

Developing Improvement Plans for National Defense Safety Directive to Align with the Serious Accident Punishment Act

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Abstract : To ensure a systematic and integrated approach to defense safety management, individual safety management regulations have been consolidated into the National Defense Safety Directive. However, despite being enacted after the enforcement of the Severe Accident Punishment Act, the National Defense Safety Directive does not incorporate the contents of the Serious Accident Punishment Act. This omission is likely to cause confusion in safety management. In this paper, a PDCA analysis of the Severe Accident Punishment Act and the National Defense Safety Directive was conducted to identify area for improvement and supplementation in the Directive. Chapter 3 proposes amendments to clearly define the scope and responsibilities of safety management, implement serious accident prevention measures and inspections, and establish the penalties for those involved. These amendments aim to ensure faithful compliance with the Severe Accident Punishment Act. Chapter 4 emphasizes the implementation and inspection of risk assessments to enhance the effectiveness of safety accident prevention and preparation, thereby ensuring the completeness of the PDCA cycle.

Key Words : Serious Accident Punishment Act, National Defense Safety Directive, PDCA analysis, Safety Management, Deriving Improvement Plan

1. Introduction

The Serious Accident Punishment Act was enacted on January 27, 2022. One of the reasons for its enactment is the functional limitations of the Occupational Safety and Health Act, which is at the center of safety management. It was enacted to prevent industrial accidents; however, although the purpose was not criminal sanctions, it was perceived in the field as sanctions. In addition, there has been controversy over the effectiveness of criminal sanctions under the Occupational Safety and Health Act, with sanctions and punishments not focused on safety and health practitioners (Kwon, 2021). To solve these problems and protect citizens and workers by preventing major disasters, the duty to ensure safety and health is imposed on business managers with prevention as a policy goal; in case of violation, the business owner, management manager, etc., as well as the corporation, are responsible for punishment. The target was then expanded.

In line with changes in safety-management-related laws, the Ministry of National Defense enacted the National Defense Safety Directive on December 30, 2022, to improve the safety of defense personnel and assets. To achieve systematic and integrated defense safety management, the safety management developed individually

according to 26 administrative regulations of 12 departments, including the Ministry of National Defense Unit Management Directive, was integrated into one national defense safety directive. The Ministry of National Defense announced in a press release that it referred to the Occupational Safety and Health Act and the U.S. Department of Defense's Safety Management Directive, and collected opinions from safety experts at each level to improve the safety of defense personnel and assets (MND, 2020). Subsequently, some parts of the directive were revised on December 28, 2022. Each military is currently implementing safety management.

However, although the National Defense Safety Directive was enacted 11 months after the enforcement of the Serious Accident Punishment Act, it does not clearly specify the contents related to serious accident prevention and investigation procedures, accident responsibility and punishment standards, and establishment of a recurrence prevention system, which may cause confusion in safety management. There is a possibility (Choi, 2022). In particular, because the Serious Accident Punishment Act strengthens criminal liability for public institutions, the Ministry of National Defense must also include relevant content in its directive as it is subject to its application. To solve these problems, the relationship with the Serious Accident Punishment Act must be clearly defined through a revision of the National Defense Safety Directive.

In this study, to improve the effectiveness and completeness of

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the National Defense Safety Directive, we compare and analyze it with the Serious Accident Punishment Act based on the PDCA Cycle steps, which is the basic structure of safety management, and provide instructions so that the issues discussed in relation to the Serious Accident Punishment Act can be supplemented. Here, we present the composition plan.

2. Previous study

2.1 Serious Accident Punishment Act

The Serious Accident Punishment Act addresses issues similar to those covered by the Occupational Safety and Health Act but imposes stricter punishment to prevent accidents. This reflects the legislative intent to enhance practicality by expanding the scope of application and punishment targets.

As a means to prevent serious accidents, the ‘obligation to take safety and health measures’ must be implemented. In case of violation, this law aims to ensure the safety of workers and citizens by severely punishing business owners, management managers, corporations, and others. The law comprises a total of four chapters and sixteen articles, focusing on ‘serious industrial accidents’ and ‘major civil accidents’.

Chapter 1 (General Provisions) outlines the purpose and definitions of the law. Chapter 2 (Serious Industrial Accidents) addresses the scope of application, obligations to ensure safety and health for business owners and management managers, double punishment regulations, and safety and health education. Chapter 3 (Serious Civil Disasters) has a similar structure to Chapter 2 and covers the requirements and provisions for serious civil disasters. Chapter 4 (Supplementary Provisions) includes the announcement of the occurrence and notification of sentence confirmation in the event of a serious disaster, special provisions regarding trial procedures, liability for damages, government support, and reporting to business owners, among other topics.

