

number of solutions to problems arising in construction investment activities and reform of some administrative procedures applicable to enterprises;

Pursuant to the Government's Decree No. 160/2005/ND-CP of December 27, 2005, detailing and guiding the implementation of the Law on Minerals and the Law Amending and Supplementing a Number of Articles of the Law on Minerals;

Pursuant to the Government's Decree No. 189/2007/ND-CP of December 27, 2007, defining the functions, tasks, powers and organizational structure of the Industry and Trade Ministry;

In furtherance of the Government Office's Official Letter No. 5487/VPCP-CN of November 28, 2007, notifying the Prime Minister's opinions on empowering the Industry Minister (now the Industry and Trade Minister) to approve the planning on exploration, exploitation, sorting of apatite ores in the 2006-2020 period from now to 2015, with post-2025 orientations taken into consideration;

At the proposal of the directors of the Planning Department and the Heavy Industry Department,

THE MINISTRY OF INDUSTRY AND TRADE

**DECISION No. 28/2008/QĐ-BCT OF
AUGUST 18, 2008, APPROVING THE
PLANNING ON EXPLORATION,
EXPLOITATION AND SORTING OF
APATITE ORES IN THE 2008-2020 PERIOD,
WITH POST-2020 ORIENTATIONS TAKEN
INTO CONSIDERATION**

**THE MINISTER OF INDUSTRY AND
TRADE**

Pursuant to the March 20, 1996 Law on Minerals and the June 14, 2005 Law Amending and Supplementing a Number of Articles of the Law on Minerals;

Pursuant to the Government's Resolution No. 59/2007/NQ-CP of November 30, 2007, on a

DECIDES:

Article 1.- To approve the planning on exploration, exploitation and sorting of apatite ores in the 2008-2020 period, with post-2020 orientations taken into consideration, with the following principal contents:

I. Development viewpoints

- To develop the industry of exploitation of

apatite ores in line with the planning on development of Vietnam's chemical industry and the socio-economic development planning of Lao Cai province, meeting needs for raw materials for the production of phosphorous fertilizers for agriculture and export, as well as needs for raw materials containing phosphorus oxides for the production of base chemicals and for other industries, meeting requirements of defense and security maintenance, and protecting valuable cultural works and the ecological environment in Lao Cai province;

- To develop the exploitation and processing of apatite ores with modern technologies, thoroughly and economically exploit this natural resource, ensure economic efficiency, and facilitate farmers to benefit from products processed from apatite ores;

- To conduct one step ahead exploration activities in order to create reliable apatite reserves for the exploitation and processing of the mineral in the planning period.

II. Development objectives

1. General objectives

- To explore, exploit and sort apatite ores in a comprehensive and rational manner in order to achieve the targets of ore output and quality for the national economy;

- To build and develop the industry of exploitation of apatite ores in a stable and sustainable manner, meeting needs for raw materials for the processing of fertilizers for agricultural development to assure national food security, and for the production of base chemicals, livestock feed, and other industries. To contribute

to redistributing production forces by industries and territorial regions and developing the chemical industry in a balanced and rational manner;

- To ensure that apatite ore exploration, exploitation and sorting are conducted in an economical and efficient manner and without adverse impacts on the ecological environment. To intensify the processing and fullest use of class-II, -III and -IV ores in combination with the study and sorting of the ores in order to increase their phosphorus oxide (P_2O_5) content.

2. Specific objectives:

a/ Apatite exploration:

To step up the apatite exploration, thus ensuring reliable reserves for exploitation. To attach importance to the assessment and extensive exploration of the mineral in areas on which geological documents remain limited, search and discover new ore bodies so as to increase the reserve size for the development of mining areas.

b/ Ore exploitation and sorting:

To exploit and sort apatite ores in sufficient quantity and of satisfactory quality for the domestic processing of phosphorous fertilizers and base chemicals as well as for export with a rational volume at the initial stage. The estimated ore exploitation and sorting output in the 2008-2020 period is specified in Appendix 1.

c/ Environmental protection:

To ensure minimum eco-environmental impacts of ore exploitation and sorting on localities where mining activities are conducted.

