

THE IMPORTANCE AND MANAGEMENT OF OCCUPATIONAL HEALTH AND SAFETY IN CHEMICAL INDUSTRY ENTERPRISES

MARIE BEDNAŘÍKOVÁ – JAROSLAVA HYRŠLOVÁ

Abstract

The paper focuses on the issues of health and safety management in chemical industry enterprises. First, the significance of health and safety management for chemical industry enterprises is presented, followed by approaches to this area, including the selected results that have been achieved since 1998 within European chemical industry. Attention is primarily paid to the occupational health protection and safety issues in chemical industry enterprises in the Czech Republic. The paper is based on the results of researches conducted in 2005 and 2008. In the paper, the progress in implementation of Health and Safety Management Systems (HSMS) is presented and approaches to health and safety management in small and large chemical industry enterprises are discussed.

Key words: chemical industry enterprises, occupational safety and health protection, health and safety management system.

Classification JEL: M 140 Corporate Culture, Social Responsibility

1. Introduction

Corporate staff and their potential are a significant precondition for business success. Health and safety management represent a prerequisite, nevertheless, not a sufficient one, for exploitation of such potential [Hyršlová, Vávra, Bednaříková, 2007, p. 13].

Occupational safety and health protection policies and programmes are focusing on the protection of personnel and also other individuals who are influenced by what the enterprise produces and performs. Work performance is significantly connected with health status, mental well-being and feeling of safety. The issues of occupational safety and health protection gradually started to be considered an extraordinarily important area of the world of work which in particular European countries and finally in the European Communities has resulted in having been supported by extensive legal regulations.

Employers and company managers have to ensure at least the minimal level of occupational safety and health protection required by legal and other regulations at least in order to avoid sanctions [Branská, 2003, p. 26]. Nevertheless, in the area of occupational safety and health protection, significant part of enterprises go above the framework of legal obligations, emphasizing and accentuating to what extent they appreciate health status of their staff members. These enterprises are aware of the fact that the area of occupational safety and health protection is closely related with corporate economic performance and increased care for this area may bring significant economic benefits to a company.

The aim of occupational safety and health protection measures is to prevent fatal accidents, injuries, damage to property and environmental damage within the framework of work system. Fatal accidents and injuries mean occupational accidents and occupational diseases. Occupational safety and health protection management serves to achieve the required levels and its objectives have to include conformity with the legislation requirements and also risk prevention. This means that on employer there is imposed a controllable obligation to execute measures, whose aim is to eliminate the reasons for risks to life and health of staff members and create safe working conditions.

Employer should not only comply with but even exceed occupational safety and health protection standards imposed on him by the legislation [Koubek, 2005, p. 331]. Measurements, monitoring and evaluation of corporate performance in the area of occupational safety and health

protection in enterprise are carried out, and also reporting to the interested parties is being realized. Corporate management has to consider the occupational safety and health protection-related requirements to be integral part of their decision-making processes and realizes measures that are not at variance with such requirements and improve corporate performance in the area of occupational safety and health protection. In this respect, the enterprises are assisted by Health and Safety Management Systems – HSMS, whose implementation and certification is voluntary [Hyršlová, Špaček, 2007, p. 21].

To avoid health risks and comply with safety regulations also belongs to the basic duties of each employee [Koubek, 2005, p. 332]. Employees have the right to occupational safety and health protection, right to information on inevitable risks of their work and information on measures to protect them against such risks. Employees are involved in sorting out these issues, for example, through trade union. They are entitled to refuse the work, which they well-groundedly consider to pose immediate and serious risks to their life and health and/or to the life and health of other persons.

Increased attention paid to the occupational safety and health protection issues may be beneficial to an enterprise in the form of a reduction of economic losses in consequence of accidents, injuries, violation of the course of corporate operations (for example, due to accident or breakdown), or in the form of reduction of costs in connection with sanctions imposed on failing to comply with the obligations. Other benefits brought by high-quality care for occupational safety and health protection include higher productivity of labour, lower working absence and better morale of employees as well as good labour relations. Good occupational safety and health protection management system also represents a significant incentive and stress-preventing factor, because the working environment and inadequate working conditions (noise, temperature, lighting, etc.) posing risks to the health and safety represent a significant reason for stress growth [Blašková, 2005, p. 130].

