

MINISTRY OF EDUCATION AND TRAINING MINISTRY OF CONSTRUCTION

HANOI ARCHITECTURAL UNIVERSITY

NGUYEN THI HOAI

**MANAGEMENT OF CONSTRUCTION INVESTMENT PROJECTS
COAL INDUSTRY PROJECTS IN QUANG NINH MEET REQUIREMENTS FOR
MINIMIZATION OF ENVIRONMENTAL POLLUTION**

SUMMARY

DISCUSSION OF URBAN AND CONSTRUCTION MANAGEMENT

Hanoi - 2023

The thesis was completed at Hanoi University of Architecture

Science instructor:

1. Assoc. Le Van Kieu

2. Assoc.Prof.Dr. Nghiem Van Khanh

Review 1: **Assoc.Prof.Dr. Nguyen Huu Hue**

Review 2: **Prof.Dr. Trinh Quang Vinh**

Review 3: **Assoc.Prof.Dr. Nguyen Ngoc Phuong**

The thesis will be defended before the school-level thesis evaluation board, Hanoi University of Architecture

Athour.....date.....month..... 2023

Thesis can be learned

1. National Library of Vietnam

2. Library of Hanoi University of Architecture

PREAMBLE

1. Urgency of the topic

In Quang Ninh, the coal mining and screening industry has developed strongly over the years, coal exploration, mining and screening to provide raw materials for the domestic economic sector and for copper export. creating many job opportunities and contributing to increase the budget income for the province.

In 2020, the mining industry in Quang Ninh has a relatively high growth rate, contributing about 35% of the province's GDP, making an important contribution to the development of the locality. However, along with this development, according to the assessment of functional sectors and the coal industry itself, the management of construction investment projects in terms of protection, exploration, exploitation, screening, transportation and consumption Coal minerals and construction projects on infrastructure works, environmental protection works at coal mines in recent years have encountered many limitations and shortcomings, failing to keep up with the requirements of sustainable development goals. The current project management work mainly focuses on attracting investment capital, organizing project implementation to soon put the project into operation... but has not paid much attention to the integration of environmental management in the process. Project management aims to meet the requirements of environmental reduction, ensuring the sustainable development of the province in the future.

Pursuant to Decision No. 403/QD-TTg dated March 14, 2016 and Decision No. 1265/QD-TTg dated August 24, 2007 of the Prime Minister approving the adjustment and supplementation of development planning Vietnam's coal industry to 2020, considering the prospect to 2030, the problem of construction investment project management for coal industry has set requirements that must be met not only in terms of economy and society but also must be minimized environmental pollution, ensuring sustainable development. [49]

Currently, the management of coal industry construction investment projects in areas in Quang Ninh province is directly responsible by the Vietnam National Coal-Mineral Industry Group - Vinacomin (according to the provisions of Decree No. 212/2-13). /ND-CP dated December 19, 2013, on the charter and organization and operation of Vietnam Coal-Mineral Group) with areas mainly concentrated in the following localities: Cam Pha, Uong Bi, Ha Long, Dong Trieu and Hoanh Bo. In fact, the coal industry construction projects at each of the above locations have differences in scale, type of mining technology, ... and affect the surrounding environment according to different conditions. markedly different levels.

However, the form of project management that TKV is currently applying as well as the content of project management for each type of work, regional specific factors related to environmental safety have not yet been paid attention to clarify. Efficiency of construction investment according to areas of each type of project. Besides, according to Decision No. 1799/QD-UBND dated August

18, 2014 on "Environmental planning of Quang Ninh province to 2020, vision to 2030", the stages and contents of implementation of construction investment project management for with coal industry works, there is still no direct, synchronous and transparent connection associated with environmental management in order to minimize the impacts caused by coal mining, screening, and transportation activities; limit the continued discharge of waste beyond the load-bearing threshold of surface water, land and air environment, local subsidence; maintain and preserve natural ecosystems, social ecosystems in danger of being disrupted in Quang Ninh province.

Therefore, in order for coal industry construction projects in Quang Ninh to really bring socio-economic values as well as environmental protection without pollution, it is necessary to have synchronous management research and close coordination. relevant parties. Therefore, the topic **"Management of investment and construction projects of coal industry in Quang Ninh to meet the requirements of environmental pollution reduction"** is really necessary, has scientific and practical significance, contributing to preventing and controlling environmental pollution. prevent and minimize environmental pollution, ensure sustainable development, towards green growth for Quang Ninh province in the coming time.

2. Research purpose

Proposing construction investment project management solutions for coal mining and screening works in the coal industry in Quang Ninh province according to the Vietnam coal industry development master plan to 2020 with a prospect to 2030 to meet the requirements of mitigating local environmental pollution, towards the development of the mining industry to ensure green and sustainable growth

3. Object and scope of research

- Research object: Construction investment project management for mining and screening works in coal mines (referred to as "Construction investment project management of coal industry").
- Scope of research: Coal screening and mining projects in Quang Ninh province (according to the Vietnam coal industry development plan up to 2020 with a prospect to 2030), focusing on research projects funded by public corporations Vietnam's coal and mineral industry (TKV) manages and manages construction investment project management solutions for coal industry in association with the requirement of minimizing environmental pollution caused by the operation of these projects.

4. Research Methodology

The topic uses 05 main research methods: Method of systematization and inheritance; Methods of investigation and survey; Methods of synthesizing and analyzing documents and data; Comparative method; Professional solution

5. Scientific and practical significance of the thesis

5.1. Scientific significance of the thesis

Systematize the theory of construction investment project management of coal industry associated with environmental protection;

Provide solutions on the basis of science for the project management of coal industry construction planning towards environmental protection, green growth and sustainable development.

The research results of the thesis are used as references for teaching and research for lecturers, students, trainees, researchers in the field of urban and construction management.

5.2. The practical significance of the thesis

The research results of the thesis help state management agencies, TKV, contractors, consulting units and other relevant parties to apply the integration of environmental management in the construction investment project management process, making decisions. ensure the effectiveness, synchronization, and suitability and ensure the sustainable socio-economic development of Quang Ninh province in the future associated with green growth.

6. New contributions of the thesis

- Proposing a solution to divide 03 planning areas in coal exploration, mining, screening and screening projects associated with specific conditions of urban areas, economic - tourist zones and mountainous areas to towards rules that bind the management of socio-economic development in association with sustainable development, green growth and environmental pollution reduction.
- Develop a set of criteria including 3 groups of criteria on safe environmental distance; landscape architecture and conservation of cultural - social values, ecological environment; the relationship between the environment and the growth of the green-circular economy in order to rank the investment priority order of the projects in the management in each planning subdivision.
- Proposing solutions to improve the efficiency of integrated environmental management in the stages of construction investment project management of coal mining, screening and selection works in Quang Ninh province.
- Proposing solutions to adjust the form of project management for construction of coal industry works at Vinacomin and the organizational structure of regional PMUs in line with project management requirements according to the Vietnam coal industry development master plan to 2020. to 2030.

7. Structure of the thesis

In addition to the introduction, conclusion - recommendations, appendices and references, the thesis has a structure of 3 chapters:

- Chapter 1. Overview of construction investment project management of coal industry and environment;
- Chapter 2. Scientific and legal basis for management of construction investment projects of coal industry in Quang Ninh to meet the requirements of environmental pollution reduction;
- Chapter 3. Construction project management of coal industry in Quang Ninh to meet the requirements of environmental pollution reduction

8. Concepts and terms related to the content of the thesis

Construction investment projects; Investor; Construction activities; Construction investment consulting activities; Formulate construction investment projects; Investment deciders;

Contractors; Expertise; Examine; Mining; Mineral planning; School opening; Open pit mines; Screening workshop; Underground mines.