III. Forecast needs for apatite ores

Needs for apatite ores for the production of single superphosphates, fused phosphorous fertilizer, DAP fertilizer, yellow phosphorus, etc., are forecast as follows:

to the level of elaborate exploration in order to reach 6.5 million tons and 24.8 million tons of explored class-I and class-III ores, respectively, combined with the exploration of class-II and

No	Category	Unit of calculation	2010	2015	2020	2025
1	Class-I ores	1,000 tons	500	550	600	650
2	Class-II ores	1,000 tons	860	1,120	1,650	1,650
3	Sorted ores	1,000 tons	1,120	1,620	2,020	2,020
Total		1,000 tons	2,480	3,290	4,270	4,320

IV. Exploration planning

The explored and determined apatite ore reserve is 778 million tons, including 31 million tons of class-I ores, 234 million tons of class-II ores, 222 million tons of class-III ores and 291 million tons of class-IV ores. The explored and forecast reserve is around 2.45 billion tons.

1. Exploration areas

Areas projected for intensive geological exploration in the planning period include:

- Tam Dinh - Phung village area;
- Phu Nhuan area;
- Class-II ores in the central area;
- Bat Xat - Lung Po ore area;
- Bao Ha - Trai Hut area;
- Northern Nhat Son area from mining site 25 to mining site 29.

2. Exploration volumes and tasks

- Exploration in Tam Dinh - Phung village: To switch from the level of preliminary exploration

class-IV ores;

- Exploration in Phu Nhuan area: The volume of class-I ores will be around 1 million tons, class-III ores around 10 millions tons, combined with the exploration of class-II and class-IV ores;

- Exploration of class-II ores in the central area, with a reserve of 100 million tons, combined with the exploration of class-IV ores in the surrounding areas;

- Exploration in Bat Xat - Lung Po area on the basis of outcomes of preliminary searches on a map scale of 1/25,000;

- Survey and exploration in Bao Ha - Trai Hut area;

- Extensive exploration in the Northern Nhat Son area from mining site 25 to mining site 29. The explored volumes of class-I and class-III ores will be around 10 million and 20 million tons, respectively, combined with the exploration of class-II and class-IV ores.

3. Exploration schedule and capital

The investment capital for exploration in the planning period is estimated at around VND 213 billion. The detailed schedule and capital for exploration are specified in Appendix 2.

V. Planning on exploitation of apatite ores in Lao Cai

To further and thoroughly use mining equipment in the existing production chains, such as blasting drills, excavator-elevators and transport vehicles, in order to raise the capacity to serve production and business. To step by step invest in modern and appropriate technologies and complete equipment, such as hydraulic excavators with a bucket capacity of 8-10 m³, hydraulic drills with a bit diameter of up to 150 mm and self-dumping automobiles of a tonnage of up to 80 tons, and consider the possibility to apply the mode of combined automobile-conveyor transportation to suit the geological structure of mines (for mine layers spreading on vast areas);

In the planning period, to open new mining areas in the Northern Nhac Son, central, Tam Dinh - Phung village and Phu Nhuan areas in order to maintain the ore output for processing.

The average output of class-I, class-II and sorted crude ores for the planning periods is estimated as follows:

- In the 2008-2010 period: 2-2.5 million tons/year;
- In the 2011-2015 period: 3-3.5 million tons/year;
- In the 2016-2020 period: 4-4.5 million tons/year.

Reserves of mining sites in the mining areas

to be put into exploitation in the 2008-2020 period are specified in Appendix 3.

VI. Planning on apatite ore sorting

1. Ore sorting capacity

To meet the needs for raw materials for the production of superphosphates and DAP fertilizer in the planning periods, the pure ore sorting capacity is determined at 2 million tons/year.

Total capacity of existing sorting plants and those under construction is 1,420,000 tons of pure ores/year. Investment will be made to achieve an additional capacity of around 600,000 tons/year.

2. Ore sorting solutions

- Sorting class-III ores with presently applied technologies.
- Researching and transferring technologies for sorting class-II and class-IV ores in order to salvage natural resources, as these two ore categories account for 70% of the total mineral reserve.

