

ENVIRONMENT AND HEALTH



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POLLUTION OF LAND RESOURCES IN TAMIL NADU-CAUSES AND CONSEQUENCES

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Introduction

There is an awakening the world over to have a clean and healthy environment. Environment is influenced by a variety of factors; the multiplicity of factors makes environmental management a complex issue. To formulate an appropriate policy for environmental management and implement the programme, a base line or benchmark survey of the present status of various factors that govern the environment is a prerequisite. The State of Environment (SoE) provides a general picture of the state of the bio- physical and socio-economic condition and an understanding of how human activities affect the environmental conditions and its implications on human health and economic well being. It also provides an overview of the outcome of responses such as policy initiatives, legislative reform and changes in policy behaviour. The SoE report has a large pool of potential users for both the monitoring and reporting functions of the system. The SoE prepared for the State of Tamil Nadu covers the priority issues pertaining to the environment

Land Resource of Tamil Nadu

Tamil Nadu has about 5.96 percent of the Nation's population, occupies 4 percent of the land area and has 3 percent of the water resources of the Nation. The demographic changes, economic growth and social development assisted by welfare measures would in the coming decades, exert strong and competing demands on the finite natural resources of the states, such as land, water, raw-materials, etc. In Tamil Nadu, the per capita availability of land is only 0.18 ha while the per capita net sown area is only 0.07 ha. Even though the share of agricultural sector in the State Domestic Product of Tamil Nadu has declined from about 52 percent to 18 percent between 1960-61 and 2007-08, and further to 8.2 percent during 2010-11, agriculture continues to be a major source of livelihood for the rural people. Agriculture still employs about 40 percent of the workforce in the

State. As a basic input for agriculture, land occupies a predominant position among all the resources required for a modern economy. Competition between agricultural and nonagricultural sectors for land is intensifying due to the increasing pressure on land for food production, housing and industrial expansion. Between 1960-61 and 2009-10 the total cultivated area in Tamil Nadu decreased from 7.32 million ha to 5.57 million ha and the net sown area has decreased from about 6 million ha to 4.90 million ha during the same period. However, this reduction in cropped area has been compensated by the increase in productivity of crops so that higher production has been possible. Apart from agriculture, land is also required for afforestation purposes so as to maintain ecological balance, in view of the fact that the current share of forests in total geographical area of Tamil Nadu is only 16.3 percent as compared to the ecological norm.

Land Pollution

The basic definition of land pollution is the destruction and contamination of the land through the direct and indirect actions of humans. The pollution results in changes to the land, such as soil erosion. Some of the changes are irreversible, while others are not.

The effects of land pollution do not necessarily appear overnight. It is the result of long-term destruction from human activities. For instance, the harm from chemicals from an oil spill can take months or even years to be fully realized. Land pollution is a serious problem that impacts humans, animals, and the earth. Without taking measures now to reduce pollution levels, permanent changes to the land can occur. The adverse changes to the environment due to land pollution are subtle, but the problem is much bigger than it appears.

Causes of Land Pollution

There are several known causes of land pollution. Of those, there are six factors that contribute more than others.

1. Soil erosion and Deforestation

Soil erosion is a naturally occurring process that affects all landforms. When forests are cleared for development and to meet the demand for wood supply, the upper layer soil is loosened in the process. Without the protection of the trees, the land becomes barren over time and starts to erode.

2. Industrialization

The revolution in industries may have resulted in significant positive changes to the economy and society, but it also led to significant pollution of the land. Through unsafe disposal practices for chemicals used in manufacturing, poor regulation, and the irresistible number of industries and factories that are polluting the land daily, industrialization has become one of the main contributors to the pollution problem.

3. Agricultural chemicals

Agrochemical is the part of the farming process often involves the use of harmful pesticides and insecticides to protect crops. However, the chemicals can cause the land to become barren. The once-fertile soil is then more susceptible to environmental elements, such as the wind.