From the text above it is evident that the area of occupational safety and health protection influences corporate performance and economic results and also the fact that the employees very strongly perceive employer's concern about their health and safety and also about care for acceptable working environment [Hyršlová, Bednaříková, 2007, p. 47]. This paper focuses on the occupational safety and health protection issues in chemical industry enterprises, first in general, then in the Czech Republic. The selected results of researches conducted in 2005 and 2008 in relation with the above issues are discussed in the paper.

2. Occupational safety and health protection and chemical industry enterprises

Chemical industry enterprises are aware of the fact that they are monitored and evaluated by the state authorities, business partners, the public and also by their staff members according to how they care for occupational safety and health protection. Their long-term approach to this area is characterized by high responsibility, with emphasis laid on prevention and primarily on minimizing risks to the health and life of employees. Already in 1985 a worldwide voluntary programme Responsible Care (hereinafter RC) was launched in Canada, whose aim is to reduce risks related with chemical production processes and to openly communicate with the state administration bodies and the public about approaches to chemical industry safety improvements.

Very intensive attention to the occupational safety and health protection issues is paid at the level of European Chemical Industry Council (CEFIC). With regard to high importance of these issues, in the past a number of European chemical industry enterprises and institutions published more or less extensive reports on approaches to occupational safety and health protection and on the progress of performance in this area. The chosen indicators were differing

from enterprise to enterprise and from state to state, in dependence on national and local priorities and definitions. For this reason, in 1998 CEFIC prepared a new document „Responsible Care, Health, Safety and Environmental Reporting Guidelines“, which forms a common framework for the reporting of results and monitoring and allows to summarize the data at European level, as all member federations in publishing the data follow common basic parameters and their definitions. Results of the European chemical industry are published in regular reports that are released by CEFIC. Selected results of the chemical industry enterprises in the area of occupational safety and health protection are presented on Figure 1 and 2. The data displayed cover more than 895 000 employees of the European chemical industry.

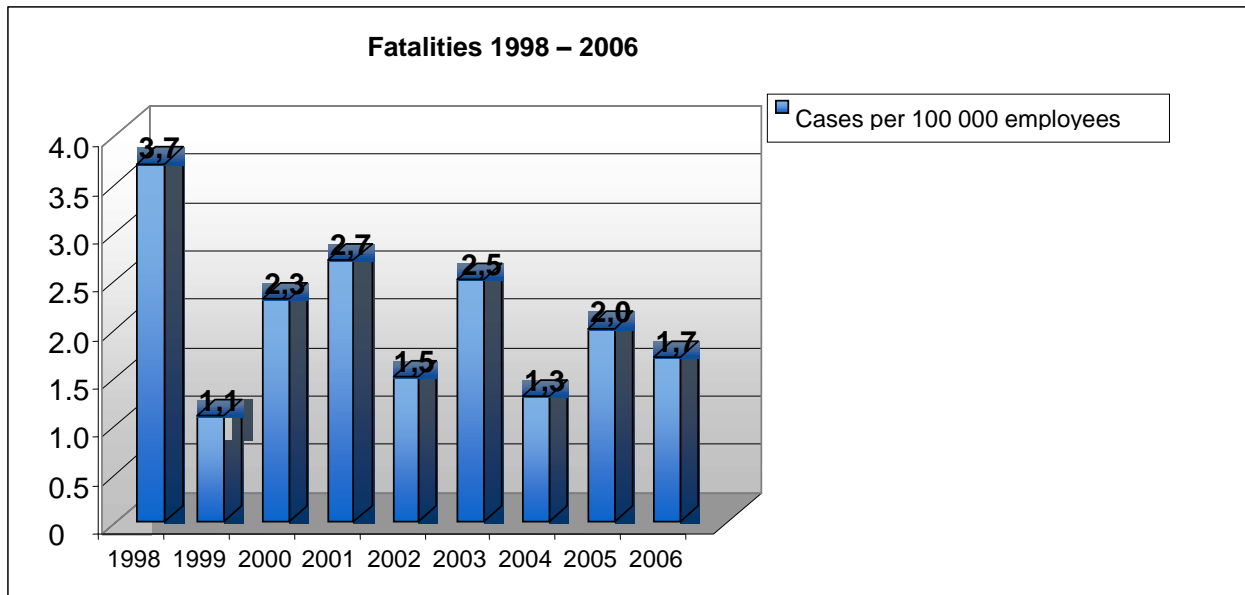


Figure 1: Trend of fatalities in 1998 – 2006

Source: CEFIC , 2007, p. 24

15 employees lost their lives at work in 2006. Every fatality is regarded as one too many and underlines the need for continuous vigilance. All fatalities are investigated and actions taken to avoid similar occurrences from happening again. The fatality rate in 2006 based on the number of cases per 100 000 employees is 1.7. The overall trend since 1998 is downward.

