

Strengthening Inspection and Audit of Occupational Safety and Health in Coal Mining Enterprises in Vietnam

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Abstract: Coal mining is one of the heavy, hazardous industries. Therefore, workers in this industry always face high risks of occupational accidents and diseases. According to the annual report of the Ministry of Labor, Invalids and Social Affairs (MoLISA), the situation of occupational accidents and illnesses in the mining sector in recent years has increased both in terms of number and severity, and this includes fatal occupational accidents in the coal mining industry. Currently, the authorities have been implementing inspection of occupational safety and health (OSH) to prevent and limit the situation. In the scope of this article, the author focuses on clarifying the position and the role of OSH inspecting while presenting and analyzing the results of the inspection of OSH legislation compliance within the coal mining industry nationwide. From there, proposing several solutions to strengthen inspection of OSH, prevent and limit occupational accidents and diseases in the coming time, contributing to improving the efficiency of state management of OSH in the coal mining industry in Vietnam today.

Keywords: Occupational safety and health (OSH), Inspection and audit of OSH, State management of OSH, Occupational accidents and diseases, Coal mining enterprises

1. Problem Statement

Coal mining is one of the crucial industries in ensuring national energy security. However, this is a heavy, toxic, and dangerous industry, with a high potential for occupational accidents, occupational diseases for workers [1]. According to statistics in recent years from the Ministry of Labor, Invalids, and Social Affairs, occupational accidents occurring in the country's mining industry are always at the "top" position compared to other sectors and fields. It's accounting for 15 to 16.5% of the total number of occupational accidents in the country, and thousands of people suffer from occupational diseases [2]. This includes fatal occupational accidents occurring at coal mining enterprises. Although state management agencies in charge of occupational safety and health (OSH) have organized and implemented many management solutions, the status of occupational accidents in coal mining enterprises, minerals are still high, and there is no sign of reduction. Against this background, strengthening inspection and examination of occupational safety and health in coal mining enterprises in Vietnam is considered one of the necessary measures today. This article uses secondary data from published reports, statistics, etc. and uses primary data made by the author to survey online for 17/22 coal mining companies belonging to Vietnam National Coal - Mineral Industries Holdings Corporation Limited (VINACOMIN), seven of which are underground mining companies, six are open-pit mining companies and the remaining four mine both underground and open-pit, all with the scale from 2000 to 5400 employees. The author selects coal mining companies belonging to Vinacomin for research because it is the largest domestic coal producer of Vietnam's coal industry, accounting for 85-90% of the total coal output of the whole industry in the country [3].

2. Introduction to the Occupational Safety and Health Inspection in Vietnam

2.1. Position, role, and function

The legal position of the Vietnam OSH inspectors has been specified in legal documents. The OSH Law 2015, Article 89, Clause 1 stipulates that OSH inspectors are specialized inspectors from agencies performing labour-related state management at central and provincial levels. In the Labour Law 2019, Article 215, Clause 2 stipulates: OSH inspectors are under specialized labour inspection and perform OSH inspection according to the provisions of the OSH Law. In the Law on Inspection 2010, Article 3, Clause 3 stipulates: *Specialized inspection* means inspection activities by competent state agencies by industry or sector applied to agencies, organizations, and individuals to inspect the compliance with specialized laws, professional and technical regulations, and management rules in such industry or sector [4].

Pursuant to the Law on Inspection 2010, According to Article 3, Decree No. 110/2017/ND-CP dated

October 4, 2017 of the Government stipulating the organization and operation of the Labour - Invalids and Social Affairs inspectorate: Agencies performing the functions of Labour - Invalids and Social Affairs inspection include: (i) State inspection agencies include: Inspectorate of the Ministry of Labour - Invalids and Social Affairs (referred to as Ministry Inspectorate) and Inspectorates of Departments of Labour - Invalids and Social Affairs (DoLISA) of the provinces and centrally-run cities (referred to as the Department Inspectorates); (ii) The agency assigned to perform the OSH specialized inspection functions is the Department of Work Safety [5].

From the above legal basis, it could be understood that:

At the national level:

Inspector of the Ministry of Labour, Invalids and Social Affairs: Decision No. 916/QD-LDTBXH of the Minister of Labor, Invalids and Social Affairs dated June 20, 2017 stipulates that the Ministry Inspectorate is an agency under the Ministry of Labor, War Invalids and Social Affairs. Labor - Invalids and Social Affairs, has the function to assist the Minister in implementing the provisions of the law on inspection work; conduct a specialized inspection of agencies, organizations, and individuals operating in the branches and domains under the Ministry's state management. On that basis, the Ministry Inspectorate shall carry out specialized inspections of OSH for corporations and economic groups throughout the country.

