

How effective is the research and application of mine ecological restoration?

Overall, international research and applications of mine ecological restoration are mature and extensive with diversified and integrated technical means. In contrast, domestic research and promotion in China need to be strengthened to improve the technical level and application effectiveness. 3.2. New mine ecological mine-restoration technologies

How was the mine ecosystem systematically restored?

The mine ecosystem was systematically restored by establishing a comprehensive mine ecological restoration system, as shown in Table 3. Initially, the focus was on land reconstruction and prevention technology, involving a thorough analysis of the land status of abandoned mines.

Is mining ecological restoration effective and scientifically sound?

However, there is the potential for effective and scientifically sound management of mine ecological restoration. This study comprehensively reviews contemporary mining-related ecological restoration techniques, focusing on soil and vegetation as the primary ecological components.

What are new mining ecological restoration technologies?

New mine ecological mine-restoration technologies The common new mining ecological restoration technologies include topsoil cover, biological enhancement, artificial matrix improvement, and combined restoration, all derived from geomorphology, vegetation, and soil remodeling. The interrelationships among these factors are shown in Fig. 6.

What is the role of plant and microbial combinations in mine ecological restoration?

Various plant and microbial combinations are used to establish technical standards and operating norms. Overall, international research and applications of mine ecological restoration are mature and extensive with diversified and integrated technical means.

What are the different types of mining ecological restoration technologies?

Traditional mine ecological restoration technologies Mining ecological restoration technologies can be categorized into three types based on the nature of each technology: physical, chemical, and biological, as shown in Fig. 4. Fig. 4. Mining ecological restoration technology.

In recent years, there has been an increasing focus on mine ecological restoration in China, making it a crucial endeavor in the nation's pursuit of ecological civilization. However, the sheer number of mines, coupled with the diverse, complex, and multi-faceted nature of ecological issues associated with them, poses significant challenges.

# Mine ecological restoration solar power generation

Mine ecological restoration primarily involves measures, such as soil improvement, slope amendment, and overburden, to create a suitable soil structure for ...

| Techno-ecological synergies of solar energy and examples of techno-ecological synergistic outcomes. a, Panel washing water inputs (left) on a PV installation are also inputs into agricultural ...

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Floating Solar PV is an innovation that combines environmental restoration with renewable energy, utilizing former coal mining sites to mitigate environmental impact. In ...

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Constructing the development mode of "photovoltaic+mining ecological restoration" could effectively leverage the dual benefits of reducing emissions from photovoltaic power generation and increase sinks from mining ecological restoration, which would be helpful for achieving the goal of carbon neutrality in China.

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The mining of mineral resources has caused serious damage to land and significant pressure on ecological environment. During the repairing of damaged land and degraded ecosystems, there have been many pieces of literature related to land reclamation and ecological restoration (LRER) that have emerged. To understand the progress and prospect of ...

ecological restoration for agriculture and forestry pasture, hay land, leisure areas, wildlife habitat, bricks and blocks making, fish farms, swimming pools, and large-scale solar and wind power ...

Floating Solar PV is an innovation that combines environmental restoration with renewable energy, utilizing former coal mining sites to mitigate environmental impact. In addition to providing clean energy, this technology adds value to abandoned mining lands, creating economic opportunities in post-mining revitalization. This ...

Ecological restoration of abandoned mine land was related to many disciplines, and multi-disciplinary theories might make great contributes to it. Some practical techniques of ecological restoration of abandoned mine land and their demonstration bases in China were introduced. Ecosystem succession process and mechanism, structure optimization of land use and new ...

# Mine ecological restoration solar power generation

This study focuses on the ecological restoration of abandoned mines to develop an evaluation model and propose policy recommendations. The research highlights that while mining contributes to economic growth, it also brings numerous abandoned mines and associated environmental issues. Western countries initiated research on abandoned mines earlier, while ...

Progress and Prospect of Mine Ecological Restoration in China. >> 2023, Vol. 14 >> Issue (4): 681-682. PDF(144 KB) ??; ??; ??; ??; EN ??; ??; ????; ????; ????; ???; ????; ????/??; ????; ????; ????; ??; ????; ????; ???? ...

Mine ecological restoration primarily involves measures, such as soil improvement, slope amendment, and overburden, to create a suitable soil structure for vegetation restoration. Additionally, replanting, reseeding, and weed removal can expedite the recovery of ecosystem structures and function [26].

The company's solution was to combine ecological restoration with a solar-power generation base, thereby creating a situation with ongoing economic viability. The area, which has produced 175 million tons of coal, now boasts an annual solar-power generation capacity of 900 million kilowatt-hours.

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