

THE ROLE OF INFORMATION OF THE POPULATION IN ELIMINATION OF ACCIDENTS INVOLVING DANGEROUS SUBSTANCES

LAKOSSÁG TÁJÉKOZTATÁSÁNAK SZEREPE A VESZÉLYES ANYAGOKKAL KAPCSOLATOS BALESETEK FELSZÁMOLÁSÁBAN

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Abstract

The activities of disaster management organizations are especially important in liquidation of accidents involving dangerous substances and handling of evolved emergencies. One segment of the public protection task system is the information of the population, which also plays an important role in elimination of damage besides primary intervention. The nowadays challenges of disaster management are mainly linked to natural and industrial disasters, therefore in this paper I aim to examine the population information's tasks on efficient elimination of major accidents involving dangerous substances might entering the environment. I demonstrate each subtask by illustrating specific examples, highlighting their importance in prevention and in effective damage cleanup. By my research work I wish to highlight the topicality of the subject, also to assist professionals engaged in information tasks.

Keywords: *dangerous substances, industrial disasters, civil protection, information of the population*

Absztrakt

A katasztrófavédelmi szervezetek tevékenysége a veszélyes anyagokkal kapcsolatos balesetek felszámolásában, a kialakult veszélyhelyzetek kezelésében különösen fontos. A lakosságvédelmi feladatrendszer egyik szegmense a lakosságtájékoztatás, mely az elsődleges beavatkozás mellett szintén fontos szerepet játszik a kárfelszámolásban. Korunk katasztrófavédelmi kihívásai elsősorban a természeti és ipari katasztrófákhoz kapcsolhatók, ezért egy esetleges veszélyes anyag környezetbe jutásával járó baleset hatékony felszámolását nagyban segítő lakosságtájékoztatási feladatokat vizsgálom írásomban. Konkrét példák szemléltetése során mutatom be az egyes részfeladatokat, kiemelve azok jelentőségüket a megelőzésben, valamint a hatékony kárfelszámolásban. Kutatómunkámmal rá kívánok világítani a téma aktualitására, továbbá segítséget nyújtani a tájékoztatási feladatokat végző szakembereknek.

Kulcsszavak: *veszélyes anyagok, ipari katasztrófák, lakosságvédelem, lakosság tájékoztatása*

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INTRODUCTION

The increasing use of dangerous substances is a necessary consequence of the ongoing social and economic development. Activities involving dangerous substances inherently carry the risk of an occurring accident. One has to take into account occurring accident not only during production, storage or usage at site, but also by the occasion of road, rail, air or sea transport. The members of the organizations engaged in elimination of damage, has to face in more and more cases with dangerous substances during the interventions every day. [1]. The units of disaster management has to respond to increasingly complex tasks faster and faster, more and more professionally, while in many cases these tasks should be carried out by the presence of dangerous substances [2]. Some changes were made in the disaster management system in response to the challenges caused by incidents of various dangerous substances. The examination of the full range of changes is restricted by the size limitations of this essay, therefore I analyze only the information of the population roles related to the topic, furthermore I also examine the role of notification in the activities of prevention and damage elimination.

RELATION OF PREVENTION AND NOTIFICATION

In terms of protection against disasters, the European Union (hereinafter referred to as EU) puts great emphasis on adequate information of the population, in order to effectively prepare and response to the natural and man-made factors riskful to population, furthermore emphasizes the continuous flow of information related to the management of the events occurred. In Hungary a unified disaster management organization was created in 2012, whose task system includes information of the population tasks at the highest priority level. Information of the population related to dangerous substances should be divided into two task groups, one group of normal or accident-free period notification, the other group covers information of the population tasks in case of emergency or accident.

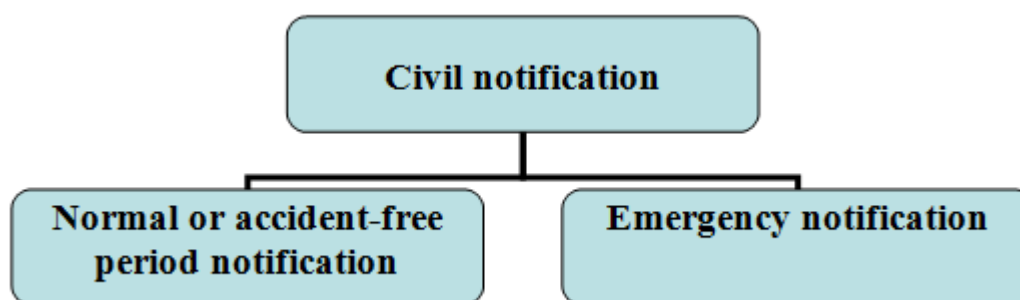


Figure 1. Groups of informatiion of the population, (Source: Author compilation based on [3] Data)

