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3. Influence of Environmental Pollution on Agriculture Production in India

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Abstract

Environmental pollution is a global problem that influences both human health and agricultural productivity. Environmental pollution is increasing every year and causing grave and irreparable damage to the earth and human health. Especially in developing countries of the world, like India. It occurs due to the activities of man through the use of technology to manipulate the ecosystem or environment to meet his needs. India as a developing country has lost much of her habitable environment due to environmental degradation and pollution, which destroys crops and aquaculture through the contamination of waterways, ground water, and soil.

The air pollution and water pollution is caused primarily with the human activities especially with those people who have no self-discipline. The impact of human activities on the environment has become more accelerated and pronounced. Urbanization, industrialization, uncontrolled and lavish consumption, rapid population growth advances in science and technology huge energy utilization, have caused these accelerated changes and it creates serious environmental problems. Because of water pollution it affects fertility of soil and then productivity it ultimately result farmer's suicide oil spills.

Key words:- Environmental pollution, pollutant, air water soil pollution, agricultural productivity, farmers suicide.

Objectives

1. To understand the concept of environmental pollution.
2. To know the water pollution
3. To discuss about the causes and effects of water pollution.
4. To know about the measures to control the water pollution.
5. To study the effects of water pollution on agriculture.

Methodology

The present research paper is fully based on secondary data which is collected from different sources such as different reference books articles periodicals journals and websites.

Introduction

Environment means to encircle or surround. All the biological and non biological surrounding organisms are included in environment. Thus environment is the sum of water, air and land relationship among themselves and also with the living world. It can also be defined as 'The natural world in which people animal plants live'. It is the sum total of physical and biological factors that directly influence the survival, growth development and reproduction of organisms. Every second India's 304 hectares faced some kind of ecological problem, a large percentage of drinking water provided by India's major rivers is polluted and clean air is breathed by Indians for only two hours in the morning over 2% of hospital patients are victims of a polluted environment.

What is Pollution

Pollution may be defined as "an undesirable change in the physical chemical and biological characteristics of our air, water and soil harmfully affect human life or create a potential hazard of any living organisms. Pollution is viewed as "the release of substances and energy as waste products of human activities which result in changes, usually harmful within the natural environment (NERC 1976) According to Savindra Singh "Disequilibrium condition from equilibrium condition in any system is called pollution."

Pollutants

A pollutant any form of energy, matter or action that causes disequilibrium state from equilibrium state in any natural ecosystem.

1. On the basis of source of genesis, pollutants are divided into two main types.
(a) Natural pollutants and (b) man-made pollutants.
2. Pollutants are divided on the basis of visibility.
(a) Visible pollutants (b) Invisible pollutants.
3. Pollutants may be classified on the basis of their state __
(a) Solid particulates (b) gaseous pollutants (c) liquid pollutants.
4. Pollutants are also divided on the basis of their nature __
(a) Physical pollutants (b) cultural pollutants and (c) biological pollutants.
5. Pollutants may also be divided on the basis of areas __
(a) Air pollutants (b) Water pollutants (c) land pollutants.

The Massachusetts Institutes of Technology (MIT 1970) has identified more than a million kinds of products produced by man which are both waste and useful products that

eventually turn to be wastes after their uses. MIT has also specified a series of key pollutants which create critical environmental problems.

Types of Pollution

The Classification of Environmental Pollution is

1. On the basis of nature of pollution __
2. Physical pollution : (i) land pollution (ii) religious pollution (iii) water pollution (iv) air pollution.
3. Social Pollution : (i) economic pollution (ii) religious pollution (iii) political pollution (iv) ethic pollution (v) social pollution.
4. On the basis of medium of pollution: (i) land pollution (ii) water pollution (iii) air pollution.
5. On the basis of area and source of pollution. (i) urban pollution (ii) rural pollution (iii) industrial pollution (iv) agricultural pollution.

On the basis of location of pollution (i) point pollution (ii) non-point pollution.

Our main theme is on the basis of nature of pollution i.e. Water pollution.

Water Pollution

Water is the most important element in the biosphere because it helps in the movement, circulation and cycling of nutrients in the biosphere.

Water is also essential for power generation, navigation, irrigation of crops, disposal of sewage etc. it may be pointed out the only one percent of the total amount of water of the hydrosphere is available to human beings and other biotic communities from various sources.

Such as ground water, rivers, lakes, soils, atmosphere and biological system but ground water provides the largest amount of water. Increased demand of water because increasing population and industrial expansion.