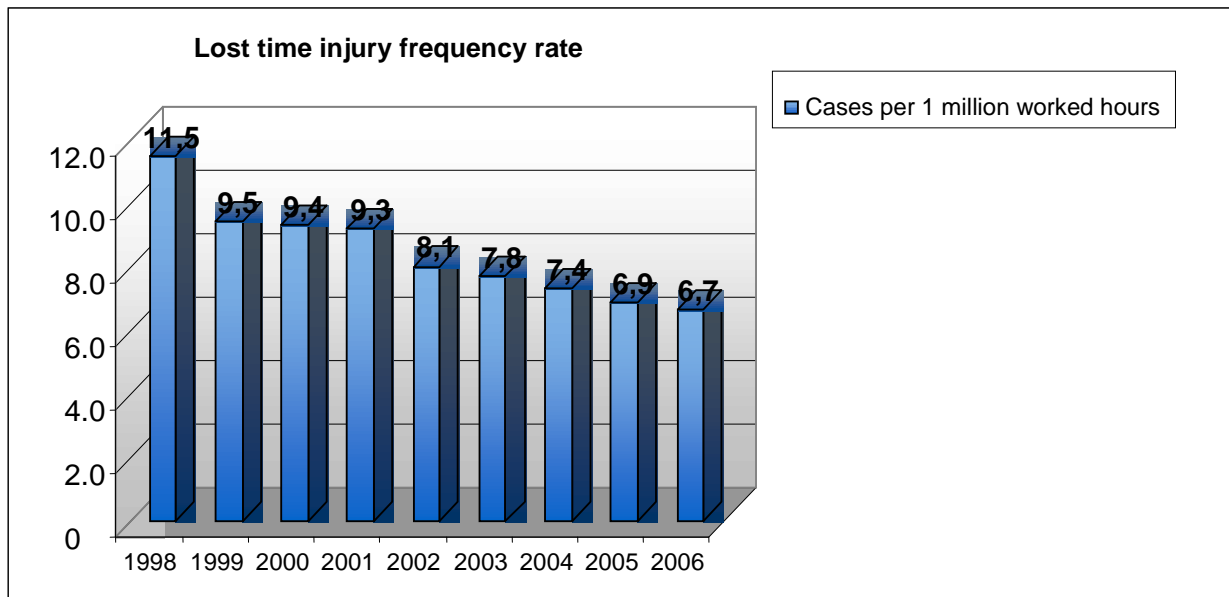


Figure 2: Lost time injury frequency rate (1998 – 2006)

Source: CEFIC, 2007, p. 24

The lost time injury frequency rate (LTIR) continues to show year-on-year improvement and in 2006 was 6.72 – the lowest on record. The LTIR is reported as the number of accidents resulting in one day or more out of work per million worked hours.

3. Occupational safety and health protection in the chemical industry enterprises in the Czech Republic

In the Czech Republic, Ministry of Labour and Social Affairs is authorized to carry out supervision over occupational safety issues. Subordinate to the Ministry is Czech Occupational Safety Office. The executive bodies are occupational safety inspectorates, supervision in the area of occupational hygiene is also performed by Hygiene Service. The state surveillance bodies in performing their functions are authorized any time to enter the organization premises and request the necessary documents and information, instruct to rectify the identified defects and imperfections within reasonable periods of time, ban the use of rooms and technologies posing risks to the health or life of employees, impose fines, etc. Also trade union bodies have the right to perform checks in the area of occupational safety, they also may require from employers reports on what measures have been taken to rectify the identified defects and imperfections. Suggestions made by supervision bodies may lead even to shutdown of operations, where defects and imperfections have been identified. The main aim of all these measures is to avoid the occurrence of occupational injuries and diseases [Koubek, 2005, p. 333].