The Serious Accident Punishment Act is similar to the Occupational Safety and Health Act, but there are issues regarding the definition and scope of serious accidents, the subjects of management, and the subjects of punishment. Therefore, related research is in progress. The research on these major issues is as follows:

Kim (2021) suggested that the law needs to be supplemented in the following areas: ① the scope of interpretation of management managers (whether the CEO is responsible or not), ② the issue of

punishment of business owners and management managers for serious accidents (relationship with violations of the Occupational Safety and Health Act and the crime of occupational manslaughter, violations of the Serious Accident Punishment Act), ③ the scope of application of major industrial accidents (extraterritorial application, interpretation of locational separation of workplaces), ④ the relationship between product liability and major civil accident liability (structure of product liability and major civil accident liability).

Jeong (2023) argued that the problems lie in the following points: ⑤ subject of obligation (business owner, management manager, contractor, etc.), ⑥ protected subject (person providing labor, contractor, etc.), ⑦ scope of application (unit of business or workplace judgment, criteria for judgment of number of workers), ⑧ duty to ensure safety and health (relationship with the duty to take measures under the Occupational Safety and Health Act), ⑨ issues regarding sanctions for violation of duty (criminal punishment for business managers, joint punishment provisions, punitive damages, and issues regarding prisoners in case of conflict between laws).

Analyzing the main issues of the Serious Accident Punishment Act as claimed in the two studies above, the categories are similar. If summarized in terms of legislative purpose, they focus on ‘fulfillment of obligations’ (①, ③~⑧) and ‘punishment’ (②, ⑨). (Fig. 1)

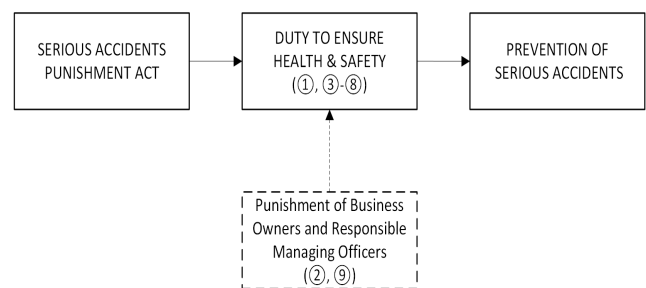


Fig. 1. Major issues in the Serious Accident Punishment Act.

2.2 National Defense Safety Directive

The National Defense Safety Directive, enacted and issued on December 31, 2020, serves as the foundation for implementing systematic and integrated defense safety management by consolidating the safety systems managed by each unit into a unified framework. Each military branch has established safety regulations in accordance with the National Defense Safety

Directive to enhance safety management expertise and prevent accidents. The directive consists of 56 articles divided into seven chapters are summarized as follows.

Chapter 1 (General Provisions) stipulates the definitions and scope of application of the terms used in the instructions. Chapter 2 (Defense Safety Management System) specifies the duties and roles of the organization and personnel for each unit and agency, and the consultative body that oversees and coordinates defense safety management. Chapter 3 (Defense Safety Management Plan) mandates the establishment of a defense safety management plan for long-term and systematic safety management. Chapter 4 (Safety Accident Prevention and Preparedness) addresses systematic classification criteria for safety accidents, risk assessment, and safety measures to prevent accidents. Chapter 5 (Safety Accident Reporting/Investigation and Response) outlines the operations of the investigation committee and the response procedures to enable effective and efficient handling of safety accidents. Chapter 6 (Evaluation and Feedback) covers the operation of the defense safety information system, ensuring that the results of safety management are fed back into safety policies. Chapter 7 (Promotion of Safety Culture and External Cooperation) deals with safety culture activities and the establishment of a safety-related external cooperation system to increase safety awareness among defense personnel.

2.3 PDCA Cycle

The PDCA method, first created by statistical expert Walter A. Shewhart in the 1930s and later improved to its current, more advanced concept by W. Edwards Deming in the 1950s, is now widely used (Silva et al., 2017).

The International Organization for Standardization (ISO), a non-governmental organization established in 1947, developed and operates the ISO 45001 standard, a safety and health management system. To operate this system and achieve its goals, the PDCA Cycle is emphasized because continuous improvement and supplementation of the system enhance its effectiveness (ISO, 2023).

Kim et al.(2021) analyzed the audit report of ISO's management system and proposed a sustainable management improvement plan. To obtain the desired results, operating the PDCA Cycle is crucial. Therefore, the audit process was analyzed and supplemented.