CHAPTER 1. OVERVIEW OF MANAGEMENT OF CONSTRUCTION INVESTMENT PROJECTS COAL INDUSTRY AND ENVIRONMENT

1.1. Development situation of coal industry in the world

The five stages of development of the world coal mining, screening and consumption market include:

- (1) From 1991 to 1993: World coal mining growth was negative (-3.9%; -0.8% and -2.7%) [71];
- (2) From 1997 to 1998: coal mining grew negative (-1.7%) when Asia - the world's largest coal consumer fell into a financial crisis;
- (3) From 2002 to 2003: The world coal mining growth rate fell below 1% when the South American economy was in crisis;
- (4) From 2008 to 2009: World coal mining growth rate decreased by 0.02% when the whole world fell into the financial crisis and
- (5) From 2014 to 2015: World coal mining growth rate decreased by 4.0%, mainly due to the impact of falling oil prices and economic slowdown that reduced coal demand.

1.1.2. Forecast of coal mining output and consumption in the coming time

According to the forecast of FOCUSECONOMICS in May 2016, the world's coal production by 2035 is as shown in Table 1.1.

Table 1.1. Forecast of coal production to 2035 of the whole world [75]

Regions	Coal production forecast region (million TOE)					
	2025	Increase/ decrease compared to 2015, %	2030	Increase/ decrease compared to 2015, %	2035	Increase/ decrease compared to 2015, %
1. North America	468	-5.3	446	-9.8	390	-21.1
2. Europe and Eurasia	393	-6.4	388	-7.6	385	-8.3
3. Asia - Pacific	3,298	+22.0	3,411	+26.2		+31.1
4. Other areas	234.7	+10.5	247.6	+16.0		+25.4
Worldwide	4,394		4,492		4,586	

The forecasted coal consumption volume by 2035 of the whole world is presented in Table 1.2.

Table 1.2. Forecasting the volume of coal consumed by 2035 of the whole world

Regions	Coal production forecast region (million TOE)					
	2025	Increase/ decrease compared to 2015, %	2030	Increase/ decrease compared to 2015, %	2035	Increase/ decrease compared to 2015, %
1. North America	364	-15,1	300	-30,1	254	-40,8
2. Europe and Eurasia	435	-7,0	3884 04	-13,6	377	-19,4
3. Asia - Pacific	3.400	+21,5	3,567	+27,5	3.72 6	+31,1
4. Other areas	167	+15,6	184	+27,3	207	+43,4
Worldwide	4,394		4,455	+16,0	4,56 4	+18,9

In which, the forecasted coal consumption volume of Vietnam to 2030 according to domestic coal demand is presented in Table 1.3.

Table 1.3. Forecast of coal demand in Vietnam by period [5]

No	Coal demand	2025 (million tons)	2030 (million tons)
1	Thermal power	96.5	131.1
2	Fertilizers, chemicals	5.0	5.0
3	Cement	6.7	6.9
4	Metallurgy	7.2	7.2
5	Other households	6.1	6.4
	Total	121.5	156.6

1.2. Status of project management of construction investment projects in the coal industry in Vietnam

1.2.1. The process of mining and consuming coal at Vietnamese coal companies

In Vietnam, the process of coal mining and consumption at Vietnamese coal companies is depicted in the diagram in Figure 1.1.

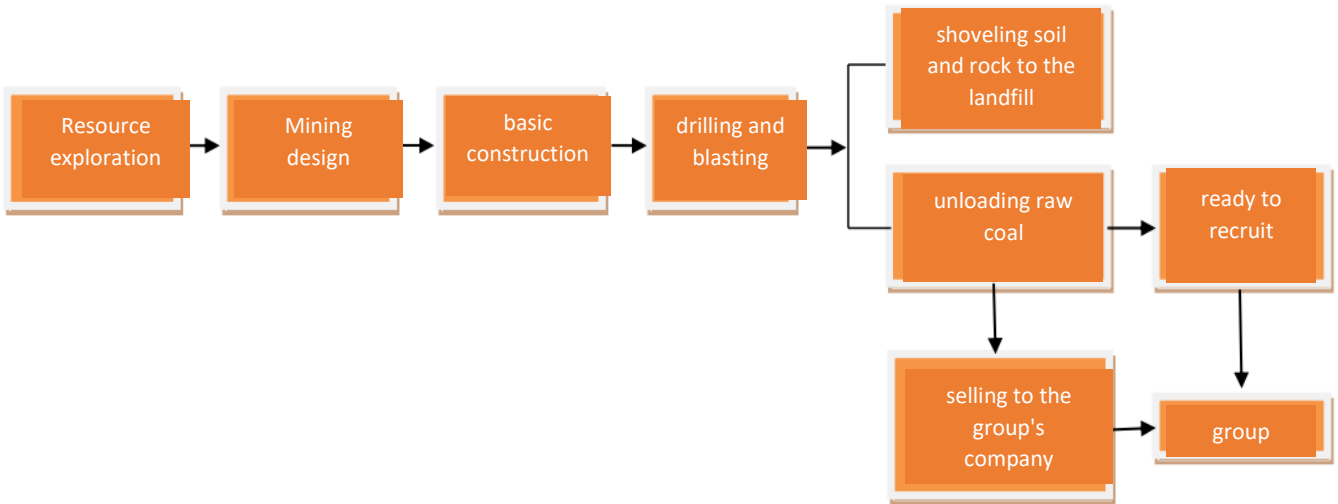


Figure 1.1. Flowchart of coal mining and consumption process at Vietnamese coal companies

1.2.2. Model of organization of construction project management of coal industry

The organizational hierarchy of construction investment project management of coal industry in Vietnam is presented in Figure 1.2.

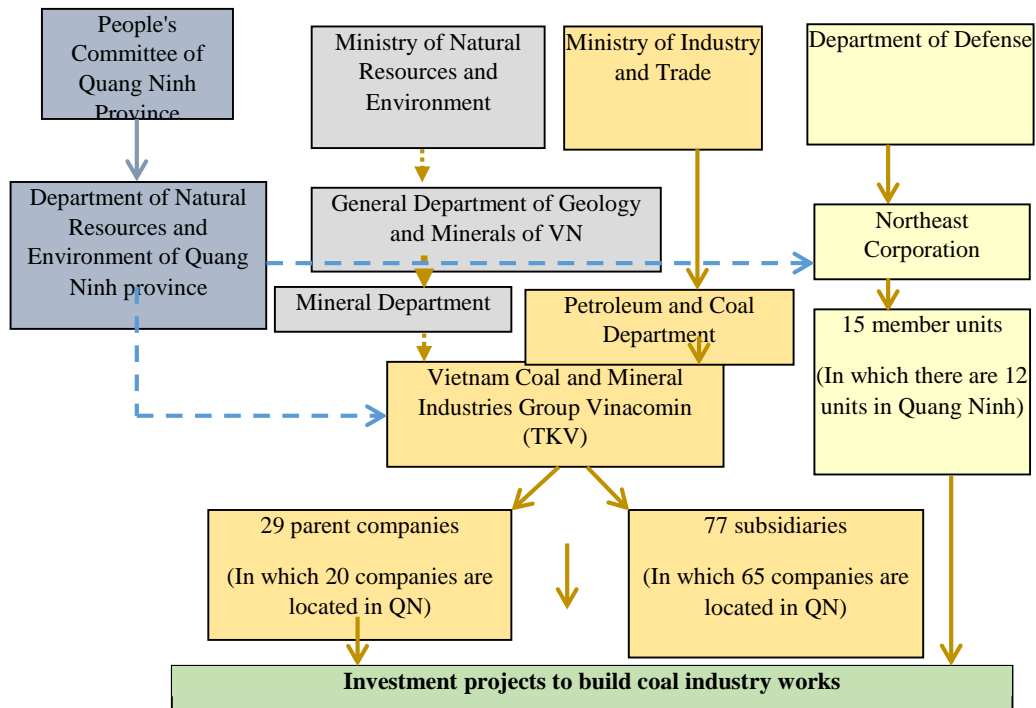


Figure. 1.2. Organizational hierarchy diagram of construction investment project management of coal industry in Vietnam

