

UNIFIED SYSTEM OF LEGAL INSTRUMENTS AIMED AT THE RESPONSE TO AND THE RECOVERY OF THE MAJOR INDUSTRIAL ACCIDENTS

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Summary:

The Hungarian legal regulations on industrial safety which came into force on 1st January 2012 cover the tasks related to the protection of major industrial accidents in which dangerous substances are involved. The tasks and measures arising from the implementation of the legal regulations can be divided into three groups: the prevention and preparedness period, the (emergency) response period and the recovery period. In the article, the author deals with the unified system of legal instruments and tools established in the field of response to and recovery of the major industrial accidents in Hungary.

Keywords:

emergency response, industrial accidents, legal regulations, legal instruments, disaster management, Hungary

INTRODUCTION

The law for industrial safety (constituting the third branch of disaster management, together with civil protection and fire safety) adopted on January 1, 2012 covers the issues related to the protection against major accidents in which dangerous substances are involved, the protection of transports of dangerous goods, vital systems and installations and performance of the tasks on nuclear safety.

Development of the regulations on the industrial safety within the disaster management system has a 15-year history in Hungary. The industrial safety is built on a specif-

ic Hungarian law system and institutions in close relationship with the formation of the international and European Union regulations, the industrial safety vulnerability, the development of safety culture, and creation of a uniformed disaster management system in Hungary which is considered unique, even according to international standards.

Based on the analyses of the law and discipline's history [1], the uniformed industrial safety regulations enacted between 2010-2012 are based mainly on the law, institutions and tool system for protection against major accidents associated with dangerous substances, whose basic purpose is the control and supervision of the entities that handle dangerous substances (hereinafter dangerous entity). The high-level protection of human life and health as well as the environment of dangerous entities constitutes the primary objective of the regulations.

The execution of the protection tasks against major accidents is basically divided into three periods: the period of prevention and preparation, the period of defense (emergency management) and the period of restoration - elimination of the consequences.

In the article, the author methodizes the legal institutions and the system of tools' implementation in compliance with the legal regulations during the emergency response period.

1. GENERAL SYSTEM OF THE DISASTER MANAGEMENT TASKS IMPLEMENTATION

The system of the disaster management tasks implementation is basically divided into three periods: the period of prevention and preparation, the period of protection (emergency management) and the period of restoration - elimination of the consequences. Table 1 summarizes the tasks performed by the authorities in the various periods of protection against major accidents.

Table 1 System of disaster management tasks concerning protection against major accidents

Period	Tasks
Period of prevention and preparation to protection	<ul style="list-style-type: none"> - evaluation and codification of regulations; - development of institutional activities; - implementation of the regulations: operation of the authority certifying and supervising the control system, executing the tasks related to disaster management; - collection and coding the experiences gained during implementation; - performance of the tasks related to civil protection: establishment and preparation of the civil protection organizations, training participants involved in the protection, preparation of the civilian population.
The period of protection and reduction of the consequences (emergency management)	<ul style="list-style-type: none"> - qualification of the incident occurred; - alarming and information the public; - alarming the organizations engaged in the protection; - introduction of immediate protection measures; - operation of executive emergency management staff and centers;

Period	Tasks
	<ul style="list-style-type: none"> - participation in the works of the protection committees; - implementation of the obligations of sharing the information arising from international treaties; - commencing aid activities, if necessary.
Period of restoration and elimination of the consequences	<ul style="list-style-type: none"> - ensuring the protection of the life support of citizens; - temporary restoration of the damaged public utilities; - cooperation in the mitigation tasks; - participation in recognition of the damages; - participation in distribution of the aid.

Source: Own elaboration

The legal institutions, the required tasks (measures) and the applied system of legislative tools regarding the protection against major accidents can be categorized in three main groups based on the periods when the tasks are executed. These are:

- the prevention and preparation period;
- the emergency management (accident response) period;
- the recovery period.

The regulations on the prevention and preparatory measures on an operator and authority level concerning protection against major accidents are basically categorized in two groups:

- the prevention measures that serve to eliminate occurrence of a major accident or incident,
- the measures mitigating (preparatory type) consequence intended to reduce or eliminate the effects of an incident already occurred.

The preventive legal undertakings on the operator side are the design, technical, organizational and managerial measures that eliminate occurrence of major accidents, whereas on the authority side, the licensing and supervisory measures are used. The success of preventive measures depends mainly on the quality of execution of the obligations by a user and the efficiency of the industrial safety regulations' application by the authorities.