For effective safety management, each step of the PDCA must approach its goal while functioning within a mutually organic structure. Each step must be faithfully performed to fulfill its

function. A summary of the step-by-step considerations is as follows (Fig. 2):

- 1) Plan: Define the management scope and requirements to achieve the goal by considering various external and internal factors.
- 2) Do: Execute the planned management plan. Confirm the necessary resources and budget, and designate the responsible person.
- 3) Check: Monitor the executed process and measure performance to determine if the planned results are achieved and if the goal has been met.
- 4) Act: Evaluate whether the measured results require improvement or supplementation to achieve the goal. Feedback the evaluation results to improve the PDCA Cycle. Revise the organization's goals and ensure these processes and results are communicated within the organization.

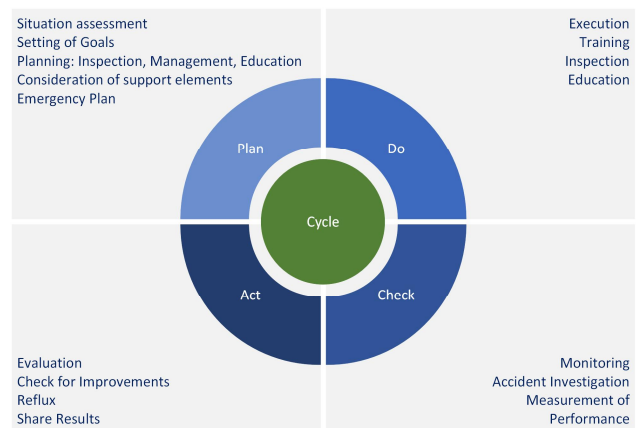


Fig. 2. Factors to consider in PDCA cycle.

3. PDCA analysis

The Serious Accident Punishment Act and the National Defense Safety Directive are systematically structured into chapters, sections, and provisions to achieve unique goals and directions. This configuration enables independent operations while forming an organic relationship according to the function and role of each law.

Through a PDCA of their composition, it is necessary to review whether a feedback system is in place to fully perform its functions and effectively prevent accidents.

While each provision performs an individual function, they are interconnected to implement the functions of chapters and sections.

Accordingly, an in-depth PDCA analysis was conducted based on 16 articles of the Severe Accident Punishment Act and 7 chapters and 11 sections of the National Defense Safety Directive.

3.1 Analysis of the Serious Accident Punishment Act

Chapter 1 deals with the purpose and definitions, corresponding to the “P” step.

In Chapter 2, Article 3, which defines the scope of application, can be classified as the “P” step, while Articles 4 and 5, which deal with the implementation of safety and health security obligations, can be classified as the “D” step. However, Articles 4 and 5 also include provisions defining the target scope, so they can be considered to partially fall under the “P” step. However, these provisions mainly focus on the fulfillment of obligations. Article 6 relates to violations, etc., and is classified as the “C” step, while Articles 7 and 8 correspond to follow-up actions and feedback according to the evaluation and are classified as the “A” step.

Article 9 of Chapter 3 is related to the implementation of obligations to ensure safety and health, and is classified as the “D”

step like Articles 4 and 5, but some of it includes content corresponding to the “P” step. Article 10 relates to whether there is a violation and is classified as the “C” step, and Article 11 relates to follow-up action and feedback according to the evaluation and is classified as the “A” step.

Articles 12, 13, and 16 of Chapter 4 deal with follow-up measures and feedback on the results, so they were classified as the “A” step, and Articles 14 and 15 deal with scope, so they were classified as the “P” step.

In summary, the Serious Accident Punishment Act consists of a total of 16 provisions listed below (Table 1):

- 1) Step “P” (5 articles): Article 1, Article 2, Article 3, Article 14, Article 15
- 2) Step “D” (3 articles, including some P levels): Articles 4, 5, and 9
- 3) Step “C” (2 articles): Article 6, Article 10
- 4) Step “A” (6 articles): Articles 7, 8, 11, 12, 13, and 16

Table 1. PDCA analysis of the Serious Accidents Punishment Act

		Construction of Articles	P	D	C	A	
Chapter 1	General Provisions	Article 1	Purpose	○			
		Article 2	Definition	○			
		Article 3	Application	○			
Chapter 2	Serious Industrial Accidents	Article 4	Duty to ensure safety and health of business owners and management managers, etc.	(○)	○		
		Article 5	Obligation to ensure safety and health in contracts, services, consignments, etc.	(○)	○		
		Article 6	Punishment of business owners and managers responsible for serious industrial accidents			○	
		Article 7	Dual punishment regulations for serious industrial accidents				○
		Article 8	Attending safety and health education				○
Chapter 3	Serious Civil Disasters	Article 9	Duty to ensure safety and health of business owners and management managers, etc.	(○)	○		
		Article 10	Punishment of business owners and managers responsible for serious civil disasters			○	
		Article 11	Dual punishment regulations for major civil disasters				○
		Article 12	Notification of sentence confirmation				○
Chapter 4	Supplementary Provisions	Article 13	Announcement of the occurrence of a major industrial accident			○	
		Article 14	Special provisions regarding hearing procedures	○			
		Article 15	liability for damages	○			
		Article 16	Government support and reporting to business owners, etc.				○