In the planning periods, to renovate the existing sorting plants and build new ones as follows:

- Renovation and expansion of Tang Loong sorting plant with a capacity of 900,000 tons/year;
- Maintenance of Cam Duong sorting plant with a capacity of 120,000 tons/year;
- Building of Northern Nhac Son sorting plant with a capacity of 350,000 tons/year;
- Building of Northern Phung village sorting plant with a capacity of 250,000 tons/year;
- Building of a class-II and class-IV ore sorting plant with a capacity of 500,000 tons/year.

3. Solutions to use apatite ores

- Class-I and sorted ores and part of the class-II ore output will be used for the production of phosphorous fertilizers and DAP fertilizer;

- Class-III ores exploited from chemically weathered KS layers 4, 6 and 7 with a content of $P_2O_5 \geq 12\%$ will be used as input raw materials for sorting plants after having their content of P_2O_5 neutralized;

- Class-IV ores and the superfluous volume of class-II ores will be stored and preserved for future use.

VII. Capital needs and investment projects on development of the apatite ore exploitation and sorting industry in the 2008-2020 period

- Investment capital needed for the development of the apatite ore exploitation and sorting industry in the 2008-2020 period is estimated at around VND 2,500 billion (see Appendix 4).

- Investment projects on apatite ore exploitation and sorting in the 2008-2020 period, with post after-2020 orientations taken into consideration, are listed in Appendix 5.

VIII. Major solutions and policies

1. Group of general solutions and policies

To assure the sustainable development of the apatite ore exploitation and sorting industry with the following principal solutions and policies:

- Protecting, exploiting and using in an economical and rational manner domestic natural resources;

- By 2015, studying the sorting of ores with a low content of P_2O_5 (class-II and class-IV ores) to be added to the ore resource to meet domestic use needs.

- Stepping up the equitization of state enterprises and establishment of joint-stock companies with the participation of scientific and technological research institutions and enterprises and capital contributions of other enterprises engaged in geology, ore exploitation and sorting, and deep processing of apatite ores.

- Raising the sense of social responsibility of ore exploitation and sorting enterprises for making contributions to building infrastructure, attracting, training and employing local laborers; devising measures to protect the ecological environment and actively participating in improving the social environment.

2. Group of specific solutions and policies

a/ Market solution:

Building and developing the domestic market under the mechanism of fair market competition and close cooperation in order to ensure the supply of raw materials for establishments processing phosphorous fertilizers and producing base chemicals, livestock feed, and gradually penetrating into the world market.

b/ Researching, transferring and receiving sciences and technologies:

Perfecting the technology for exploiting and the technology for floating class-III ores. Attaching importance to the research into technologies for sorting class-II and class-IV ores as well as technologies for producing drugs for sorting class-II and class-IV ores through

joint efforts between the State, scientific and technological enterprises and mineral exploiting and processing enterprises.

c/ Developing and training human resources:

Entering into cooperation with training establishments (job-training schools, colleges and universities) in training and retraining the labor force and conducting scientific research for the stages of mining and mineral sorting suitable to Vietnam's apatite mineral deposit and characteristics. Attaching importance to the training of mining business leaders and administrators to satisfy the requirements of business development in the context of global competition.

d/ Protecting the environment:

Mineral exploitation and processing enterprises shall fully apply environmental protection measures at the stages of mineral exploration, exploitation and sorting in the direction of application of modern and environmentally friendly technologies; and seriously carry out the restoration of the grounds and environment after finishing mining activities. They shall ensure industrial sanitation and labor safety in production. They are encouraged to research and apply modern environmental treatment technologies in all production processes.

e/ Investment capital solution:

In order to attract around VND 2,500 billion for investment in the development of Vietnam's industry of apatite ore exploration, exploitation and sorting up to 2020, the following sources will be mobilized:

