



Implementing the Planning for exploration, exploitation, processing, and use of mineral types ensuring sustainable development

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Implementing the Planning Law and Mineral Law, the Prime Minister issued Decision No. 866/QĐ-TTg dated July 18th, 2023, approving the Planning for exploration, exploitation, processing, and use of minerals in the period of 2021 - 2030, with a vision toward 2050. The implementation of this Planing will make an important contribution to the development of industry and other economic sectors that use minerals as raw materials, creating jobs, and contributing to ensuring social security and environmental protection in Vietnam. The Planning orientates overall long-term development goals, basic management of minerals with large, strategic, and important reserves associated with mobilizing resources and fundamental solutions according to the development roadmap, ensuring sustainable development, effective socio-economic benefits, and environmental protection, ensuring security, national defence, and harmony between national, local and business interests.

Some results of implementing the Planning for exploration, exploitation, processing, and use of minerals until 2020

The Planning Law in the period from 2017 to 2020, planning in the mineral sector in Vietnam was organized and implemented by the Ministry of Industry and Trade (MOIT), relevant Ministries, agencies, and localities and achieved remarkable results in mineral planning management as follows:

Contribute to perfecting the policy and legal framework and improving the efficiency of mineral resource management

After the National Assembly promulgated the Mineral Law in 2010, the Central Government issued Resolution No. 02-NQ/TW of the Politburo dated 25/4/2011 on the strategic orientation of the minerals and mining industry until 2020, vision to 2030. The National Assembly has issued 1 additional Law related to the mineral sector, and 1 Resolution on prior granting mineral

exploitation rights; The 12th National Assembly Standing Committee also issued 1 Resolution on the results of monitoring and promoting the implementation of legal policies on mineral management and exploitation associated with environmental protection; 6 Resolution on resource tariff, natural resource tax rate and environmental protection tax. After 10 years, relevant Ministries and agencies have developed and submitted to the Government and the Prime Minister for promulgation and promulgated according to their authority 10 decrees, 7 decisions, and nearly 60 circulars guiding the creation of a complete legal document system on mineral, serving as a legal corridor for developing the mining industry.

Awareness of organizations, individuals, businesses operating in minerals, and people in mineral areas has been raised, focusing on innovation in science and technology, equipment, and effective exploitation of natural resources and attention to environmental protection; strengthen supervision of the community and people in areas where mineral projects are located.

Localities with minerals have focused on quality instead of a simple growth target. The number of local mineral licenses has decreased, and they have resolutely stopped and revoked licenses and investment certificates for mineral exploitation and processing that are ineffective and cause environmental pollution.

The legal system and policies on minerals and environmental protection have been fundamentally amended and supplemented by reality and relevant laws. The value of mineral resources has been quantified and brought significantly to the national budget through the collection fees of data use and mineral exploitation rights.

The role of state management from central to local levels has been strengthened, improving accountability. Inspection, testing and supervision are focused and carried out regularly. Licensing mineral activities through the auction of mineral exploitation rights ensures openness, transparency, and selection of qualified investors with technology, and minimizes negativity.

Administrative procedures for business investment, licensing of mineral activities, and export of minerals are continuously improved. However, the licensing time for some mineral exploitation projects is still long, affecting business opportunities in the face of market fluctuations.



▲ Minister of Industry and Trade Nguyễn Hồng Diên delivered a speech at the Conference announcing national plans for the energy and minerals sector for the period 2021-2030, with vision to 2050

Although the growth target of the mining industry has not been achieved as expected according to Resolution No. 02/TW of the Politburo of the Communist Party of Vietnam, the industry has paid more attention to growth quality and sustainable development goals. The increase in the proportion of the processing and manufacturing industry and the reduction in the proportion of the mining industry in the past period is consistent with the orientation of industrial restructuring.

Environmental protection in mineral exploitation and processing has been taken into consideration, businesses are more aware of minimizing environmental pollution. Many concentrated mineral processing zones have been formed and controlled dust, noise, exhaust gas, and wastewater into the environment.