The chemical industry enterprises in the Czech Republic are aware of the significance of occupational safety and health protection, considering important to achieve improvements in this area [Hyršlová, Branská, Špaček, 2006, p. 158]. Their priority aim is to follow the legal requirements. To reach compliance with the legislation and achieve improvements in the area of occupational safety and health protection, the chemical industry enterprises also use voluntary tools.

In 1994, RC programme started to be developed in the Czech Republic. So far, 60 businesses have entered for reaching compliance with the programme principles, and the right to use the RC logo has been awarded to 40 companies. In the Czech Republic, mainly large and medium-sized chemical industry businesses are involved in RC programme. They perceive RC

as a tool facilitating to concurrently assess environmental impacts and occupational safety and health protection [Hyršlová, Špaček, 2007, p. 21]. Also a possibility to carry out comparison between the businesses and self-assessment is considered by the businesses to be a significant benefit brought about by RC. The involvement in RC programme also improves perception of a business by the public, resulting in improved communication with the public. Broader application of RC programme would be helped by reducing the administrative difficulties related with the programme [Hyršlová, Špaček, 2007, p. 22].

The chemical industry businesses have also been implementing HSMS. The progress in implementation of the systems can be documented by the results of research which was realized in the second half of 2005. The research was conducted by University of Pardubice in cooperation with Association of Chemical Industry of the Czech Republic. The main objective of the research was to analyze the current state of implementation of management systems in the chemical industry businesses and the possibilities of their integration. To acquire the primary information, a questionnaire was used. In total 107 businesses were addressed, which at the moment of research were members of Association of Chemical Industry of the Czech Republic. From the total of 107 addressed businesses, 29 filled-in questionnaires were returned (i.e. 27 %). Businesses involved in the research produced approx. 60 % of the total turnover of the chemical industry. The examined sample included large enterprises (enterprises with 500 and more employees), medium-sized enterprises (with 100 – 499 employees) and small businesses (with 0 – 99 employees).

Improvements in the area of occupational safety and health protection were considered important by all respondents. It was right in connection with the need to control this area, what made a number of the chemical industry businesses proceeds to the implementation of HSMS. The state of system implementation in the chemical industry businesses covered by research is shown on Figure 3.

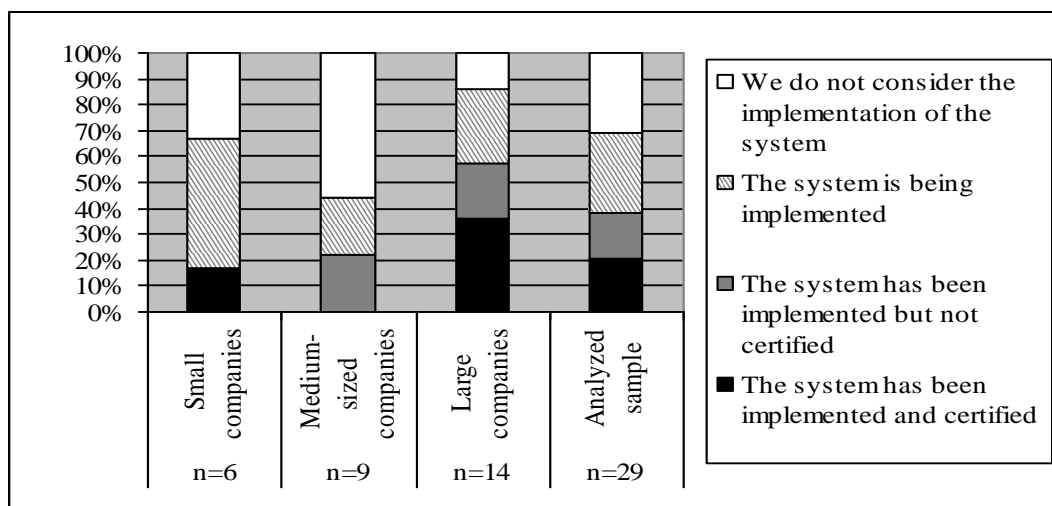


Figure 3: Implementation of HSMS in chemical businesses

Source: Hyršlová, Branská, Špaček, 2006, p. 162

Almost 21 % of the respondents had the system both implemented and certified. This particularly concerned large enterprises. At the time of research, the system was being implemented by 31 % of the respondents (representatives of small, medium-sized as well as large enterprises). The system implementation was not considered by 31 % of the respondents (mainly medium-sized businesses); the respondents believed that the system would not lead to

the improvements in the area of occupational safety and health protection and, furthermore, the system was not required by business partners.