Department of Work Safety is a unit under the Ministry of Labour - Invalids and Social Affairs assigned to perform the functions of OSH specialized inspection. On that basis, the Director of the Department of Work Safety has issued the Decision No. 112/QD-ATLD dated October 5, 2017, stipulating that the Legal - Inspection Division - a unit under the Department of Work Safety is responsible for assisting the Director in implementing the function of state management in legal affairs, inspection, and audit of OSH.

At the provincial level: The People's Committee of the province/City under the Central Government stipulates that the Department of Labor, War Invalids and Social Affairs is a specialized agency, assisting the Provincial People's Committee in performing the advisory function and assisting the Provincial People's Committee in state management on Occupational Safety in the local area. In which, the Department Inspectorate is a unit under the local Department of Labor, War Invalids and Social Affairs, assisting the Director of the Department of Labor, War Invalids and Social Affairs in inspecting and inspecting OSH according to the provisions of law [6].

2.2. Responsibilities and authority

The OSH Inspectorates shall perform the responsibilities and authority prescribed in Articles 10 and 11 of the Government's Decree No. 07/2012/ND-CP stipulating agencies assigned to perform the specialized inspection functions and to operate specialized inspection activities. These include: (i) Develop inspection plans and submit them to the Ministry Inspectorate, Department Inspectorates to synthesize and submit to the Minister or DoLISA Directors for approval and arrangement of the implementation of such plans; (ii) Inspect the compliance with the specialized laws, regulations on professional and technical matters, rules on management in the related industries and sectors; (iii) Inspect the cases with signs of law violation as assigned by the Chief Inspector of the Ministry or Chief Inspector of the Department; (iv) Inspect other cases as assigned by the Minister or the DoLISA Director. (v) Monitor, urge and examine the implementation of their inspection conclusions, recommendations, and handling decisions; (vi) Summarize and report specialized inspection results to the Ministry Inspector, Department Inspector.

At the same time, the OSH Inspectorates also perform the responsibilities and authority prescribed in Articles 10 and 11 of the Government's Decree No. 110/2017/ND-CP stipulating the organization and operation of the inspectorates in the Labour - Invalids and Social Affairs sector. These include: (i) Carry out a specialized inspection within the scope of state management of the Department; (ii) Synthesize and report the results of the inspection, settlement of complaints and denunciations, and prevention and control of corruption in the fields under its management to the Ministry Inspectorate; (iii) Join the Ministry Inspectorate in guiding and training specialized inspectors in the fields under the scope of the Department's management; (iv) Detect, prevent and handle, under their competence or proposals of the competent state agencies, violations of the laws within the scope of state management according to regulations; (v) Other responsibilities and authorities as prescribed by law.

2.3. Scope, contents, and means of inspection

- *The scope of OSH specialized inspection is clearly defined in Article 89, Clause 2 of the OSH Law: OSH inspection in the fields of radiation, oil and gas exploration, and exploitation, railway, waterway, road, air transportation, or people's armed forces shall be implemented by state management agencies of such fields in collaboration with OSH inspectors.*

- *Regarding the inspection of the compliance with the law provisions on OSH:*

The labor law 2019, Article 214 stipulates that the contents of labor inspection include: (i) Inspecting the observance of labor laws; (ii) Investigate occupational accidents and violations of occupational safety and health; (iii) Participate in guiding the application of a system of standards and technical regulations on working conditions, occupational safety and health; (iv) To settle complaints and denunciations about labor in accordance with the law. (v) To handle according to their competence and propose competent agencies to handle labour law violations. [7]

Article 5, Clause 2 of Decree No. 110/2017/ND-CP includes the following contents: inspecting the implementation of measures to prevent and combat hazardous factors for employees; measures to handle technical incidents compromising OSH and causing occupational accidents and diseases; ensuring OSH for several specific types of work; ensuring OSH for production and business establishments; activities of OSH service providers.

