

Present Situation and Opportunity of Green Mine Construction

Wang Luo, Zhiwei Zhu

School of civil engineering and architecture, Anhui University of Technology, Huainan 232000, China

Abstract

In order to coordinate eco-environmental protection and economic development, speed up the construction of ecological civilization and realize sustainable development, this paper introduces the concept, development process and significance of green mine, analyzes the construction status, finds problems and puts forward corresponding suggestions, and finally points out the opportunities of green mine construction in the new era.

Keywords

Green Mine Construction; Sustainable Development; Economic Development Ecological Environment.

1. Introduction

Mineral resources are an important material basis for economic and social development. Mining has made a great contribution and impact on China, but the long-term, high-intensity and large-scale development of mineral resources has brought great pressure to the ecological environment. Therefore, in order to balance the relationship between economic development and ecological environment, it is necessary to vigorously develop green mines and formulate effective plans according to the existing problems to ensure the sustainable development of mining industry. At the same time of development, we should firmly seize the opportunity, be ready to meet the challenges of the new era, and strive to build green mines into a brand for China to go global.

2. Overview of Green Mines

2.1 Concept of Green Mine

Taking "green" as the theme and adhering to the concept of comprehensive, coordinated and sustainable development, green mines realize the comprehensive utilization of resources and the minimum disturbance to the environment through scientific mining methods and standardized enterprise management in the process of mineral resources development, so as to achieve the coordination and unity of social and economic benefits and ecological and environmental benefits.

2.2 Development History of Green Mines

The development of green mines has experienced three stages. The first stage is the 19th century. The main point is to protect the vegetation in the mining area and beautify the surrounding environment of the mining area; The second stage is after World War II. Green mines have extended from simple environmental protection to comprehensive utilization of resources; The third stage is the 21st century. In addition to environmental protection and comprehensive utilization of resources, green mines also include energy conservation and emission reduction, scientific and technological application, human rights thought and so on [1].

2.3 Significance of Building Green Mines

1) It will help accelerate the transformation of the mode of economic development. In order to start a new journey to achieve the second Centennial goal as soon as possible and redefine the relationship between ecological and environmental protection and economic development, environmental protection must be placed at the strategic height of economic development. According to the development requirements of the new era, through the development of green mining, realize the transformation of mining economy, take a new road of resource intensive, safe and environmental protection, scientific and efficient and green development, practice the ability to dig gold from "green", and better solve the contradiction between supply and demand of mineral resources, resource development and environment.

2) Help promote the construction of ecological civilization. Under the severe situation of global resource shortage, ecological damage and environmental pollution, the contradiction between resource development and utilization and environmental protection has become increasingly acute. Therefore, accelerating the construction of green mines has become an effective way to achieve sustainable development. It not only avoids the excessive consumption of mineral resources, but also reduces the damage to the ecological environment, realizes the dialectical unity of ecological environment protection and economic development, and lights up the green future.

3) Help to enhance the social image of the enterprise, stimulate the vitality of the enterprise and enhance the sense of corporate responsibility. Green mine is not only a title, but also a "brand", which marks the standard and level of an enterprise, but also the recognition of a mining enterprise by the government, society and the industry. A good public image of an enterprise can enhance the enthusiasm of enterprises, promote benign competition among enterprises and improve the quality of construction.

3. Analysis on the Current Situation of Green Mine Construction

In 2019, the Ministry of natural resources issued the notice on doing a good job in the selection of green mines in 2019 (nzbh [2019] No. 965). All provinces and cities selected 953 national green mines through enterprise self-assessment, third-party evaluation, provincial recommendation, on-site spot inspection, material review and social publicity, of which 556 were selected this time and 307 were selected by the original national green mining test units [2].

In 2020, according to the notice of the general office of the Ministry of natural resources on doing a good job in the selection of green mines in 2020 (nzbh [2020] No. 839), on the basis of enterprise self-assessment, third-party assessment and provincial verification and recommendation, a total of 302 mines passed the selection [3].