HSMS started to be implemented by large chemical enterprises. However, only one enterprise had the system implemented over 7 years. 20 % of the respondents used the systems over 3 years but not more than 7 years. 75 % of the respondents used the system for 3 years or for a shorter period of time. Large, medium-sized as well as small businesses were represented in this set of enterprises. To build up the system, 60 % of the respondents used the guideline OHSAS 18001; 40 % of the respondents proceeded according to the Czech programme Safe Business.

As the main reasons for implementation of HSMS the respondents stated primarily ensuring of continual improvements in the area of occupational safety and health protection (90 % of the respondents); efforts to achieve higher occupational safety levels (85 % of the respondents) and higher involvement of personnel in these processes (75 % of the respondents). Efforts to reduce the number of occupational injuries may also be considered a significant reason (65 % of the respondents).

The implementation of HSMS brought about certain problems. More than 25 % of the respondents pointed out highly demanding system of documentation, lack of human resources, trained personnel and time, and also insufficient existence of practical instructions. The next problem was also excessive demandingness of implementation of the guidelines requirements.

Nevertheless, in spite of these difficulties, the enterprises considered the systems beneficial. More than 50 % of the respondents perceived the following basic benefits brought about by the system:

- Reaching compliance with the requirements on occupational safety and health protection (90 % of the respondents).
- Improvements in the area of solving the problems of occupational safety (75 % of the respondents).
- Improvements in the area of staff involvement in the occupational safety and health protection issues (75 % of the respondents).
- Improved relations with the state administration bodies (65 % of the respondents).

System benefits were perceived identically by middle management and by representatives of top management. 90 % of the respondents considered the system to be an actual tool of improvements in occupational safety and health protection (see Figure 4). Unambiguous attitude was shown particularly by medium-sized and large enterprises. 10 % of the respondents perceived the system only as a formal matter, nevertheless, they confirmed improved corporate orderliness.

The research results show that the systems have come up to corporate expectations. According to 95% of the respondents, the system benefits overbalanced the costs expended in relation with the system implementation. 95 % of the respondents were also willing to maintain the system.

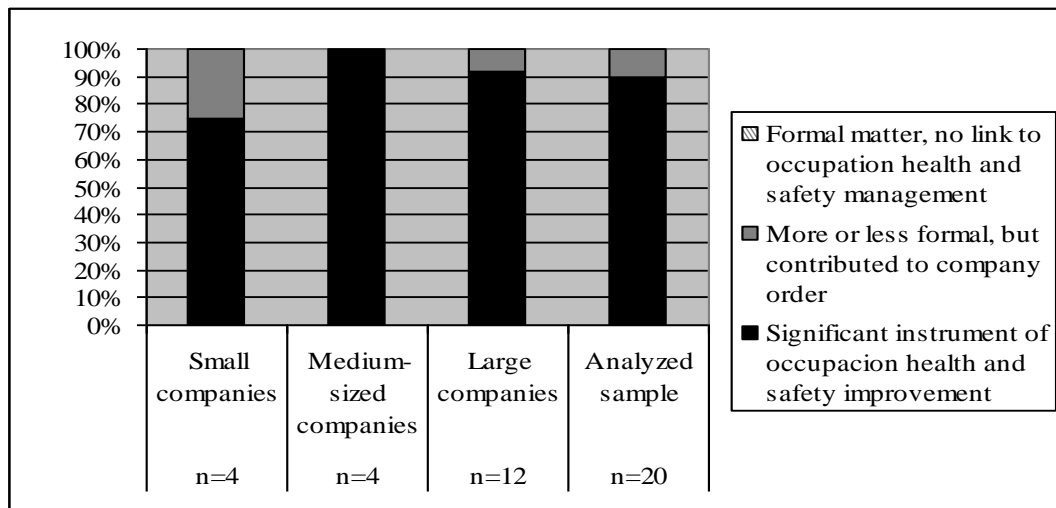


Figure 4: Significance of HSMS

Source: Hyršlová, Branská, Špaček, 2006, p. 164

4. Are there any differences in approach to occupational health and safety management in small and large chemical businesses?