- *Means of inspection:*

From 2006 to 2018, the Labour Inspectorate conducted the means of inspection according to Decision No.02/2006/QD-BLDTBXH dated February 16, 2006 of the Minister of Labour - Invalids and Social Affairs promulgating Regulations for using self-check forms for the implementation of labour laws by distributing the papers to each enterprise by post. These papers also includes self-check of the implementation of the OSH legislation. Since 2019, the Labour Inspectorate has been implementing the means of inspection as prescribed in Circular No.17/2018/TT-BLDTBXH of the Ministry of Labour - Invalids and Social Affairs promulgating the Regulation on using self-check forms for assessing the implementation of the labour law. According to this method, the Inspectorates of the provincial Departments of Labour - Invalids and Social Affairs guide enterprises to register for accounts and report self-check results online on the website. <http://tukiemtraphaplualaodong.gov.vn/>.

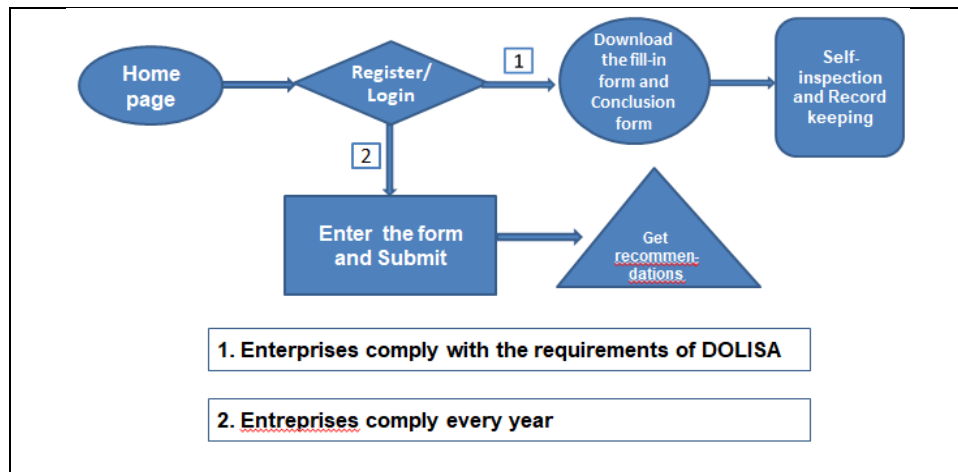


Fig. 1. Interface of the website.

The results of the online survey conducted by the author for 17 coal mining enterprises under TKV showed that: 100% of the survey respondents commented evaluated the reporting of the results of self-inspection on the implementation of the labor law online on the website is simple, convenient, and easy to use.

Assessing the necessity of reporting the results of self-inspection on the implementation of the labor law online on the website to help enterprises better comply with the law on OSH: 35.7% of the opinions is essential, 57.2% of the opinions are rated as necessary, and 7.1% of the results are quite necessary.

Thus, the method of using self-check sheets complies with modern labor laws, suitable for enterprises as well as keeping up with current management trends. That is, strengthen the remote consultation and guidance of the state management agency on OSH for enterprises in complying with the law on OSH.

In addition, the Ministry of Labour - Invalids and Social Affairs of Vietnam has issued Circular No. 20/2018/TT-BLDTBXH *guiding the coordination mechanism in carrying out specialized inspection of occupational safety and health at night, after business hours* with the primary purposes to: (i) Ensure the effectiveness and efficiency of specialized inspection in labour and OSH fields; (ii) Ensure violations of the law on labour and OSH must be prevented and addressed promptly; (iii) Promote the role of agencies and organizations in detecting and preventing violations of the law on labour and OSH; ensure the legitimate rights and interests of employees; (iv) Ensure the enforcement of the law on labour and OSH in production, business and service establishments operating at night or out of business hours [8].

2.4. Inspection force

In 2020, the number of inspectors of the entire Labour - Invalids and Social Affairs sector was 457 people. Of which, the Ministry Inspectorate and the agencies performing the specialized inspection function under the Ministry had 69 inspectors; 388 inspectors were working under Departments of Labour - Invalids and Social Affairs in localities. Regarding professional qualifications: 100% of inspectors have university degrees, 23.8% have master's degrees [9]. Up to now, Occupational Safety and Health Inspectors have been participating in many different training programs to improve their qualifications, expertise, and inspection skills and have been well implementing their tasks.

3. Inspection and audit of OSH in coal mining companies in Vietnam

3.1. Occupational accidents situation nationwide and in the VINACOMIN

According to the annual report of the Ministry of Labour - Invalids and Social Affairs, the number of occupational accidents occurring in the mining and mineral sectors in recent years has increased in both the number of cases and the number of deaths.

