

# **MINING ENVIRONMENT MANAGEMENT MANUAL**

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## **PREFACE**

This Mining Environment Management Manual is developed by the authors for the benefit of the entire mining industry in the Country. The Manual has been designed in such a manner that it can be easily used by the engineers and environmentalists in the mining complexes in their efforts for the management of mining environment. It has been attempted to present the existing status and comprehensive overview of all the aspects of mining environment. Since environment is a developing subject the user of the manual is suggested to, wherever necessary, consult the relevant web-sites for the latest status. The list of the useful web-sites is given in the bibliography.

The manual initially outlines broad details of the mineral mining industry in the country; the national policies, legislation, standards and procedures for establishing and operating the mines along with the various formats required to be filled/complied with under different legislation; a methodology for the preparation of the environmental management plans of the mining projects; and broad guidelines for monitoring of the environmental parameters alongwith the following aspects of mining environment.

- Brief outlines of the mining methods commonly used in the country.
- Environmental impacts of mining.
- Subsidence management.
- Design of pillars and barriers.
- Environmental impact assessment.
- Mine closure planning.
- Environmental auditing.
- Land acquisition for mining & rehabilitation of PAPs.
- Strategies for prevention of mining disasters.

- Environmental management in the mining areas covering management of all the components of environments, i.e., social, ecological, land, water and air environment.
- Community development planning including rehabilitation and resettlement of the PAPs.
- Do and don'ts in the environmental management planning for mining projects.
- Application of Geographical Information System (GIS) in environmental management in mining complexes.
- Roles of the executives in environmental management, etc.

The manual in simple english aims at to attract attention of one and all concerned with the management of mining environment. The authors believe that this manual will be useful to the following categories of the people in the mining complexes in the country and abroad.

- Mine planners in planning and designing of the mining activities and integration of environmental management measures in the mining methods.
- Mine operators in implementing the environmental management measures, monitoring and compliance of legislation.
- Regulatory agencies and their executives in developing a better understanding of the mining environment related aspects and implementing the legislation.
- Research workers in planning, designing, and undertaking research and development activities.
- Educationists in imparting the knowledge and know-how to the participants in various academic and human resource development programs.
- The Non-Governmental Organizations (NGOs) in developing a better understanding of the mining environment and assisting the mineral industry in effective implementation of the environmental management efforts.
- The people in the mining complexes in developing the understanding of various aspects of the management of mining environment.

The user of the manual is advised to read the manual carefully and understand the various topics discussed and then use their own wisdom and the suggestions made in the manual in design, planning, implementation and monitoring of the mining activities. The legislative aspect of mining environmental management is dynamic and time to time changes are made in the Acts. Rules and Regulations by the Central

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and State Governments. The user is therefore advised to get abreast with the latest developments through the web-sites of the MOEF and the Central and State Pollution Control Boards and other regulatory agencies.

The authors express their deep sense of gratitude towards all those colleagues and friends who have helped them to develop this manual. Special mention is for Shri K.K. Jain of MOEF for helping in fine-tuning the Chapter related to legislation and procedure. The Chapter on Land Use Planning is contributed by Dr. D. Sarkar of the National Bureau of Soil Survey and Land Use Planning.

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