One of the main element of protection against disasters is prevention, which the organization puts large emphasis on. The Act CXXVIII of 2011 on Protection against Disasters in force from 2012 (hereinafter referred to as Disaster Management Act) significantly changed the system of protection against disasters in our country.

The endangerment of disaster had to be assessed at municipal level, and adequate notification and preparation became necessary among the affected population.

The preparation as a key element of the preceding period, represents such tasks in the activities of the organizations affected against disasters defense that can guarantee [3]:

- emergency alert signals and conscious recognition of notices,

- the high proportion of people able to act,
- the expected ability to apply rules of conduct and,
- the increase of self-rescue skills.

It is clear from the above lines that the state puts emphasis on information of the population, however for effective prevention and protection the involvement of the public is needed, since the population can receive serious tasks in the implementation of provisions of the Act. The public is also responsible, has obligation to notice the hazards of its immediate vicinity, to possess sufficient knowledge and information adequate to survive and escape from danger, as well as to actively participate in the protection processes. It is particularly important to understand the risk and the appropriate action sequence in case of accidents involving dangerous substances. In favor of effective prevention the government widened the range of controls that cover all areas related to dangerous substances.

Accidents may occur in relation to dangerous substances in the following areas [4]:

- production,
- transport,
- storage, stockage,
- utilization,
- elimination.

The audit had to be extended to all areas, therefore the law has filled a long-time explored gap with creating conditions of the official and threat control of plants below the lowest threshold, and for its implementation has established among other things a national competence general inspectorate, the National Directorate General for Disaster Management [5]. Thus a supervisor authority was formed over many years of research and practical application that can comprehensively verify the dangerous substances producers, suppliers and user organizations. The range of causes of hazards include a variety of flammable and explosive shipments, as well as toxic road and rail cargo. In order to prevent accidents using the analysis realistic plans and organizations should be constituted for the expected tasks [6]. The plans should include analysis of the threats, tasks related to ensure preparation for alarm the population (employees), by the acquisition and allocation of the protective equipment, by providing the protective facilities, the necessary fire-fighting, technical rescue, decontamination, medical equipment, etc; by the possible evacuation, organizing rescue services, tasks related to management and cooperation. So without them the complex technical rescue targeting the elimination of possible accidents would be prolonged for a long time [7].

INFORMATION OF THE POPULATION IN PRACTICE

Areas are above presented where accidents involving dangerous substances may occur. From civil protection point of view, accidents are the greatest risk occurring in residential areas, and within those the industrial disasters [8]. In the past, other factors were involved during the installation of the plants, so more plants are located within a residential area, or near of it. The possible occurrence of a technological accident, whereupon dangerous substances could get into the environment, is a serious threat to the population. In Hungary, due to the strict regulatory requirements, industrial accidents rarely occur, but the probability of occurrence is not zero, thus informing the public living in the vicinity of dangerous plants, and preparing for the correct action plan in case of accident, both should be emphasised.

The information of the population and preparation shall be conducted at such level that in case of an emergency, everyone is able to apply theoretical knowledge in practice. Raising the capacity of receptive skills should begin at early age so that adults can be receptive people. The 3x3 Action Plan for Children and Youth Training has been announced at the National Disaster Management Directorate, Interior Ministry, which defines methods of providing basic information specifically for the young - and open to perceive new informations,

however the most vulnerable – age groups. During the implementation of the Action Plan, alarms, notifications and emergency information also plays an important role among the training topics. The Action Plan engaged in public training deals with other age groups as well, but pays special attention on children. There is no point in increasing the sense of threat in the population to such level, that would perpetuate the sense of fear. For this purpose by the newly developed instructory/preparatory/informative documents rather security-oriented approach is preferred. At present, the priority target group is of children, because their mind can be considerably influenced and formed towards a direction, where the need for security, preventive approach and active participation against disasters becomes automatic. The importance of preparing young people is outstanding, because in the future they will be able effectively contribute to protection against disasters.

