

Conserve Energy Future

Be Green. Stay Green

Rinkesh Kukreja

10 Magnificent Ways For Prevention and Control of Soil Pollution

The soil is an integral part of the natural environment. Although much concern over the years has been on air and water pollution, prevention and control of soil pollution are as important as air and water pollution control. In fact, soil can impact on air and water quality as it is home to a wide range of organisms and plays a bigger role in the distribution of plant species.

Furthermore, the soil acts as a source and a store for gases. It also influences the flow of chemical substances and water between the earth and the atmosphere. Unfortunately, over the years, human activities like the use of pesticides, fungicides, and herbicides have had an adverse effect on soil quality. In addition to agricultural pollution, industrial waste and urban activities also cause soil pollution.

Improper disposal of industrial waste, drainage from homes and improper disposal of trash further contaminate the soil. When the soil is contaminated, it negatively affects the ecological system as plants and microorganisms may struggle to adapt to the change in the chemical composition of the soil. **Here are 10 magnificent ways for prevention and control of soil pollution.**

1. Get a better understanding of the soil environment quality baseline

In order to properly control and prevent soil erosion, it is paramount that every stakeholder understands the baseline of soil environment quality, which can be done by carrying out sensitizations and surveys on soil pollution. However, to ensure consistent results, the technical requirements for the survey should be formulated including the frequency of when the survey should be conducted.

Another way is through the establishment of soil environmental quality monitoring networks to ensure improved monitoring frequency. It is also necessary to strengthen the management of soil environmental information to ensure broadened and dynamic data update. Strengthening data sharing and establishing the pattern of sharing will help in guaranteeing immediate solutions when the need arises.

2. Develop necessary legislation on soil pollution control

Although efforts are being put in place to ensure soil pollution control, the process ought to be accelerated by drafting the necessary legislation. The existing registrations such as urban and rural planning, agricultural practices, and land management should be revised and updated to include contemporary soil pollution control and prevention measures.

Legislations on pesticide management, contaminated sites management, and farmland soil management should as well be updated. Furthermore, measures should be put in place to promote continuous improvement of soil pollution control standards.

3. Proper management of agricultural land and the practice of organic farming

Poor utilization of land is a major concern in the prevention and control of soil pollution. Agricultural land pollution usually causes the loss of soil fertility as it involves the loss of organic matter, topsoil and nutrients, and the soil's ability to retain water. In agricultural land management, ideal soil conservation methods include mechanical and biological control techniques.

The biological method refers to forestry and crop-related soil management. The crop related control measures include crop rotation, strip cropping, planting along the contours, protector belt, crop residues, and use of organic composts. Forests also play an important role in preventing soil erosion.

Developing forests in new areas can help reduce erosion caused by rainwater and air thus ensuring increased soil fertility and formation. In areas with excessive pollution or surface degradation, reforestation should be done. The mechanical method of soil pollution control includes the use of contour holding system, gully control, and making bunds. In excessive sloping areas, making bunds across the slope helps to prevent erosion.

4. Proper Solid Waste Treatment

It is important to dispose of solid waste properly by treated it before it's released into the environment. Acidic and alkaline waste, for example, can be neutralized before they are disposed of to avoid soil contamination. Biodegradable waste should also be broken down in a controlled environment before it is released into the environment. A great example is the proper treatment of sewage sludge.

The waste materials should also be categorized based on the degree of contamination. Materials that are mildly or moderately contaminated should be treated in controlled environments before release into the natural environments while those that are heavily contaminated should be put under strict management, treatment, and control.

5. Ensure proper investigation of reclaimed land

When dealing with land that is expected to be reclaimed and used for other purposes such as the construction of residential homes or social amenities like schools as it is in the case of mining, there is need to conduct soil investigation and evaluation. The mandate of testing the contamination levels of such lands should be given to the city or government unit in charge.

The results from the test should then be used in establishing practical management and control measures depending on the purpose of the land. If the results show the reclaimed land is polluted, any scheduled activity on the land must be suspended and the responsible body must take the

necessary precautions to not only manage and mitigate the risks but to also prevent the contamination of adjacent soils.

6. Strictly control the pollution of new soil

It is cheaper to prevent soil pollution than it is to manage polluted soil and thus, the appropriate objective should be protecting new soil. Before any new land is used, thorough research should be conducted to ensure whether the land is suitable for the intended use. There should also be put in place stringent measures against those who dump harmful or poisonous substances to the mudflat, sand, swampland, and salt marshes as well as those who discharge pollutants illegally.

Supervision of unutilized land is also key. Governments are also encouraged to enhance spatial planning and management based on the capacity of environment and soil. The development of cooking industries and non-ferrous metal metallurgy industries in close proximity residential areas and virgin soils should be prohibited.

7. Strengthen policies that manage pollution sources

The best way to control soil pollution is to strictly control the mining and industrial pollutants. In addition to controlling the pollutants, daily environment supervision should be enhanced. This should be implemented by making a layout plan that should include close supervision on the soil environment including regular information updates. To ensure accountability, the companies in the specified area should conduct soil research at least once annually and release the information to the public.

Surrounding soil should also be monitored on a regular basis to ensure the soil is not contaminated. The relevant authorities should also proactively look for potential risks and point out the alternatives for minimizing the risks. The government should also put in place measures to ensure electronic wastes and heavy metals do not contaminate the soil. At the same time, the government should take stronger measures against people, businesses, and companies that breach the policies.

Furthermore, through legislation, the government should phase out production facilities that use traditional industrial production methods and agricultural practices that harm the soil. Instead, the state should encourage enterprises to adopt better methods of production, organic farming, and new technology as it would be helpful in ensuring proper treatment of wastes and the reduction in harmful chemical products.

8. Transfer treatment and remediation costs to polluting companies

The government should make an effort to improve the quality of soil through pollution treatment and remediation. To ensure the sustainability of the project, the individuals and companies that pollute the soil should be held responsible for the treatment and remediation costs. In case of change of the responsible subjects, the party that inherits the debt and rights should be held responsible.

To ensure consistency, the government should formulate treatment and remediation plans as well as identify responsible entities, identify key tasks, and develop projects database for easy management.

9. Embrace technological research and development

To ensure sustainability in the prevention and control of soil pollution, research on soil pollution prevention and control should be advanced by strengthening technological research. The government should integrate the resources from various research institutions and universities to support relevant research on soil environmental capacity and ecological effects of soil contamination among other possibilities.

The effort should also include promoting research on common technologies that relate to soil pollution diagnosis, research, and development of advanced data collection and mapping equipment, and soils contamination risk management and control.

10. Promote objective assessment and accountability among all stakeholders

To ensure long term success in the prevention and control of soil pollution, all stakeholders' role in the implementation of the soil pollution control should be clear. All tasks should be defined and inter-departmental cooperation and coordination should be strengthened to ensure seamless implementation and immediate resolutions focused towards correct disposal of garbage, proper treatment of sewage sludge, minimized the use of agro-chemicals, reforestation, construction of drainage systems, and strengthening chemical use related laws.