- Self-acquired capital of enterprises;
 - Budget capital for investment in infrastructure outside mine fences, the elaboration and adjustment of the planning, scientific and technological training and research activities of institutes and schools in the industry;
 - The State's investment credit loans for investment projects on apatite ore exploitation and sorting in localities with difficult and exceptionally difficult socio-economic conditions under current regulations;
 - Domestic and foreign commercial loans;
 - Capital of financial institutions provided in the form of financial assistance for hire, hire-purchase or purchase of equipment; credit for sellers of technologies and equipment;
 - Foreign investment capital to be mobilized from foreign parties in the form of large joint-venture projects on deep processing of apatite ores.
- f/ State management solutions:*
- Periodically reviewing, updating and adjusting the planning on development of the industry of apatite exploration, exploitation and sorting to suit the national and international socio-economic development;
 - Building and perfecting a mechanism for concentrating the management of mineral exploration, exploitation and processing into a sole agency in order to ensure the uniformity, strictness, non-overlap, mobility and efficiency of the management, protection, exploitation and sorting of apatite ores;
 - Reorganizing the management of natural resources and making of periodical statistics and

reports on apatite mineral from grassroots to provincial and ministerial levels. Applying measures against and imposing sanctions on organizations and individuals that fail to fully comply with regulations on this work. Enhancing inspection and examination of mineral activities in order to prevent illegal mineral exploitation and export.

- Reforming the grant of mineral activity permits in the direction of introducing more convenient and transparent procedures while still ensuring strict management of mineral activities.

IX. Organization of implementation

1. The Industry and Trade Ministry shall publicize and direct the organization of implementation of the planning, periodically update and adjust the planning and propose mechanisms and policies for sustainable development of the apatite exploitation and sorting industry, ensuring their conformity and suitability with the national socio-economic development and international integration roadmap.

2. The Ministries of: Natural Resources and Environment, Science and Technology, Planning and Investment, Finance, Transport, and Information and Communication shall, within the ambit of their functions and tasks, assume the prime responsibility for, and coordinate with the Industry and Trade Ministry in, concretizing and organizing the implementation of solutions and policies set forth in this Decision.

3. The People's Committee of Lao Cai

province shall:

- Assume the prime responsibility for, and coordinate with Vietnam Chemical Corporation in, managing and protecting apatite mineral resources in its locality; preventing the illegal apatite exploitation and export;

- Assume the prime responsibility for, and coordinate with concerned ministries and branches in, zoning off and approving areas in which apatite mining is banned, temporarily banned or restricted;

- Coordinate with state management agencies and enterprises in executing projects specified in this Decision.

4. Vietnam Chemical Corporation shall:

- Manage, survey and plan the use and exploitation of apatite ore mines in Lao Cai province;

- Associate and cooperate with other enterprises that are capable of and interested in investing in the exploration, exploitation and processing of apatite ores for domestic consumption and export.

Article 2.- This Decision takes effect 15 days after its publication in "CONG BAO."

Article 3.- Ministers, heads of ministerial-level agencies, heads of government-attached agencies, the president of the People's Committee of Lao Cai province, and Vietnam Chemical Corporation shall implement this Decision.

Minister of Industry and Trade
VU HUY HOANG

Appendix 1**Forecasts about ore exploitation and sorting outputs in the 2008-2020 period***(Attached to the Industry and Trade Ministry's Decision**No. 28/2008/QĐ-BCT of August 18, 2008)**Unit of calculation: 1,000 tons*

No	Periods	Class-I crude ores	Class-II crude ores	Purely sorted crude ores	Total of all categories of ores
1	2008-2010	2,495	2,886	3,805	9,186
2	2011-2015	2,700	5,510	7,150	15,360
3	2016-2020	2,750	7,250	8,050	18,050
	Total	7,945	15,646	19,005	42,596

Appendix 2**Exploration schedule and capital***(Attached to the Industry and Trade Ministry's Decision**No. 28/2008/QĐ-BCT of August 18, 2008)**Unit of calculation: VND billion*

No	Mines and mining sites	Reserves (million tons)	Survey and exploration objectives	Investment capital (VND billion)	2008-2015	2016-2020
1	Tam Dinh - Phung village area	28	Elaborate exploration	16	16	
2	Phu Nhuan area	11		10	10	
3	Class-II ores in the central area	100	Elaborate exploration	80	75	5
4	Mining sites from 24-29	36	Elaborate exploration	22	21	1
5	Class-III in grounds	15	Elaborate exploration	6	6	
6	Lung Po - Bat Xat area					
6.1	Phase I	100	Survey - exploration	20	20	
6.2	Phase II	100	Elaborate exploration	50	33	17
7	Phung village - Trai Hut area	60	Survey - exploration	9	-	9
	Total	439	-	213	181	32

