12ᵗʰ Standard Geography

Geographical Perspective on Selected Issues and Problems

Environmental Pollution

Environmental pollution is the release of substances and energy from waste products of human activities. It is of various types. Thus, they are classified on the basis of medium through which pollutants are transported and diffused. The classification of pollution are as follows:

1. Water pollution
2. Air pollution
3. Noise pollution
4. Land pollution

Water Pollution

Quality of water is majorly degraded by a number of factors i.e. indiscriminate use of water by fast growing population and expansion of industries. No surface water is found in pure form in rivers, canals, lakes, etc as all the water sources contain small quantities of suspended particles, organic and inorganic substances. Water becomes polluted, when quantity of these substances increases in it. It becomes unsuitable for human uses and its self purifying capacity declines.

There are two sources of water pollution:

- **Natural** Erosion, landslides, decay and decomposition of plants and animals, etc are natural sources that make water polluted.
- **Human** Industrial, agricultural and cultural activities of human beings make water polluted.

  Water pollution created from human beings are major problem in modern times. Industrial activities of pollution.

Sources of Pollution in the Ganga and the Yamuna Rivers

River and state	Polluted Stretches	Nature of Pollution	Main Polluters
Ganga (Uttar Pradesh, Bihar and West Bengal)	Downstream of Kanpur	Industrial pollution from towns like Kanpur.	Cities of Kanpur, Allahabad, Varanasi, Patna and Kolkata, release domestic wastes into the river.
	Downstream of Varanasi	Domestic wastes from urban centres.	
	Farrakka Barrage	Dumping of carcasses in river.	
Yamuna (Delhi and Uttar Pradesh)	Delhi to confluence with chambal	Extraction of water by Haryana and Uttar Pradesh for irrigation.	Delhi dumping its domestic waste.
	Mathura and Agra	Agricultural runoff resulting in high levels of micro-pollutants in the Yamuna.	
		Domestic and industrial waste of Delhi flowing into the river.	

Most of the industrial wastes, e.g. polluted waste water, poisonous gases, chemical residuals numerous heavy metals, dust, smoke, etc are disposed off in running water, lakes, reservoirs, rivers and other water bodies and thus, destroy the bio-system of these waters. Major culprits are leather, pulp and paper, textiles and chemicals industries.

Today use of various types of chemicals like inorganic fertilizers, pesticides and herbicides are common in agriculture. These chemicals pollute surface water such as rivers, lakes, tanks as well as groundwater by infiltrating into the soil. These fertilizers increase the amount of nitrate content of surface waters. Besides this, cultural activities such as pilgrimage, religious fairs, tourism, etc also cause water pollution. In India, almost all surface water sources are contaminated and unfit for human consumption.

Use of polluted water can harm human health and can cause various water borne diseases, e.g. diarrhoea, intestinal worms, hepatitis, etc. World Health Organisation (WHO) shows that about one-fourth of the communicable diseases in India are water borne.

Air Pollution

A larger proportion of contaminants like dust, fumes, gas, fog, odour, smoke or vapour in air for a long duration is known as air pollution may be harmful to flora and fauna and to property. There is an increase in emission of poisonous gases into the atmosphere because of increasing use of various fuels for energy in various sectors, thus resulting in the pollution of air.
The main sources of air pollution are combustion of fossil fuels, mining and industries which release oxides of sulphur, and nitrogen, hydrocarbons, carbon dioxide, carbon monoxide, lead and asbestos.

Effects of Air Pollution

The effects of air pollution are as follows:

1. Air pollution is responsible for many diseases related to our respiratory, nervous and circulatory systems.
2. Air pollution is responsible for creating smoky fog over cities which is known as urban smog. It has negative effects on human health.
3. Air pollution is also responsible for acid rain. First rain after summer in urban areas always shows high acidic nature of rain water i.e. it shows lower pH level than the subsequent rain.

Noise Pollution

Noise pollution refers to a noise that causes a condition which is unbearable and uncomfortable to human beings. This noise can be from various sources. It is a recent phenomenon which became a serious concern only after a variety of technological innovations. The level of steady noise is measured by sound level expressed in terms of decibels (dB).

