



OCCUPATIONAL RISK MANAGEMENT IN INDUSTRY

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ABSTRACT

Occupational risk management is part of the occupational health and safety at workplace. Occupational risk management has a specific component relating to the assessment of the risk and a common component of all types of management including: planning, organizing, implementing, and controlling. Managers must understand the legal and moral liability of their job in ensuring a healthy and safe workplace and to make all necessary efforts to achieve and maintain this goal. Although this action is the responsibility of management, employees also have a role as important in ensuring health and safety at the workplace.

The case study approach, this paper aimed to determine if employees respond to the important efforts being made by the organization to reduce the level of risk in the workplace and improve security. The case study was based on questioning of one total of 64 employees in the industrial sector in Galați area Romania. The questionnaire had a total of 24 questions chosen so as to show how well the respondents understood the occupational risk management, the attitude towards risk assessment at the workplace, how vigilant are at the workplace, if they understood measures security and the extent to which they meet.

KEYWORDS: Occupational risk, employee's involvement, understanding, attitude, vigilance

1. Theoretical aspects

The standard O.H.S.A.S. 18001 (revised in 2007) shows in section 4 that organizations have to develop all the functions of occupational risk management such as: security policies, organizational plan, the hazard identification, risk assessment, implementation, control, monitoring, and continuous improvement [1, 2, and 3].

Risk management is therefore part of the occupational health and safety at workplace can be integrated with environmental management and quality management.

Adoption by the organizations of risk management was stimulated by trade unions, advances in medicine, technology upgrading, standards, legislation and other factors.

As result of the OHSAS 18001 occupational risk management has a specific component relating to the assessment of risk and a common component of all types of management namely: planning, organizing, implementing, controlling.

Speciality literature [4, 5, and 6] is in agreement with the following steps in the evaluation of occupational risk:

- identifying hazards;
- measuring (assessing) risk in terms of severity and probability;
- risk analysis;
- response to risk;
- control and monitoring of risks.

There are no fixed rules regarding risk assessment but mentioned steps assure us that the process is adequate and sufficient. Identifying hazards is widely recognized as the most important stage of the process. These steps require guidance by risk specialists and an experienced working team. Successful approach is provided as management involvement and active participation of the employees. There are also methods that can be used to identify hazards [7, 8, and 9] such as: Check list, What if? Tee Fault Analysis, Analysis of Failure Modes and Effects "(FMEA) Brainstorming, Hazard Study and Operability (HAZOP), etc.



For low risk activities such qualitative methods allow a simple risk assessment and taking immediate and appropriate action. For organizations with numerous risk factors this qualitative analysis will be followed by a quantitative analysis techniques and appropriate methods.

Risk assessment is considering two main components: the severity of the consequences resulting from the production of a hazard and the probability of that hazard. Most methods for assessing the severity of consequences and likelihood of happening receive a numerical value (class) with clear explanations and descriptions. Risk assessors will fit correctly hazards in these classes.

Size of risk can be assessed by multiplying the two factors [7]:

$$R = G \times P \quad (1)$$

where: R - risk value;

G - class of severity of hazard consequences

P - class the probability of chance;

or torque is estimated by two factors [10]:

$$R = (G, P) \quad (2)$$

Risks are classified according to their size and risk levels then enclosed in a matrix which allows identification of major hazards requiring urgent action. Our country applies a domestic method devised by ICSPM in 1998 which provides 7 grades of severity, 6 classes of probability and seven levels of risk. It is established a partial risk on each hazard and risk global is established with relationship:

$$Nr = \frac{\sum_{i=1}^n r_i \cdot R_i}{\sum_{i=1}^n r_i} \quad (3)$$

where: Nr = the global risk level on the workplace;

r_i = risk factor rank "i";

R_i = risk level for the hazard "i";

n = number of hazards identified at the workplace.

Risk analysis involves risk ranking and classification in acceptable risk and unacceptable risk.

Legislation in our country has the global risk threshold value 3.5 (calculated with Equation 3). Also at this stage it is verify all existing measures and procedures to control risks. All the specialists make observation that risk analysis should identify the major hazards that can damage important to the health and safety of employees, but also significant financial harm. Therefore, even if apparently risk management requires financial expenses, applying it will bring many benefits.