3.1 Data Statistical Analysis

From the distribution of provinces (Figure 1), according to statistics, the top 10 provinces in the total number of national green mines by 2020 are: 92 in Henan, 89 in Shandong, 83 in Shanxi, 81 in Anhui, 75 in Hebei, 69 in Hubei, 67 in Inner Mongolia, 65 in Hunan, 64 in Zhejiang and 60 in Guangdong. The provinces with a total number of less than 10 are: 8 in Tibet, 6 in Hainan and 1 in Tianjin. The top 10 provinces selected for the number of national green mines in 2020 are: 20 in Xinjiang, 19 in Shanxi, 18 in Liaoning, 17 in Shandong, 17 in Hebei, 16 in Henan, 15 in Anhui, 15 in Hubei, 15 in Inner Mongolia and 15 in Shaanxi. The number of provinces with less than 5 is: 3 in Fujian, 3 in Tibet and 2 in Jilin.

The 29 provinces are divided into four regions: the eastern region (Beijing, Tianjin, Hebei, Shanghai, Jiangsu, Zhejiang, Fujian, Shandong, Guangdong and Hainan), the central region (Shanxi, Anhui, Jiangxi, Henan, Hubei and Hunan), the western region (Inner Mongolia, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang), and the northeast region (Liaoning, Heilongjiang and Jilin) [4]. From the perspective of regional distribution (Figure 1), according to statistics, there are 349 in the eastern region, accounting for about 28%; 439 in the

central region, accounting for about 35%; 367 in the western region, accounting for about 29%; 102 in Northeast China, accounting for about 8%. On the whole, the central region has the largest number, followed by the western region and the eastern region, and the difference between the two is small. The northeast region has the least number due to the small number of provinces.

