Mining Industries and Their Sustainable Management

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Mining, minerals, and metals are important to the economic and social development as they are essentials for modern living. However, supplies of minerals are limited, and sustainable management of natural resources requires the maintenance, rational and enhanced use as well as a balanced consideration of ecology, economy, and social justice. Large amounts of material are involved in large-scale mining and minerals extraction. The problems arising from the change in the chemistry of million tons of natural ore during the processing steps and their resultant bioavailabilities are not well understood. Mining produces large volumes of waste, and decisions regarding waste handling and other aspects of operations are often difficult and expensive to reverse; they need to be made correctly initially through mine closure planning. Another challenge is the environmental legacy left by mining. The environmental issues of current mining operations are daunting enough. But in many ways far more troubling are some of the continuing effects of past mining and smelting. The loss of biodiversity is the other great challenge of mining sustainability. The loss of biodiversity is an irreversible loss. This document provides conservation practices to have minimum impact on biodiversity, state-of-the-art methods of mining and beneficiation for sustainable development, an integrated approach for the use of minerals, improvement of efficiency and equitable access to resources, careful management of environmental and health impacts.

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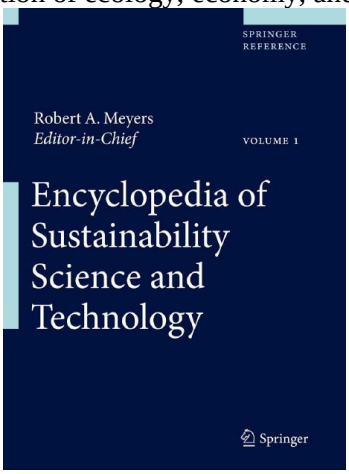
Abstract

Mining, minerals, and metals are important to the economic and social development as they are essentials for modern living. However, supplies of minerals, such as coal, are limited, and sustainable management of natural resources requires the maintenance, rational and enhanced use as well as a balanced consideration of ecology, economy, and social justice.



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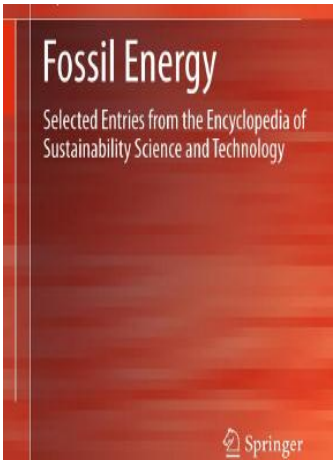

The word sustainability shares its root with sustenance. In the context of modern society, sustenance is inextricably linked to the use of energy. Fossil Energy provides an authoritative reference on all aspects of this key resource, which currently contributes to nearly 85% of global energy consumption. Gathering 16 peer-reviewed entries from the Encyclopedia of Sustainability Science and Technology, this volume represents an essential resource for scientists and engineers working on the development of energy resources, fossil or alternative. Written by recognized authorities in the field, the chapters provide comprehensive, yet concise coverage of fundamentals, current areas of research, and goals for the future to support real progress in sustainability science and technology.