1.2.3. Evaluation of the management of construction investment projects in the coal industry in Vietnam

- About the organization and decentralization of management
- About the legal policy system

1.3. Status of management of coal industry construction investment projects in Quang Ninh and environmental management

1.3.1. Investment projects to build coal industry works in Quang Ninh

Construction projects of coal industry in Quang Ninh are grouped and described in general as shown in Figure 1.3

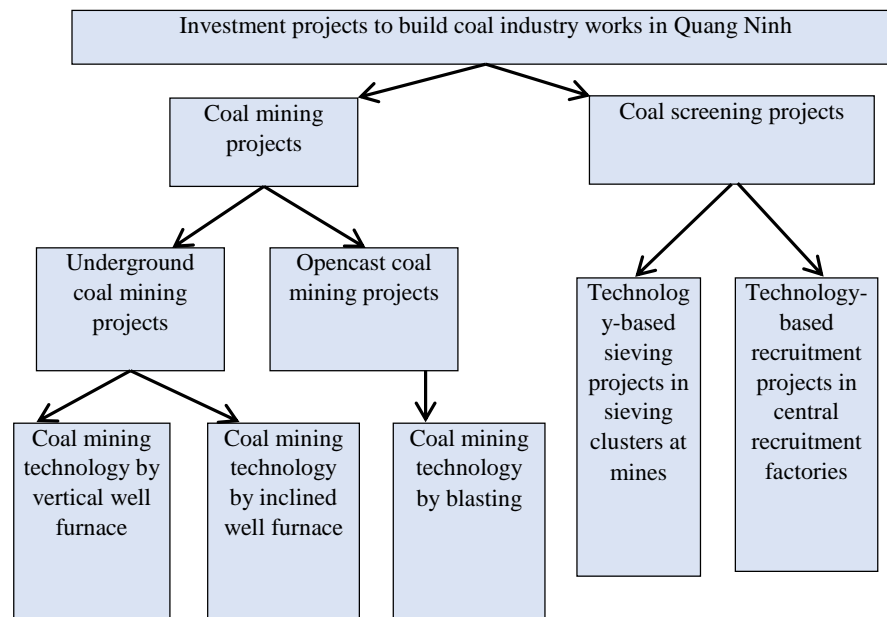


Figure 1.3. Classification of coal industry construction investment projects in Quang Ninh

1.3.2. Form of project management and organization of construction project management at Vietnam Coal and Mineral Corporation

Currently, Vinacomin applies project management in three forms:

- Specialized construction investment project management board;
- Regional Construction Investment Project Management Board;
- Construction Investment Project Management Unit 1 project (Figure 1.4)

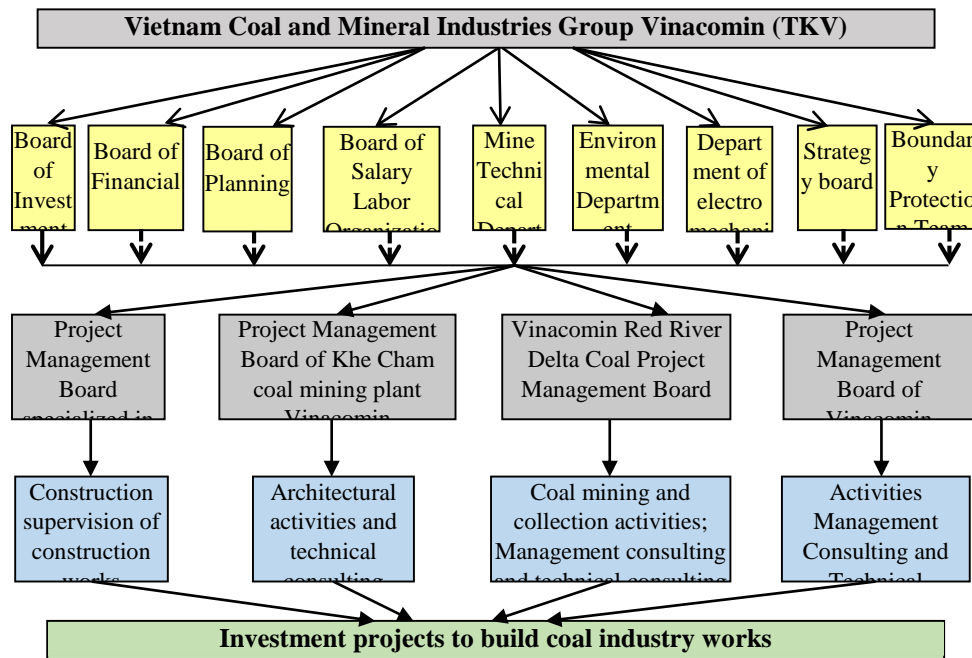


Figure 1.4. Map of the current situation of organization of construction project management of coal industry of Vietnam Coal and Mineral Industries Group - TKV

1.3.3. Status of implementation of project management of construction investment projects in coal industry in Quang Ninh

1.3.3.1. Manage the investment preparation phase

1.3.3.2. Managing the investment execution phase

1.3.3.3. Managing the operation and maintenance phase of the project

1.3.4. Evaluation of the management of coal industry construction investment projects in Quang Ninh over the past time

1.3.4.1. General assessment

- Achievements: Currently, the coal industry has been promoting investment to promote growth on the basis of broad development coupled with enhanced development in depth by applying advanced new technologies. , modern in order to improve labor productivity, product quality and business efficiency; concentrate resources to implement approved coal mine projects; develop coal mines according to the criteria "Clean mine, safe mine, modern mine".

- Limitations exist:

+ Group of projects for construction of coal mining works: Some projects have not been implemented according to the set targets, leading to lower coal production than expected; The project design appraisal has not yet considered the evaluation of mining technology, so many projects when being invested have low excavation speed.

+ Group of construction investment projects for coal screening and processing: The investment is still local and small, and the project investment period is long; The progress of investment preparation for some projects is still slow; The inter-regional and inter-sectoral connection when implementing and designing projects is still not high.

1.3.4.2. Evaluation of project management at Vietnam Coal and Mineral Industries Group.

* These achievements

- From 2020 to now, Vinacomin has performed project management in about 50 projects in 33 coal mines, ensuring compliance with State regulations.

- Construction quality management: TKV's projects are strictly implemented in terms of construction quality management, construction, inspection of construction materials, and compliance with regulations of the State. water

- Training: TKV has established the Vietnam Coal - Mineral College to train and improve the capacity of officials and employees in the industry, including training in project management.

- Investment preparation and implementation are sometimes slow and incomplete due to the overlap between the planning boundaries of forest types (special-use forests, protection forests) and local plans with boundaries of coal mine development investment projects.

- There are many problems with the technical design and total cost estimation

The quality of project verification is not high, especially the design survey cannot detect inadequacies leading to ineffective implementation of the next stages of the project.

- The bidding work has not achieved high efficiency

- The work of compensation and ground clearance still faces many problems

- The project implementation progress is still slow, occurring at many stages in the project implementation process

- The cost of the projects increased significantly compared to the estimate, causing the project to reduce economic efficiency and very few projects had reduced costs compared to the original

- The inspection and supervision work is still limited

- The coordination mechanism between specialized teams/departments and between the project contractors and the investor (TKV) during project implementation is not very effective, affecting the progress of the project. project level.

- management tools are not really effective and appropriate

- The problem of capital and disbursement of capital for investment still has many shortcomings

- Bulky project management apparatus

- Regarding the mechanism, policies and laws in the project management of Vinacomin are unclear and overlapping

- The interest in environmental protection work in some units is not high, not active in environmental protection work.