At the beginning of 2008, research in two selected Czech chemical industry enterprises (with place of business on the territory of the Pardubice Region) was conducted, having focused on identifying the approach of these enterprises to occupational safety and health protection issues. Of concern were, in particular, occupational health and safety management and the matter of informing the interested parties of corporate approach to these issues. Within health and safety management, attention was primarily paid to the following aspects:

- The importance of occupational health and safety management.
- Reasons for implementation or non-implementation of HSMS.
- Assistance in implementation of HSMS.
- Problems in implementation and system benefits.
- Occupational risk assessment, the provision of personal protective aids.
- Regular health and safety inspections, trainings and health and safety documentation.

Within the reporting, particularly the following areas were examined:

- Making the information available to the public through regular reports, the reasons for preparing such reports, the way of reporting.
- Interest in information.

The research was conducted in a small and in a large chemical business. The small business is specialized in dyeing and refining of plastics; the main corporate operations include the manufacture of chemical substances and chemical preparations, wholesale and retail of chemicals. The business has been in existence since 1950 and has approx. 40 employees. The large business is a leading European manufacturer of sophisticated chemical products with more than eighty years' tradition and employs over 2 200 staff members. It manufactures more than 1000 products and exports to 54 countries worldwide. Business activities are targeted at three market segments: advanced organic intermediates, cellulose derivatives, and pigments and dyes.

The research was conducted in the form of in-depth interview. In the small business, interview proceeded with applications engineer who has been working in the firm for a number of years and the inquired areas fall within his competence. In the large business, discussion (with regard to much broader differentiation of competences) proceeded with two staff members who

are engaged in these issues, namely head of occupational safety department and staff manager of the company.

In the area of occupational health and safety management, the following findings were identified [Bednaříková, Dobišová, 2008, p. 12]:

- a) For a small business, improvements in occupational safety and health protection are very important. The business has its HSMS implemented since 1999; this system is not certified. Implementation of the system was suggested by company management, mainly driven by efforts to achieve higher level of occupational safety and avoid the occurrence of occupational injuries. The need to build up the system also resulted from the requirements of business partners. In the process of the system implementation, assistance from external subjects (safety engineer and adviser) was made use of. Occupational risk assessment together with assessment of risks for the provision of personal protective aids as well as operational risk assessment was carried out. Technological procedures, given by Labour Code, have been elaborated. Based on this, measures aiming to minimize and/or eliminate the risks have been adopted. The business ensures safe condition of the technical equipment and facilities through maintenance and regular checks and revisions, it has also first aid system for the sake of accidents and breakdowns (a so-called traumatology and evacuation plan which forms part of occupational health and safety documentation) elaborated. The business performs regular trainings of staff members and managers in the occupational health and safety issues. It also performs entry trainings in the occupational health and safety issues that are provided by safety engineer and recorded in every employee's file. Preventive checks on occupational health and safety are performed by contract physician. The business also performs checks on its staff members whether they are not intoxicated. From the listed activities it is evident that the main aim of the system is to achieve compliance with the legislation.
- b) The large business has an occupational health and safety management system implemented and strives for the certification according to the guideline OHSAS 18001:1999 (Occupation Health and Safety Management Systems). The main reasons for implementation of the system include efforts to achieve higher level of occupational safety, efforts to achieve a lower number of occupational accidents and injuries and reduce costs resulting from compensations for occupational accidents and injuries. Implementation of the system was suggested directly by corporate management, having been performed by company itself, unassisted. Within this system, emphasis is primarily laid on making company staff members acquainted with the risks resulting from the nature of production, namely through initial training in the form of educational film and assisting materials prepared by occupational safety department. Permanent attention is paid by enterprise to the trainings and periodical examinations of skills and qualifications of employees who for performance of their work must have special professional qualifications, prescribed by generally valid legislation (autotruck drivers, gas facilities operating staff, welders, scaffolders, etc.). The company ensures regular checks on occupational health and safety as well as prescribed revisions to be performed by engineering inspector, and also provides employees with personal protective aids. The company has first aid system elaborated for the sake of accidents and breakdowns, and strives to continuously update the system. The company cooperates with 5 contract physicians who perform regular preventive examinations and it is also in permanent contact with the regional hospital and with the regional hygiene station. The company has put into operation alert system which through SMS informs of danger the population living in the surroundings. Corporate principles regarding the occurrence of impaired/intoxicated individuals are followed very strictly, for that purpose, spot checks are performed at the building entrance. The business keeps occupational health and safety documentation (book of accidents, records of occupational accidents and records of personal protective aids). To

reach compliance with the legal regulations, the business implemented HSMS and strives for its certification. The business also uses another voluntary tool – it professes the RC principles and is a holder of the RC logo.

