

LANDPOLLUTION:CAUSES,EFECTS,AND PREVENTION

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Abstract:- When many of us think of pollution, images of smoggy cities and litter infested oceans come to mind. In the 21st century, there is not a single surface or space on Earth that has not in some way been impacted by it. While littering and gasoline fuelled cars are a major contributor to pollution, there are many other influence that are important to be aware of. To start, it is helpful to understand the basics of what pollution exactly is. Essentially, pollution occurs when substances are introduced environment that have harmful effects, damaging the quality of land, water and air. Land pollution refers to the deterioration of the Earth's land surfaces, at the below ground level. The cause is the accumulation of solid and liquid waste materials that contaminate ground water and soil. These waste materials are offer referred to as municipal solid waste (MSW), which includes both hazardous and non hazardous waste.

Key words:- Agriculture, Calibration, Contaminate, Disposal, Earth ,Fossil fuel, Hazardous, Landfills, Littering, Reforestation.

INTRODUCTION:-

Waste is deposited onto an area of land, the permeability of the soil formations below the waste can increase or reduce the risk of land pollution. The higher the permeability of the soil, the more likely that land pollution will occur. That's why the Texas Disposal Systems Landfills, located just out side of Austin, Texas, was built in an ideal area. By utilizing the natural shale and clay in the land, the risk of land pollution has been significantly decreased. There are many causes of land pollution, here are a few of the main contributors.

1. LITTER

Littering the improper disposal of waste products is unfortunately common. Every cigarette butt tossed on the ground or food wrapper tossed out of a car window is a small contribution to monumental issue. According to keep America beautiful, 76% of litter found on roadways is from pedestrians and motorists. A large volume of litter also comes from unsecured items that fall off the back of vehicles or out of trash receptacles.

2. URBANIZATION AND CONSTRUCTION

While urbanization is not in itself littering, large quantities of people living, producing trash and littering in a dense area does inevitably lead to land pollution. To accommodate this increased pollution, construction activities also occur, which result in large waste materials, such as metal, plastic, wood, and bricks. When these materials are not properly disposed of, it contributes to the land pollution of that area.

3. MINING

Mining is the extraction of minerals and other geological materials from the ground , which are then used for a wide range of purposes, including but not limited to, producing gasoline for automobiles, generating electricity and selling materials such as gold and silver. This extraction and the methods used, however, deplete the earth of its natural resources and cause damage and pollution in its wake. That is why finding alternatives for energy (Think

solar and wind power) that are not mined from the earth's surface are so vital in helping to reduce land pollution moving forward.

4. AGRICULTURE

Agriculture is foundational for both everyday life, as well as the economy as a whole. It also, however, can have profound effects on the planet. Agriculture pollution occurs when contamination created as a by product of raising livestock and growing food crops is released into the environment, and the contamination is vast.

Effects of land pollution

Land pollution touches essentially every area of the living World, including

- Water that is not safe to drink.
- Polluted soil, which leads to a loss of fertile land for agriculture.
- Climate change, which causes an onslaught of disastrous problems, including flash floods and irregular rainfalls.
- The endangerment and extinction of species in wildlife.
- Habitat shifting, where some animals are forced to flee where they live in order to survive.
- An increasing in wildfires, due to polluted areas often becoming very dry.
- Increased air pollution, which burning waste contributes to land pollution.

METHODS AND MATERIALS:-

Several approaches to land contamination monitoring include chemical, geophysical, and biological techniques. Chemical technologies are used to measure specific organic, inorganic or radioactive contaminants in the land using instruments such as a gas chromatography, atomic absorption spectrometer, or mass spectrometer.

Testing land pollution can be very complicated, and there is no way to detect all the possible pollutants with any kind of home test. The most common pollutants are petroleum products, heavy metals, such as lead, industrial solvents, pesticides, salts and fertilizers or plant nutrients in such high concentrations that they become toxic.

There are some techniques to measure land pollution

1. TESTING P^H

Collect a small land sample from 2 to 6 inches below the surface and put it into a container. Use an uncontaminated tool, such as a clean garden spade, or scoop the land with the container it self. Add water to the container just enough to make a liquid mixture but not so much that is clear. Insert your P^H meter or P^H stick. If you bought a land test kit, it probably came with one or the other. Depending on to the model of P^H meter, it may be require calibration solution. If the device not have instructions for calibration, it is not required.

2. TESTING ELECTRICAL CONDUCTIVITY

Collect a small land sample from 2 to 6 inches below the surface. Avoid contaminating the sample, and place it in a clean container. Mix the soil with two parts water for every part land. If available, used distilled or deionized water. In short the E.C.(Electrical conductivity) meter. Write down the results. Soil with a conductivity above 4 dS/m (Decisiemens per meter) are considered saline. However, salt-sensitive species may be affected by lower salt contents, and salt-tolerant species may survive much higher sanities.

3. TESTING NITROGEN, PHOSPHOROUS, AND POTASSIUM

Collect multiple sample from different areas, being careful to take from the same depth in each location and to avoid contamination. By doing multiple tests, you may improve the accuracy of your home land test kit. Follow the instruction in the land test kit. Unfortunately, the actual methods and procedures of different kits vary widely. Most likely, your kit will instruct you to put a marked volume of land into a container and add a certain chemical. Most kits give results based on optical comparison of the solution colour to a chart of nutrient values. Compare the tested values to the requirements of your particular crops.