1.3.5. Situation of environmental quality in areas where investment projects are implemented in the construction of coal mining and screening works in Quang Ninh

1.3.5.1. Policies and orientations for environmental protection of coal industry in Quang Ninh

According to Decision No. 1052/QĐ-VINACOMIN dated June 18, 2013 on approving the Environmental Protection Project of Quang Ninh Coal Area to 2020, vision to 2030.

1.3.5.2. Current environmental quality in areas under the construction investment project of coal mining and screening works of Quang Ninh province

- Water environment: Some surface water sources are directly affected by coal mining activities
- Air environment: Continued dust and noise pollution
- Soil environment and solid waste management: The strongest impact is to disturb the soil surface, destroy natural vegetation and farming systems leading to erosion, leaching causing degradation of land resources.

1.3.5.3. Assessment of environmental management in areas of construction projects of coal mining and screening works in Quang Ninh province

* Favorable:

- The province always strengthens the direction of coal mining units operating in Quang Ninh province under KTV and Northeast Corporation to ensure funding for environmental protection of the coal industry. Year 2020
- Focus on implementing the project to improve the coal industry's environment to meet the coal industry's green development strategy
- Strictly implement: prepare and submit to competent authorities for approval of location, detailed planning, EIA of construction projects, screening works and centralized coal storage.

* Some exist

- On the organizational structure of environmental management.
- In terms of institutional and policy.
- In terms of finance, investment for the environmental protection of the coal industry.
- Regarding activities to monitor, observe and warn of environmental pollution caused by coal mining, screening and selection activities.
- Regarding resources, community participation.

1.4. Research works related to the thesis topic

The thesis has reviewed 05 documents and researches on environmental issues and economic development; 15 documents and research works on mineral exploitation and environmental protection; 04 research works on the issue of project management and construction of coal industry. Studies have paid attention to the adverse impact of mining and economic development on the environment in general. These studies have actively contributed to building the foundations of project management. However, for the coal industry, the issues of construction investment project management have not been studied specifically in terms of management associated with protection and reduction of environmental pollution. The management has not been mentioned specific to each area.

1.5. Key issues to be solved in the thesis

- Proposing to select the form of construction investment project management of the province's coal industry in accordance with the scale and technology of the project in accordance with the new provisions of the Law and Decree and in accordance with the characteristics of the

organizational structure of Vinacomin as well as the specific characteristics of the project. Points of project types of Quang Ninh coal industry.

- Proposing a set of criteria for classification of investment priority projects and solutions for construction investment project management of coal mining, screening and selection projects in the direction of planning subdivisions.
- Proposing solutions to improve mechanisms and policies in project management such as: management regulations, guiding documents, priority and incentive policies for projects with high environmental protection solutions. .
- Proposing solutions to improve the capacity and role of stakeholders in making management decisions appropriate to each stage of project investment.
- Proposing integrated environmental management solutions in the stages of construction investment project management in Quang Ninh province in order to improve the investment efficiency of planned projects and projects in the direction of converting from coal mining, opencast to underground coal mining.

CHAPTER 2. SCIENTIFIC AND LEGAL BASIS OF CONSTRUCTION CONSTRUCTION PROJECT MANAGEMENT QUANG NINH ECONOMIC INDUSTRY TO MEET REQUIREMENTS FOR MORE ENVIRONMENTAL POLLUTION

2.1. Legal basis for project management of construction investment projects in the coal industry in Quang Ninh

2.1.1. Law System:

Construction Law No. 50/2014/QH13 dated June 18, 2014 of the XIII National Assembly

Law on Environmental Protection No. 72/2020/QH14 dated November 17, 2020

Law on Minerals No. 60/2010/QH12

2.1.2. The system of sub-law documents: Decree No. 164/2016/ND-CP dated December 24, 2016 of the Government on environmental protection fees for birth control; Decree No. 15/2021/ND-CP dated March 3, 2021 of the Government stipulating some detailed contents on construction investment project management; Decree No. 08/2022/ND-CP dated January 10, 2022 of the Government stipulating a number of detailed articles of the Law on Environmental Protection.

2.1.3. Orientation planning for coal industry development in Vietnam and Quang Ninh until 2020, outlook to 2030

2.1.3.1. Orientation planning for coal industry development in Vietnam: To further promote the comprehensive restructuring, improve the efficiency of corporate governance, strengthen the application of science and technology in coal mining, production and processing.

2.1.3.2. Orientation planning for coal industry development in Quang Ninh: According to Decision 403/QĐ-TTg dated March 14, 2016 of the Prime Minister on approving adjustment of master plan on development of coal industry in Vietnam to 2020 with consideration of development of coal industry. Vision to 2030 includes: Exploration planning; Mining planning; Coal mining and screening planning; Mine closure planning.

2.2. Theoretical basis for management of construction investment projects in coal industry to meet the requirements of environmental pollution reduction

2.2.1. The role and content of construction project management

Currently, construction investment project management in Vietnam includes three stages: investment preparation stage, investment implementation stage and construction completion stage [52].

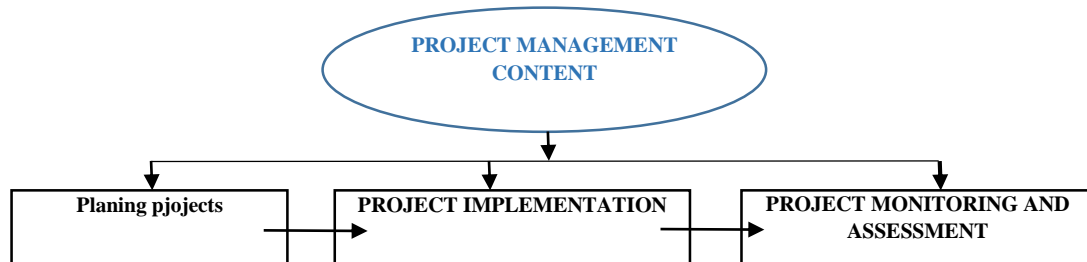


Figure 2.1. Contents of construction investment project management [21]

2.2.2. Principles of construction investment project management

The principle of democratic centralism.

- Unify political and economic leadership
- Rule of the head
- Care about the interests and morale of employees
- Savings and economic accounting

2.2.3. The task of performing the management of construction investment projects

- On schedule and volume of construction work.
- Meet quality requirements (according to design quality standards and regulations)
- Within the allowable cost limit.
- Ensure safety for the project and the workforce.
- Ensure environmental hygiene.

2.2.4. Form of organization of investment project management

According to the provisions of Clause 1, Article 62 of the revised Construction Law 2014.

2.2.5. Classification of investment projects according to environmental criteria

The environmental criteria for classifying investment projects specified in Clause 2, Article 28 of the Law on Environmental Protection 2020 and Article 25 of Decree 08/2022/ND-CP dated January 10, 2022 include 3 groups The criteria are depicted in the figure 2.3.

