

Topic :- Soil pollution in mining area

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## **Raniganj Girls' College**

**Course Name: Environment Studies**

**Course Code: AEE101**

**Topic of the project: Different aspects of Air, Soil, Water, Noise pollution**

### **A Project Report**

**Submitted by Semester-I students (Academic Year 2021-22)**

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## CERTIFICATE

This is to certify that this project titled “Different aspects of Air, Soil, Water, Noise pollution” submitted by the students for the award of degree of B.A. Honours/ Program is a bonafide record of work carried out under my guidance and supervision.

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## SOIL POLLUTION

Soil Contamination. Soil pollution or land pollution as the presence of land degradation is caused by the presence of xenobiotic (human-made) chemicals or other alteration in the natural soil environment. It is typically caused by industrial activity, agricultural chemicals or improper disposal of waste. The most common chemicals involved are petroleum

hydrocarbons, polynuclear aromatic hydrocarbons (such as naphthalene and benzo (a) pyrene) Solvent. pesticides lead and other heavy metals. Contamination is correlated with the degree of industrialization and intensity of chemical substance. The concern over soil contamination stems primarily from health risks, from direct contact with the contaminated soil, vapour from the contaminants or from secondary contamination of water supplies within and underlying the soil mapping of contaminated soil sites and the resulting cleanups are time-consuming and expensive tasks, and require expertise in geology hydrology. chemistry computer modeling and GIS in Environmental Contamination as well as an appreciation of the history of

Industrial chemistry In North America and Western Europe the extent of Contaminated land is best known with many of Countries in these areas having a legal framework to identify and deal with this identify environmental problem. Developing Countries tend to be less tightly regulated despite some of them having undergone significant or Significant Industrialization.

## CAUSES

The most Common chemicals involved are petroleum hydrocarbons, Solvents, pesticides lead, and other heavy metals.

Any activity that leads to other forms of Soil degradation (erosion, Compaction etc) may indirectly worsen the Contamination

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effects in that Soil remediation becomes more tedious.



E - Waste processing in Agbogbloshie Ghana Improper disposal of manufactured goods and industrial wastes. often mean that Communities in the global South have to process goods. Especially without proper protection heavy metals and other Contaminates can seep into the soil, and create water pollution and air pollution.

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Historical deposition of coal ash used for residential, commercial, and industrial heating as well as for industrial processes such as ore smelting, were a common source of contamination in areas that were industrialized before about 1960. Coal naturally concentrates lead and zinc during its formation, as well as other heavy metals to a lesser degree. When the coal is burned, most of these metals become concentrated in the ash (the principal exception being mercury). Coal ash and slag may contain sufficient lead to qualify as a characteristic hazardous waste, defined in the US as containing more than 5mg/l of extractable lead using the TCLP procedure. In addition to lead, coal ash typically contains



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Variable but Significant Concentration of polynuclear aromatic hydrocarbons (PAHs; e.g. benzo (a) anthracene, benzo (b) fluoanthene, benzo (k) fluoanthene, benzo (a) pyrene, indeno (1,2,3-cd) pyrene, phenanthrene, anthracene and others). These PAHs are known human carcinogens and the acceptable concentrations of them in soil are typically around 4 mg/kg. Coal ash and slag can be recognised by the presence of off-white grains in soil grey heterogeneous soil, or (coal slag) bubbly vesicular pebble-sized grains. Treated sewage sludge known in the industry as biosolids has become controversial as a biosolids, has become controversial as a fertilizer. As it the byproduct of sewage treatment, it generally contains more contaminants such as organisms, pesticides and heavy metals than

Other Soil.

## HUMAN HEALTH

Contaminated or Polluted Soil directly affects human health through direct contact with soil or via inhalation of soil contaminants which have vaporized; potentially greater threats are posed by the infiltration of soil contamination into groundwater aquifers used for human consumption, sometimes in areas apparently far removed from any apparent source of above ground contamination. This leads to result in the development of pollution-related diseases.

## ECOSYSTEM EFFECTS

Not unexpectedly, Soil Contaminants can have significant deleterious consequences for ecosystems. There are radical soil chemistry changes which can arise from the presence of many hazardous chemicals even at low concentration of the contaminant species. These changes can manifest in the alteration of metabolism of endemic microorganisms and arthropods resident in a given soil environment. The result can be virtual eradication of some of the primary food chain, which in turn could have major consequences for predator or consumer species. Even if the chemical effect on lower life forms is small the lower pyramidal levels of the food chain may ingest alien chemicals, which normally

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become more concentrated for each consuming rung of the food chain. Many of these effects are now well known such as the concentration of persistent DDT materials for avian ~~consumer~~ consumers, leading to weakening of egg shells, increased chick mortality and potential extinction of species

## CLEANUP OPTIONS

Cleanup or environmental remediation is analyzed by environmental scientists who utilize field measurement of soil chemicals and also apply computer models (GIS in Environmental Contamination) for analyzing transport and fate of soil chemicals. Various technologies have been developed for remediation of oil-contaminated soil and sediments. There are several principal

# Strategies for remediation.

## REFERENCES

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