The chapters of Seveso II. Directive, recording EU standards, on the protection against major industrial accidents involving dangerous substances, has been adopted in the disaster management law, which has implemented the prevention of severe industrial accidents, and introduced activities reducing harmful consequences of accidents in our country. Disaster management is tasked by law to control state responsibilities related to prevention of major industrial accidents, and to ensure their supply.

According to the Disaster Management Act executives of industrial plants has managerial responsibility to assess risks of dangerous material present in the plants, to determine the effects occurring during realistically assumed major industrial accidents, as well as to take preventive actions in the plants to protect the public and the environment. These informations are contained by the safety assessment of the dangerous plant. The safety report of dangerous plantations should be accessible to everyone in the local mayor's office. The plant makes internal emergency plan, whose content laid must be ensured all times. The staff of the plant is responsible to take every expectable action to prevent major industrial accidents and to mitigate the effects of the accidents occurred in-house. The mayor of the settlement to treat unexpected unusual events - in cooperation with regional organizations of professional disaster management - prepares external emergency plan, which sets out the tasks for the protection of the population, of tangible property and environment, the conditions related to their implementation, forces and resources. The affected population's own interest to get to know the surrounding dangers, and to be able to cooperate with rescue forces for its environment and own safety. [9].

For the more efficient implementation of these tasks the Disaster Management Act assigned to mayors of settlements located close to dangerous upper-threshold value plantations to prepare civil information publications as a task.

Active forms are such as the edition of civil information substances, publishing publications, to organize civil forums, passive forms are such as making available these publications, to organize open days of disaster management [10]. An important clause of the edict, that in those settlements, where the number of minority population reaches 5%, there the information brochures must be published in the ethnical language as well.

The Regulation sets specific requirements for the content of the active information of the population brochures also concerning [10]

- preparing the population of the alarm signals and methods of identifying,
- the rules of conduct to be followed,
- forms of assistance,
- threatening the natural and human risks specific area,
- the possible ways of countering threats.

Top priority task to install and to keep continuously operating the alarm systems, in lack of this alerting the population can not be performed smoothly. For alarm purposes siren alarm system was built in Hungary, whose serviceability is continuously monitored. The alarm

occurs by defined siren signals, therefore civil informational publications should contain explanations for the detection of alarm signals, which are explained below.

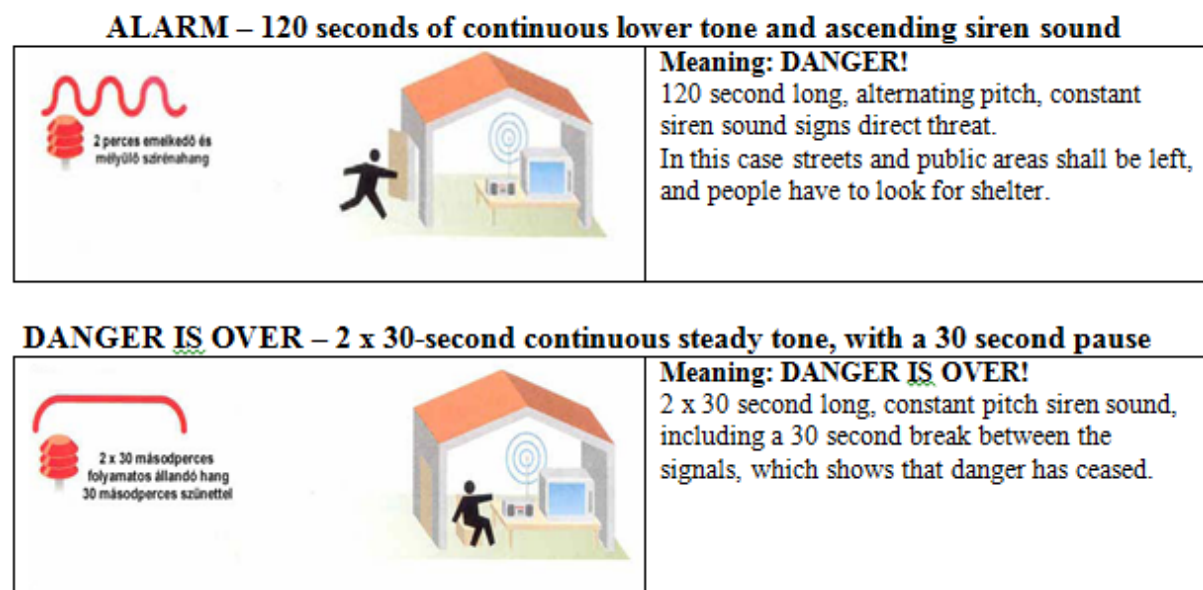


Figure 2. Siren Signals [11]