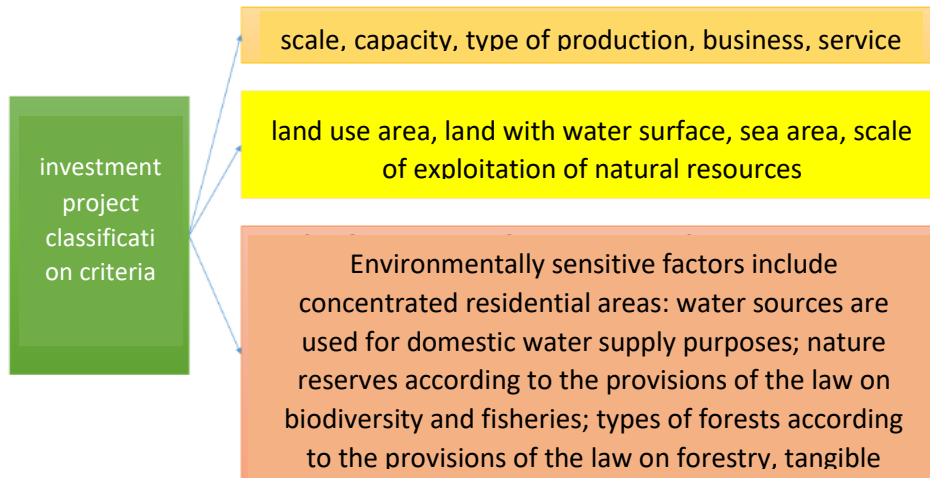


Figure 2.3. Criteria to classify investment projects

2.2.6. Impact of coal industry construction investment project on environment

2.2.6.1. Impact on the natural environment: Coal mining will directly affect the soil, water, and air environment, causing long-term impacts on the environment and people.

2.2.6.2. Impacts on social environment: Coal mining leads to the development of industries such as infrastructure construction, repair of mining machinery and equipment, coal screening plants, coal trading ports. Therefore, the number of people working and living around the coal industry is a significant number.

2.2.7. Some basic characteristics in managing construction investment projects of coal industry to meet the requirements of reducing environmental pollution

- Project planning: Comply with Decree 51/2021/ND-CP dated April 1, 2021 on mineral management in national mineral reserve areas.
- Project implementation: For coal industry construction investment projects at the stage of investment preparation, a preliminary impact assessment report is required as prescribed in Chapter IV, Section 2, Article 29 of the Law on Environmental Protection. 2020.
- Project monitoring and evaluation: Need to comply with the provisions of the Law on Environmental Protection 2020

2.3. Impacts of construction projects on coal mining, screening and selection in Quang Ninh and requirements on environmental protection

2.3.1. Impact of the implementation process of construction investment projects of coal mining and screening works on the environment in Quang Ninh Province

The operation of coal mining construction investment projects has a very clear impact on the environment. During the production process, every year coal production facilities discharge to the environment about 20 million cubic meters of water, millions of cubic meters of waste soil and rock, hundreds of hectares of vegetation are destroyed... Given the topographical conditions of Quang Ninh Ninh, coal mining causes many inadequacies when all waste sources are discharged into estuaries and Ha Long Bay, causing sedimentation, greatly affecting coastal water quality.

Coal industry wastewater is acidic and has high heavy metal content, which is the cause and one of the causes of biodiversity loss in coastal areas (coral, seagrass beds, etc.) in recent years.

Coal dust in the process of production, screening and consumption of coal greatly affects the living environment of the surrounding area. When environmental conditions are controlled more and more closely, the requirements to ensure environmental factors for projects become more and more stringent. To ensure this problem, the project, in addition to the main technology investments, also adds additional lines to ensure the maximum reduction of dust emissions, dust suppression, etc. This has increased the scale and economy. project cost. Projects that do not meet these conditions will not be approved for implementation.

2.3.2. Environmental protection requirements for construction investment projects in the coal industry in Quang Ninh province in the period 2025-2030

- The province needs to come up with specific urgent solutions, projects and works to soon overcome the negative impacts caused by coal industry construction projects affecting the environment in Quang Ninh province. .
- The province needs to clarify the responsibility of the coal industry in overcoming environmental consequences.
- Vinacomin and Dong Bac Corporation need to strictly implement the provisions of the law on environmental protection as well as the Resolutions and directions of the Provincial Party Committee on the management and protection of the environment.

2.4. Trends and requirements for sustainable development, green growth for the mining and mineral extraction industry

2.4.1. Development trend of coal and mineral industry

Realizing the role of green growth, Vietnam has structured the economy to switch to a green growth model as an answer to the sustainable development that Vietnam is pursuing, specifically: National green growth for the period 2011 - 2020 and a vision to 2050” with 3 general goals: (1) Reducing the intensity of greenhouse gas emissions and promoting the use of clean energy and renewable energy; (2) Greening production; (3) Greening lifestyles and promoting sustainable consumption.

2.4.2. Sustainable development requirements for the coal industry

- Regarding human resources: Improving training methods, retraining, training to raise the qualifications for the human resources of the coal industry.
- Regarding mechanisms and policies: encouraging and devoting appropriate resources to basic research, trend-forward research on new materials and chemicals for the coal industry, research on regeneration and recycling technologies products and materials of mineral origin.
- Concentrating resources of the whole industry for the goal of building a circular economy model, in which, the coal and mineral industry must be a pioneer in reducing raw mineral exploitation by solutions such as full exploitation maximize the extraction of minerals in the mine, use technology and equipment that consume less energy and fuel, have high working efficiency, and ensure that the mining process causes minimal negative impacts on the environment;

2.4.3. Criteria related to the management of construction investment projects in the coal industry

- Criteria for monitoring and evaluating construction projects [21]

Criteria for initial evaluation content:

+ Content criteria for mid-term or period assessment:

+ Criteria for the content of the final evaluation:

+ Content criteria for assessing the impact of the project

+ Criteria for unexpected evaluation content

- Criteria towards green growth of industrial production projects [59]

- Criteria to delineate areas with minerals [43]

2.5. Some lessons learned on project management of construction investment projects in the coal industry

2.5.1. Experience in some countries around the world

- Experience in construction project management of coal industry in Japan

- Experience in construction project management of coal industry in China

- Experience in construction investment project management of coal industry in Indonesia

- Characteristics of construction project management of coal industry in India

2.5.2. Experience in some provinces of Vietnam

- Thai Nguyen

- Lang Son

CHAPTER 3. MANAGEMENT OF CONSTRUCTION AND INVESTMENT PROJECTS OF COAL INDUSTRY IN QUANG NINH TO MEET REQUIREMENTS FOR MINIMIZING ENVIRONMENTAL POLLUTION

3.1. Vision, goals, principles

3.1.1. Opinion

- The management of construction investment projects of coal industry must ensure compliance with the provisions of law;

- Project management for construction of coal industry works to ensure the development of coal industry in association with improvement and protection of ecological environment in coal areas; harmonize with tourism development, minimize the impact on cultural conservation areas; actively contribute to the socio-economic development of the province.

- The management of construction investment projects of coal industry in Quang Ninh should promote the role and responsibilities of stakeholders in the implementation of project management to limit and minimize the impact of the project on the environment, ensuring the lowest possible level. ensure sustainable development and green growth of the coal and mineral industry in the coming time.

- Continue to further improve the efficiency of construction investment project management of coal industry, focusing on managing the project implementation progress, management costs, and economical use of the country's coal resources.

- Prioritize and encourage investment projects on construction of coal industry with conditions on location, scale, capacity and technology suitable to environmental protection requirements, with solutions to minimize environmental pollution. superior.

3.1.2. Target

- Economic: with high efficiency to build the province's coal industry into a green, highly competitive industry, meeting domestic demand, especially coal for power production.
- Social: Construction project management of coal mining and screening works in Quang Ninh is associated with the development of society, ensuring compliance with approved plans, bringing benefits to the community and society of Quang Ninh. local.
- Regarding the environment: by 2030, the coal mining and screening works will be built by the construction investment to fully meet the environmental regulations and standards throughout the mining areas of the province;

3.1.3. Rule

- The management of construction investment projects in the coal industry must be carried out on the basis of compliance with the objectives set out in the coal industry development planning; Socio-economic development planning; The provincial environmental protection plan and other related plans have been set out.
- Comply with the instructions in accordance with the laws of the State when implementing the organizational structure, the management structure to suit the characteristics of the coal industry and the locality, strengthen the role of the PMU in the implementation of the project. Project management of coal mining and screening works to ensure reasonable investment in environmental protection, risk management, and labor safety in coal mining.
- Implement synchronously measures to manage the construction investment project of coal industry to ensure safety, efficiency, schedule, quality and in accordance with the environmental protection plan in the whole area of Quang Ninh province.