Attract investment to develop the mineral sector

As of December 2019, the total number of valid mineral exploration/mining licenses was 4,062, of which 582 licenses (61 exploration licenses, 522 mining licenses) were issued by the Ministry of Natural Resources and Environment (MONRE); 3,480 licenses (250 exploration licenses, 3,230 exploitation licenses) were issued by the Provincial People's Committee according to its authority. Thus, there are currently 3,752 valid mineral exploitation licenses issued by the MONRE and the Provincial People's Committee to about 3,300 organizations and individuals, which has significantly reduced the number of mineral mining projects approved before 2010. In general, organizations and individuals exploiting

minerals have paid more attention to investing in mining and processing technology to increase the value of minerals to meet domestic and export needs. Environmental protection in mineral activities has been taken into account and implemented in line with regulations, however, due to fluctuations in the world mineral market, mining activities for some minerals such as iron ore, titanium, paving stones... have significantly decreased in output.

Many mineral deep processing projects have been implemented, including several large-scale investments that have gone into production, processed products have high added value, creating many jobs for local workers. Significant contributions to the state and local budget such as the Nui Phao tungsten-polymetallic mining and processing project, Sin Quyen copper mine project (Lao Cai), and Lao Cai copper smelting project with a total capacity of 30,000 tons of metallic copper/year; Lam Dong bauxite - aluminium complex project and Nhan Co Alumina Factory project invested by Vinacomin Coal Import Export Joint Stock Company (TKV), have gone into commercial production with a design capacity of 650,000 tons of alumina/year, the iron factory complexes Lao Cai Steel, Cao Bang Iron, and Steel, Hoa Phat Hai Duong Steel, Hoa Phat Dung Quat Iron and Steel Complex...

Mining projects according to central planning licensed by the MONRE are large enough in scale, focus more on technology, environmental protection, and avoid fragmentation, and basically mining projects have been associated with processing to provide raw materials for processing projects.

Applying scientific and technological solutions, innovation, and modernization in the mineral sector

In the period of 2010 - 2020, in addition to implementing scientific and technological tasks at the ministerial and central levels in the field of mineral exploitation and processing, the Ministry of Industry and Trade (MOIT) has been assigned by the Prime Minis-



ter to preside over the implementation of the project on innovation and modernization of technology in the mining industry until 2015, vision to 2025. Up to date, there have been 88 scientific and technological tasks implemented with a total amount of 1,225 billion VND, of which national capital is 392 billion VND, mobilized from other sources is 833 billion VND.

Many technological solutions are the results of scientific and technological research that have been successfully applied to the production and business sectors of the industry, contributing to meeting the needs of mining and processing enterprises, applying, innovating, and modernizing technology, increasing the localization rate in equipment manufacturing, reduce the trade deficit, improve productivity, reduce costs, increase product competitiveness, bring economic efficiency for the industry.

Mineral processing: Currently, some types of metallic minerals have been processed into final mineral products such as copper, lead - zinc, tin, and gold... using traditional technology (hydrometallurgy). Some types of metals such as manganese, chromite, and titanium... have only produced intermediate products, which are ferro products. The remaining non-metallic products such as white limestone, kaolin, feldspar, serpentinite, etc. have been mastered by the technology and made final products to supply other industries. Some minerals such as bauxite, iron, copper, tungsten, and apatite meet world-class advanced equipment technology.

Forecasting in planning plays a guiding role in promoting the development of the mining industry and mineral resource management

In the context of increasingly difficult conditions for exploiting mineral resources, promoting the development of science and technology and applying technical advances to production plays an important role in the sustainable economic growth and development of Vietnam's mineral exploitation industry. Besides, it is necessary for Vietnamese scientists and technologists to research in the field of exploration, exploitation, processing and use of minerals sustainably, responding to climate change and the 4.0 Industrial Revolution.

Currently in the world, advanced mineral exploitation and processing technologies that meet the requirements of sustainable development are focusing on smart technology for exploration and reserving volume assessment, including geomechanical assessment; technology allowing the implementation of continuous mining systems to become a viable option in ore mining and rock removal; clean technology and environmentally friendly waste utilization and reuse; Mineral beneficiation technology allowing to further improve mineral recovery rates; The technology allowing mining in complex geological and mining conditions, while ensuring environmental friendliness.

The application of scientific and technical advances will contribute to improving the efficiency of explora-

tion, exploitation, processing, and use of minerals and minimizing the negative impacts of mineral exploration, exploitation, processing, and use of minerals in the future. Scientific and technological advancements in the exploration, exploitation, processing, and use of mineral resources contribute to the effective and economical exploitation, processing, and use of mineral resources towards the goal of sustainable development in the mineral industry.