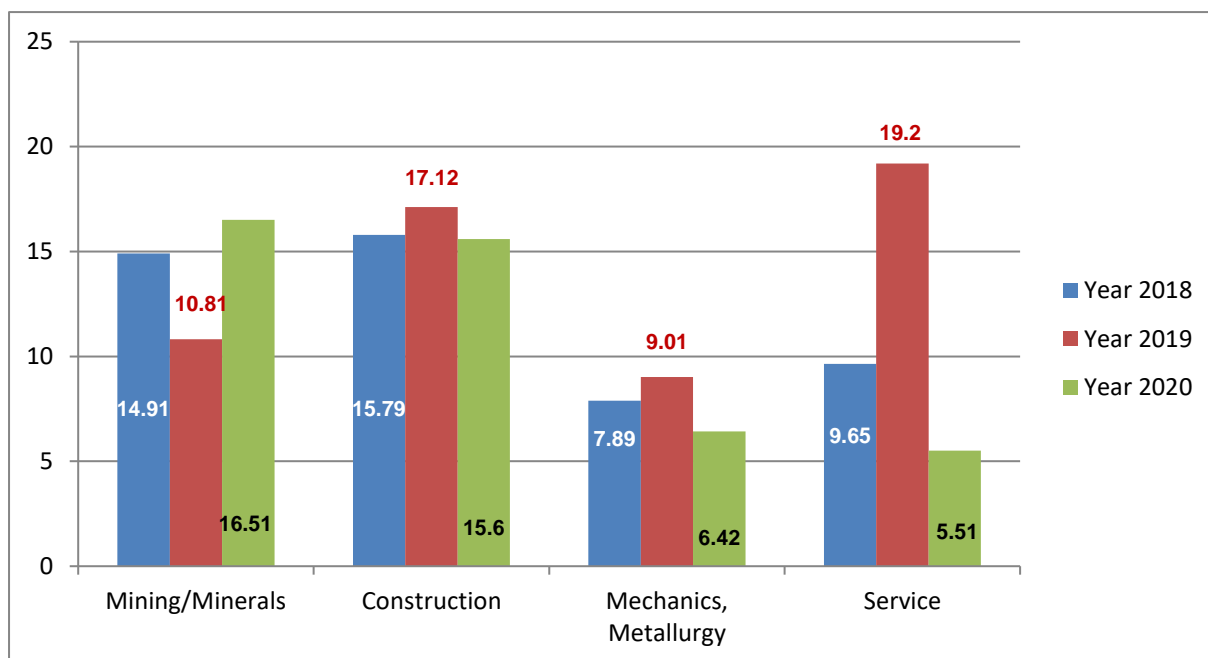


Fig. 2. Occupational accidents situation of nationwide and by sector.

Source: Annual summary report on Occupational accidents nationwide of DWS [2].

The figure above shows that, before 2020, the number of occupational accidents occurring in the mining and mineral sector was always lower than the number of occupational accidents occurring in the construction sector. But in 2020, the number of occupational accidents occurring in the mining and mineral sector was the highest and exceeded the number of occupational accidents occurring in the construction

sector by 0.87%. This number includes occupational accidents occurring in member entities of the Vinacomin.