3.2. Management of investment projects in the construction of coal industry in Quang Ninh in the direction of planning subdivisions

3.2.1. Proposing solutions to manage coal industry construction investment projects according to planned areas

Based on the list of coal construction investment projects in Quang Ninh province in 2020 and in the period 2021-2030 according to the 403 master plan (see details in Appendix 3), the researcher proposes to divide the visiting projects into coal exploration, extraction, screening and selection into 03 areas with the characteristics of each zone as follows:

- Area 1 - is an area including coal industry construction projects planned in association with the characteristics of urban areas.
- Area 2 - is an area including coal industry construction projects planned in association with mountainous areas.
- Area 3 - is an area including coal industry construction projects planned in association with economic - tourist zones.

3.2.2. Proposing a set of criteria for classifying coal industry construction investment projects of Quang Ninh province according to planning subdivisions

- The content of the set of criteria: Includes the following 3 groups of criteria: About the safe environmental isolation distance; Landscape architecture and preservation of cultural - social values, ecological environment; The relationship between the environment and the green-circular economic growth

- Evaluation method according to the proposed set of criteria

+ Local assessment (project location)

+ Evaluation according to the planning subdivision

- Verify the results of research and development of a set of criteria for ranking investment priorities for construction projects of underground coal mining and renovation and expansion of Nui Beo coal mine

3.3. Proposing environmental management solutions according to the stages of management of coal industry construction investment projects in Quang Ninh province

3.3.1. Investment preparation stage

In this stage, the manager needs to understand the factors affecting the project in terms of the environment in order to have a plan to handle the situation and make an appropriate investment decision. Specifically, it focuses on the following two tasks:

- Research investment opportunities

- Project feasibility study

3.3.2. Investment implementation stage

In this phase, the role of the agency responsible for investment management and supervision is very important in order to well implement the project's objectives in association with the requirements of environmental pollution reduction and timely implementation. make decisions to ensure the effectiveness of the project. Tasks that need to be implemented to integrate environmental management tasks include:

- Make design and investment estimate

- Construction works

- Test run and acceptance of the project

3.3.3. Investment closing stage

In this phase, along with the management of the contents in handing over and putting the works into use, the ALDA Board also needs to coordinate with the contractors to consider the environmental improvement and restoration program in order to implement the regulations. deposit regulations.

3.4. Renovating mechanism and improving capacity in project management of construction investment projects in coal industry in association with environmental protection requirements of Quang Ninh province

3.4.1. Solutions on mechanisms and policies to manage coal industry construction investment projects in Quang Ninh

The State and localities need to study and have more policies such as: Policies to encourage the development of application of advanced technologies in mining and screening of minerals - coal; policies on deep processing of mineral resources; Policy on export - import of minerals - coal. Especially, the energy price policy in general and coal in particular follows the market mechanism. Energy/coal pricing policy should be considered as a lever of production, an important tool in demand management for energy conservation and environmental protection.

In order to improve the efficiency of coal screening construction investment projects, on the part of Quang Ninh Province, it is necessary to implement synchronous solutions, in which the solution to complete the mechanism and policy must be considered the most important. Specifically about the solutions that the project needs to clarify in reports to submit to the management agency - the competent level (province level) for support, the priority is:

- Actively planning and arranging coal production and trading facilities and facilities, etc., contributing to improving and enhancing the quality of the environment, urban landscape and residential areas.
- Actively plan and respond to climate change in coal mining areas of Vietnam National Coal and Mineral Industries Group (TKV) in the period of 2020-2030.
- Pay attention to the renovation and restoration of waste dumps.
- Innovating coal mining technology, moving towards implementing clean technology in the coal mining industry and moving towards cleaner production.

3.4.2. Solutions to improve the roles, functions and tasks of agencies and units implementing the construction project management of coal industry in Quang Ninh province in association with environmental protection requirements

* Quang Ninh Provincial People's Committee:

- Directing the deposit work, implementing projects on environmental improvement and restoration for coal mining activities.
- Direct the allocation of funds for projects to improve the environment of coal mines, to overcome environmental degradation and pollution caused by coal mining activities.
- Establish incentive mechanisms, administrative sanctions for all Vinacomin companies, state and private contractors when participating in environmental protection activities for the project;

* Department of Natural Resources and Environment of Quang Ninh province:

- Supervising and urging TKV and Dong Bac Corporation on funding and progress of implementing the Project on Environmental Protection of the coal industry until 2020, with a vision to 2030;
- Monitor, supervise and evaluate environmental quality monitoring results of companies, factories, coal screening workshops in the province every year; Warning and informing these units about the current state of the environment, possible risks, in order to promptly make adjustments, have solutions to respond, minimize pollution to the lowest level when renovating, project expansion or upgrade.
- Promote the application of economic tools in environmental management: collection of taxes, fees for environmental protection, natural resources tax for KS, projects with large sources of

wastewater and emissions... (according to the Law on Natural Resources Tax 2009). , Decree No. 74/2011/ND-CP dated 25/8/2011 On Environmental Protection Fees for KTKS,....)

* Units under the Ministry: Work more closely with Vinacomin to promptly handle the proposals and recommendations of Vinacomin; summarizing the difficulties and problems of Vinacomin according to the field of management. Specifically:

- Department of Petroleum and Coal: research and implement the task of building and perfecting the system of legal documents, mechanisms and policies related to environmental protection, integrating climate change adaptation in the contents. Construction investment project management for the coal industry must ensure compliance with the development planning and strategy approved by the Prime Minister and promote the development of the coal industry according to the market mechanism; continue to strengthen the state management over coal mining and screening activities.

- Department of Electricity and Renewable Energy, Department of Safety Engineering and Industrial Environment regularly monitor, promptly propose and report to leaders to handle work related to environmental protection activities in projects. TKV's construction investment.

* Vietnam National Coal and Mineral Industries Group (KTV), Northeast Corporation consider establishing a fund to support pollution control activities; closely monitor the implementation progress of the two units' environmental protection projects as planned in order to contribute to the realization of the green growth strategy; develop a cooperation program to secure capital for the implementation of the environmental planning of Quang Ninh province until 2020, with a vision to 2030.

* TKV investor: Need to improve the responsibility and role of the investor from investment preparation, land use plan, planning, survey,... to investment quality.; To drastically renovate the development orientation, proactively review, update, adjust/build new development strategies, development investment plans and production and business plans for the next appropriate period. new context and situation; Focus on removing difficulties and obstacles for investment projects; review and speed up the investment implementation progress for key projects; Strengthening the promotion of internal resources and the connection between internal units; TKV sets aside an annual concentrated environment fund equal to 1.0% of production costs to have capital for investment and construction of works on environmental protection; at the same time, allowing member units to directly spend 0.5% of production costs to carry out regular environmental protection tasks.