Create positive changes, raise awareness about planning and development of the mining industry and mineral resource management

In recent years, along with socio-economic development, propaganda, dissemination, and legal education in the mineral sector have created positive changes in the awareness of officials, civil servants, public employees, workers in the mineral industry in particular, and the people of the country in general. The basic contents and great value of the mineral and mining industry strategy for the country's socio-economic development have been fully and fundamentally recognized, increasingly deeply, gradually in creating strong and profound changes in the awareness of voluntarily obeying the Law, rational and economical use of resources, and joining hands to protect mineral resources.

The licensing process has been proactive in selecting mineral exploitation and processing investment projects with advanced, environmentally friendly technology, poor ore mining and processing projects, and thoroughly using and saving minerals. Therefore, it has limited the situation of fragmented, small, and ineffective investment and mineral exploitation.

In addition, through inspection and examination, violations were discovered such as exploitation without a license; buying, selling, transporting, consuming, and storing minerals of illegal origin; Mining minerals over the allowed mining capacity... and has made records to sanction administrative violations in many cases, contributing to increasing the efficiency of usage and saving mineral resources across the country.

Although the management of mineral planning has achieved the above positive results, the implementation of mineral planning still has certain limitations and problems. These are, the work of building,



organizing, and implementing the planning has not been synchronized for the planning for exploration, exploitation, and processing of minerals with the licensing of mining as well as other planning, especially with local development planning. The impact assessment of the exploration, exploitation, processing, and use of minerals on socio-economic development, national defence, security, and the environment has not been given due attention. Accordingly, mineral exploration, exploitation, and processing have negative impacts on the tourism and agriculture-forestry industries because the mining and processing process takes up a large amount of land and affects the environment. Implementation capacity, including management and technical aspects, at the Central and local levels is not strong enough, and the quality of human resources does not meet the requirements.

Planning for exploration, exploitation, processing and use of minerals in the period 2021 - 2030, vision to 2050, toward sustainable development

Mineral management in our country in the current context has to face advantages and difficulties. The advantage is that a system of legal documents has been gradually completed, detailed, and specific, creating a legal basis and favourable conditions for the national management of minerals. Fundings for the public management of minerals and environmental protection in mineral activities are gradually invested and used more rationally. Party committees, authorities, unions from Central to local levels, and people throughout the country have been aware and have gradually stepped into synchronization; Organizations and individuals engaged in mineral activities strictly implement mineral laws, contributing to ensuring social security, order, and safety. To date, Viet Nam has negotiated, signed and implemented 19 Free Trade Agreements (FTAs), creating linkages between Vietnam and the world in sharing benefits, including the goal of managing mineral resources, especially efforts to resolve general environmental issues; has been taking advantage of advanced management methods, capital, science and technology from the world to serve mineral resource management. The difficulty is that awareness of mineral management is incomplete, especially awareness of governmental management of minerals in an integrated manner; mineral management institutions are not synchronized; environmental issues in global mineral management as well as risks of environmental incidents in the mineral sector.

In the above context, on July 18th 2023, the Prime Minister issued Decision No. 866/QĐ-TTg approving the Planning for exploration, exploitation, processing and use of minerals from 2021 to 2030, vision to 2050 (hereinafter referred to as the Planning 866) with the general goal of: "Mineral resources are strictly managed, exploited, processed, and used economically and effectively, associated with the needs of economic de-

velopment, environmental protection, adaptation to climate change and the goal of achieving carbon neutrality. Promote investment and form a synchronous and effective mining and processing industry with advanced technology and modern equipment in line with world trends. For minerals with large, strategic, and important reserves (bauxite, titanium, rare earth, chromite, nickel, copper, gold), mining-licensed enterprises must have sufficient capacity and must invest in appropriate processing projects using advanced technology, modern equipment, and sustainable environmental protection. Limit and eventually end the exploitation of small, scattered, low-reserve mines, and concentrate mineral resources from small - scale mines/mining sites into mine clusters that are large enough for synchronous investment from exploration, exploitation, and processing together with applying advanced technology and modern equipment". The objectives of the Planning 866 show that mineral planning management has been given comprehensive attention: from exploration, exploitation, processing, and use of minerals.

