

Practice and Exploration on the establishment mode of green mining development demonstration area in China

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Abstract : Taking the establishment of green mining development demonstration area as the research object, promoting the green development of regional mining has practical significance for exploring and constructing the development mechanism and management system of modern green mining. Based on the field investigation of the construction experience of seven green mining development demonstration zones in Chengde, Hebei Province and Huzhou City, Zhejiang Province, this paper analyzes the preliminary results achieved in the construction of national green mining development demonstration zones, and summarizes the exploration experience of various regions in solving the imbalance and insufficiency of mining green development in the region. Finally, suggestions on improving the establishment of green mining development demonstration zone are put forward from the aspects of local government leadership, giving full play to the demonstration and leading role of demonstration zone and strengthening summary and publicity.

Keywords: green mining; Establishment of demonstration area; Practical exploration

1. Introduction

The Proposal of the Central Committee of the Communist Party of China on Formulating the 14th Five-Year Plan for National Economic and Social Development and the Long-term Goals for 2035 proposes that during the 14th Five-Year Plan period, we should “promote green development and the harmonious coexistence between man and nature”. In recent years, the development of green mining has become an important symbol for the modernization of national mining governance and governance capacity. Compared with the traditional extensive development mode, the green development of mining is a transformation in the conventional method of resource utilization and economic growth pattern[1]. With an aim to promote green mining at a certain point, green mining construction is guided by the green development philosophy and pays attention to resource conservation, environmental friendliness, transformation and development, safety and harmony [2]. At last, the allocation of mineral resources and minimum disturbance of ecological environment can be optimized, and benefits in resource, economy, society and ecology are coordinated and unified. Designed to promote green mining in an area, green mining development demonstration zones boost the green development of mining in areas endowed with relatively abundant resources and concentrated mine distribution. Green mining development demonstration zones to promote regional green mining from one point to an area is in response to the green and high-quality mining development during the “14th Five-Year Plan” period.

2. The significance of the era of the construction of green mining development demonstration zones

Mining exerts huge influence on the path and effectiveness of socio-economic development. The green upgrading and high-quality development of mining is a necessity for the sound development of China’s new industrialization and urbanization. Regional green mining is an important part of mining upgrading and green development. From the 2019 Annual Green Mine Selection List released by the Ministry of Natural Resources, there are differences in the regional distribution of green mines in our country with nearly 37% of mines in central China, 30% in the east, 25% in the west and only 8% in northeast. In terms of quantity, the numbers of mining companies in the central,

eastern, western and northeastern regions are 350, 287, 240 and 76 respectively. The regional distribution characteristics of green mining are obvious. In spite of relatively fewer proved mineral resources in the east, the development there is stable and orderly with better resource utilization efficiency and good restoration and governance efficiency of mining geological environment. The relatively less geological exploration investment in the central region leads to lower comprehensive utilization efficiency and large-scale intensification. Despite of the prominent advantages in the number of proved mineral reserves in western China, low utilization efficiency exists, and mine geological environment restoration and governance need to be improved. The mining development in northeast China is relatively mature with higher economic benefits and large-scale intensification. However, the geological and environmental issues left over from history are salient, and the traditional mining industry needs to be further upgraded [3]. Green mining development demonstration zones are the practical application of developing regional green mining. They are also a major platform for reforming the management of mineral resources. Guided by governments, we should promote innovation in technologies, management and systems, boost green mines in a concentrated and comprehensive manner, and take the lead in upgrading mining and realizing green development [4].

3. Preliminary achievements in the construction of national green mining development demonstration area

The Letter on the Construction of Green Mining Development Demonstration Zones issued by the former Ministry of Land and Resources in September 2017 requires all localities to engage in the construction of innovation-driven and demonstration-led green mining development zones in accordance with policies, local entities, regional conditions and advantages. In April 2020, the Ministry of Natural Resources issued the Letter on Supplementing and Improving the Construction of Green Mining Development Demonstration Zones (Natural Resources Mine Guarantee Letter (2020) No.19), requiring all provinces and municipalities to improve the submitted construction plan of green mining development demonstration zones in combination with the actual progress of demonstration zones.

