Ministry of Environment and Forests
GOVERNMENT OF INDIA

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Press Note

A State-of-the-Art report on Bioremediation, its Applications to Contaminated Sites in India

Increased population, industrialization and urbanization are responsible for environmental pollution and resources depletion. It is necessary to curb environmental pollution and understand how to decontaminate the polluted environment. Advances in science and technology have enabled us to apply the potential of biological processes and biodiversity for environmental clean up and pollution abatement which is termed as bioremediation. It is emerging as an effective, innovative technology for treatment of a wide variety of contaminants. This technology includes phytoremediation (plants) and rhizoremediation (plant and microbe interactions). Rhizoremediation, involves the removal of specific contaminants from contaminated sites by mutual interaction of plant roots and suitable microbial flora.

Bioremediation is an invaluable tool box for wider application in the realm of environmental clean up. It is currently applied to contain and/or remove contaminants from soil/sediments, ground water and surface water. The scope of bioremediation extends to inorganic and organic contaminants. Bioremediation is cost effective, solar driven, faster than natural attenuation, has high public acceptance, enhances aesthetic value and generates less secondary wastes with fewer air and water emissions.

The State-of-the-Art Report highlights mechanisms responsible for bioremediation which have the potential to be applied to a variety of contaminated sites in the country. The unique features of this report are elaborate illustrations, glossary of terms used in the area of bioremediation and frequently asked questions about bioremediation.

The State-of-the-Art Report is expected to provide basic understanding of the bioremediation mechanisms to the reader and also serve as reference for researches, students, teachers, managers and consultants who are interested in the application of bioremediation. This report is also expected to catalyze sustainable development through the application of innovative, cost-effective, and environmentally friendly bioremediation technologies on contaminated sites in India.