The following undertakings constitute the preventive legal activities and tools executed or applied by a user:

- identification of and notification about the dangerous activity;
- compilation of the safety documentation (safety report, safety analysis and major emergency management plan) and its submission for authority's judgment;
- regular and occasional inspections of the safety analysis and reports;
- review of the major emergency management plan;
- introduction and operation of safety management system in an upper tier dangerous facilities;

- introduction and operation of a safety management system in a lower tier and below tier dangerous facilities.

The following undertakings constitute the authority's industrial safety prevention activities of disaster management: authority licensing and tasks inspection: authority control activities; sanction activities: operation of the authority registry and informatory system.

In the following parts of the article, the author examines and digests the tasks to be performed during the emergency response period.

2. EMERGENCY RESPONSE LEGAL UNDERTALINGS, LEGISLATION MEASURES AND THE APPLIED SYSTEM OF TOOLS

The protection measures which are supposed to be introduced by an operator are as follows: categorization and reporting of the major accidents and incidents, actualization and application of the internal emergency plan, operation of the establishment management body, protection of the infrastructure and organizations, introduction of the immediate emergency response and rescue measures, fire-fighting, damage mitigation and emergency management activities as well as providing the information regarding the protection activities to the authorities.

The tasks commence after having activated the internal emergency plan and execution of the immediate emergency response and rescue measures, the fire-fighting, the technical rescue, and in some cases (in presence of toxic substances) the chemical detection, medical assistance and all other necessary kinds of protection.

The implementation of the internal emergency plan will result in reduction of the consequences only if the emergency organizations required by the plan are actually established, have an actual organizational structure, the tools and material are de facto in operational conditions, the protection infrastructure has been created, the organizations specified by the plan have been trained on the tasks assigned to them and if they have performed the drills according to the schedule. [2]

The protection measures introduced by the industrial safety authority are as follows:

- categorization of the major accident and incident;
- implementation of the settlement external emergency plan;
- alarming and information of the population, activation of the organizations participating in the rescue works;
- introduction of immediate measures in relation to defense;
- application of civil protection measures (local, personal and remote protection, etc.)
- operation of the executive staff and centers of emergency management;
- participation in the works of the defense committees;
- execution of the information obligations resulting from international treaties and aid activities, if required.

In case of occurrence of an industrial accident, civil protection measures are as follows:

- local protection: security inside shelters and closing them up;
- remote protection: resettlement, rescue, and performance of the substantial settlement tasks;
- personal protection: differentiated supply of personal protective equipment to the population, especially wide range application of rescue measures.
- The additional protection measures can be listed as follows:
 - organization of alarming of the population;
 - preparation of the population to perform the methods of protection, and to participate in the rescue tasks;
 - planning and organization of preventive protection of the survival equipment;
 - preparation of the official disaster management organizations and civil protection organizations for protection of important property and cultural values;
 - planning, organization and execution of the rescue works;
 - continuous information of the public directly or through the media.

The results and effectiveness of the protection measures implemented based on the external emergency plan depend in a great extent on the cooperation between the operator, the disaster management and the collaborating authority organizations which participate in the intervention, the emergency response and rescue works. It is to be underlined that the leading role is played by organizational competent of the disaster management.

3. LEGAL INSTITUTIONS AND LEGISLATION MEASURES

The protection measures introduced by an operator survey the damages and restoration of the damaged installations, prevention against the intermediate and long term effects of major accidents, execution of rescue tasks as well as submitting reports regarding the results of the restoration works to the industrial safety authorities.

The protection measures introduced by the industrial safety authority are ensuring basic survival life conditions to the population; temporary restoration of the damaged public utilities; cooperation in the rescue tasks; cooperation in the survey of the damages; cooperation in the distribution of aids.

As far as restoration works are concerned, the following activities are of a significant importance: the restoration of the basic public utility systems (municipal and infra-structural), providing temporary shelters and supplies to the rescued people for as long as required, participation in the survey and estimation of damages and cooperation in the distribution of the received aid. [3]

The adequate resources should be planned already at the preparation phase to assure the professional level of execution of the restoration tasks, however, the planning and

application is allowed after the survey of damages under a local, regional and national management system.

