

The present aspects of industrial safety in Hungary are discussed in the paper. We describe the educational background of industrial safety and give a short description of the organizational and technical system of industrial safety in Hungary. Furthermore, we discuss a few related and typical events.

Keywords: industrial safety, disaster, hazardous plants, dangerous good, critical infrastructure, nuclear accident

Introduction

These days it is highly important to protect human health and environment, which is a complex task. Industrial safety is one of the most important elements of the protection policy as highlighted by the major accidents of recent years. Industrial safety embraces four special fields: the supervision of dangerous plants, the control of the transportation of dangerous goods, the protection of critical infrastructure and the prevention of nuclear accidents.

In spite of the strict international and national regulations there were numerous accidents in Hungary and abroad as well, highlighting that in addition to prevention we have to be prepared to manage and control incidents in a professional way making our best efforts to reduce potential consequences and their effects to a minimum.

The community-level integration of industrial accident prevention dates back to more than two decades; the Seveso directive undergoes smaller or bigger modifications and gets stricter and stricter every five years. In line with the European integration and the international obligations of the country the Hungarian Parliament and government passed regulations on the prevention of major industrial accidents. The Hungarian regulation has been in effect since January 1, 2002 and was twice modified significantly (2006 and 2012). [1]

General information

The activities of the National Inspectorate General for Industrial Safety, which is responsible for tasks related to industrial safety, include four main functions:

- the supervision of hazardous plants,
- the control of the transportation of dangerous goods,
- the protection of critical infrastructures, and
- averting nuclear accidents.

Its sphere of tasks includes operating an official licensing and monitoring system for plants under the effect of the disaster management act, also acting as an appellate authority, as well as carrying out activities related to nuclear safety as a supervisor and competent authority.

Furthermore, it operates the official monitoring system of the air, road, rail and water transportation of dangerous goods, including the on-site supervision of the preparation of transports. It is also responsible for tasks related to the protection of critical infrastructures and for the professional control of district and local level inspectorates and general inspectorates for industrial safety established at directorates and branch offices for disaster management. In addition to the above, it carries out the international tasks included in the SEVESO II Directive on the control of major-accident hazards involving dangerous substances and related to the Helsinki Convention on the transboundary effects of industrial accidents.

In order to prevent industrial disasters more efficiently, through its licensing and supervisory activity, the hazardous plants field guarantees the conditions for the safe operation of the nearly 170 plants dealing with harmful substances and plants below threshold levels in the register of the authority as well as of the more than 550 plants newly coming under the effect of the regulation. The competence of the industrial safety authority has been expanded to include the complex supervision, also involving partner authorities, of enterprises carrying out hazardous activities, which has resulted in a more efficient discovery of eventual irregularities.

The protection of the population is appropriately ensured by the radiation assessment, measuring and information network operating within the framework of nuclear accident prevention, as well as by the network of mobile disaster management laboratories created in order to monitor those working with nuclear and radioactive substances.

The field of hazardous transports includes the tasks of the authority related to the supervision of hazardous transports and to imposing sanctions in the event of malpractice. In the past, the competence of the disaster management authority included only the supervision of road transports of hazardous goods and of the related premises. The change in the law expanded this competence to rail, water, and air transportation as well. Due to the new organisational structure, supervisory activities can be organised and carried out more efficiently, since they are conducted in part by the branch office for disaster management closest to the site to be checked.

The new organisational structure of the general inspectorate makes possible the regulation of the activities related to critical infrastructures within and across sectors, the promotion of the functioning of the economy, as well as the prevention of negative consequences resulting from disturbances in the operation of the facilities. A more uniform security policy approach than before facilitates preparation and the protection of the population living in the vicinity of potentially hazardous activities. [2]

Overview of the new industrial safety's education in Hungary

The Institute of Disaster Management was established on 1st January 2012 as an autonomous institute of the National University of Public Service (NUPS), functioning independently from the other faculties, under the professional supervision and maintenance of the National Directorate General for Disaster Management and the Ministry of Interior. The Institute is directly subordinated to the Vice-Rector for Education. [3]

The Institute of Disaster Management includes three departments (Departments of Disaster Management Operations, Fire Protection and Rescue Management, and Industrial Safety) and a Division of Training Management.