○: applicable, (○): Some applicable

3.2 Analysis of the National Defense Safety Directive

Chapter 1 General Provisions deals with the purpose, definition, scope of application, etc. and corresponds to step “P”.

Chapter 2 defines the defense safety management system and stipulates the committee, organization structure, and personnel operation, so it is classified as “P” level.

Chapter 3 Defense Safety Management Plan stipulates the basic plan for defense safety management, defense safety management execution plan, and safety budget, and corresponds to the “P” step.

Chapter 4 is classified into Level P because Section 1 specifies the standards for classifying safety accidents, and step “D” because Section 2 specifies methods for preventing safety accidents.

In Chapter 5, Section 1 specifies safety accident reporting standards, so it is classified as “P” step, and Section 2 specifies safety accident investigation methods, so it is classified as “D” step. Section 3 regulates monitoring of safety accidents and therefore corresponds to step “C”.

Chapter 6 is referred to as step “P” because Section 1 specifies the plan to build and utilize national defense safety information, and Section 2 stipulates the evaluation of the results of safety management, so it corresponds to step “A”.

Chapter 7 is classified as step “A” because it deals with evaluating the results and returning them to a plan with regulations related to safety culture promotion and external cooperation.

Each chapter is divided and organized according to the nature of the regulations (Table 2).

1) Step “P” (7 articles): Chapter 1, Chapter 2, Section 1, Chapter 2, Section 2, Chapter 3, Chapter 4, Section 1, Chapter 5, Section 1, Chapter 6, Section 1

2) Step “D” (2 articles): Chapter 4, Section 2, Chapter 5, Section 2

3) Step “C” (1 article): Chapter 5, Section 3

4) Step “A” (3 articles): Chapter 6, Section 2, Chapter 7, Section 1, Chapter 7, Section 2

3.3 Implication

The Serious Accident Punishment Act and the National Defense Safety Directive both outline processes for goal setting, selection of applicable targets, establishing management plans, executing methods, monitoring, evaluating, and providing feedback for safety management and accident prevention. To enhance the effectiveness of safety management, each provision was reviewed and divided into PDCA steps, revealing a need for supplementation to continuously improve safety management.

While the Serious Accident Punishment Act is structured around the PDCA Cycle to strengthen the obligation to ensure safety and health and establish a highly effective safety management system, the National Defense Safety Directive lacks completeness in the PDCA Cycle due to insufficient regulations on safety accident prevention.

To enhance the effectiveness of safety management under the National Defense Safety Directive, the missing steps “C” and “A”

Table 2. PDCA analysis of the National Defense Safety Directive

Construction of Articles		P	D	C	A
Chapter 1	General Provisions	○			
Chapter 2	Section 1	○			
	Section 2	○			
Chapter 3	National Defense Safety Management Plan	○			
Chapter 4	Section 1	○			
	Section 2		○		
Chapter 5	Section 1	○			
	Section 2		○		
	Section 3			○	
Chapter 6	Section 1	○			
	Section 2				○
Chapter 7	Section 1				○
	Section 2				○

should be added. This would enable the completion of the PDCA Cycle, ensuring an effective safety management system. In step “C”, after a safety accident occurs, the cause of the accident should be analyzed, and an improvement plan should be prepared to prevent recurrence. In the “A” step, the improvement plan should be implemented, the execution results evaluated, and a plan for continuous improvement established.

4. Presentation of development plan for national defense safety directive

4.1 Factors to consider for improvement and supplementation

For the National Defense Safety Directive to respond to the Serious Accident Punishment Act and increase the effectiveness of safety management, the following two issues must be considered.

1) It must have a structure that responds to the main issues of the Severe Accident Punishment Act: strengthening the obligation to ensure safety and health and punishing failure to fulfill the obligation.

2) The PDCA steps must be organized in a continuous circular cycle to ensure the effectiveness of the safety management of the National Defense Safety Directive.

In summary, the following six elements (a~f) must be supplemented to respond to serious accident, strengthen safety and health security obligations, and ensure the effectiveness of safety management.