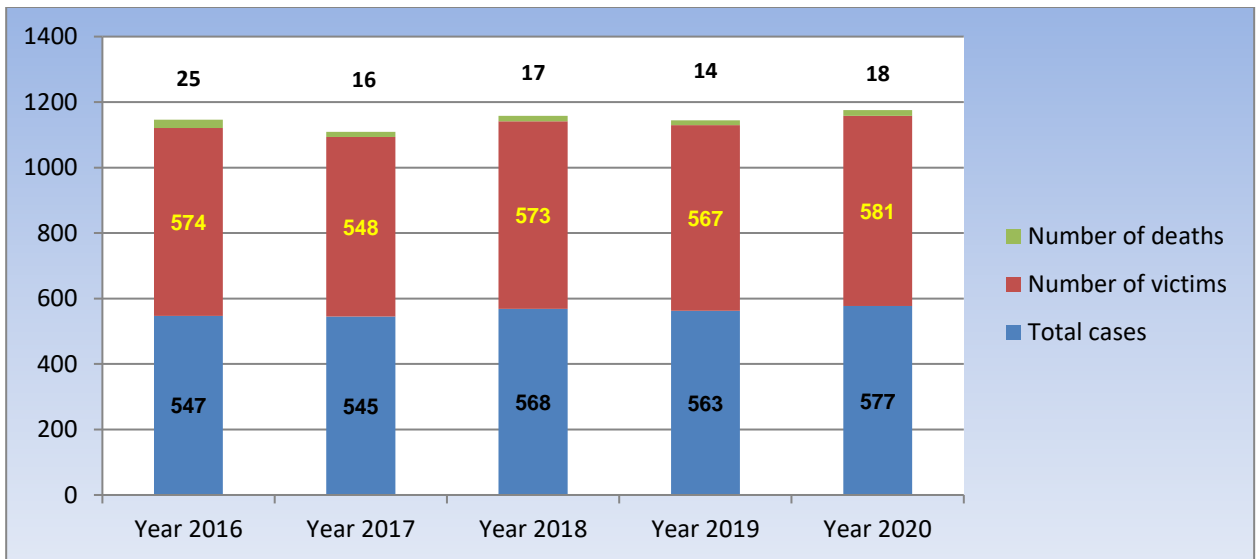


Fig. 3. Occupational accidents situation in the Vinacomin from 2016-2020.

Source: Annual report on Occupational accidents in 2016-2020 of VINACOMIN [10].

Analysis of the figure above shows that the number of occupational accidents and victims of Vinacomin increased slightly from 2017 to 2020. In particular, in 2016, there was the highest number of deaths due to occupational accidents with 25 people, and then it continued to decrease to 16 deaths in 2017 and 14 deaths in 2019. However, the number of deaths due to occupational accidents sharply increased to 18 people in 2020. Thus, from the OSH inspection four years ago to 2020, the situation of occupational accidents, especially fatal occupational accidents of VINACOMIN, has not been controlled or mitigated. According to the Occupational Safety Department of Vinacomin, the number of deaths from occupational accidents mainly occurred in underground coal mining units.

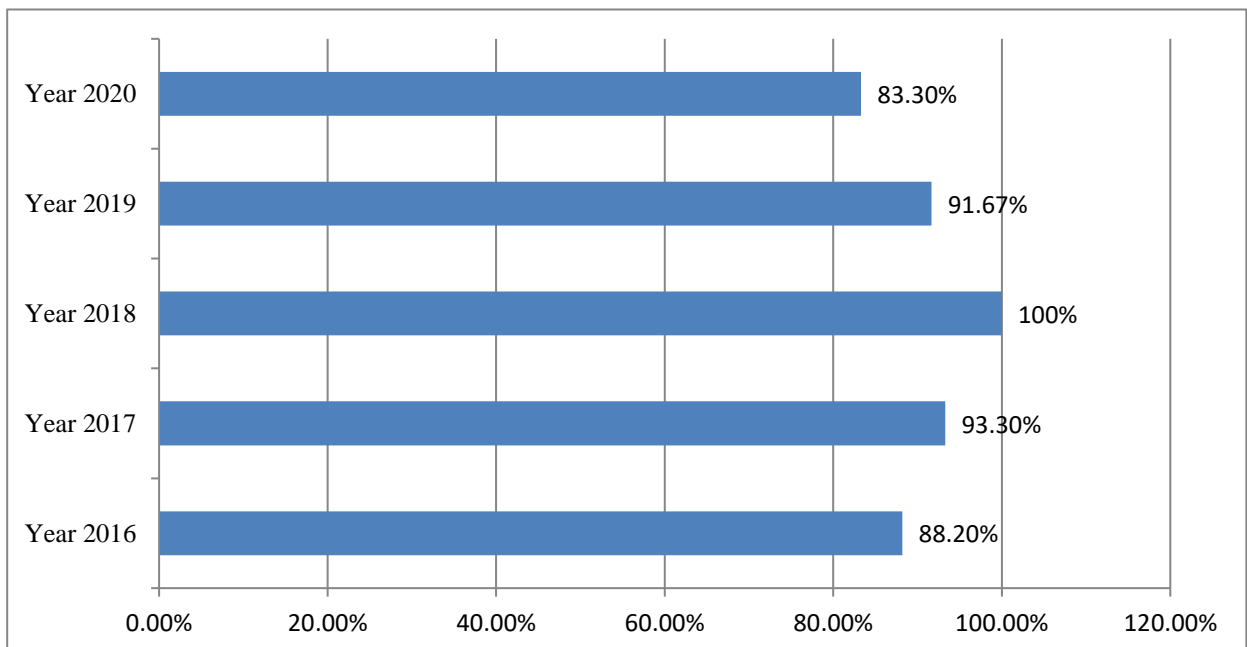


Fig. 4. The rate of fatal accidents in underground coal mining over time.