* Contractors being enterprises and economic organizations producing and trading minerals: arrange sufficient resources to carry out environmental improvement projects due to the influence of mining, processing and transportation activities. mineral consumption in Quang Ninh province;

3.5. Choosing the right form of project management for construction investment projects for Vietnam Coal and Mineral Industries Group in Quang Ninh province

Based on the instructions in Decree 15/2021/ND-CP dated March 3, 2021 detailing a number of contents on construction investment project management and basing on the basic elements of coal

industry construction projects to Select the form of construction investment project management for the coal industry of Quang Ninh province

3.5.1. Proposal to adjust the management form of coal industry construction investment projects at TKV Coal and Mineral Industries Group in Quang Ninh province

The hierarchical model and form of project management for construction of coal works for Vinacomin are described as follows:

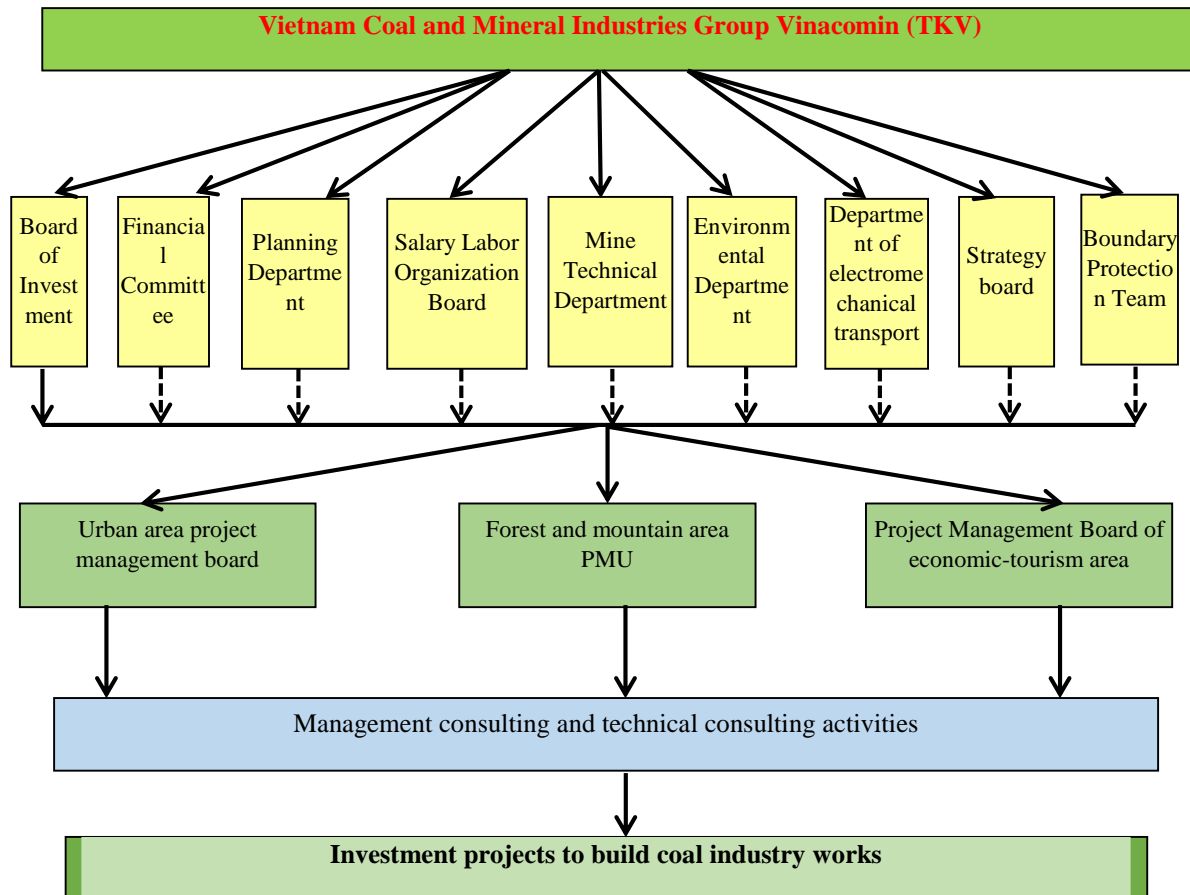


Figure 3.1. Proposing decentralization model and form of project management for construction of coal industry at Vinacomin

About TKV's organizational model of construction investment and construction project management of coal industry: keep 2 levels, including:

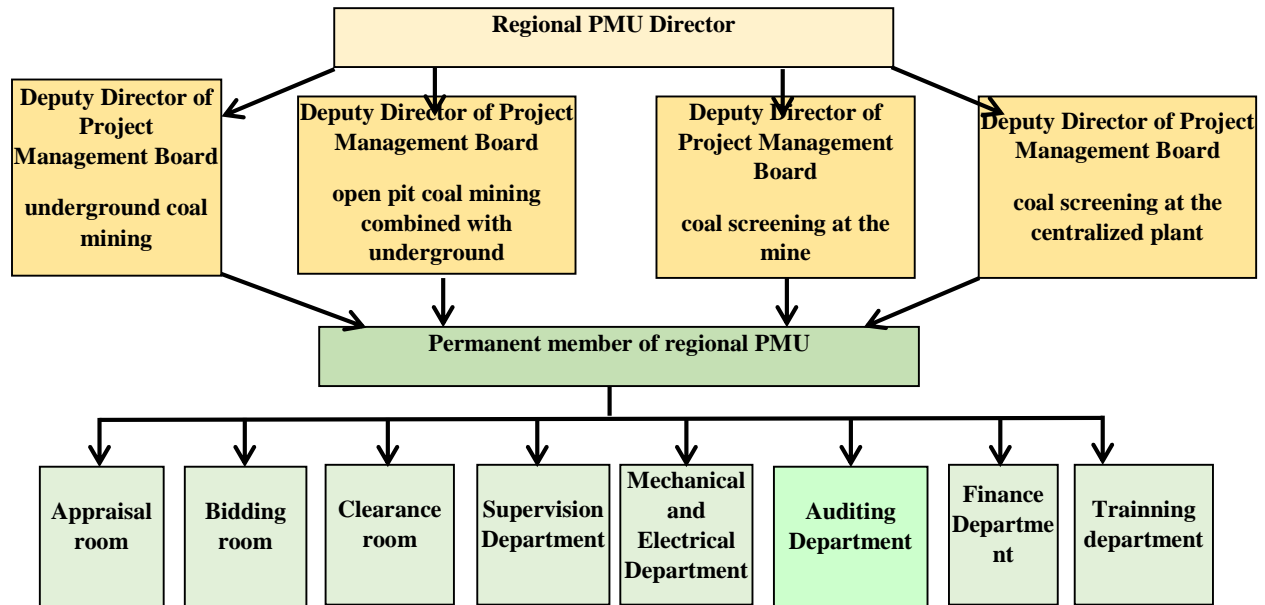
* Group level: including 08 specialized committees and 01 boundary protection team. The functions and duties of the Committees remain unchanged compared to the previous ones.

* Grassroots level: regional PMUs are called grassroots PMUs. The grassroots PMU consists of 3 boards divided into 3 respective areas in the zoning plan proposed in Section 3.1. At that time, the specialized project management board of TKV coal mine with the field of operation only specialized in construction supervision is too narrow and can only undertake 1 content and task in

the management of construction investment project, so it will be restructured, combined with newly established grassroots PMUs to synchronize functions and tasks of each board. Project Management Units of Khe Cham coal factory Vinacomin; Vinacomin operator's PMU;

3.5.2. Proposing the organizational structure of regional project management boards at TKV Coal and Mineral Industries Group in Quang Ninh Province

Regarding the organizational structure of the proposed regional project management units with all 3 regions, the structure is similar with the following structure:



3.6. Discussing research results and recommendations

3.6.1. Discuss and evaluate solutions to management of construction investment projects according to the plan of zoning planning of the coal industry in Quang Ninh province

- On the basis of the division of planning areas as above, agencies and individuals directly managing each project area will have a clear delineation and responsibility for each area, not overlap, overload with too many projects at the same time.
- When implementing the construction management of coal exploration, mining and screening works in Quang Ninh, the province and the investor TKV can separate the scale and location of the projects by areas so that they are close to each other. The most realistic with the characteristics of the mineral distribution situation and giving the limit of the impact area affecting the environmental quality of the projects in a sufficient and reasonable way so that the effective monitoring of the projects brings about biggest.
- Based on the criteria for ranking the investment priority order of the project, it will help the management agency to have a full scientific basis when making decisions in the investment preparation stage in a clear and reasonable way. best.