The aim of the bachelor level formation is to train disaster defence professionals to be capable of performing tasks at different disaster management bodies of public administration or at fire brigades that include disaster management, fire protection (firefighting) and industrial safety. The successful graduates will also have the necessary knowledge of legislation, standards, principles, procedures and tools applied in disaster and fire protection and industrial safety management. [4]

The main goal of the new bachelor degree programme is to train professionals who will acquire the knowledge of the context of system approach of public administration, the basic concepts and principles of law enforcement administration and the rules of their application in practice, as well as the specific rules of procedure that are necessary to the actions in law enforcement. The students will gain expertise of the basic rules of the organisational structure, operation, working method and service duties of the disaster management bodies, and also of the interdependence of rules and methods of their use in practice. Human resource management and the basic economic concepts of each specialisation, the rules of their implementation and the practice of the current cooperation with other national and international disaster defence agencies are also part of the curriculum, as well as the specific ethical and physical requirements of the law enforcement and public administration bodies. The degree programme also trains the prospective professionals to use IT systems related to the different specialisations and to use specific technical devices that are required for these systems. [5] At the industrial safety specialization the following courses are required:

Industrial safety, elimination of industrial emergencies; protection of critical infrastructure; activities related to dangerous substances; disaster management and civil protection; fire protection; technology of firefighting and response to disasters; economic fundamentals of industrial safety, facultative subjects (fundamentals of industrial chemistry, industrial pollution and prevention, fundamentals of the risk assessment of the transportation of dangerous goods. [6] The new bachelor degree programme provides a high level scientific and professional background for the prospective professionals in civil service. [5], [7], [8], [9]



Figure 1: New officers graduation ceremony (11 from the Institute of Disaster Management) [10]

Some events and accidents in the Hungarian industry or transportation

Some characteristic events:

- Radioactive iodine release into environment from a pharmaceutical laboratory

Steps taken field work, detection, careful control and measurements, suspension of the production technology.

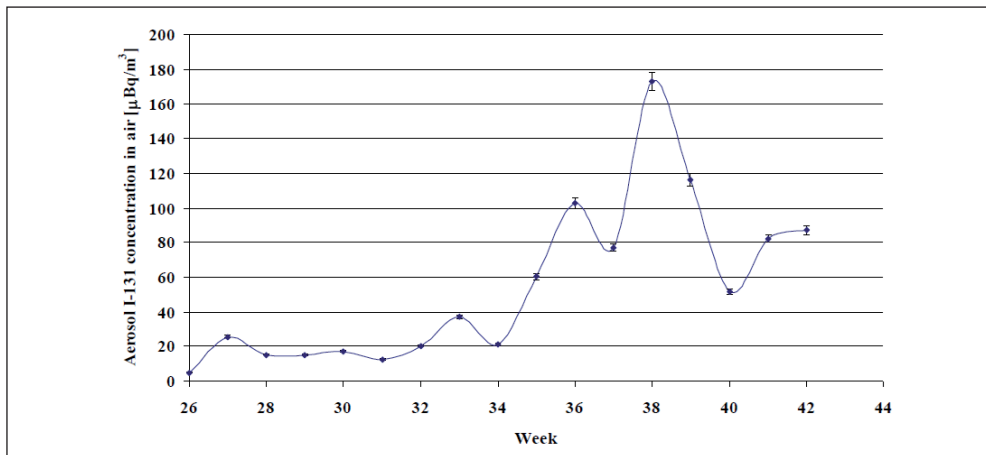


Figure 2: Aerosol bound I-131 activity concentration in air measured by the station of the Frédéric Joliot-Curie National Research Institute for Radiobiology and Radiohygiene, NRIRR, Budapest, in 2011. [11]