3.1 Distribution of 50 green mining development demonstration areas in China

As of December 2020, the Ministry of Natural Resources announced the list of 50 green mining development demonstration zones in Chengde, Hebei Province and other regions. In addition to Beijing, Tianjin, Shanxi, Shanghai, Hainan and Tibet, 25 provinces and municipalities have also established green mining development demonstration zones. Regarding the quantity, Hubei Province boasts the largest number of demonstration zones with five zones being created, which is followed by Shandong Province and Henan Province with four zones each. Three demonstration zones are established in five provinces including Jiangsu, Jiangxi, Guangxi, Sichuan and Xinjiang. Anhui, Fujian, Hunan, Yunnan and Qinghai create two demonstration zones, and the remaining 12 provinces have just one demonstration zone each.

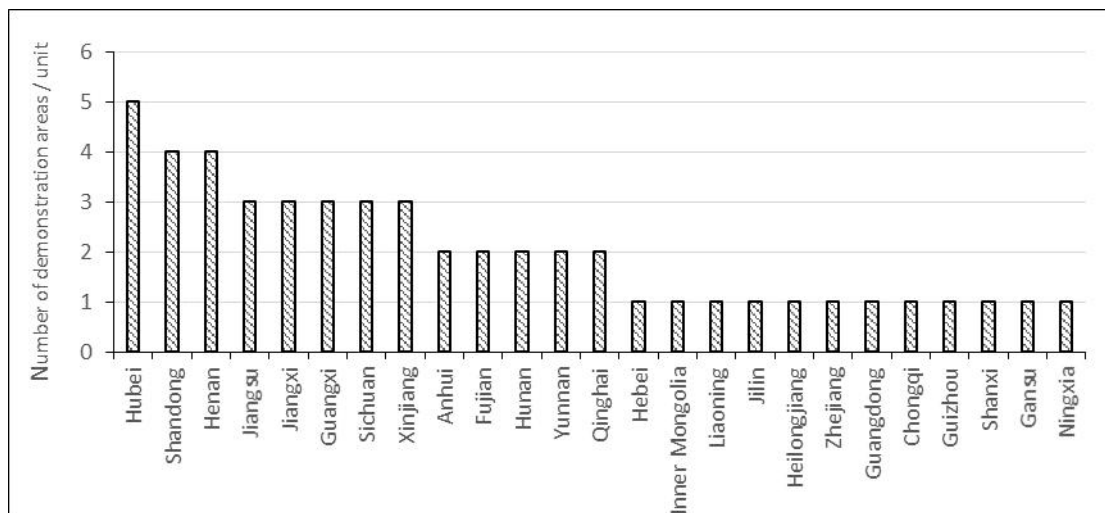


Figure 1 number of national green mining development demonstration areas

Data sources:Statistical analysis according to the announcement of the list of green mining development demonstration areas issued by the Ministry of natural resources.

From the regional perspective, 19 zones in the west, 16 in the central region, 12 in the east and 3 in the northeast account for 38%, 32%, 24% and 6% of the total number respectively.

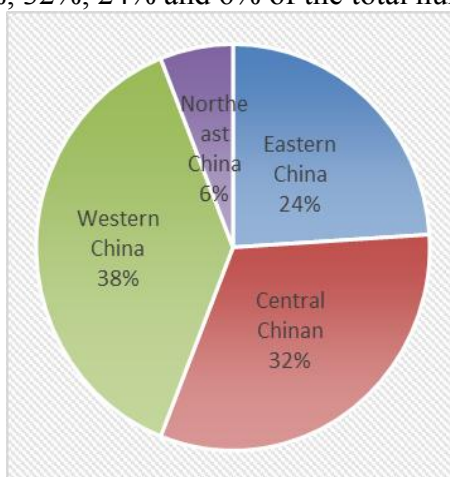


Figure 2 Regional distribution of China's mining development demonstration areas

Data sources:Statistical analysis according to the announcement of the list of green mining development demonstration areas issued by the Ministry of natural resources.