For answer to risk is very important to apply measures in the following order of priority (ILO Recommendation No. 193 Paragraph 5):

- elimination of the risk;
- control of the risk at the source;
- minimisation of the risk by such means as the design of safe work systems, the introduction of technical and organisational measures and safe practices and training;
- use of personal protective equipment and clothing (at no cost to the worker).

The control activity and monitoring of the risk is a common component of management. You will adopt and promote a policy that describes the security measures, responsibilities of management and employees. There are procedures clear and easy to understand. Will be put in place mechanisms for consultation between employees and between employees and their elected representatives on all aspects of the existing risks in the workplace This actions encourages a proactive behavior of employees beneficial in understanding and applying security measures. Besides technical measures other measures such as information, training and continuous training of employees for knowledge and risk awareness is essential [11].

Managers must understand the legal and moral liability of their job in ensuring a healthy and safe workplace and to make all necessary efforts to achieve and maintain this goal. Although this action is the responsibility of management, employees also have a role as important in ensuring health and safety at the workplace [12, 13, and 14].

The case study approach, this paper aimed to determine if employees respond to the important efforts being made by the organization to reduce the level of risk in the workplace and improve security.

2. Case study regarding employee response to the implementation of risk management

The case study was based on questioning a total of 64 employees in the industrial sector in Galati area Romania. The questionnaire had a total of 24 questions chosen so as to show how well the respondents understood the occupational risk management, the attitude towards risk assessment at the workplace, how vigilant are at the workplace, if they understood measures security and the extent to which they meet.

Figure 1 shows the level of understanding of occupational risk by those polled. Were well appreciated by the responses of 16 (25%) respondents. They know the very basics of hazard and risk have been trained and are aware of the risks and hazards of the workplace, were directly involved in the risk assessment.

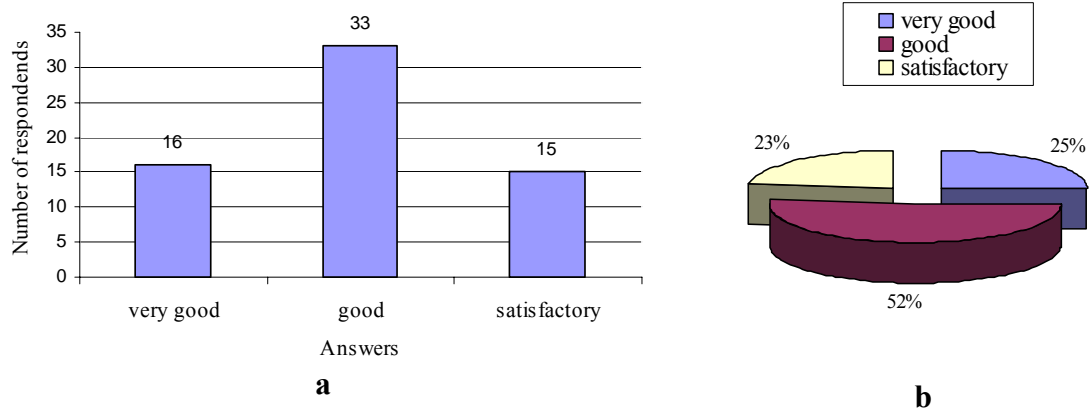


Fig. 1. Understanding level of risk management:
 a) on number of interviewed employees b) in [%]

Were well appreciated by a total of 33 (52%) who know the notion of risk and hazards at the workplace, know emergencies situations and participated in the assessment of the risk by the representatives. Satisfactory appreciated by 15 (23%) of the respondents. They understand the concept of risk and the need for security measures work, admit

they were and are regularly trained in occupational safety but do not know the risk factors and hazards of the workplace and any measures taken by employers to avoid risks.

Figure 2 presents the results of the respondents on attitudes towards risk assessment process at the workplace.