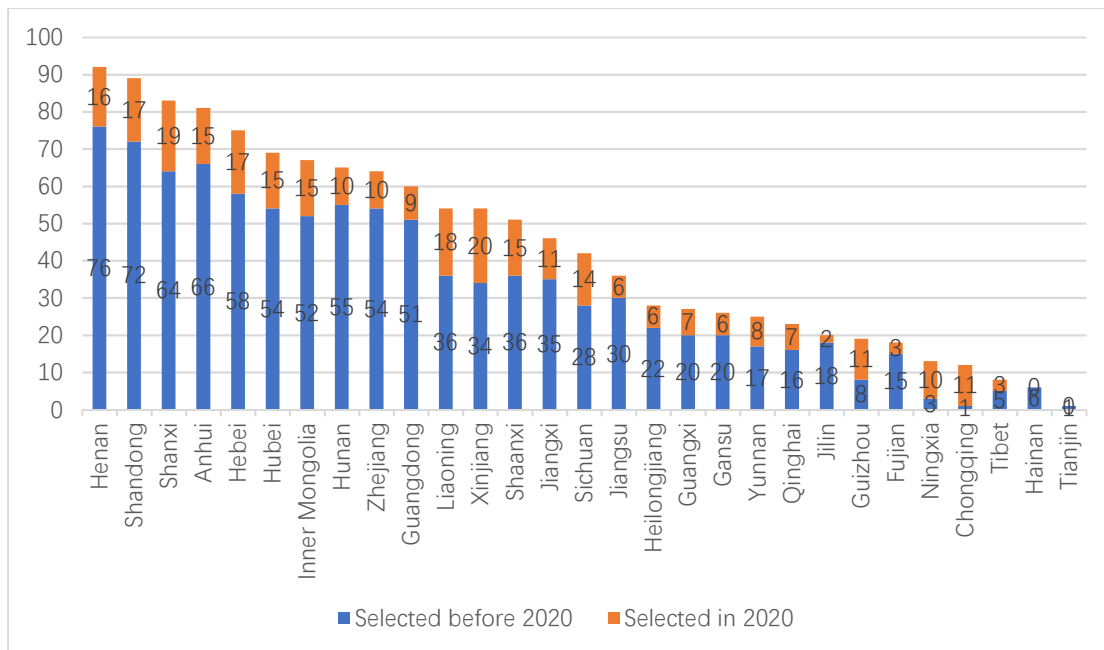


Figure 1. Statistics of national green mines by 2020

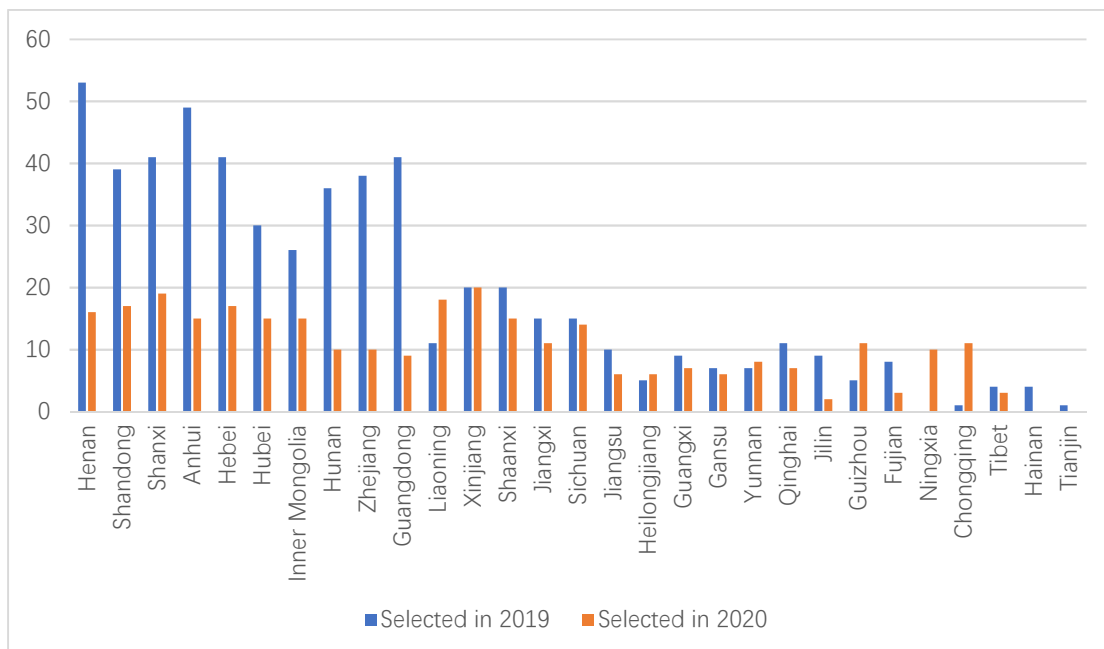


Figure 2. Comparison of the number of national green mines selected in 2019 and 2020

3.2 Comparative Analysis

Through the analysis of figures 1 and 2, it can be seen that the proportion of the number of national green mines selected in 2020 in all provinces and cities in the total number of national green mines in 2020 is generally small, and the number is generally reduced compared with the number of national green mines selected in 2019 (partially affected by the epidemic). Therefore, it shows that the construction standard of green mines in China has gradually increased, and the construction difficulty

has also increased one after another. However, Guizhou province accounted for 57.9%, six more than in 2019; Ningxia accounted for 76.9%, 10 more than in 2019; Chongqing accounted for 91.7%, 10 more than in 2019. It shows that the degree of attention is increased, the enthusiasm of enterprises is improved, and the construction process of green mines is accelerated.

Through the analysis of Figure 3 and Figure 4, it can be seen that the construction of green mines in the western region develops rapidly, the development in the eastern and central regions is slow, and the development in the northeast region is stable. Different regions pay different attention to different construction standards. According to the overall distribution, mine construction and economic development are inseparable. Economic development has driven the development of green mines, and mine construction has also brought good economic benefits.