Source: Annual report on Occupational accidents in 2016-2020 of VINACOMIN [10].

The figure above shows that the fatal accident rate in underground mining from 2016 to 2020 of the Vinacomin was severe, accounting for 88.2% to 100% of the total number of occupational accidents. Notably, in 2018, eleven occupational accidents killed eleven people. This shows that underground coal mining is hazardous, with extremely high risks of being wounded or fatal because deep underground, the conditions are harsh with lack of oxygen, risk of tunnel collapse, landslide, water burst, asphyxiation, fire, and explosion, etc. While underground coal mining technology is far from modern, mechanization and automation have been applied in certain stages and procedures of mining. According to Vinacomin's annual OSH report, the leading causes of occupational accidents include: (i) Employees work subjectively, do not comply with the OSH rules and regulations; (ii) The persons in charge of direction and supervision of occupational safety are negligent and irresponsible. This situation shows that it is necessary to strengthen the OSH inspection and audit on coal mining activities by labor-related state management agencies at all levels.

3.2. OSH inspection and audit activities in coal mining companies

- Activities of OSH inspection/audit teams established by MoLISA

In 2016, the Ministry of Labour - Invalids and Social Affairs signed a Decision to establish an inspection team to inspect the observance of labour laws and OSH legislation in Vinacomin and 24 member companies. (Among them are 17 coal mining companies). The inspection team concluded several major violations: periodical OSH training for employees was not following regulations; using equipment with strict requirements on occupational safety that has not been verified; inadequate periodic health check for employees, etc. After announcing the inspection conclusions, Vinacomin and its member units have thoughtfully implemented the recommendations of the OSH inspection team. As a result, the number of deaths from occupational accidents in 2016 decreased from 25 to 14 in 2019. However, in 2020, the number of occupational accidents increased by 14 cases, from 563 in 2019 to 577. The number of injuries also increased to 581, and the death toll jumped to 18. Facing this situation, the Ministry Inspectorate promptly established an inspection team to inspect the observance of labour laws and OSH laws in 30 branches and units in the Vinacomin according to the Inspection Plan approved by the leadership of the Ministry of Labour - Invalids and Social Affairs in the Decisions from No. 228/QĐ-TTtr to No.257/QĐ-TTtr dated May 11 August 2020. Among the 30 branches and units subject to inspection, 43% were underground mining units, and 10% were open-pit mining units. The announcement of the results of the inspection team confirmed: (i) 100% of the inspected subjects had seriously complied with the OSH law. Specifically: they had established OSH apparatus and Health units as prescribed; a network of OSH officials had been established; they had based internal rules, regulations, and working procedures on OSH for working machines and equipment, etc. (ii) 100% of coal mining enterprises had fully complied with the legal regulations on OSH in coal mining activities such as safety in excavation and support of furnaces; protect and repair of furnace paths; propping and control of rocks/walls; ventilation, etc. At the same time, the occupational safety and health inspection team raised a number of shortcomings that Vinacomin and its member units need to overcome: (i) The production site still poses potential risks of compromising safety; (ii) Some construction solutions and measures are incomplete, irrelevant to actual production or each working position; (iii) There is still the phenomenon that staff directing production giving production orders (daily orders, shift orders) in a general way; (iv) work safety measures are still sketchy, etc.[11].

- Activities of the occupational safety and health inspection team established by the Department of Labour - Invalids and Social Affairs of Quang Ninh province

To date, the relevant authorities have granted 88.7% of the total number of coal mining licenses to the companies based in Quang Ninh province, and they are allowed to mine coal in Quang Ninh province [12]. Persuaded by the Law on Organization of Local Government and the Law on Occupational Safety and Health, Quang Ninh provincial government has hierarchical and decentralization the state management of OSH in its province. Thus, the Chairman of the People's Committee of Quang Ninh province has issued a document stipulating that the provincial Department of Labour - Invalids and Social Affairs is a specialized agency under the Provincial People's Committee, performing the function of advising and assisting the Provincial People's Committee in state management of OSH. On that basis, the Department of Labour - Invalids and Social Affairs of Quang Ninh province has the following responsibilities and authority in

operation: to inspect, audit, and address violations of the labour law and the law on occupational safety and health by organizations and individuals based in the province. They include units that are members of Vinacomin operating in coal mining, processing, and trading in Quang Ninh province.