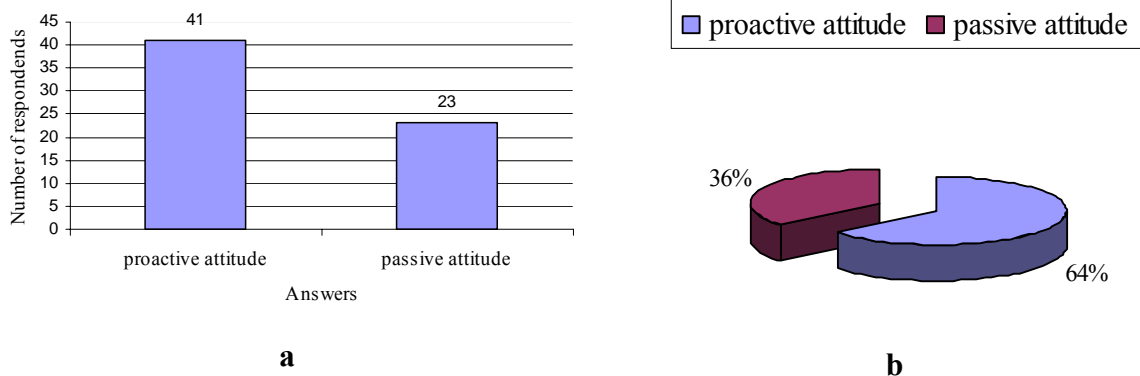


Fig. 2. Attitude towards risk assessment process:
 a) on number of interviewed employees, b) in [%]

It was considered a proactive attitude to 41 (64%) respondents interviewed respectively who were involved in evaluating the risk personally or through representatives, know the difference between a situation of risk and one normal, know the dangers of the workplace and emergency situations. A passive attitude was assessed for 23 (36%) respondents who are not paying attention to trainings, consider employer solely responsible for prevention, consider excessive security measures.

Results concerning vigilance at the workplace are shown in Figure 3 and it was considered on three

scales: high, medium and low. Were considered the most vigilant employees who take steps to feel safe at the workplace; considers that routine work not diminish vigilance; are paying attention to training even know what it is about, never happened not to use safety equipment, know all the risk factors and at the workplace hazards. They were in total of 23 (36%) respondents.

They were appreciated with medium vigilance a mean of 31 (48%) who admitted that it was happened not to use safety equipment and do not know the risk factors at the workplace.

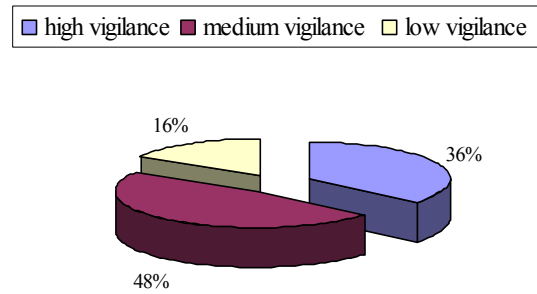
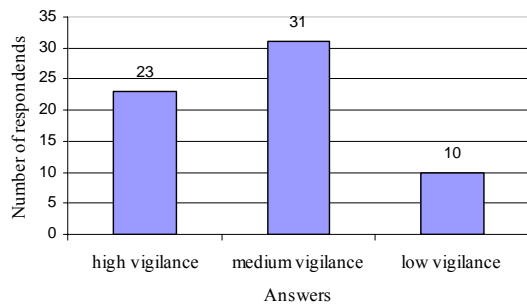


Fig. 3. Vigilance at the workplace: a) on number of respondents, b) in [%]

With low vigilance were considered to be the inattentive to instruction and who does not take all safety measures at the workplace respectively a total of 10 (16%) respondents.

Figure 4 shows the results concerning the level of understanding of occupational safety measures. This was assessed on three levels: high, medium and low.