Factories, mechanised construction and demolition works, automobiles and aircrafts are major sources of noise that cause noise pollution. Apart from these, there are also some periodic sources of noise pollution such as sirens, loudspeakers in different festivals and programmes and other activities of different communities. Noise produced by traffic is a major source of noise pollution. It creates a huge inconvenience to the people. Intensity and nature of noise made by traffic is dependent on various factors such as type of vehicle (aircraft, train vehicle, etc)/ condition of road and condition of vehicle (in case of automobiles).

In sea traffic, the noise; pollution is limited to the harbour because of loading and unloading activities of containers. Noise pollution from industries is also a serious problem but its intensity varies because of some factors such as type of industry, types of machines and tools, etc.

The intensity of noise pollution decreases as distance from source of pollution (Industrial areas, arteries of transportation, airport, etc) increases. Thus, noise pollution is location specific.

Effects of Noise Pollution

Noise pollution is a major cause of anxiety, tension and some other mental problems and disorders among people in many metropolitan and big cities in India.

Urban Waste Disposal

Overcrowding, congestion, increasing population, improper infrastructure and facilities to support this population, lack of sanitation, foul air, etc are some features of urban areas. Mismanagement of solid wastes and environmental pollution caused by them has now become a major problem.Solid wastes are a variety of old and used articles,for e.g. stained small pieces of metals, broken glass wares, plastic containers, polythene bags,ashes, floppies, CDs, etc dumped at different places.

These discarded materials are also known as refuses, garbage and rubbish,etc and are disposed off from two sources i.e. household or domestic establishments and industrial or commercial establishments. Public lands or private contractor's sites are used to disposed off household or domestic

wastes. Low lying public grounds (landfill areas) are used to disposed off industrial solid wastes by public (municipal) facilities. Industries, thermal power houses and building constructions and demolitions are contributing with more turn out of ashes and debris in solid wastes.

Disposal of industrial wastes has increased because of the concentration of industrial units in and around urban centres. Urban waste is a bigger problem in small towns and cities than metropolitan cities in the country. About 90% of solid waste is collected and disposed off successfully in Mumbai, Kolkata, Chennai, Bangalore and other metropolitan cities. About 30-50% solid wastes in other towns and cities in country is not collected and disposed off properly. It is a major problem because it accumulates on streets, in open spaces between houses and in wastelands and can cause various health problems.

Impacts of Improper Management of Solid wastes

Improper management of solid wastes has following impacts:

1. Solid wastes are threat to human health and can cause various diseases. It creates foul smell and it harbours flies and rodents that can cause typhoid, diphtheria, diarrhoea, malaria, cholera and other diseases.
2. Solid waste can create inconvenience rapidly if they are not properly handled. Wind and rain water can splitted it and cause a discomfort to people.
3. Industrial solid waste can cause water pollution by dumping it into water bodies. Drains carrying untreated sewage also result into various health problems.

4. Untreated waste release various poisonous biogases such as methane in air by slow fermentation process. These wastes are resources as energy can be generated from them! By compositing these wastes, problem of energy could be solved as well as its management in urban areas.

Rural-Urban Migration

Movement of people from rural area to urban area are caused by various factors such as high demand for labour in urban areas, low job opportunities in rural areas and disparities in terms of development in rural and urban areas. Smaller and medium cities provide low opportunities which force people to bypass these small cities and directly come to the mega cities for their livelihood.

Mostly daily wage workers like, welders; carpenter, etc move to another cities for work, periodically and provide remittances to their families for daily consumption, health care, schooling of children, etc. This has improved their early abject situation into a better one. Simultaneously, due to temporary and transferable job situation, these labourers and their families hear the pain of separation of their near and dear ones.

Sometimes these workers also face difficulty in assimilation to the new culture and environment. Due to these menial jobs at low wages in informal sector in urban areas, the spouses are left behind in
rural areas to look after children and elderly people. Thus, the rural-urban migration stream is dominated by the males.

