Main Sources of Water Pollution and Environment Protection

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Human beings interact with the environment and modify it according to their need. Land, water, air, plants and animals comprise the natural environment. Early humans adapted themselves to the natural surroundings. They led a simple life and fulfilled their requirements from the nature around them. With time needs grew and became more varied. Humans learn new ways to use and change environment. They learn to grow crops, domesticate animals and lead a settled life. The wheel was invented, surplus food was produced, barter system emerged, trade started and commerce developed. Industrial revolution enabled large scale production. Transportation became faster. Information revolution made communication easier and speedy across the world.

MISUSE OF RESOURCES

We waste or pollute large amounts of nature's clean water; we create more material like plastic that we discard after a single use; and we waste colossal amounts of food, which is discarded as garbage. Manufacturing process create solid waste by-products that are discarded, as well as chemicals that flow out as liquid waste and pollute water, and gases that pollute the air. Increasing amounts of waste cannot be managed by natural processes. These accumulate in our environment, leading to a variety of diseases and other adverse environmental impacts now seriously affecting all our lives. Air pollution leads to respiratory diseases, water pollution to gastro-intestinal diseases, and many pollutants are known to cause cancer.

The present paper discuss on main sources of water pollution like ground water, river water, sea water etc., It also study the effects of water pollution on human health, the control measures by government etc.

Preservation of environmental quality and ecological balance has been given a very high priority in the National Water Policy. Fresh water present on the earth's surface is put to multi-furious uses. It is used for drinking, domestic and municipal uses, agricultural irrigation, industries, navigation, recreation etc., The used water becomes contaminated and is called waste water becomes contaminated and is called waste water which contains residuals of the activities taking place in each of them. Thus passing through these industries, agricultural lands and the urban settlements the water gets soiled up and is rendered harmful to plants, animals and human beings. These solid wastes (effluents) are allowed to drain in the natural drain in the natural drainage system of the area and flow down the stream making the life uncomfortable for the people inhabiting areas situated downstream.

The Main Sources Of Water Pollution Are As Follows:

POLLUTION OF GROUND WATER

Community waste water includes discharges from houses, commercial and industrial establishments connected to public sewerage system. The sewage contains human and animal excreta, food residues, cleaning agents, detergents and other wastes. If raw sewage is dumped into the soil, the liquid percolates into ground and this will cause pollution of ground water. Soil acts as filter, but the dissolved toxic substances percolate down, specially the heavy metals. The pollution of groundwater from human sources presents problems that are different from the pollution of surface waters such as lakes and streams. The typical rate of movement of groundwater is about 30 cm (1 foot) per day Moreover, pumping groundwater and treating it is very slow and costly. So, it is extremely essential to prevent the pollution of groundwater in the first place.

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AGRICULTURAL SOURCES

Most traditional agriculturists depended extensively on natural sources – rain, streams and rivers for water. Later, they began to use wells to tap underground water sources and to impound water and created irrigated land by building dams. Recently, we have began to use fertilizers and pesticides to further boost the yield from the same amount of land. The quantity of fertilizers applied in a field is often many times more than is actually required by the plants. Fertilizers contain major plant nutrients such as nitrogen, phosphorus and potassium. The animal excreta such as dung, wastes from poultry farms, piggeries and slaughter houses etc., reach the water through run of and surface leaching during rainy season.

RIVER WATER POLLUTION

The river water gets contaminated mainly due to inefficient functioning of ETPs [Effluent Treatment Plants], CETPs [Common Effluent Treatment Plants], STPs [Sewage Treatment Plants] resulting in dumping of untreated industrial wastes into the river; discharging of untreated municipal wastes into rivers; lack of onsite treatment of contaminants, non-point sources of pollution including pesticide contaminated agricultural run off, piling up of materials at most river banks for religious uses etc.

In case of most cities and the towns situated on the river side, discharge of untreated municipal waste into the river is a regular phenomenon. For example, the Rajpur drain in Patna running parallel to the Ganga, discharges the drainage of the entire city into the river, thus contributing to the high faecal coli form content of the river, similarly, in the case of Gurgaon city, which claims to treat about 50 per cent sewage generated daily before discharging them into the Yamuna river, the remaining 50 per cent are left on open land, thus allowing them to seep into the ground, resulting in contamination of water.