To realize the goals in the mineral sector, the Planning 866 stipulates land use orientations for the development of the mining industry, infrastructure, environmental protection, and science and technology:

Firstly, land use layout orientation: Land demand for mineral exploitation development is about 190,000 hectares in the period of 2021 - 2030 and about 305,000 hectares in the period of 2031 - 2050, basically in accordance with land distribution targets in Resolution No. 39/2021/QH15, to ensure the implementation of economic development goals.

Secondly, infrastructure development orientation:

(1) For investors: mineral exploitation and processing projects must be based on the needs of the project to plan and build a system of collector roads connecting with highways and national routes in certain locations. The connection location must be approved by competent Government agencies before deployment. At the same time, the investor must base on the needs of the project to register for use with governmental management agencies and must be approved before implementing the project.



(2) State management: synchronous investment in transport infrastructure and general seaports to serve the development of mineral exploitation and processing appropriate to each stage of development. Continue to upgrade and invest in new traffic routes and national power grids for remote areas and concentrated industrial parks to serve the development of mineral projects and the socio-economic development of the region.

Thirdly, orientation for environmental protection:

With the goal of green growth, circular economic development, and a strong shift from brown to green strategy, the orientation on environmental protection needs to address the following issues:

(1) Promote the application of advanced technology, green technology, economical use, and take advantage of resources; recycling technology using effectively waste ores, tailings, and poor ores; collect and thoroughly treat all types of waste generated in production; recycle and reuse as much as possible for production and supply to the needs of other economic sectors, gradually forming a circular economy.

(2) Prevent, minimize, and fix incidents and environmental risks in mineral exploitation and processing projects.

(3) Renovate and restore the environment of mineral mines immediately after completion in the direction of integrating environmental regeneration and restoration combined with the development of green projects for socio-economic development (high-tech agricultural zones, eco-tourism services, residential areas...) and environmentally friendly economic sectors.

(4) Thoroughly overcome the problem of dust generation in production affecting the environment and population during the mineral exploitation and processing process. Improving the environmental landscape of mineral production areas to ensure green - clean - beautiful contributes to protecting the general environment.

(5) Proactively adapt to climate change, ensure landfill safety, minimize drifting soil and rocks, and prevent flood risks; reduce greenhouse gas emissions, and limit the impact of climate change.

Fourthly, science and technology orientation:

Continue to effectively implement phase 2 of the Project on technological innovation and modernization in the mining industry until 2025 approved by the Prime Minister in Decision No. 259/QĐ-TTg dated 22/2/2017.

Promote research, transfer, acquisition, and application of advanced scientific and technology, technology and equipment conversion of stages: exploration, exploitation, mineral processing, and environmental protection for each group/type of minerals towards a green production model.

For Highlands bauxite minerals, titanium, rare earth, Thanh Hoa chromite, Lao Cai apatite, Binh Thuan titanium, Son La nickel, copper-gold, other large-scale mines/mining clusters such as Thach Khe iron mines, Lao Cai Province copper mine... must form a mining complex associated with processing, applying advanced technology and modern equipment.

In addition, the Planning 866 also offers 9 groups of solutions and main resources to achieve the following goals and directions.

Firstly, legal and policy solutions: Continue to review, amend, supplement, and perfect the governmental mechanisms, policies, and laws on minerals, creating favourable conditions for businesses to invest in mining and processing of minerals projects. Strengthen coordination between the MONRE, the MOIT, and the Provincial People's Committee in licensing mineral activities, providing information on the situation of exploitation and processing after licensing. For some large-scale and strategic minerals and mineral mines such as bauxite, titanium, rare earth, nickel, copper, gold, and chromite, before licensing mineral exploration and exploitation, the licensing agencies get opinions from governmental management agencies on planning, exploitation, and processing on the compatibility with planning and supply and demand situation.

Secondly, financial and investment solutions: Review and promptly adjust reasonable taxes, fees, and charges, ensuring harmony of interests between the government, businesses, and local people where minerals are located. Encourage qualified domestic enterprises to play a key role in the exploration, exploitation, and processing of strategic minerals with large volume reserves. Diversify investment capital sources through investment capital contributions, shares, joint ventures, and other credit capital sources.

Thirdly, scientific, technological, and environmental solutions: Applying specific mineral exploration techniques in the best possible technological and technical direction in Vietnam, ensuring compatibility with local realities. With mineral processing and use activities: focus on applying advanced science and technology in the operation process towards a circular economy, green economy, and low carbon.