① Addition of response to major industrial accidents and major civil accidents: a) Scope of application and responsibilities, b) Implementation measures for prevention, c) Investigation in case of accident

② Additional punishment for failure to comply with safety and health obligations: d) Punishment targets, e) Sentencing standards

③ Supplementation to ensure the function of Chapter 4 (safety accident prevention and preparation): f) Monitoring of risk assessment (the “C” step)

4.2 National Defense Safety Directive Amendment (Plan)

Among the six factors, five factors a) to e) are related to serious accidents, while f) corresponds to safety management.

The National Defense Safety Directive does not cover serious disasters related to a) to e), so additional provisions must be added. Since these new provisions are similar to Chapter 3 (Defense Security Management Plan), it is advisable to structure them as subsections of Chapter 3. Therefore, the name of Chapter

3 should be changed to 'Safety Management Plan', and existing Articles 10 to 12 should be reorganized into Section 1 (Defense Safety Management Plan) and distinguished from the newly established Section 2 (National Safety Management Plan).

f) should establish a new Section 3 (Risk Assessment) in Chapter 4 (Prevention and Preparedness for Safety Accidents), consisting of sub-clauses to ensure that the safety management function follows the PDCA Cycle. Articles 17 (Implementation of risk assessment) and Article 18 (Support for risk assessment), currently included in Chapter 4, Section 2, should be moved to the sub-clauses of Section 3 to enable safety management and monitoring through risk assessment.

If the structure of the National Defense Safety Directive is changed, the title of Chapter 3 will also be changed, and a new section will be added to Chapters 3 and 4. Section 1 and 3 of Chapter 3 will address the management of serious disasters having the nature of a the “P” step, while Chapter 4 will reorganize the provisions related to risk assessment among the provisions of the current Chapter 4, Section 2 into Chapter 3 and add a monitoring function for risk assessment to ensure safety management follows the PDCA Cycle.

5. Conclusion

The National Defense Safety Directive was systematically organized by integrating the main contents of the Occupational Safety and Health Act and safety management documents within the Ministry of Defense into one directive. Each military service establishes safety regulations and implements safety management measures in accordance with this directive.

However, despite being created after the enactment of the Serious Accident Punishment Act, which is attracting social attention, the National Defense Safety Directive does not include provisions related to it. Therefore, institutional supplementation is required.

The Serious Accident Punishment Act stipulates safety and health obligations for business owners to prevent serious disasters, and imposes criminal punishment on those responsible for violating them. The law also applies to public institutions. Therefore, the Ministry of National Defense must revise the National Defense Safety Directive to ensure that each military's safety management

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Table 3. Restructuring of the National Defense Safety Directive

Construction of Articles			P	D	C	A
Chapter 1	General Provisions		○			
Chapter 2	National Defense Safety Management System	Section 1	○			
		Section 2	○			
Chapter 3	Safety management plan	Section 1	○			
		Section 2	○			
		Section 1	○			
Chapter 4	Safety accident prevention and preparation	Section 2		○		
		Section 3			○	(○)
		Section 1	○			
Chapter 5	Safety accident reporting, investigation and response	Section 2		○		
		Section 3			○	
		Section 1	○			
Chapter 6	Evaluation and Feedback	Section 2				○
		Section 1				○
Chapter 7	Safety culture promotion and external cooperation	Section 1				○
		Section 2				○

O: applicable, (O): Some applicable

complies with the act and directives, thereby increasing the effectiveness of safety management.

In this study, the composition of the Serious Accident Punishment Act and the National Defense Safety Directive was compared and analyzed according to the steps of the safety management PDCA Cycle, and provisions requiring supplementation were reviewed. As a result, Chapter 3 (Defense Safety Management Plan) and Chapter 4 (Defense Safety Management Plan) of the National Defense Safety Directive have been supplemented as follows:

First, Chapter 3 clarified the scope and responsibilities of safety management, serious accident prevention measures and inspections, and the punishment of those involved, which must be supplemented in relation to the implementation of the Serious Accident Punishment Act.

Second, Chapter 4 clarified the implementation and inspection of risk assessments to improve the effectiveness of safety accident prevention and preparation by ensuring the completeness of the PDCA Cycle. Currently, Chapter 4 is classified into the Plan and Do steps, and the function has been strengthened to enable the

Check and Act steps through specific supplementation of the risk assessment.

This study presents directions for improving national defense safety instructions using the PDCA Cycle. Through this, it is hoped that each military service will develop specific measures to comply with the Serious Accident Punishment Act and strengthen safety management.

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