MARINE POLLUTION

Oceans are the ultimate sink of all natural and manmade pollutants. Rivers discharge their pollutants into the sea. The sewerage and garbage of coastal cities are also dumped into the sea. The other sources of oceanic pollution are navigational discharge of oil, greese, detergents, sewage, garbage and radioactive wastes, offshore oil mining, oil spills. The flimsy plastic carry bag has come to symbolise an environmental hazard that is an off shoot of growing and reckless consumption. Plastic bags are non-biodegradable. They harm to mirine life.

THERMAL POLLUTION

The main sources are the thermal and nuclear power plants. The hot water released by power plants and industries that use large volumes of water to cool the plant, results in arise in temperature of the local water bodies; thermal pollution occurs due to this , power plants heat water to convert it steam, to drive the turbines that generate electricity. To ensure the efficient functioning of the steam turbines, the steam is condensed into water after it it leaves the turbines. This condensation is done by taking water from a water body to absorb the heat. This heated water, which is least 15^0 C higher than natural, is discharged back into the water body. This warm water not only decreases the solubility of oxygen but changes the beeding cycles of various aquatic organisms.

Oil Spills

Oil spills is one of the most dangerous of all water pollutants. Oil spills from tankers at sea or leaks from underground storage tanks on land are very difficult to control as oil tends to spread very fast, affecting a large area in a very short time.

Industrial Waste

There has been an attempt in India, to encourage growth of industries, often neglecting environmental considerations. Most of the rivers and fresh water streams, which pass near the major cities, are polluted by industrial wastes or effluents. Effluents from these contain a wide variety of both inorganic and organic

pollutants such as oils, greases, plastics, plasticizers, metallic wastes, suspended solids, phenols, toxins and other chemical substances, many of which are not readily susceptible to degradation and cause very serious pollution problems.

Industrial effluents largely comes from small and medium sized units that are scattered throughout the country, particularly in the production of paper, sugar, leather and chemicals, fertilizers, petro-chemicals and distilleries. Unfortunately, only about half the medium-to large scale industries have partial or complete effluent treatment facilities. Industrial disposal of polluted effluent occurs via open drains into streams and reservoirs or through underground injection. In India, most industrial estates lack wastewater treatment systems even though subsidies are offered for investments in pollution control as incentives. In other words, the impact of these incentives on these units is little or nothing.

REGULATORY PROBLEMS

In India, the Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCBs) are given charge of monitoring pollution. Industrial plants in India indicated that high levels of pollution elicit a formal regulatory response in the form of inspections, but these inspections appear to have no impact on the emissions. Inspections are probably ineffective in ringing about desired changes in behaviour because of bureaucratic or other problems, including the probability that enforcement is low and that the penalty for non-compliance is not stringent enough to act as a deterrent.

Unused Or Abandoned Religious Offerings

The Ganga is India's most sacred river and surrounded by traditions and mythologies. Offerings of various kinds of materials are offered daily to the river by millions of devotees. On special occasions and festive seasons millions of pilgrims gather at its banks, take bath and remove all the dirt of body and cloths into the river. Highly coloured clay idols of deities are immersed into the river. Taken together this may amount to several tons of toxic materials contaminating and choking the river. The river also finds the ultimate disposal place for unclaimed dead bodies and other half or fully burnt dead bodies which decay and pollute the freshwater.

Open Defecation

More than 50 per cent open defecators of the world live in India. About 17 per cent of urban notified slum population and more than 50 per cent in non-notified slum areas do not have access to improved sanitation facilities. Thus, they defecate in open areas. Open defection implies a lack of safe disposal of humans' excreta, thereby affecting the health of people. In particular, ground water is contaminated in addition to contamination of surface waters of human excreta, faeces are most dangerous to health; diarrhoeal diseases are the most faeco-oral diseases globally, causing more than one million deaths annually. There is a need for safe management of faecal waste, right from emptying transport and treatment to reuse or disposal. The problem of open defecation is bigger in small cities. Improved sanitation together with safe water and good hygiene is necessary for good health and sustainable development. The Swachh Bharat Mission (urban) programme of the central government, which intends to eliminate open defection completely by 2019, is a right step in this direction.

