

Landscape Ecological Network Construction Controlling Surface Coal Mining Effect On Landscape Ecology

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Introduction

Surface coal mining leads to a series of landscape ecological disturbances and ecological environmental problems. Landscape ecological network plays an important role in maintaining ecological balance, protecting biodiversity, preventing pollution diffusion, and increasing landscape connectivity [1]. However, previous studies on the landscape ecological network of mining cities have not thoroughly considered the impact of mining on landscape ecology.

Description

Human beings have thousands of years of civilization history of coal mining and utilization. The important position of coal in energy utilization has been unshakable in China and even the world. The coal resources in eastern China are gradually being exhausted. To further meet China's energy demand, during the "12th Five Year Plan" and "13th Five Year Plan", the Chinese government proposed speeding up the strategic shift of coal development to the west, focusing on the construction of nine large-scale coal bases in arid and semi-arid areas of Northwest China, and accelerating the closure and exit of coal mines outside the large-scale coal bases

At present, most of China's surface coal mines are located in arid and semi-arid ecologically fragile regions [2]. The exploitation of coal leads to a series of landscape ecological disturbances and ecological environmental problems, such as landscape structure defects and function imbalances.

While developing and utilizing resources, China's mining cities have seriously damaged the urban natural environment and deteriorated the relationship between humans and nature [3-5]. Environmental pollution, lack of water resources, the sharp decline of forest resources, grassland degradation, land desertification, serious soil erosion, species extinction, and other crises are also more urgent with environmental degradation

It is of great significance to improve the ecological environmental quality of mining cities in the semi-arid steppe, ensure landscape ecological security, promote regional sustainable development, and ensure social harmony and stability. For a long time, given its strong

purpose, fast speed, and high efficiency, artificial restoration has been the focus of most research and practice

Conclusion

In this study, a framework of LEN construction controlling surface coal mining effect on landscape ecology was proposed. Based on the newly constructed "source" landscape, ecological corridor, ecological node, and constructed wetland, the landscape pattern optimization model of "One-ring, Two-vertical, Two-horizontal, Eight-core, Ten-node, Multi-corridor" was established by constructing a resistance surface based on the multi-regulation integration and using the MCR model to improve the landscape function of the mining areas and prevent the impact process of mining. In fact, the landscape pattern optimization model proposed in this study is based on the inherent restoration ability of the landscape ecology

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Conflict of Interest

The authors declare that they are no conflict of interest

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