4. TESTING OTHER POLLUTANTS

Contact your country's co operative agriculture extension service, the nearest state university or a private land test company. Searching " co operative extension" and your state's name on the internet should yield results. Whoever you contact, tell them you want to test your land for primary nutrients, heavy metals and hydrocarbon contamination. Different laboratories use different procedures and may require varying amounts of land. Most cooperative extension will also offer advice on which fertilizer to apply and how much, or how to mitigate the effects of pollution. You may also ask them for advice on what organic fertilizers to use.

RESULTS AND DISCUSSIONS:-

Given the disastrous effects of land pollution, taking preventive measures to reduce its impact moving forward is crucial. Using fewer pesticides and chemicals in agriculture. Given that the use of pesticides and chemicals in farming and agriculture greatly contribute to land pollution, finding alternatives will help to reduce the environmental impact. Farmers, for instance can be used natural ingredients by switching from bio-fertilizers to manure, on the individual level, supporting environmentally-conscious, local farmers at your closet farmer's market or local grocery store can help to build up business for farmers with more sustainable farming practices. Another option is to contribute to or volunteer in an urban garden in your neighbourhood.

- **Reforestation**
Reforestation involves replanting an area with trees. This can be needed for areas that have experienced wildfires, for instance or where trees had been chopped down and milled. This process help to bind soil, which help to protect from land pollution and prevents soil erosion and flooding.
- **Reduce, Reuse and Recycle**
At the individual level, there are many things we can do reduce our contribution to land pollution. One of the simplest ways to do this is to reuse or recycle items so that you are not creating waste out of a material or item that still has a purpose, with the growing awareness around what can be recycled and increase in recycling bins in many cities, it has never been easier to recycle.
- **Solid waste treatment**
Dumping solid waste such as domestic refuse, garbage and industrial material on land increases the level of toxicity and hazardous substances in soil. Waste also alters the chemical and biological properties of soil such as its alkalinity levels. Through chemical treatment methods such as acid-base neutralization. Municipalities can alter the P^H level of solid waste before dumping it in landfills. Degrading insoluble waste by using methods such as adding chemicals or enzymes under a controlled environment before disposing of it also reduce land pollution.
- **Reduce toxic materials**
Reduce toxic materials waste materials that are disposed of should have minimal toxic materials. This can be done by treating the waste materials with various chemicals to make them less toxic. Once the waste is treated it can be disposed of using responsible methods. Harmful chemicals can also be replaced with less toxic, biodegradable materials.

- **Buy organic products**
Buying organic products is one of the easiest ways to minimize pollution in the soil. Organic food is produced without the use of artificial fertilizers and pesticides that are often used in to get favourable results in conventional agriculture. If more people buy organic products the demand for non organic food will decline, which means less reason and opportunities to use those fertilizers and pesticides that contribute to land pollution.
- **Reduce waste**
You can reduce your foot print in terms of land pollution, and reduce overall impact on the planet, by using resources sparingly to minimize waste. Conserving available resources, you can help to reduce the amount of waste disposed of in landfills. This decomposing waste produces toxic gases and liquids such as methane and leachate. In addition, waste can lead to littering when people fail to implement proper waste management practices. According to the department of energy, you can also minimize pollution by practicing judicious use of non renewable resources such as oil and gasoline.
- **Integrated pest management**
Agriculture is the primary cause of water pollution, which in turn contaminates the land as polluted water wash over its surfaces. According to the U.S. Environmental Protection Agency (EPA), The major pollutants are pesticides. To reduce pesticide use farmers can use the best practices of Integrated Pest Management (IPM).IPM uses non-pesticide methods such as crop rotation to eliminate pests, crop rotation involves planting crops in alternate years. For example, a farmer may plant corn one year and then in the following year plant soybeans. Pests specific to corn will not infest the soybeans and will die off from lack of food. Pesticide use is eliminated and land pollution reduced.
- **Reduce fossil fuel emissions**
Fossil fuel emissions pollute not only air, but the land and water also. Sulphur dioxide emissions combine with moisture in the air to create acid rain. Acid rain acidifies soils and water. Sometimes to the point where the land can not recover without human intervention. Polluted lands become ecological dead zones, unable to support plant or animal life. By reducing fossil fuel emissions the source of acid rain is eliminated.

CONCLUSION:-

A land pollution a serious global issue, impact humans worldwide. A study by Cornell University estimated that pollution is the underlying cause for up to 40 percent of all deaths worldwide. Land pollution often introduces toxins into the environment. Some of which can accumulate in animal and human tissue. Even naturally occurring chemicals pose risks, especially if great amounts enter the land in a short period of time, simple measures can have a significant effect on reduction of land pollution. Land pollution has many sources, from agriculture to industry to human activity, polluted soil affect harm life and , in turn wild life .Depending upon the polluting agent, pollutants can persist in the environment. Solutions, therefore involve not just removing a source of pollution but also cleaning up and restoring the polluted area. Adding to the complexity of soil pollution is Non point Source Pollution (NSP), which enters the environment through runoff. Take any action at your disposal to reduce soil pollution as you may not always find a clearly defined source.

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