

Protecting Soil: A Shared Obligation

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Soil is one of the ecosystems that human beings depend on for survival. The ecological imbalance caused by soil contamination is not only a threat to the soil ecology itself, but also a potential source of danger to human health and the future. We have an obligation to take responsibility for protecting the soil.

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SOIL is one of the most complicated ecosystems in nature. It filters, purifies, and stores water; it ensures the circulation of substances through the decomposition of microorganisms; it enables animals and plants to continuously use these substances; it purifies the air; it is the most important carbon reservoir and maintains the health of the ecosystem; it is a crucial element for the survival of life (1). Any natural or agricultural ecosystem that thrives begins with soil. Humanity's health is tied to its sustainable future. We are all responsible for preserving the earth.

Soil contamination is the phenomenon in which human factors cause certain substances to enter the surface soil of the land, resulting in changes in soil chemical, physical, biological, and other characteristics, affecting soil function and effective utilization, endangering public health, or destroying the ecological environment (2). Soil pollution has a high degree of concealment and latency, and it is frequently identified through the examination of soil samples, the detection of agricultural residues, and even studies into the effects on human and animal health. Furthermore, contaminants are not easily diffused and dissolved in the soil, and it is simple to exceed the norm due to their continual accumulation, which makes soil contamination very regional. Thirdly, soil contamination by heavy metals is irreversible, and contamination by many organic compounds is

slow to decompose. For instance, it may take 100 to 200 years for soil poisoned with some heavy metals to recover. Fourth, it is difficult to eliminate the refractory contaminants that have accumulated in the polluted soil through dilution and self-purification, and they must occasionally be eliminated through soil replacement and soil leaching.

Soil contamination is exceedingly hazardous (3). Crops on agricultural land will absorb pollutants in the soil, resulting in an excessive amount of pollutants in agricultural goods, which poses harm to human health over the long run. On residential, commercial, and other construction sites, residents are more likely to interact. If the soil on these construction sites becomes contaminated, it will damage the human environment. Simultaneously, soil contaminants can change and travel, entering surface water, groundwater, and the atmosphere via infiltration and dust. These soil contaminants may damage human health when ingested orally, inhaled, or absorbed via the skin.

The importance of soil to humans has evolved beyond food security to include energy security, water security, biodiversity, climate change, and ecosystem services, amongst other factors. The importance of soil protection will also increase. Just as fish cannot survive without water, humans cannot survive without soil. As Rahman mentioned that soil contamination is so urgent and needs to be remediated properly with technologies to

keep us survival without getting the situation deteriorated (4), so we are all responsible for preserving the soil.■

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