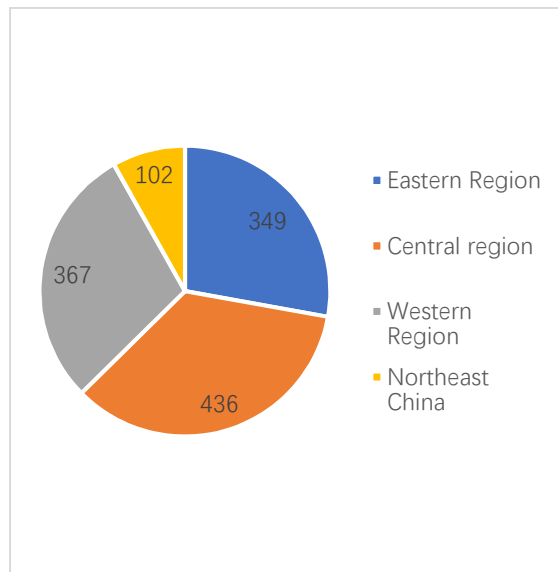


Figure 3. regional distribution of national green mines in 2020

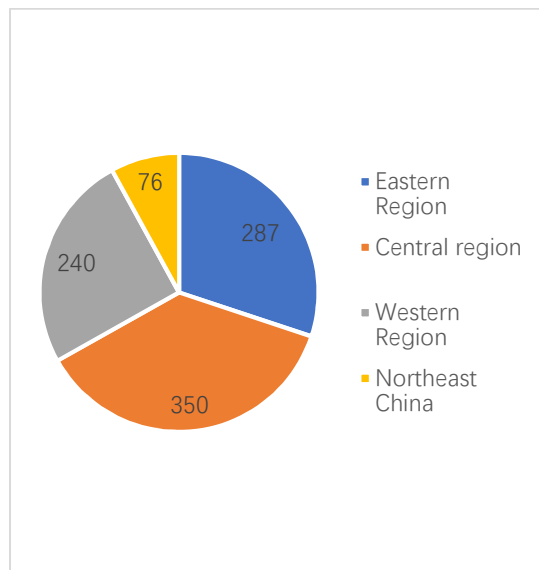


Figure 4. regional distribution of national green mines in 2019

4. Problems and Suggestions in Green Mine Construction

1) Lack of comprehensive construction standards. The types of mines in China are very rich, and there are great differences in types, so the customized standards can not cover all the contents, and the operability is not strong in the actual work process. In addition, in the stage of green mine

construction, the corresponding regulations can not play an exemplary role and lack reference significance [5]. In addition, the types of mineral resources, the degree of difficulty of construction and the mode of operation and management in different regions are also different. It is necessary to improve the appropriate local standards according to the regional conditions and conditions. On the whole, the green mine construction standard lacks the consideration of special periods or special circumstances, and can not reasonably deal with the unknown situation.

2) Lack of application of advanced technology. In the era of the rapid development of the Internet and artificial intelligence, the traditional science and technology can not stand a firm foothold, and the single development and utilization mode and lagging management mode can not meet the requirements of the society. Contemporary society needs innovation and sustainable development. If traditional technology cannot be innovated, it will lead to insufficient utilization of resources, resulting in waste of resources and adverse impact on the environment, which is contrary to the concept of "green mining". Under the system of market economy, enterprises consume a lot of human, material, financial and time, but there is no advanced technology as a guarantee. If the quality of construction is not improved, it is easy to be eliminated in the fierce competition.

3) Lack of scientific and effective supervision and assessment system. Due to the lack of effective ways of supervision, society and people can not widely participate in supervision, resulting in the phenomenon of no supervision. Enterprises may also gradually lose their sense of responsibility, and the construction quality will not be improved.