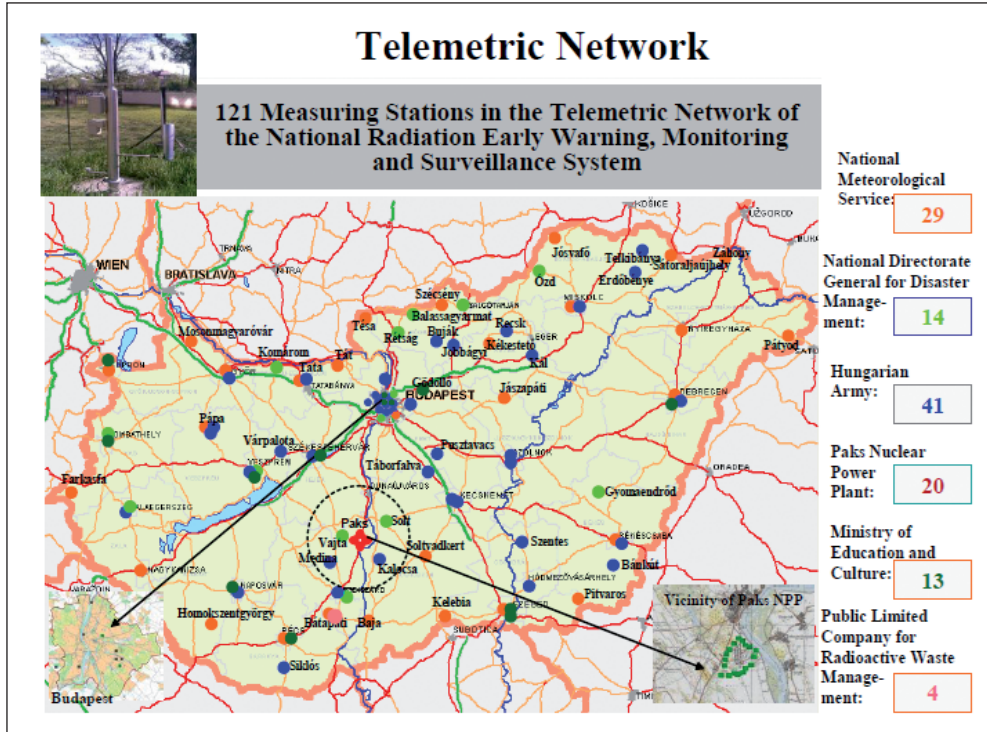


Figure 3: The gamma dose rate monitoring stations of the telemetric network of the NREWMS [12]



Figure 4: Spectrometer (identifier) — IdentiFINDER with NaI detector[13]

- Explosion and fire in bitumen producing factory
 Steps taken: common monitoring with the factory personal, technical assistance, changes in technology.



Figure 5: Explosion and fire in bitumen producing factory [14]

- TENORM polluted steel structures resended from the border ^{226}Ra containing scale on waste steel surfaces

Steps taken: common control with the other authorities, safe storage



Figure 6: TENORM polluted steel pipes [14]

- Lost by road accident ^{192}Ir radiation source

Road accident of train with truck transporting ^{192}Ir gamma-source used for gamma-radiography of welds.

Steps taken: radiation control of the personal, determination of the position of the lost container.



Figure 7: Action during lost ^{192}Ir source by accident [15]

Conclusion

Its sphere of tasks includes operating an official licensing and monitoring system for plants under the effect of the disaster management act, also acting as an appellate authority, as well as carrying out activities related to nuclear safety as a supervisor and competent authority. Furthermore, it operates the official monitoring system of the air, road, rail and water transportation of dangerous goods, including the on-site supervision of the preparation of transports. It is also responsible for tasks related to the protection of critical infrastructures and for the professional control of district and local level inspectorates and general inspectorates for industrial safety established at directorates and branch offices for disaster management. In addition to the above, it carries out the international tasks included in the SEVESO II Directive on the control of major-accident hazards involving dangerous substances and related to the Helsinki Convention on the transboundary effects of industrial accidents. In order to prevent industrial disasters more efficiently, through its licensing and supervisory activity, the hazardous plants field guarantees the conditions for the safe operation of the nearly 170 plants dealing with harmful substances and plants below threshold levels in the register of the authority as well as of the more than 550 plants newly coming under the effect of the regulation. The competence of the industrial safety authority has been expanded to include the complex supervision, also involving partner authorities, of enterprises carrying out hazardous activities, which has resulted in a more efficient discovery of eventual irregularities.

The protection of the population is appropriately ensured by the radiation assessment, measuring and information network operating within the framework of nuclear accident prevention, as well as by the network of mobile disaster management laboratories created in order to monitor those working with nuclear and radioactive substances. The field of hazardous transports includes the tasks of the authority related to the supervision of hazardous transports and to imposing sanctions in the event of malpractice. In the past, the competence of the disaster management authority included only the supervision of road transports of hazardous goods and of the related premises. The change in the law expanded this competence to rail, water, and air transportation as well. Due to the new organisational structure, supervisory activities can be organised and carried out more efficiently, since they are conducted in part by the branch office for disaster management closest to the site to be checked. The new organisational structure of the general inspectorate makes possible the regulation of the activities related to critical infrastructures within and across sectors, the promotion of the functioning of the economy, as well as the prevention of negative consequences resulting from disturbances in the operation of the facilities. A more uniform security policy approach than before facilitates preparation and the protection of the population living in the vicinity of potentially hazardous activities. [2]

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Az iparbiztonság jelenlegi helyzete Magyarországon

GYÖRGY PÁTZAY – HERMINA HORVÁTH

Bemutatjuk az iparbiztonság jelenlegi helyzetét Magyarországon. Ismertetjük az iparbiztonság területén végzett oktatást, valamint betekintést nyújtunk az iparbiztonság hazai szervezeti és műszaki rendszerébe, illetve néhány fontos, jellemző esemény bemutatására is sor kerül.

Kulcsszavak: iparbiztonság, katasztrófa, veszélyes üzemek, veszélyes áru, kritikus infrastruktúra, nukleáris baleset