ENVIRONMENTAL POLLUTION

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(As people are becoming more and more aware of the importance of maintaining the environmental "balance" and of the fact that everything is intricately linked together in the biosphere, a brief knowledge of the pollution taking place in our environment will prove helpful to those aspiring to take up administrative jobs, whether in the Civil Services or elsewhere. Aspirants to administrative posts must become more deeply aware of their environment in order that they may keep in mind and monitor this form of slow-poisoning of the earth while making decisions linked to the biosphere).

Pollution of the earth can be considered separately in the three major regions—the air, land and water.

ATMOSPHERIC POLLUTION

We may look into atmospheric pollution under three heads—urban, rural and nuclear.

(a) *Urban Pollution* : The major cause of Urban Pollution is combustion. Combustion of fuel (domestic or in power plants), in transportation, and of refuse are the the main sources of pollution. The chief pollutants are smoke and particulates, carbon monoxide, sulphur dioxide, nitrogen oxides and certain organic vapours.

The other major cause of urban pollution is industry. Almost every industry, be it chemical (e.g., fertilizers), metallurgical (e.g., steel plants) or otherwise. textiles, sugar, paper, etc.) emits poisonous or harmful substances. Among the pollutants and also fluorides, lead and zinc.

Rural Pollution : The major pollutants here are the widely-used pesticides. Pesticides are sprayed over the fields and the pesticides applicators have been known to have very unhealthy concentrations of DDT in their fat tissue.

The other source of pollution in rural areas is the combustion of field wastes.

(c) *Nuclear Pollution* : While crushing the ore, Uranium and Beryllium dust spreads into the atmosphere. Later, the processing of spent nuclear fuel releases some gaseous poisons into the air. But the major cause of nuclear pollution is the radioactive waste that scatters to all the corners of the earth after atmospheric nuclear explosions.

HARMFUL EFFECTS

The long-term effect on the earth of the increasing atmospheric pollution is not easy to predict. The major catastrophes possible are dependent on whether the temperature of the earth increases or decreases. If the temperature rises by 3.6°C, the seaside towns would all vanish under nearly 100 metres of water as a result of the melting of the polar ice-caps. On the other hand, if it falls by even 4°C, the earth will come under the grip of another Ice Age.

However, we are more concerned at present with the immediate havoc wrought by the burgeoning atmospheric pollution. The hazards to health and life are the cause of concern here. In congested urban areas many people report irritation in the eyes; chafing and swelling of the eyes also takes place. Respiratory diseases (e.g. bronchitis, asthma) are pronounced. Nausea caused by industrial odours is common. Not only that, there is a suspicion that the higher rates of cancer reported in urban areas might be a direct consequence of pollution.

In the rural areas, people with high pesticide content in their bodies have reported persistent headaches and dizziness along with reduced stress-coping capacities.

Not only is atmospheric pollution a hazard to human health, it is very injurious to other animals, especially birds.

And apart from affecting living organisms, this kind of

pollution causes the erosion of our ancient architectural monuments also.

CONTROLLING ATMOSPHERIC POLLUTION

It is no easy matter to bring atmospheric pollution under control. The solutions suggested are not efficacious enough. One suggestion is that the exhaust of automobiles should face upwards so that the noxious gases spread more evenly in the air. Another is that the automobiles should be provided with an after-burner to oxidize the carbon monoxide before ejecting into the atmosphere.

Industrial pollution could be minimised by use of sophisticated techniques to make the expelled gases less injurious to health. Tall chimneys and filters can be used to trap smoke particles.

Nuclear pollution can be controlled fully only when man abstains from the use of nuclear weapons. Till then, man must indulge only in underground implosions.

SOIL POLLUTION

Pollution of the soil by pesticides is of great concern to us because it contaminates the food we eat. India began producing pesticides commercially in 1952 and ever since their use has witnessed a veritable explosion. Nearly one lakh tonnes of pesticides per year are being used in India today. The flaw with their use is that once they enter the soil it is difficult to neutralise their poisonous effect, and because they do not decompose easily (especially the halogenated pesticides like DDT) they are likely sources of pollution for years to come. Thus, the contamination of food products by pesticides increases each year as the plants absorb more and more of the pesticides from the soil. Almost all the cereals, vegetables, and even milk products that we consume have been found to contain more than the recommended maximum level of 0.05 ppm (parts per million) of DDT.

As a measure to prevent this contamination, many countries have banned the use of organo-chlorine pesticides like DDT and aldrin. The Government of India enacted the Insecticides Act (1968) to see that insecticides do not cause environmental hazards, but its implementation has left much to be desired.

The urgent need is to switch the emphasis from organo-chlorines like DDT to organophosphorous pesticides which, though they are less effective, pose lesser hazards to the environment.

The consumers of cereals and vegetables should wash these plant products thoroughly before use as a precautionary measure.

WATER POLLUTION

Water pollution may be considered under three heads—lakes, rivers and oceans.