3.2 The construction of demonstration areas in various regions focuses on exploring and solving the problem of unbalanced and insufficient green development of mining industry in the region

Through the investigation of seven green mining development demonstration areas such as Huzhou City, Zhejiang Province and Chengde City, Hebei Province, compared with five years ago, the problems such as insufficient innovation ability of mining enterprises and unbalanced and insufficient green development of mining industry have been significantly improved. This achievement is attributed to the construction of green mining development demonstration areas in various regions based on regional advantages and local conditions. To sum up, it mainly focuses on promoting and improving the following eight tasks.

First task is to optimize the layout of exploration and development. The planning and zoning management system should be strictly implemented to guide the rational setting of mining rights and optimize the layout of mines. We should optimize the layout of processing parks, strengthen supporting infrastructure construction, guide and support the aggregation of production factors, thus transforming resource advantages into development ones.

Second is to adjust the mining industry structure. Eliminate backward, inefficient and polluting mining enterprises, integrate and cultivate mining enterprises with strong driving force. Optimize the structure of mineral development and utilization, and develop clean and efficient energy such as natural gas, coalbed methane, shale gas and geothermal. Relying on resource advantages, guide the extension and coupling of industrial chains of different enterprises, improve the added value of mineral products, promote the development of characteristic mining, and maximize the comprehensive benefits of resources and energy in the region. According to local conditions, guide the transformation of mining enterprises from single resource development industry to industrial diversified development.

Third is to comprehensively promote green exploration. Establish regional green exploration standards according to local conditions, encourage and guide enterprises to formulate enterprise standards and give play to the leading role of standards. Carry out packaged exploration to effectively avoid small, scattered, disorderly and small opening of large mines in the process of exploration and development.

Fourth is to improve the overall development and utilization efficiency of resources. The development and application of advanced mining and selection technologies and equipment should be enhanced to reduce energy consumption, ground consumption and water consumption of mining enterprises, and improve the overall mining recovery rate, concentration recovery rate and comprehensive benefits of mines.

Fifth is to promote green mines throughout the region. All mines in the area are managed according to the requirements of green mine construction, and the completion rate index of green mine is set to assess them. Strengthen the implementation and follow-up evaluation of industrial standards for green mine construction, formulate local standards according to local conditions, encourage mines to formulate enterprise standards and expand the coverage of standards.

Sixth is to strengthen the protection and governance of mining ecological environment. Comprehensively promote the treatment of the geological environment of closed pit mines and mines left over from history. Explore the multi-purpose development and industrial regeneration mode of mine relics, and promote the integrated development of mining and other industries such as agriculture, tourism, culture and education.

Seventh is to explore new ways for the harmony between mines and land. Give full play to the overall coordination role of the local government in the demonstration area, innovate the new mechanism of benefiting the people with resources, encourage the village collectives and the masses in the mining area to take shares in mining enterprises, improve the benefit distribution mechanism of resource development, and safeguard the legitimate rights and interests of mining enterprises and the interests of mining residents.

Eighth is to establish a new mechanism for green mining. Refine and improve land use, mining, finance, taxation and financial support policies. Establish and improve the linkage mechanism of enterprise owner construction, self construction and self-evaluation, third-party evaluation, standard warehousing, social supervision, random sampling, trustworthy reward and dishonest punishment. Establish an assessment mechanism and incorporate the development goal of green mining into the assessment system of the goal of ecological civilization construction.

4. General ideas on the construction of green mining development demonstration area

4.1 Local governments should take the lead and work together to promote the construction of demonstration areas

With the municipal and county-level people's governments as the main body of construction, multi departments coordinate and coordinate the development and utilization of resources within the region, integrate or extend the industrial chain, improve the level and efficiency of the development and utilization of mineral resources, build a platform for the reform and innovation of mineral

resources management system, promote technological innovation, management innovation and institutional innovation, and explore a new industrial development model of resource conservation, intensification and recycling and a new way of mining economic growth, Promote the construction of green mines in the whole region as a whole, so as to promote the mining industry in the region to move towards high quality.

