role in environmental management system & how its support sustainability?

Ans-05) ISO 14001 is a globally recognized standard developed by International Organization for standardization (ISO) that provides a comprehensive framework for establishing, implementing maintaining & improving an environmental Management System. It is designed to help organization of all type & size systematically manage their environmental responsibilities in a way that contributes to long-term sustainability. By adhering to ISO 14001, organization commit to reduce their environmental footprint, complying with applicable laws & regulation.

Objective of ISO 14001

- The primary objective of ISO 14001 is to support organization in identifying & managing the environmental aspects of their operation, products & services. It aim to minimise hoarmful effect on the environment caused by organizational activities.
- Ensure adherence to applicable environmental laws, regulation & other requirements.
- Risk Management → Identify & control environmental risk in processes & operation.
- Resources Efficiency → Improve use of resources & reduces waste.

framework of ISO 14001 (Based on PDCA cycle)

ISO 14001 follows the Plan-DO-Cheak-Act &

- **Plan**
  - → Identify environmental aspects & legal requirements
  - → Set environmental objective & target.
  - → Develop an ems policy & action plan.
- **Do**
  - → Implement the EMS
  - → Train employees & establish communication procedures
- **Cheak**
  - → Monitor & measure processes against environmental objective.
  - → Conduct internal audits & evaluate compliance
- **Act**
  - → Take corrective & preventive actions.
  - → Review management system performance.

Benefits for industries-

- **Regulatory Compliance**:- Helps meet legal & regulary environmental obligations.
- **Cost Reduction**:- Enhance efficiency in resources usage, reducing waste & energy consumption.
- **Risk Reduction**:- Identifies potential environmental risks & provides measures to control them.