Lakes : The most prominent lake that has been evoking much interest from scientists is the Dal Lake, which has been poisoned by the effluents from the houseboats and people living in neighbouring arears. Apart from this, there is a deposit of 80,000 tonnes of silt each year from the Jhelum river. There is a proliferating weed menace, and the vitality of the lake has been steadily declining.

The problem with lake pollution is that, once a pollutant enters the lake, it is more likely that it will deposit there and thus the pollutants keep on accumulating in the lake.

Rivers : The Ganges has the dubious distinction of being the most polluted river in the world. Rivers are polluted from many sources.

(a) *Industrial Effluents* : The major pollutants in this case are the highly lethal compounds of mercury. Over 5,000 tonnes of compounds of mercury escape through rivers into the oceans every year in the world. In small concentrations these compounds mutilate (e.g, blind) the fishes and in higher concentrations, kill them. Other major pollutants are lead and chromium.

(b) *Household Sewage* : It has been estimated that upto 85% of the river pollution in India is caused by household wastes. The standard of pure water has been set at 1 coliform bacteria per 100 cubic cm of wrier, but in most rivers this level has been exceeded by mind-boggling proportions. For example, in the Jamuna, just beyond Delhi, the bacterial count per 100 cubic cm is as much as 24 million.

Normally, a stream purifies itself through a complex cycle involving aerobic and anaerobic bacteria, along with algae. But beyond a certain level the river's natural mechanisms break down and

if pollution increases, a stage comes when the river is pronounced "dead" due to the lack of oxygen in the water. Then it ceases to support life.

(c) *Pesticide Pollution :* Pesticide pollution is not confined to the atmosphere or to the soil, and the pesticides seep into the rivers through the sub-soil water. The hazards to life in the rivers is high lighted by a survey in the USA in 1960 in which it was found that 32% of all the fish found dead in the rivers were killed by enormous quantities of DDT in their bodies.

Measures to Cheak River Pollution

The Government of India enacted the Prevention and Control of Pollution Act in 1974. The Central Board for Prevention and Control of Water Pollution (CBPCWP) is entrusted with the work of preventing the growth of pollution in rivers.

The National Environmental Engineering Research Institute, Nagpur, (NEERI), has devised low-cost methods of sewage purification. Among them are oxidation ponds and oxidation ditches which can be used to recycle sewage water for irrigational use (the recycled water is rich in nitrogen, phosphorus and potassium).

However. the measures so far undertaken are highly inadequate and the pollution of rivers is continuing, possibly at a greater pace then ever before. Legislation is needed to make it compulsory for industries to treat their waste before discharging it into the rivers. Massive funds (estimated at about Rs. 1,200 crore) are required in order to set up sewage purification plants all over India.

OCEANS

All the pollution of the rivers is finally ejected into the seas. Thus industrial, domestic and agricultural pollutants find their way into the oceans. However, another kind of pollution is found exclusively in the oceans, namely, oil-spills. It has been estimated that nearly 200 litres of oil is spilled somewhere in the oceans every second. These spills arise from many sources - land based discharges from domestic or industrial use (carried by rivers), natural seepage from the seafloor, accidental discharges from off-shore wells, discharge of bilges washings by tankers in harbours, and of course, tanker mishaps.

These spills are quite deadly because they soon become viscous due to evaporation of the volatile components. They can cause direct de truction of fishes and sea birds. But more harmful from the human point of view is their effect on the food chain. Tiny droplets of oil may pass on unchanged into marine organisms. When these contaminated organisms (e.g, fish, oysters) are consumed by man they pass on the dangerous hydrocarbons intact into the human body. Some of these hydrocarbons are also feared to be carcinogens (cancer-causing compounds).

Due to the tremendous danger posed by these oil-spills, they are dealt with immediately by mechanical methods, such as sucking or, by chemical means such as dispersing the spills into fine droplets.

The pollution of the enviroment is caused by man and if man does not drastically cut down the poison he is injecting into the environment, the environment may one day become lethal and man will have to pay the penalty for his callous carelessness today. Already it is difficult to find pure water for the whole population of India. The day can soon come when it will become impossible to rectify the damage done and clean water, air and food for the human race may well become a dream.

POSSIBLE IMPACT OF IRAN-IRA WARQ

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to keep outside powers out of the region. The West has in the past rejected this offer. First, because the supposed threat of a Russian advance is a useful one in intimidating Gulf rulers, and secondly because they see no reason to give the Russian a say in the affairs of the Gulf that they do not already have.

Whatever its role in instigating the Iraqi offensive, the West is, therefore, manoeuvring to use the conflict to its best advantage. At best, it can prepare the ground for an upheaval in Iran will reverse the strategic verdict of the anti-Shah revolution. At the very least, it provides the context in which, the two major powers of the Gulf economically and militarily weakened, the West can reassert its hegemony in the region.