Trend of Urbanisation in the World

Currently, about 54% of the world's 7 billion (2011) population lives in urban areas of world . This proportion of urban population will increase in future. It is estimated that between 2025 to 2030, this percentage would be grown with 1.44% per year. This high urban population will pressurise governments to optimise infrastructure facilities in urban areas for giving a standard quality of life.

It is estimated that by 2050, about two-thirds of the world's population will live in urban areas. It would create a high pressure on existing infrastructure and sanitation, health, crime problems and urban poverty.
There are various factors responsible for growth of urban population:

1. When high birth rate and low morality rate increase.
2. Net in-migration or movement of people from other areas.
3. Reclassification of urban areas to encompass formerly rural settlements.

In India there is a estimation that about 60% India's urban population has increased after 1961. About 29% of this growth has been caused by rural-urban migration.

Problems of Slums

- Settlement geography differentiate the two concepts namely urban or urban centres and rural. They are also defined differently in different countries.

- These two are differentiated by their functions but sometimes interdependent on each other. These two concepts are also divided in terms of their separate cultural, economic and technological aspects.

- According to 2001 census, about 72% of India's population is rural (according to 2011, rural population is 68.84%). Most of these rural areas are still in poor conditions and perform primary activities.

- According to Mahatama Gandhi, villages are ideal republics. These work as supplement to the core urban centre forming its hinterland.

- Urban areas are more developed in terms of the socio-economic, politico-cultural, etc than other areas.

- Urban areas have farm house, high income of people and their localities, wide roads, street lights, water and sanitation facilities, lawns, well developed green belts, parks, playgrounds and other facilities, provisions for individual security and right of privacy.

- Apart from these attractions urban areas also have slums, jhuggi jhopari' clusters and colonies of shanty-structures.

- These are environmentally incompatible and degraded areas of the cities. These are occupied by the migrants who were forced to migrate from rural areas to urban areas for employment and livelihood. But because of high rent and high costs of land, they could not afford proper housing and start to live in these areas.

Characteristics of Slums

Slums have following characteristics:

1. Slums are least choice residential areas that have broken down house, bad hygienic conditions, poor ventilation and does not have basic facilities like drinking water, light and toilet facilities, etc.

2. Slums are overcrowded with people and have many narrow street patterns prone to serious hazards from fire.

3. Most of the slum dwellers works for low wages, high risk-prone and unorganised sectors of the urban economy.

4. They face various health related problems such as malnutrition, illness and prone to various diseases. They are not able to send their children school to provide them education because of low level of income.

5. Dwellers are vulnerable to drug abuse, alcoholism, crime, vandalism, escapism, apathy and social exclusion because of poverty.

Land Degradation

The limited availability and deterioration of quality of land, both are responsible to exert pressure on agricultural land.Soil erosion, water logging, salinisation and alkalinisation of land lead to land degradation which declines productivity of land. In simple words, temporary or permanent decline in productive capacity of the land is known as land degradation. All degraded land may not be considered as wasteland. But if process of degradation is not checked, then a degraded land may be converted into wasteland. Natural and man-made processes, both degrade the quality of land.

Classification of Wastelands

- **National Remote Sensing Agency (NRSA)** It is an organisation responsible for classification of wastelands in India. It classifies wastelands by using remote sensing techniques on the basis of the processes that have created them.

- **Wasteland Caused by Natural Agents** Gullied/ ravinous land, desertic or coastal sand, barren rocky areas, steep sloping land, glacial areas, etc are types of wastelands caused by the natural agents. These are considered as wastelands caused by natural agents.

- **Wasteland Caused by Natural as well as Human** Factors Water logged and marshy areas, land affected by salinity and alkalinity and land with and without scrubs which are degraded by the natural as well as human factors are included in this category.

- **Wastelands Caused by Man-made Processes** Shifting cultivation area, degraded land under plantation crops, degraded forests, degraded pastures and mining and industrial wastelands are some types of wastelands that are degraded because of human action.