4. SYSTEMATIZATION OF THE OPERATOR AND AUTHORITIES' MEASURES

During the overall process of preparation the management for industrial disasters and major accidents, the organizations participating in the protection are obliged to consider the methods of disaster management operation, the measures of prevention against a disaster, the preparatory provisions of the involved population, as well as the resources that can be utilized for restoration if necessary.

In practice, it means a cascade task system of prevention, preparation, emergency management and restoration.

Identification of the possible risk factors is of a significant importance during the prevention process, together with other activities such as: insistence on the relevant authority obligations (construction, installation, safety, etc.), creation of the necessary rules and regulations, continuous notification of the public and the appropriate planning that covers any emergency situation related to these factors. [4]

Implementation of the plans, alerting and activation of the organizations and authorities participating in the rescue works play a crucial role with regard to the emergency management. Introduction of the special measures to manage the emergency situation accomplished through the activation of emergency operation centers, formation of operational teams, immediate commencement of the emergency response interventions and direct damage control, organization of search and rescue bodies and mobilization of further resources that are necessary for execution of the tasks.

As far as restoration works are concerned, the following activities are of a significant importance: the restoration of the basic public utility systems (municipal and infrastructural), providing temporary shelters and supplies to the rescued people for as long as required, participation in the survey and estimation of damages and cooperation in the distribution of the received aid. (Exactly the same paragraph was used on the page 4).

Figure 1 summarizes and methodizes all the legal prevention-preparation and protection (emergency response) undertakings as well as the restoration activities. Their results and the obligations of the operator and the authorities are also visualized.

It follows from the data presented above that the measures introduced in the individual periods of the protection against major accidents form a cascade system and the measures which lie within the responsibilities of both the operator and the disaster management authorities are mutually interdependent. Their efficiency is determined by the level of cooperation.

