

Mining area ecological restoration solar power generation

What is mining ecological restoration?

Mine ecological restoration is a technical system formed on the theoretical basis of land ecosystem degradation and restoration. Many countries have paid great attention to the importance of mining area restoration and have conducted extensive research work in this field.

Should ecological restoration of mining area be involved in society-ecology system?

Ecological restoration of mining area should be involved in the society-ecology system at regional level. The ecological restoration of mines mainly relies on the government, and the lack of market vitality is a common problem in most of arid region in China.

What is mining area restoration?

Therefore, mining area restoration should encompass a holistic approach that integrates ecological and socio-economic considerations. Additionally, particular attention should be given to the preservation and reconstruction of local cultural landscapes to alleviate conflicts between human activities and natural ecosystems.

Can ecological restoration projects in arid mining areas be better reflected?

Only in this way can the effectiveness of ecological restoration projects in mining areas be better reflected, providing scientific bases for the further improvement and optimization of ecological restoration strategies.

5.2. The Problems Faced by Vegetation Restoration in Arid Mining Regions

Can a mining area ecosystem regenerate naturally?

Once a mining area ecosystem attains a certain level of species communities and substantial enhancements in ecological conditions, it can naturally regenerate with the aid of its self-recovery capabilities.

What are the challenges faced by mining area restoration in arid areas?

The main challenges faced by mining area restoration in arid areas are unclear objectives of ecological restoration, lack of ecological water consumption, unreasonable selection of indigenous plants, serious land degradation and wide restoration area.

12 · This study focuses on the ecological restoration of abandoned mines to develop an evaluation model and propose policy recommendations. The research highlights that while ...

Constructing the development mode of "photovoltaic+mining ecological restoration" could effectively leverage the dual benefits of reducing emissions from photovoltaic power ...

Through the management of mine pit treatment, vegetation restoration, ecological park construction, and

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tourism resource development, the abandoned open-pit mine has been transformed into an ...

Abstract: The energy oriented mine ecological restoration mode of photovoltaic+ecological restoration provides a breakthrough for alleviating the dilemma of photovoltaic land development and solving the urgent need for restoration of abandoned mining land. Taking a mining area in central Liaoning Province as an example, we established three photovoltaic+mining ecological ...

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.

Abandoned land in energy mining area refers to the abandoned land that is occupied, destroyed, untreated and cannot be used continuously due to a series of mining activities (Chen 2014). The wasteland of energy mining area occupies the land resources and brings a series of obstacles to the natural ecology, living environment and economic development, so it has attracted much ...

Resource exploitation and rapid urbanization in coal mining areas with a high groundwater table (CMA-HGT) have created double pressure on regional ecological security and increased the vulnerability of the ecological environment. Ecological restoration should be carried out to balance the relationship between economic development and ecological and ...

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 ...

Ecological damage in mining areas largely affects the regional ecological environment and ecological security. In China, ecological restoration in mining areas is urgent, as its environmental protection lags behind economic and social development. Recent studies on environmental governance in China focus on each participant's logic of action. It suggests that ...

Taking a mining area in central Liaoning Province as an example, we established three photovoltaic+mining ecological restoration modes, including forest-photovoltaic ...

Through the geological investigation and comprehensive analysis, water and vegetation are the core issues of ecological management in the Maoming mining area, while introducing sustainable development concepts and construction as well as revitalizing ecological and tourism resources on the basis of ecological restoration were the primary concerns of ...

However, solar power generation had only reached 3.4% of total power generation and 10.7% of renewable energy power generation by 2020 (China Electricity Council 2021). ... Therefore, FPV may cause changes in the ecological environment of the water area. The generation potential of floating PV and its possible effect on

the water environment ...

In order to solve the environmental pollution caused by mining area and realize the sustainable development of society and the environment, we must actively improve the ecological environment of the mining area and further improve the restoration mechanism of the ecological environment, comprehensively analyze the ecological environment problems, put ...

Open-pit mining has caused extensive land destruction, including land abandonment and reduction in agricultural land, resulting in serious environmental problems. Ecological restoration and mine reclamation have become important components of the sustainable development strategies in Inner Mongolia, China. Therefore, the rehabilitation of ...

Our results documented that (1) NPP of the study area an increasing trend from 1990-2018 shows and exhibits significant spatial heterogeneity; (2) the significant increase of NPP was mainly in the restored ...

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 of mining areas refers to the restoration of ecological problems such as geological hazards, land damage and vegetation damage caused by mining activities by relying on natural forces or through artificial intervention, so as to stabilize the geological environment, reclaim the damaged land, and restore and improve the ecosystem ...

evolution principles, types and processes, and put forward four typical ecological restoration modes. The mining area ecosystem features open, artificial and complex characteristics and special energy and material flows. Its functions mainly refer to the input and output of materials, energy, information and

The strategic engineering of solar energy technologies--from individual rooftop modules to large solar energy power plants--can confer significant synergistic outcomes across industrial and ...

Considering the complex terrain characteristics of the mining area, the multi-channel MPPT photovoltaic array is selected to adapt to the complex terrain environment for power generation, and the energy storage unit is added for peak shaving. ... The results show that the designed system can effectively alleviate the power consumption problem ...

In the process of ecological restoration in the mining area (Lei et al. 2016), the influence of the freeze-thaw process on the restoration process should be considered, such as its influence on ...



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Ecological restoration in the study area is based on natural restoration, and land reclamation is carried out on flat terrain for crop cultivation. The new energy industry mode

The mining activities in arid regions have resulted in significant ecological environmental issues, exacerbating the already challenging ecological conditions and leading to severe ecosystem damage. Merely relying on ...

In this investigation, we fuse the conventional landscape indices approach with indicators that depict ecological conditions to compute the landscape ecological risk levels ...

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