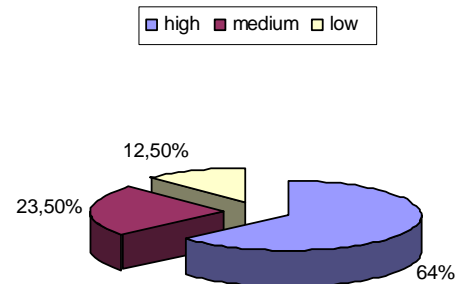
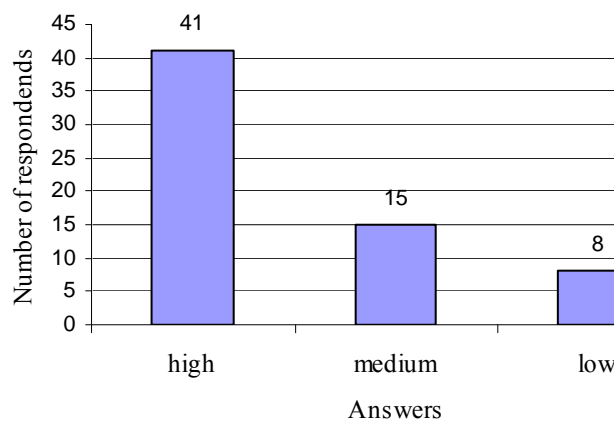


Fig. 4. Level of understanding of occupational safety measures: a) on number of interviewed employees b) in [%]

It is seen from the graphical representation that most employees, 41 people [64%], understand the need for security measures of work. However, besides the positive rated answer, the respondents underline that would get advices concerning safety at workplace. Respondents do not take always measures to feel safe at the workplace. A total of 15 [23.5%] respondents were appreciated with medium understanding of security measures. A total of 8 (12.5%) people said that security measures are exaggerated and believes that safety equipment is not always absolutely necessary. Figure 5 shows the extent that employees respect work safety measures.

We established in this respect three stages of assessment: high, medium and low extent.

Most of those respondents answered "yes" to the question if they comply with safety occupational measure at the workplace but the answers at other relevant questions did the differentiation on the three steps.

Many of them said they consider uncomfortable safety equipment (24) and have been times when they not worn (27) or do not know measures in case of fire (then how to comply?) and another 13 respondents recognized directly as not comply with occupational safety measures.

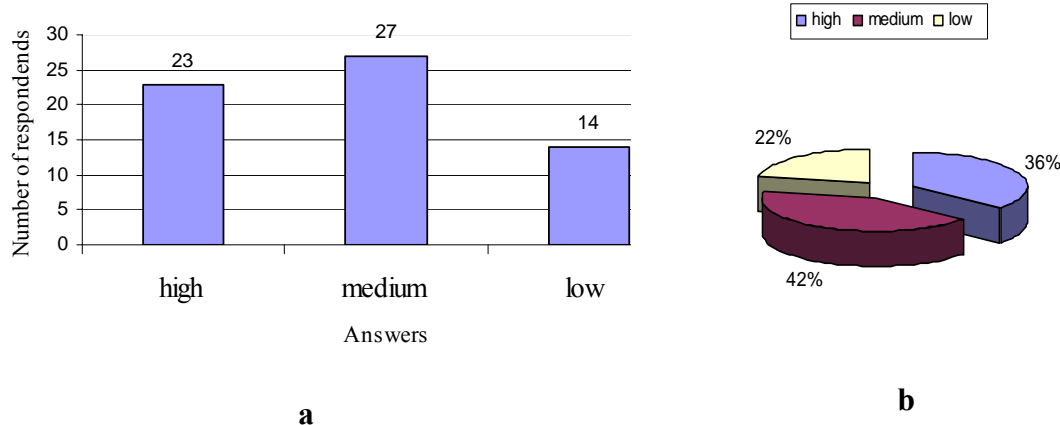


Fig. 5. Far as employees respect occupational safety measures:
a) on number of interviewed employees b) in [%]

3. Conclusions

The case study shows that at the organizations level it has been implemented occupational risk management and it has been done a risk assessment for each job. Thus 94% of those surveyed said they were informed (signed) on risk factors and specific hazards of the workplace and over 65% have personally participated in risk assessment. All respondents confirm that they are trained on occupational safety issues (daily, monthly or quarterly depending on their activity).

- Although managers meet their legal and moral obligations regarding occupational safety the case study shows that employees are still many steps to go up to an optimal response to these efforts, as follows:

- 37% of respondents consider only the employee or employer responsible only to the prevention of at the workplace hazards;

- over 40% do not know the risk factors and 32% do not know what is the usual procedure in case of fire;

- 16% show a low vigilance at the workplace;

- 22% respect to a small extent occupational safety standards;

Over 50% would not report an incident if it has no consequences; 15.5% said that faced with a situation of risk at the workplace.

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