4.2 Strive to build "four zones" and give full play to the role of demonstration and guidance

Select the areas with relatively rich resources, relatively concentrated mine distribution and good mining order as the creation object, consider the existing level and demonstration effect of green mine construction in the area, and avoid starting from scratch. The green concept will run through the whole process of planning, exploration, development, utilization and protection and mine ecological restoration, reflect the source prevention, process control and end treatment, realize the optimization of resources, economic, social and ecological benefits, and build a model area for the construction of ecological civilization in the mining field. According to the idea of "focusing on research and development, integrating and demonstrating, and promoting the application of a batch", take green mining, saving and recycling, ecological restoration, digitization and other technologies as the main direction, build a technical system to support the green development of mining industry, and create an exhibition area for the rational development and utilization of resources, advanced technology and equipment application. Explore and establish a market-oriented mechanism for mine geological environment restoration and governance invested by social capital, improve the reasonable distribution mechanism of resource development interests among the government, enterprises and mining people, and create a model area for mine environmental protection and mine land harmony. Establish a comprehensive promotion mechanism with the linkage of various departments and the participation of the whole society, create a leading area for the reform of mineral resources management system, and become a model for the reform and innovation of mineral resources management system and mechanism.

4.3 Strictly standardize the process and continuously improve the quality of the demonstration area.

Adhering to the problem orientation and goal orientation, the author believes that government departments can supervise the construction of mining green development demonstration area according to the six links of application creation, assessment and recommendation, evaluation and determination, evaluation announcement, demonstration promotion and supervision and management, as shown in Figure3.