In 2019, the Department of Labour - Invalids and Social Affairs of Quang Ninh province conducted a surprise inspection on OSH in 11 units under the Vinacomin and 20 contractors carrying out packages of loading, unloading, transporting soil and rock, digging pits according to Document No.7866/UBND-VX2 of the People's Committee of Quang Ninh province. The inspection team asked the units to implement 110 recommendations; temporarily stop 01 production position that does not ensure safety. At the same time, the Department of Labour - Invalids and Social Affairs of Quang Ninh province proposed to the Investigation Police Agency, the People's Procuracy of Quang Ninh province, and localities to investigate and address severe occupational accidents under their competence. Numerous typical cases of occupational accidents include: (i) The investigation police agency under Dong Trieu Town Police has issued a Decision to prosecute a criminal case No.52/QD due to violations of regulations on occupational safety related to the occupational accident that occurred on January 11, 2019 at transporting tunnel level -150 LC11(46) Project to expand the capacity of Trang Bach mine by Mining Construction Company-Vinacomin;(ii) The Investigation Police Agency of Cam Pha City Police has issued Decision No.09/QD-CSĐT on the prosecution of the criminal case "Violation of regulations on occupational safety and health, on safety in crowded places" related to an accident with one death on November 27, 2020 at the mine transportation route level -182, open-pit coal mining field of Deo Nai Coal Joint Stock Company - Vinacomin; prosecuted 01 defendant against Mr. Nguyen Chi Vu, operator of the Komatsu HD465-7R truck No.27 [13].

The inspection and examination of OSH in coal mining enterprises shall be carried out by state management agencies in charge of labor at all levels in accordance with the law, ensuring the detection, prevention, and timely handling of violations the law on OSH. Advanced and modern methods of inspection and examination of OSH. Forms of assessment and review of OSH are conducted in various ways: according to approved plans and programs, or irregularly inspected and tested under the direction of competent authorities. In addition, the Occupational Safety and Health Inspectorate also promotes consulting and guidance for enterprises to solve difficulties and problems in complying with the law on OSH. 90.4 % of the respondents said they had asked the State management agency on labor or the Youth Union to inspect OSH to advise and guide enterprises to solve difficulties problems in complying with OSH law, 9.6% of enterprises have never requested. Assessing the satisfaction of the results of support/advice/instruction from the state management agency on labor or from the Youth Union, inspecting OSH for enterprises on compliance with the OSH law, 41.2% of the opinions rated very satisfied, there were 47.0% of the comments rated the level of satisfaction, 5.9% of the comments rated the level of quite satisfied and 5.9% of the comments were less pleased.

The organization of occupational safety and health inspection teams at all levels is crucial to prevent and promptly handle violations of the law on OSH, thus contributing to ensuring the effectiveness and efficiency of specialized occupational safety and health inspection and at the same time ensure the legitimate rights and interests of the organization and employees. However, the occupational safety and health inspectorate still has the following shortcomings:

- Regulations on the duties and powers of inspectors when performing their official duties are limited, especially in case of detecting violations of the law on OSH;
- Resources for OSH inspection in the entire sector of Labour, Invalids and Social Affairs are still inadequate and do not meet current requirements;
- The number of occupational safety and health inspections carried out by enterprises is still tiny [14];
- The frequency of OSH inspections and examinations on the implementation of the law on OSH in enterprises in general as well as in coal mining enterprises, in particular, is still low;
- The coordination in investigating fatal occupational accidents and signs of crime among police agencies, procuracies, and occupational accident investigation teams in some places is not good [14].

These shortcomings significantly influence the effectiveness and efficiency of state management of OSH in coal mining enterprises in Vietnam today.