The above siren signs do not inform on the type of a threat, on the necessary countermeasures, or on detailed information for defense; so the residents can get additional instructions via loudspeaker, the radio, the television, or mobile applications. In order that the inhabitants of the emergency affected areas are able to avoid bodily harm and maintain their health, it is important to comply with the rules of conduct, which are illustrated in the following figures.









	<p>Siren signal and/or loudspeaker informs about the occurrence of the accident.</p>		<p>Go to a room at the opposite side of the hazard!</p>
	<p>Look for protection at your home or at other suitable place!</p>		<p>Turn on the radio, the local television, listen to the announcements!</p>
	<p>Close the doors and the windows, and stay away from them if possible!</p>		<p>Do not smoke, turn off the gas stove and devices operating with an open flame!</p>
	<p>Turn off the ventilation and air-conditioning system!</p>		<p>The passing of danger is signed by siren signal or loudspeaker, the local radio-television notification indicates.</p>

Figure 3. Rules of correct conducts [11]

The publications include forms of providing aid, these are especially important in case of accident related to dangerous substance. An important task is to prepare civil protection and other rescue forces which can be involved in assistance, training if necessary, to supply with equipments, the organization and support of communication, the acquisition of individual protective equipment against the effects of dangerous toxic substances and to keep them alert [12].

The knowledge upon the local threatening risks is important for the population, especially for those who live in the vicinity of a plantation which produces, stores or processes dangerous substances. The disaster management assesses these risks by using advanced/modern risk analysis techniques. These publications shall include the methods of threat defence, covering the public security tasks particularly.

TASKS IN CASE OF CHEMICAL ACCIDENTS

In order to reduce consequences of incidents in dangerous industrial plants involving dangerous substances the operator is accountable of the construction and maintenance of safety facilities, operation of an efficient warning system, as well as to be standby on the forces and appliances necessary for eliminating an accident. During installation and operation of the protective equipment special efforts should be done so that a complex technical rescue averting a possible chemical accident will be carried out in the shortest possible time with the greatest efficiency. Continuous exploration and assessment of the situation is essential for the correct and accurate emergency information [13]. Emergency notification is primarily a duty of official disaster management organizations. The information is specifically restricted to the rules of conduct to be kept, to the civil protection arrangements taken or expectable by the authorities, to the notification of important public constraints and to the opportunities for further inquiry. Issuing the notices particular attention should be taken to providing interpretable and useful information a broad layers of the population, therefore editors must refrain from certain technical terms and complex composition [14]. If there is work to be performed outside of the particular plant during elimination, such as decontamination tasks, then it is necessary to inform the public about these concretely in order to avoid panic situation [15]. The emergency information lasts until remediation is completed.

CONCLUSIONS

If we consider exposure to threat caused by natural and man-made disasters, we can gain insight that the new millennium brought new requirements and with it new and severe tasks falling to the implementation of disaster management organizations. One of the main tasks of complex disaster management system is to prevent catastrophes, which activity would not be effective without adequate information of the population. It can be stated, that the elimination of harmful effects of an occurring disaster and saving human lives can be greatly assisted by the appropriate communication, targeted information.

SUMMARY

The number of chemical substances processed has grown steadily, therefore the risk of possible incidents also. In 2012 a unified disaster management organization was established in Hungary whose task system includes information of the population tasks at the highest priority level. The overall conclusion is that the legislative environment to ensure a functioning system consolidates the information of the population with unified legal framework focusing on disaster management. The primary objective of modifications is the prevention of catastrophes, in which information of the population plays an important role,

however, occurrence of accidents involving dangerous substances is expectable in the future as well, so preparation and training of the public sector is also a major task in this system. In this paper I have examined the information of the population tasks highly assisting efficient elimination of major accidents involving dangerous substances entering the environment, covering all the sub-areas. By this research I wished to draw attention to the importance of the topic, the application of the procedures and methods described in the article may assist the practical tasks.

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