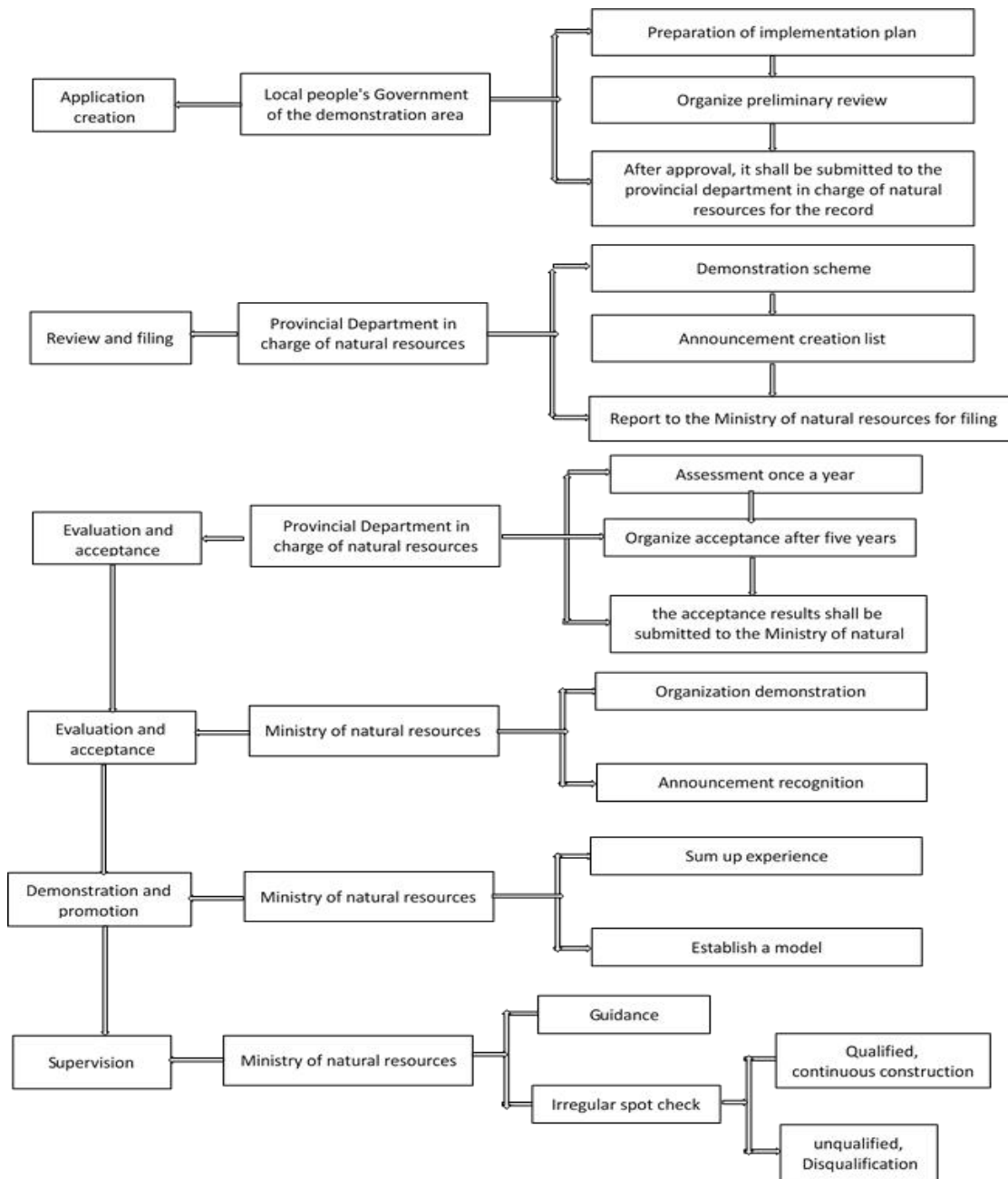


Figure3 flow chart of establishing green mining development demonstration area

4.4 Strengthen summary and publicity and promote the construction of national demonstration areas as a whole.

Accelerate the establishment of a public service platform for green mining development, enhance the transparency and influence of the construction of green mining development demonstration areas, and create a good atmosphere for vigorously promoting the construction of ecological civilization in the mining field. Regularly organize and carry out a series of training, strengthen the publicity and implementation of the demonstration experience model of green mining development, unify ideological understanding, strengthen practical guidance, and improve the overall level of the team and management personnel.

5. Conclusion

The high-level green mining development demonstration zones serve as a benchmark and guidance for green mining development, and will also become a new normal of economic growth in

an ecological civilization[5]. To conscientiously implement the spirits of the Fifth Plenary Session of the Nineteenth Central Committee of the Communist Party of China and put the philosophy of “green development and harmony between man and nature” into practices, we should strengthen the key role of governments in the in-depth development of demonstration zones. The competent departments of the Ministry of Natural Resources, Ministry of Ecology and Environment, Ministry of Forestry, Ministry of Finance and State Administration of Work Safety must work together for a multi-departmental linkage mechanism and gather resultant forces to provide a sound policy environment and regulatory services for enterprise development and mining transformation. In addition, all departments should cooperate to form a policy synergy. The assessment methods for declaring and assessing the demonstration zone management should be improved to clarify the indicator system and scoring methods for the assessment and identification of these zones, and make clear relevant requirements such as acceptance, identification, assessment, supervision and management of the demonstration zones. The internal impetus of mining enterprises should be enhanced to promote the application of advanced technologies such as green development, intelligent mining and selection, and efficient development. Green and ecological industries, and circular economy should be fostered to promote clean production, resource conservation and recycling. Media resources including the Internet, televisions, newspapers and We Chat should be made full use of. We can publicize typical implementation practices of new development philosophies in the mining development of various places and cases of green mine construction to call on all sectors of society to pay attention to green mining development demonstration zones and expand their influence.

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Reference

- [1] HOU Huali QIANG Haiyang CHEN Lixin. Study on the Green Development and High Quality Development of Mining Industry in the New Era. Chinese Academy of Land Resource Economics[J],2018(8):7-9.
- [2] SUN Yingxiang A Summary and Reflection on the Research Status of Green Construction in China. Chinese Academy of Land Resource Economics[J] 2020,(09):36.
- [3] REN Sida LIU Qian Li Meijie. Research on the Green Development of China's Mining Economy. China University of Geosciences. 2020:46-47.
- [4] Guo Dongyan Sun Yingxiang CHEN Lixin. Thoughts on compiling the construction plan for green mining development demonstration zone. China Mining Magazine, 2020,29(7):59-60.
- [5] JU Jianhua QIANG Haiyang. The trend and direction of green development of mining industry in Chian. China Mining Magazine, 2017.26 (02) : 7-12.