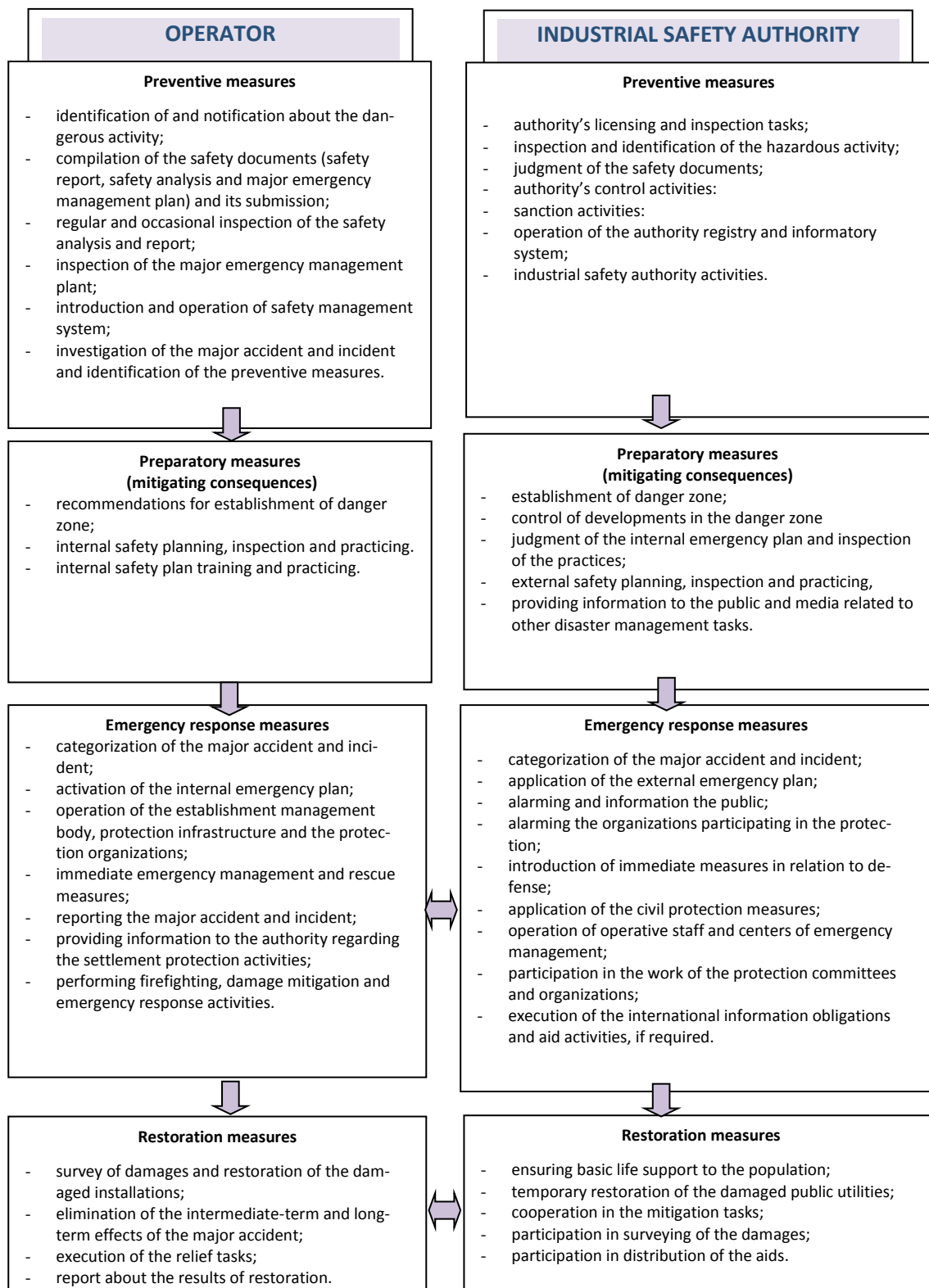


Fig.1: Systematization of the operator and authority's measures

Source: Own elaboration

5. TECHNICAL REQUIREMENTS AND TOOLS OF THE AUTHORITY'S DECISION MAKING PROCESS

The authority examines, with regard to the environment and the population, all the harmful consequences of a possible major accident of the industrial facility handling dangerous substances and the hazardous industrial facility under the tier. It is determined whether the risk posed by the entity is acceptable or not, by comparing the criteria specified in the attachment. If the risk is not acceptable, the authority decides whether the risk can be reduced or the hazardous activity has to be suspended. [5].

Detailed approval criteria under which the operation of a hazardous industrial facility is allowed are included in Attachment 7 of the regulatory statute. The authority shall evaluate the activity of the hazardous industrial facility based on the areas specified in Table 2.

Table 2. Technical requirements and tools of the authority's decision making process

Categorization area	Qualification criteria and system of aspects, technical requirements	Tool applied by the authority
Categorization of the hazards caused by an facility handling dangerous substances	Results of a quantitative risk analysis based on risk. Technical requirements of the individual risk and societal risk of death in the regulatory statute.	Risk analysis software. (DNV PhastRisk 6.54) Internationally accepted procedures, methods and databases.
Assignment of danger zones.	Requirements of the individual risk of injury in the regulatory statute.	Dutch color books. Authority procedure.
Resolution concerning developments in the danger zone	General requirements according to the nature of the installations and the system of the individual zones.	Regulatory statute. Authority procedure.
Internal emergency plan	Calculation of the endangered area by analysis of consequence. Specific technical requirements are not specified. The quality criteria specified in the regulatory statute. Are the emergency management measures proportional to the hazard effects determined by the safety documents? Are the conditions available for execution of the tasks specified by the planned measures?	Consequence analysis software. (DNV PhastRisk 6.54) Internationally accepted procedures, methods and databases. Dutch color books. Authority procedure.
Major emergency management plant	Consequence based on quantitative requirements specified by the attachment of the regulatory statute. Are the plan's protection measures in proportion to the described hazardous effects?	

Categorization area	Qualification criteria and system of aspects, technical requirements	Tool applied by the authority
	Are the conditions available for execution of the tasks specified by the planned measures?	
External emergency plan	Are the external emergency plan's protection measures in proportion to the hazardous effects specified by the operator? Are the conditions available for execution of the tasks specified by the planned measures?	Authority procedure. Compilation and qualification of internal emergency plan.
Safety management system	The quality type inspection requirements (system of aspects) are specified by the authority procedure.	Authority procedure. System of inspection aspects (list of questions).

Source: Own elaboration

CONCLUSIONS

The individual results of the regulatory creation concerning protection against major accidents involving dangerous substances and the establishment of the system of institutions and tools were summarized in the first part of the article.

The author studied and evaluated the authority licensing and inspection institute system of the legislation related the protection against the major accidents and the system of legal procedures and measures applied by authorities.

The systematization of the emergency management procedures, restoration of legal entities as well as the system of safety measures applied by hazardous facilities was one of the author's primary tasks.

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BIOGRAPHICAL NOTE

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