Fourthly, propaganda and awareness-raising solutions: Promote propaganda and dissemination of guidelines, policies, and laws on minerals, and publicize mineral planning. Raise awareness about the role and laws on minerals; Strengthen community supervision of mineral activities in the area; publi-



cize and transparent revenues and use of revenue sources of mineral enterprises. Media agencies coordinate with Ministries, agencies, and People's Committees of provinces with mineral activities, especially sensitive minerals such as bauxite, iron...

Fifthly, solutions for training and capacity building: Focus on investing in innovation and modernization of training and research equipment for educational institutions, specialized research institutions, and key laboratories. Enhance the leading role of research institutes and universities to promote scientific and technological research and environmental protection.

Sixthly, solutions for international cooperation: Promoting scientific and technical cooperation, technology transfer in exploration, exploitation, processing and use, environmental protection, labour safety, and the applications of information technology in management. Cooperate in investing in mineral exploitation and processing projects that require high technology; Restrict cooperation, joint venture, association, and purchase of shares to foreign investors for mining and mineral projects.

Seventhly, capital mobilization solutions: Investment capital for projects on exploration, exploitation, and processing of minerals, in addition to part of the capital from the Government budget, is mainly guaranteed by enterprises themselves with their own capital, commercial loans (mainly) on the financial market, capital mobilized from other sources such as the stock market, domestic and foreign organizations, individuals, and businesses.

Eighthly, human resource solutions: Develop plans to recruit and train human resources in accordance with industry requirements and development progress of mineral exploitation and processing projects. Focus on recruiting and training on-site workers, especially in mountainous areas with difficult and especially difficult socio-economic conditions. Presenting policies to attract high-quality human resources and preferential treatment for mining workers, especially underground mining workers. Open links with domestic and international training establishments, have recruitment policies for skills improvement training, transfer training, or send abroad for training with high-quality, career-attached labour resources. For officials and workers in minerals and metallurgy, it is

necessary to recruit and arrange personnel with expertise and practical experience; Support and update legal knowledge on natural resources and environment and related laws for the mineral and metallurgical officials and workers who need to be recruited.

Ninthly, solutions for organizing and supervising the implementation of the planning: Identify tasks and responsibilities for managing and implementing the planning of relevant organizations, units, and agencies, including the MOIT, and MONRE,... improving the effectiveness of coordination and supervision of planning implementation.

Thus, with the results achieved in the Planning for exploration, exploitation, processing, and use of minerals for the period to 2020 and the determination of goals, orientations, solutions and resources to implement the Planning for the period of 2021 to 2030, vision to 2050, Planning for exploration, exploitation, processing and use of minerals plays an important role in mineral management. Currently, the MOIT is presiding and coordinating with ministries, agencies, and localities to complete and report to the Prime Minister for approval of the Planning to implement the Planning for exploration, exploitation, processing, and use of various types of minerals in the period of 2021 - 2030, vision to 2050. Therefore, the close coordination between Ministries, agencies, and localities in organizing and implementing the Plan is highly important ■

REFERENCES

1. *The Politburo of the Communist Party of Vietnam (2022), Resolution 10-NQ/TW dated 10/2/2022 on the strategic orientation of geology, minerals, and mining industry to 2030, vision to 2045, Hanoi.*
2. *MOIT (2023), Report to the Prime Minister on approval of the Planning for exploration, exploitation, processing, and use of minerals in the period of 2021-2030, vision to 2050, Hanoi.*
3. *Government (2022), Resolution No. 64/NQ-CP dated 6/5/2022 of the Government on implementing policies and laws on planning since the Planning Law comes into force and some solutions to improve quality and speed up planning progress for the 2021 - 2030 period, Hanoi.*
4. *National Assembly (2023), Resolution No. 81/2023/QH15 dated 9/1/2023 on endorsing the National Master Plan for the period 2021 - 2030, vision to 2050, Hanoi.*
5. *Decision No. 259/QD-TTg dated 22/2/2017 on approval of "Project for technological innovation and modernization in the mining industry until 2025".*
6. *Prime Minister (2023), Decision No. 866/QD-TTg dated 18/7/2023 approving the Planning for exploration, exploitation, processing, and use of minerals in the period 2021 - 2030, vision to 2050, Hanoi.*
7. *Prime Minister (2023), Decision No. 334/QD-TTg dated 1/4/2023 on approving the "Geology, minerals, and mining industry strategy to 2030, vision to 2045", Hanoi.*