The term water pollution refers to deterioration in chemical, physical and biological properties of water brought about by human activities and/ or by natural processes which induce decomposed and vegetable materials and weathering products of rocks etc. C.S. South wick, 1976 chemical and biological, characteristics of water from various storages through natural and anthropogenic processes to such an extent that it become harmful to human being, plants and animal communities.

Sources of Water Pollution

Different sources which add the pollution in water are broadly classified into following groups.

a. Domestic Effluents

Domestic sewage, Industrial sewage, other organic wastes are the major pollutants of water. They facilitate luxuriant growth of bacteria when dumped into water. These bacteria decompose the water utilizing the oxygen present in water and thus cause depletion of oxygen concentration in water. The oxygen deficient water becomes unsuitable for the aquatic animals to live in it. This polluted water also contains germs of diseases like typhoid, cholera, diarrhea, jaundice and hepatitis.

b. Agricultural Effluent

The fertilizer, pesticides and insecticides are also important water pollutant. When the water polluted by these is used cause health hazards for live stock, wild animals, aquatic animal and human being. A good number of pesticides do not degrade easily and remain stable in the environment. They enter the bodies of the organism through food and water and get deposited in the tissue of human beings and animals.

c. Thermals Pollution

Rise in temperature of air and water to a harmful level due to heat from power plant industries and automobiles called thermal pollution. The water used for cooling purposes in nuclear, electricity generation plants, steel plants and oil refineries becomes hot and heated water is generally discharge into ponds, lakes, rivers or seas. As a consequence, the temperature of these water bodies rise which kills both plant and animal life in the area of discharge.

d. Industrial Effluents

The industrial wastes like in contain metals such as mercury, lead, copper, arsenic, cadmium, zinc, acids and alkalies. These metals when released to the environment find their way to the body of human beings and other organism through food and water and cause damages and disorders in the bodies of the organism.

e. Oil Spills

The oil which spills out during transportation on sea or during offshore drilling pollutes the water. Oil covers the surface of water and thus prevents water from contact with air resulting in gradual depletion of dissolved oxygen. The low oxygen concentration of oil covered water affects lives of aquatic animals.

Effects of Water Pollution

Particularly on soil and on Agriculture:- Water pollution causes irreparable damage to both plants and animals including man polluted water is the major cause for the spread of

epidemics and several dangerous diseases. Such as cholera, tuberculosis, jaundice, typhoid and diarrhoea etc.

- Water pollution mainly caused by toxic chemicals causes deaths of aquatic organisms including both plants and animals.
- The use of polluted water of rivers, lakes and ponds or even polluted ground water for irrigating agricultural fields severely damages crops and decrease agricultural production.
- Heavily polluted water also pollutes soils decrease their fertility and kills sui micro organisms such as useful bacteria.
- The use of water polluted by high concentration of sand load for irrigational purposes increases the sand ratio of soils and thus reduces soil fertility and raises water requirement of the soils. The use of water contaminated with salts increases alkalinity in the soils.
- Rise in the concentration of inorganic and organic nutrients in the lake and river waters causes eutrophication which leads to rapid rate of increase in the population of plants and animals in the aquatic ecosystems beyond controllable limit.
- Water polluted with higher concentration of sulphuric acid and deaths of organisms in lakes and ponds.

Control of Water Pollution

Control of water pollution requires several remedial measures involving individuals, un-community government at national and international levels__

- The individual must be educated enough to understand the nature of water pollution.
- There must be mass awareness.
- People must restrain themselves from throwing human and animal excreta and garbage's into any water body.
- Industrial units and municipal corporations must arrange for sewage treatment before discharging effluents into lakes and rivers.
- Government must provide adequate funds to the municipal corporations for making water pollution control more effective.
- Government must bring in force effective laws for water pollution control measures.
- The individuals, communities, officials and the owners of mills must be tried in the courts of law, if they violate the provisions of pollution control.

Recommendations

1. Employing environment friendly industrial processes so that emission of pollutants and hazardous wastes is minimized water pollution.
2. Shifting of polluting industries away from cities and heavy populated areas.
3. Recycling of water after treatment should be practiced to the maximum extent.
4. To control soil pollution, it is essential to stop the use of plastic bags.

Conclusion

Our analysis of causes of pollution gives us excellent perspective on fundamental pollution derives such as globalization industrialization and urbanization and population with deteriorates the water pollution and it is dangerous for human health as well as different types of crops. Because of water pollution soil can become infertile and unsuitable for plants. This affects the fertility of soil and other organisms in the food web. It affects the productivity of the farmers. Some time all the productions are ruined because of pollution. Indian farmers are taken debts from different source if crop failure there no other way except suicide of farmers. The concept emphasizes that economic and social progress depend critically on the prevention of natural resources with effective measures to prevent environmental degradation.

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