4. Mining

The mining process can lead to the creation of large open spaces beneath the surface of the earth. This can result in the land caving in, which compromises the integrity of the land. Mining also results in harmful chemicals, such as uranium, being disturbed and released into the environment.

5. Landfills

The garbage found at landfills is filled with toxins that eventually seep into the earth. During rains, the toxins are washed into other areas and the pollution is spread. As the population grows, the amount of garbage filling landfills also grows.

6. Human sewage

Untreated human waste can produce toxic gases that can seep into the ground. As with air pollution, the soil quality is negatively impacted, and land nearby can be contaminated. In addition to this, the probability of diseases occurring increases.

Effects of Land Pollution

The contamination of the land has far-reaching consequences that can be catastrophic for water, soil, and animals. There are several possible consequences of land pollution to the environment and animals, including these top five:

1. Ground water poisoning

Depending on the soil and whether the chemicals were improperly disposed of on the land, the chemicals could end up in the ground

water. The process is known as leaching. It can occur on farms, industrial sites, and landfills.

2. Water nutrient fortification

Chemicals, such as nitrogen, are used frequently on farms. Only a small portion of the nutrients end up benefiting the crops. The remainder usually ends up in water that is populated by fish, algae, and other lifeforms. The nutrient-heavy water saps up most of the oxygen in the water, which leaves little for fish and other life. When this happens, the water is unable to support most lifeforms. For more information on water pollution,

3. Loss of topsoil

As chemical fertilizers and pesticides are used to maintain crops, the topsoil's composition becomes altered. The soil becomes more vulnerable to harmful fungus species and begins to erode. It is important to guard the soil to maximize land yield.

4. Jerky habitat

As deforestation and soil erosion progress, animals are forced to move to find shelter and food. For some animals, the change is too traumatic, and this has led to some dying. As a result, some species are at a greater risk of extinction.

5. Increased risk of wildfires

The dry conditions created by pollutants in the soil help to create the perfect environment for wildfires. The fires can grow quickly because of the dry conditions and widening area of polluted land.

Consequences of Land Pollution on Humans

The impact of land pollution is not limited just to the earth and animals. Humans can also experience negative consequences that can influence quality of life and health. Some of the potential consequences include birth defects, the development of breathing disorders, skin diseases, and cancer. Most of these develop after exposure to waste from water poisoning and soil contamination.

Land pollution has also been linked to developmental deficits in children. Chemicals that are commonly found in contaminated soil and water, such as lead, have an impact a child's cognitive development even if the exposure is very low.

Solutions to Land Pollution

There are several feasible solutions to land pollution, including conservation. Conservation focuses on preserving natural

resources, such as soil and plants. The efforts to conserve resources can start with utilizing sustainable practices. Leaving some of the trees in a forest to naturally die and decay. This not only leaves the cover needed for the soil and other vegetation, but it helps to provide the nutrients that the soil needs to remain fertile. Other solutions include:

- Proper waste disposal that focuses on treating waste and disposing it in the safest manner possible.
- Reusing materials to reduce the need for harvesting of resources. Products that are not reusable can likely be recycled.
- Reducing the usage of non-biodegradable materials, such as plastic shopping bags. The simple act of switching to a reusable cloth bag for groceries can help cut down on the need for non-biodegradable materials.
- Organic farming can reduce the usage of pesticides and insecticides. Non-gardeners can help by buying organic food.
- Bioremediation is another very promising land-cleaning technology, in which microbes of various kinds eat and digest waste and turn it into safer end-products.
- Phytoremediation is a similar concept but involves using plants, such as willow trees, to pull contaminants from the soil.

Conclusion

The pollution of land has calamitous consequences especially concerning the survival of animals and humans and the quality of soil and water. The negative consequences of land pollution can be greatly reduced with the cooperation of everyone. By making a conscious effort to contribute to a safer environment, the health and well-being of all can be protected. New technologies will almost certainly make it easier to "recycle" polluted land in future.

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