As regards the area of reporting, the following can be stated:

- a) Small business makes available to the public the basic information on its activities in the field of environmental protection and on work law relations – this is included in annual report; such obligation ensues from the Accounting Act. Annual report is compiled every year as of 31.12. It is available to the general public. It is made available on the intranet and also in printed form.
- b) Factual and full disclosure of information on corporate activities in the area of environmental protection and protection of working environment has become a matter of course for a large business. The main aim in this area is the maximal openness towards the employees and all other partners, such as the public, public media, public administration, non-governmental organizations and business partners. The main corporate targets in the area of environmental protection and occupational safety and health protection as well as the way of achieving them are presented by the business in regularly released Reports on Corporate Environmental Impacts. The reports are distributed in printed form and are also available to the public on corporate website. The business is a holder of RC logo and based on its participation in this programme it also meets all obligations in the area of disclosure of information. In addition, the basic information on corporate environmental approach and on work law relations is included in annual report. Annual report is placed on corporate website and is also available in the form of CD version. The business regularly organizes meetings with mayors of the municipalities in the region, where the participants are made acquainted with various activities not only in the area of environmental protection but also in the area of occupational safety and health protection. Up-to-date information is also made available to the public by means of corporate periodical. From the listed activities in the area of communication with the interested parties it is evident that the business goes above the framework of legal requirements. This means that it is aware of the importance of communication for improving credibility of the company and its attractiveness as employer. To address the interested parties, the business also chooses different communication tools. Such communication activity is also, beyond all doubt, a response to the requirements of the interested parties.

5. Summary and conclusions

To understand the significance of occupational safety and health protection it is necessary for the business to be aware of the importance of human resources potential for its present as well as future success. Good occupational health and safety management, adequate quality of working life of employees and sufficient awareness of corporate activities and results achieved in this area are of high importance to the development of human resources (i.e. also to the success of business).

In the chemical industry businesses (with regard to the nature of chemical productions and their perception by the public), occupational safety and health protection plays a very important role. For a long time, chemical businesses have been aware of this fact and show highly proactive approach to these issues; this is evident, for example, from the RC programme which in the Czech Republic mainly large and medium-sized businesses are getting involved in, and also from application of other voluntary tools.

Large chemical businesses in the Czech Republic have gradually started to implement occupational health and safety management systems (HSMS), with small and medium-sized businesses step by step joining them. The research conducted in enterprises has demonstrated that there exist two major motives for implementation of the systems:

1. The systems represent a significant tool of occupational health and safety aspects management, whose importance to the improvements of corporate performance is rising. This means that it is a tool of achieving higher levels of occupational safety and health protection and a tool ensuring the process of permanent improvements in this area. Furthermore, should the system be certified, the business may use the certificate to demonstrate to the external interested parties adequate care for this area.
2. Implementation of the systems may arise from the requirements of business partners.

Large businesses in building up the systems use guidelines, implement the system by themselves, unassisted, and strive for the system certification. Also small and medium-sized businesses use guidelines and in implementing the system they very often exploit assistance from external subjects. The research has shown that certain businesses do not strive for the system certification.

The chemical industry businesses are very well aware of the importance of informing the interested parties on corporate approach to occupational safety and health protection and on the results achieved in this area, and include such information in their annual reports. For large and medium-sized businesses, the obligation to inform ensues, for example, also from their involvement in the RC programme. A number of the chemical industry businesses also release voluntary reports on their environmental effects and on their approach to the occupational safety and health protection issues. These reports are intended for an extensive range of users and particularly serve to improve corporate credibility.

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Address of authors:

Ing. Marie BEDNARŇÍKOVÁ, Ph.D.
Department of Economy and Manag. of CHFI
University of Pardubice
Studentská 84
532 10 Pardubice
Czech Republic
e-mail: marie.bednarikova@upce.cz

Assoc. prof. Jaroslava HYRŠLOVÁ, Ph.D.
University of Economics and Management
Jóse Martího 2
162 00 Prague 6
Czech Republic
e-mail: jaroslava.hyrslava@gmail.com