4) Lack of reasonable ecological management means. In the process of resource exploitation, the damage to the environment is irreversible. How to effectively prevent and repair the damage is a major problem. Due to the excessive exploitation of resources in the early stage, it has caused a certain degree of damage to the ecological environment, which needs to be restored and treated. However, due to the limitations of early technical conditions and costs, many hidden dangers have been left, which increases the difficulty of governance today. In addition, there were defects in the traditional technology at that time, resulting in a large amount of pollution, such as solid waste pollution, air pollution, noise pollution and light pollution, which could not be treated in time and effectively, which would also bring heavy pressure to the treatment.

5) Lack of corresponding policy support. The state and local governments should encourage the construction of green mines, enhance the enthusiasm of enterprises, enhance the sense of responsibility of enterprises, and promote their long-term development as the goal to achieve high-quality development. Support enterprises' independent transformation and innovation, develop new models, establish new systems, research and develop new technologies, and achieve new results, so as to lay a solid foundation for building green mines and green mines.

5. Opportunities for Green Mine Construction

1) The "one belt, one road" initiative has broadened the market for mining development. The one belt, one road China is mostly a developing country with limited economic scale. China's developing countries are developing the economy at the expense of the environment at a time of rapid economic development. In view of this phenomenon, China's mining industry can effectively open up foreign markets and join international competition by giving full play to the good role of green mines in the ecological environment. By participating in international competition, enterprises are forced to reform the mechanism, improve efficiency and strengthen quality, so as to realize transformation and upgrading.

2) The strategic layout of "four comprehensives" and the overall layout of "five in one" have brought new development concepts, namely, five development concepts of innovation, coordination, green, openness and sharing. In the process of mining development, establish the awareness of openness and sharing, coordinate various factors, constantly seek innovation and develop green mining economy. Enterprises keep up with the pace of the times, constantly explore the road suitable for the new era,

and actively point out a new direction for China's mining industry, which is both an opportunity and a challenge.

3) The consensus on the "double carbon" goal has promoted the transformation of global energy. The mining industry must meet the requirements of ecological civilization construction, green development and "double carbon" action, closely follow the development status and characteristics of the industry, promote high-quality development through green transformation, from extensive waste to intensive and efficient, build a new high-quality development model with high resource utilization efficiency, environment-friendly, low energy consumption and low emission, and promote the evolution of mining industry to high-end[5].

6. Conclusion

In general, there are still some problems in the construction of green mines in China, and the road of green mining has a long way to go. The new era is an important period for the development of green mines, with both opportunities and challenges. Mining enterprises should take the initiative to shoulder the responsibility of building green mines and promoting social progress, seize opportunities, meet challenges, contribute to China's modernization, seek well-being for the long-term interests of the Chinese nation, and make every effort to realize China's rise as soon as possible.

References

- [1] Gong bin, Shi Yi, Chen yaoduo, Xiang Dongwen, Liu Yuqiang Research on the connotation of mine ecological civilization under the background of green civilization construction [J] China mining, 2017,26 (08): 81-85.
- [2] Liu Lishun, Yu Bin, Wu Chunping, Cui song, Hou Guoquan, Guo Lijie Current situation and case analysis of green mine construction in China [J] Nonferrous metal engineering, 2020,10 (09): 98-103.
- [3] 301 mines were included in the national green mine list [J] China mine engineering, 2021,50 (01): 82-83.
- [4] Hou Huali, Liu Xiaojuan, Guo Dongyan, Wu Shangkun, Dong Yu Analysis and policy suggestions on the list of national green mines [J] China mining, 2020,29 (06): 1-7.
- [5] Zhang Junwei Problems and solutions of green mine construction in China under the new normal [J] China Metal Bulletin, 2021 (11): 239-240.
- [6] Ju Jianhua New opportunities and realization path of mining development under the background of "double carbon" goal [J] China mining, 2022,31 (01): 1-5.