Appendix 3
Ore reserves to be mobilized and ore volumes to be exploited
(Attached to the Industry and Trade Ministry's Decision
No. 28/2008/QĐ-BCT of August 18, 2008)

No.	Mining sites	Class-I ores (1,000 tons)	Class-II ores (1,000 tons)	Class-III ores (1,000 tons)	Earth and stone (1,000 m ³)	Earth and stone of class-III ores (1,000 m ³)	Extraction coefficient (ton/m ³)	
							Classes I + II	Classes I + II + III
1	Mining sites in operation	1,220	-	25,300	4,495	18,550	15.21	0.9
2	Mining site 17	514	-	396	837	1,057	2.00	0.93
3	Mining site 10	605	-	8,200	3,308	7,863	13	0.38
4	Wings 3-4, Koc mine	769	5,500	2,110	11,350	15,522	2.4	1.53
5	Wings 3-4, Mo village	1,820	-	11,900	16,400	23,011	12.64	1.19
6	Mining sites 18 and 19	1,610	-	25,200	15,129	29,129	18.09	0.77
7	Northern Nhac Son area: mining sites 20, 21, 22 and 23	5,265	-	27,011	35,702	50,700	9.96	0.97
8	Tam Dinh - Phung village area	6,200	-	24,800	31,000	44,440	7.16	1
9	Phu Nhuan area	735,000	-	8,520	16,458	21,191	28.83	1.78
10	Class-II ores of mining sites	-	35,500		102,000	114,166	2.8	-
11	Class-III ores in storages	-	-	34,600	-	-	-	0
	Total	18,738	41,000	168,037	236,679	330,000	5.52	1.03

Appendix 4
Total investment capital needed for the 2008-2020 period
(Attached to the Industry and Trade Ministry's Decision
No. 28/2008/QĐ-BCT of August 18, 2008)

Unit of calculation: VND billion

No	Investment domains	2008-2010	2011-2015	2016-2020	2008-2020
1	Geological survey	52	119	32	213
2	Capital construction and procurement of mining equipment	208	276	121	605
3	Building of ore-sorting plants	313	736	536	1,685
4	Scientific and technological research	5.4	10	4.6	20
	Total	578	1,141	783.6	2,503

Appendix 5

List of investment projects on apatite ore exploitation and sorting in the 2008-2020 period, with post-2020 orientations taken into consideration

(Attached to the the Industry and Trade Ministry's Decision
No. 28/2008/QĐ-BCT of August 18, 2008)

No	Name of project	Location	Capacity (1,000 tons/year)	Investment capital (VND billion)	Implementation duration
	For the 2008-2020 period				
Ore exploitation and sorting projects					
1	Completion of sorting chain No. 3 of Tang Loong sorting plant	Tang Loong township of Bao Thang district	900	180	2008

2	Opening of mining sites 20-23	Northern Nhac Son area	200-250	100	2008-2009
3	Opening of mining sites 6, 7, 9/37 and 33-34	Wings 3-4 of Mo village	120-150	63.5	2008-2009
4	Geological survey	In each sub-region		213	2008-2020
5	Building of a sorting plant	Northern Nhac Son area	350	393	2009-2011
6	Scientific and technological research	Key schemes		20	2009-2020
7	Building of a sorting plant	Phung village	250	446	2011-2014
8	Opening of mining sites	Tam Dinh - Phung village	130-170	101.5	2013-2015
9	Building of a class-II ore sorting plant	Dong Ho	400	736	2014-2018
10	Opening of mining sites	Phu Nhuan area	50	36.2	2015-2016
11	Opening of mining sites to exploit class-II ores	The mine central area	1,600	18.8	2015 - 2018
12	Procurement of equipment	Mining areas		285	
	Total			2,503	