- To bring efficiency in the management of construction investment projects of coal industry to meet the requirements of reducing environmental pollution, the agencies and project management units need to implement specific contents depending on each area. Different plans aim to ensure the lowest level of impact on the natural and social environment according to the set criteria.

3.6.2. Discuss and evaluate the proposal to adjust the form of construction investment project management of coal industry

The introduction of a project management form suitable to the scale, location and type of technology of each project/project group will help improve management efficiency, enhance the role and responsibility of the investor as well as requires the manager to have appropriate professional capacity, be responsible and take the initiative in implementing the project's contents in accordance with current legal regulations.

To solve this situation in the future, the adjustment of the project management form to the "regional construction investment project management boards" not only complies with the provisions of the current law (Article 63 of the Law on Construction 2014). but also helps TKV to establish construction investment project management committees that exist throughout the Group's operation, supporting TKV to manage projects classified by specific areas in the most effective way.

3.6.3. Discussing solutions on mechanisms, policies and solutions to improve capacity in the management of construction investment projects of coal mining and screening works in Quang Ninh province

3.6.3.1. Discuss solutions to supplement provincial policies to prioritize coal industry construction investment projects with greater responsibility in environmental protection

According to Article 4, Chapter 1, Law on Environmental Protection of Vietnam, in 2020, the principles of environmental protection have been set out, in which "Environmental protection activities must be conducted regularly, openly and transparently; prioritizing forecasting, prevention of pollution, incidents and environmental degradation, management of environmental risks, reduction of generation and waste, increased reuse and recycling of waste to exploit the value of waste's resources. and Article 5 also stated clearly on "Priority treatment of environmental pollution, restoration of degraded natural ecosystems, focus on environmental protection of residential areas" [41]. Thus, with the solution of complementary solutions. supplementing the province's policy to prioritize investment projects in coal industry with higher responsibility in environmental protection that the researcher proposed above is completely consistent with the State's orientation to soon implement the Law. put into practice most effectively.

3.6.3.2. Discuss solutions to improve the roles, functions and tasks of the agencies implementing the management of the province's coal construction investment projects in association with the requirements of environmental reduction.

The proposed solution to improve the roles and responsibilities of the management agencies, especially the state management agencies, in terms of KS - coal and environmental protection activities is very necessary to meet the new requirements in the process. local socio-economic development. In addition to the contents of state management on KS - coal and environmental

protection that the province has been implementing (promulgating and organizing the implementation of legal documents on KS - coal on environmental protection), the province also needs to pay more attention to tasks such as formulating and directing the implementation of the coal industry development strategy in association with the provincial environmental protection strategy;

The Department of Natural Resources and Environment of the province needs to improve its responsibilities in organizing, building and managing the environmental monitoring system, and has a plan to regularly monitor the quality of the environment with appropriate focus and focus. management to serve environmental protection activities and sustainable development. At the same time, the Department also needs to have more functions and tasks to coordinate with the KTV, the Department of Construction to build and manage environmental protection works in coal mining fields; issue and revoke certificates of meeting environmental standards; develop, apply and update more criteria in the appraisal of EIA reports of projects and coal production and trading establishments, closely monitor deposit activities for environmental protection as prescribed in Article 67, Article 67 of this Law. 137 of the Law on Environmental Protection 2020 and newly promulgated sub-law documents.

3.6.4. Discuss and evaluate the proposed solutions for environmental management according to the stages of construction investment project management of coal industry in Quang Ninh

The proposed environmental management solutions to be integrated in the management of construction investment in the coal industry have closely followed the objectives in the environmental protection project of Quang Ninh coal area to 2020, with a vision to 2030 that Quang Ninh province and TKV set out with The viewpoint and development motto are very specific and clear, which is "Developing the coal industry into a modern technical-economic sector with high efficiency and high added value, developing in harmony with the community and the community." environmentally friendly" [46]. Monitoring solutions to reduce environmental pollution for the coal mining and production industry will contribute to the construction projects as planned to be implemented more feasible and effective in the future.

1. Conclusion

After a period of serious research on the topic, on the basis of the set research objectives, the thesis has achieved certain results. NCS has drawn the following conclusions:

(1) Coal mining and screening in Quang Ninh accounts for 90% of the country's coal production, which has made an important contribution to the national and local socio-economic development, creating a Quang Ninh province. Ninh is rich and strong, but also leaves significant environmental pollution consequences. Although there have been positive changes in the past time, bringing significant efficiency in production activities of enterprises, the consequences of environmental pollution from the projects The coal industry is a major obstacle to the development of the country in general and Quang Ninh province in particular towards sustainability.

(2) In order to have feasible and beneficial solutions, more effective in managing construction projects for the coal industry in association with the task of environmental protection and sustainable development of Quang Ninh province, specific solutions Suggestions include:

- Proposing specific areas are: (1) urban areas, (2) economic - tourism zones and (3) mountainous areas to serve as a basis for selecting the content and model of the Committees. Construction management of coal industry works towards sustainable socio-economic development and management, minimizing environmental pollution.

- Proposing a set of criteria including 3 groups of criteria to classify investment priorities in coal mining and screening projects in the direction of the above-mentioned planning subdivision.

- Proposing to put the contents of environmental management into the stage of investment preparation, investment implementation, project operation through the management of construction investment projects of coal industry in Quang Ninh to ensure the consistency and synchronization of solutions. management according to the priority hierarchy to prevent and reduce environmental pollution

(3) Proposing solutions to improve mechanisms and policies in the management of coal industry construction investment projects, including: policies to encourage coal industry construction projects to apply modern coal mining and screening methods. ; Proposing solutions to improve capacity for inspection and supervision agencies, units directly implementing construction investment project management of coal industry with the aim of minimizing the impact of environmental pollution.

2. Recommendations

- The province and Vinacomin in Quang Ninh need to consider the solutions proposed by the researcher in the project management and construction of coal mining and screening works in the period of 2020-2030 to be soon implemented according to the plan and contribute to improving the quality of coal mining and screening works. improve environmental quality conditions in localities when the project comes into operation.

- Need to continue to have more studies to apply models and information technology in the management of construction investment projects of mining, coal screening, so that the management can be timely and effective, and support the quality forecasting. environment, assessing the planning plan associated with the project management of the coal industry with high accuracy helps orient the economic development of the field of KS in accordance with the set objectives, limiting the adjustment of the planning.

LIST OF SCIENTIFIC WORKS RELATED TO THE THESIS

1. Nguyen Thi Hoai, Construction investment project manager to meet the requirements of environmental protection in tourist areas – Problems raised, Journal of Construction and Urbanism, No. 53, 2017, ISSN 1859-3119, pages 72-75.
2. Nghiem Van Khanh, Nguyen Thi Hoai, Research and assessment of soil environmental pollution and solid waste management in Nui Beo coal mine area, Quang Ninh province, Construction Journal, January 2022, ISSN 2734-9888, pp. 118-121
3. Nghiem Van Khanh, Nguyen Thi Hoai, Environmental management solutions by stages of project investment in the coal industry of Quang Ninh province, Construction and Urban Review, No. 80+81/2022, ISSN 1859- 3119, pages 82-86.
4. Nghiem Van Khanh, Nguyen Thi Hoai, Solutions to adjust the form of management of construction investment projects in the coal industry in Quang Ninh province, Construction Journal, October 2022 issue, ISSN 2734-9888, p. 88-93
5. Nghiem Van Khanh, Nguyen Thi Hoai, Criteria for grading investment projects in the construction of coal exploration, mining and processing works in Quang Ninh in the direction of planning subdivisions, Construction Journal, November issue. 2022, ISSN 2734-9888, pp. 100-103