WATER POLLUTION AND JUDICIARY

The Holy River Ganga has been turned into an open sewer at many places and its water has been found to be unfit for drinking, bathing as well as for irrigation purpose. Highly toxic effluents from more than 1,500 industries, from Hardwar to west Bengal, comprising tanneries, distilleries, sugar and chemical industries are discharged into the river.

A writ petition was filed in the Supreme Court for seeking appropriate order or direction restraining municipalities and industries from discharging effluents into the river. A large number of parties were involved in the petition. The first judgement was delivered against the industries tanning at Jamau near Kanpur on the

bank of the river Ganga. In the instant case, the court ordered the closure of 29 tanneries for failing to provide primary treatment plants.

The court also observer that the financial capacity of the tanneries should be considered as irrelevant while requiring them to establish primary treatment plants; a tannery , which cannot setup a primary treatment plant , cannot be permitted to continue to be in existence . Later on ,in another writ petition judgement made comprehensive observation giving direction to the local bodies in general and the union government for minimising the pollution of the river ganga in particular and at other places in general

Constitutional Advise

The constitution of India does not have any specific provision to deal with the problems of environmental pollution . However , there seems to be an indirect mention of environmental concern in a few articles. For the improvement of public health , it is necessary that the state should be able to provide pollution free environment . In this regard ,a clear –cut provision could find a place in the constitution only in the year 1976 through the 42nd constitutional amendment by inserting article 48 –A9 , a new directive principle of the state policy , and creating a fundamental duty of every citizen under article 51 –A (g) . In this respect , India was the first country to impose a constitutional obligation on the state and citizens to protect and improve the environment as one of the prime duties

The article 51-A (g) reads ; It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes , rivers and wild life to have compassion for living creatures. The article specifically deals with the fundamental duty of the citizens with respect to environment .This also provides for the protection and improvement of the environment as it specifically puts stress on the water pollution by including matters like lakes, rivers etc.

CONCLUSIOUS

Increase in human settlements urbanization and population explosion pose a greater demand for water – for domestic use , flush –toilets, washing and bathing ,swimming pools ,gardening , recreational activities ,automobile and other industrial operations. But, available water is limited, so, the adverse affects of water pollution on ecological systems at local, regional, continental and global levels would become more and more serious.

Polluted water, especially which pollute by domestic sewage and discharges from hospitals and slaughter houses etc., are potent sources of infectious diseases. The polluted water may create variety of dreaded types of diseases besides diseases caused due to poor water supply and sanitation. Most of the diseases causing bacteria enter the body of animals and those of the human beings through water and develop serious diseases

All the 14 major rivers of the country, including Ganga, Gomti , Kaveri , Damoolar and Mini – Mohi, have become polluted. The water of Ganga which were once considered to be pure and sacred are no longer so because of the discharge of sewage and industrial effluents. The industrial effluents are considered more dangerous than the house –hold wastes

Since early 20th century centralized sewage treatment plants have been set up in all populated areas of the developed world. Instead of discharging sewage directly into a nearby body of water, it is first passed through a series of physical ,chemical and biological process that remove most of the pollutants. However, there are still many countries where such facilities do not exist in all towns domestic sewage is allowed to blow into water bodies, promoting severe conditions of pollution.

Although environmental legislation in India seems to be as tough as they are found to be in major developed nations, they are not well enforced despite the existence of a regulatory frame work consisting of central and state pollution control boards .This situation will only improve if each of us begins to take actions in our daily lives that will help preserve our environmental resources .We cannot expect government alone to manage the safe guarding of the environment , nor can we expect other people to prevent environmental damage . We need to do it ourselves. It is a responsibility that each of us must take on as one’s own.

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