4. Proposal of several solutions to strengthen OSH inspection and audit in coal mining companies in Vietnam

4.1. Grounds for proposals

- *Directive 29-CT/TW dated September 18, 2013 of the Secretariat on promoting occupational safety and health in the period of industrialization, modernization, and international integration;*

- *Resolution No. 20-NQ/TW dated October 25, 2017 of the Party Central Committee on Strengthening the protection, care, and improvement of people's health in the new situation. It stated, "Implementing solutions synchronously for disaster prevention and control, ensuring order, traffic safety, and labour safety; prevention and control of accidents, injuries, fires, explosions, and occupational diseases";*

- *Decision No. 403/QĐ-TTg dated March 14, 2016 approving the adjustment of the development plan of Vietnam's coal industry to 2020, taking into account the prospect to 2030 from the development perspective of "ensuring safety in production";*

- *Decision No. 01/QĐ-LĐTBXH dated January 4, 2021 of the Minister of Labour - Invalids and Social Affairs promulgating the Action Plan of the Labour - Invalids and Social Affairs sector to implement Resolution No. 01/ NQ-CP and Resolution No. 02/NQ-CP dated January 1, 2021 of the Government: *Project on improving the inspection capacity of the Labour - Invalids and Social Affairs sector in the 2021-2026 period;**

- *Resolution No. 55-NQ/TW dated February 11, 2020 of the Politburo on orientations of Vietnam's national energy development strategy to 2030, with a vision to 2045: "Expanding search, exploration, promoting coal mining on the basis of ensuring safety, efficiency and saving resources";*

- Results of the inspection and audit of OSH in coal mining enterprises recently.

The above directions and strategies show that the Party, Government, and relevant agencies of Vietnam are very concerned about safety and health for workers and the social community in the coming time when coal mining activities vigorously develop. These are essential foundations in developing action plans and proposing solutions to strengthen inspection and audit of OSH in coal mining enterprises in Vietnam in the future.

4.2. Proposal of solutions

- Reviewing, amending, supplementing, and completing the legal provisions on: Occupational safety and health inspectors conduct independent inspection; Increased powers for inspectors when on duty; Strengthen the task of consulting and guiding enterprises in complying with the law on OSH; Strengthen supervision of the implementation of recommendations after inspection and examination of OSH;

- Strengthening the OSH inspection system, supplementing OSH inspection resources in the entire sector of Labour, Invalids and Social Affairs to meet current requirements such as: Increase staffing quotas based on increasing staffing quotas, position job placements from the Interior sector; Improve the capacity of the inspection team, inspecting OSH through professional training courses, soft skills,... Building a network of inspectors and inspectors from experts, experts professional and experienced managers;

- Increase the number of OSH inspections and inspections as well as the frequency of OSH inspections and audits on the observance of the OSH legislation in enterprises in general as well as in coal mining enterprises in particular, ensuring the inspection subjects are fair before the law as well as strengthen the form of irregular inspection and examination of OSH, avoiding the situation that the inspected subjects are prepared to cope;

- Continue to hierarchy and decentralize powers to local state management agencies in charge of labor to proactively develop programs and plans for inspection and inspection of OSH in accordance with local conditions and at the same time promote work. Cooperate in investigating fatal occupational accidents, with

signs of crime between police agencies, procuracies, and occupational accident investigation teams in those localities.

- Promote the application of information technology by online consultation, dissemination, and guidance of enterprises to comply with the law on OSH, publicizing the conclusions of inspection and examination of OSH, publicizing violations and penalties. treatment mode; Establishing a hotline to receive information: complaints and denunciations of violations of the law on OSH;

- Coordinate with relevant parties such as: Trade Union, Farmers' Union, Veteran's Association, Women's Union, etc. in propagating, disseminating, and educating the law on OSH.

5. Conclusion

The Vietnam Occupational Safety and Health Inspectors have specific positions and roles, clearly defined by law. At the same time, OSH Inspection is also an important function of labour-related state management agencies at all levels. Although the resources for OSH inspection in the entire Labour - Invalids and Social Affairs sector of Vietnam are still limited; the scope and targets of inspection are broad; and the contents of OSH inspection are complex and multi-sectoral in nature; OSH inspection and audit in coal mining enterprises have been implemented by labour-related state management agencies at all levels in accordance with the law, ensuring the detection, prevention and timely handling of violations against OSH law, contributing to the reduction of the frequency of fatal occupational accidents by 16.99% in the 2016-2019 period compared to the period 2011-2015 [14]. This ensures the achievement of the target of "Annual average reduction of the frequency of fatal occupational accidents by 5%" set out by the National Program on OSH for the period 2016-2020. In the coming time, the inspection and examination of OSH in coal mining enterprises should be further strengthened to improve the effectiveness of state management of OSH.

6. Acknowledgements

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