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## **THE HEALTH AND SAFETY MANAGEMENT SYSTEM IN THE STEELWORKS PLANT**

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### **ABSTRACT:**

The paper presents the key elements of the management system of the health and safety of work in the steelworks plant. The health and safety management systems were introduced in companies following the implementation of quality and environment management systems. Modern steelworks plants realize the strategy of the safety of work to protect workers' health. First step in health and safety system improvement is defining of the safety policy and the basic principles of the system. In the paper the simple scheme of building of such system was presented. The health and safety management system as a whole is based on the continuous improvement concept i.e. plan, do, check, act (the Deming cycle). The enterprises that have got the system tend towards reducing of work accidents. For example the metallurgical company ArcelorMittal Poland the main actions to prevent accidents and to build the culture of safety were presented.

### **KEYWORDS:**

health and safety management system, safety policy,  
safety strategy in the steelworks plant, the culture of the safety of work

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### **1. HEALTH AND SAFETY AT WORK.**

The health and safety management system is crucial in the management of a steelworks plant. It affects both economic (work efficiency growth) and social factors (employees satisfaction). A safe workplace (with a low accident rate) contributes to profit growth and competitiveness of a company. An important objective of health and safety management is to minimize the number of accidents and prevent them by identifying and eliminating the most dangerous spots on the site. Health and safety at work is a set of legal regulations and research, organizational and technical measures aimed at the creation of such working environment that would not expose a worker's health or life to the hazards present in the work place.[1] In its strategy a modern steelworks plant should take into account health and safety issues. The safety policy along with the health and safety management system should be an integral part of its management process.

### **2. THE HEALTH AND SAFETY MANAGEMENT SYSTEM.**

A system is a collection of elements arranged in a specific order and functioning as a whole [2]. The most important feature of a system is synergy – enhanced combined effect of interacting elements. The establishment of the health and safety management system requires a safety policy. It is a declaration of the

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management according to which the protection of employees' health and lives constitutes a matter of overriding importance in the organization. It is the company's long-term objective in the area of work safety that underlines the crucial obligations (intentions) of the management in terms of their compliance with health and safety regulations. While developing a health and safety policy it is necessary to define the strategic and operational goals in the said area. The basis for the development of health and safety management system is the recognition of the existing chain of relations within a company. The net of relations is based on five questions: <sup>[3]</sup>

- ✚ who is responsible for particular actions,
- ✚ what kind of risks is at work places,
- ✚ how the work should be realized correctly,
- ✚ what relations are between particular tasks and actions,
- ✚ how often the work should be controlled.

In a production plant the health and safety management system as a whole is based on the continuous improvement concept i.e. plan, do, check, act (the Deming cycle). The system is planned and plans for the implementation of general and specific goals in the health and safety strategy are drawn up. The next step is the system implementation and improvement through the involvement of all employees and health and safety services on all levels, in particular the senior management. The implemented system is then checked paying special attention to its functioning through monitoring, audits and management control checks. Regular reports (quarterly, half-yearly and annual) are made on company accident rate. The last steps in health and safety system improvement are corrective and repair actions.

### 3. HEALTH AND SAFETY MANAGEMENT STRATEGY IN A STEELWORKS PLANT

A strategy is 'an overall description of an applied or planned method of achieving a specific goal in a complex decision-making process'.<sup>[4]</sup> The fundamental strategy for a company is the so-called development strategy, on the basis of which all other functional and system strategies are built. One of those strategies is the health and safety management strategy. How to build the strategy – figure 1.

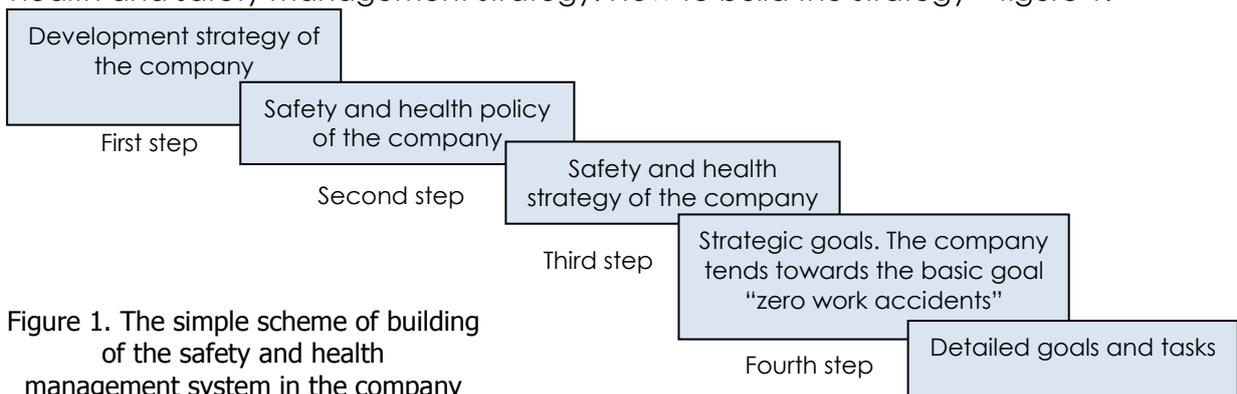


Figure 1. The simple scheme of building of the safety and health management system in the company

### 4. ACCIDENTS PREVENTION AND BUILDING OF SAFETY CULTURE IN METALLURGICAL COMPANY

The analysis of the health and safety management key elements to prevent accidents was made based on the metallurgical company ArcelorMittal Poland. Within the health and safety strategy implemented in the company a 'zero accidents' strategic goal was set. The reduction of the strategic goal in ArcelorMittal Poland is to be accomplished through the following actions:

- ✚ a comprehensive involvement of workers,

- ✚ worker observation and reporting workers' behaviour,
- ✚ collection of data on health and safety at work,
- ✚ use tools in the removal of barriers and threats,
- ✚ implementation of health and safety procedures and system,
- ✚ regular audits,
- ✚ implementation of annual action plans for the improvement of safety in individual production plants.

Together with the health and safety strategy in the plants there are not only annual working conditions improvement plans but also programmes to raise workers' awareness. In 2007 the hot Rolling Mill Plant introduced a pilot programme on 'raising people's awareness in the area of safety and health and creating a safe organization'. Moreover, on 6<sup>th</sup> March 2007 the First Health and Safety at Work Day was celebrated across all plants of the ArcelorMittal concern. A series of competitions was organized including a drawing competition for employees and their families on health and safety issues. The company organizes periodical health and safety trainings, courses and drills on e.g. first aid. As health and safety are also a marketing tool for the company the following slogan has been adopted: *We build a safe organization. We are not as strong as our products and therefore health and safety issues are our priority.* [5]

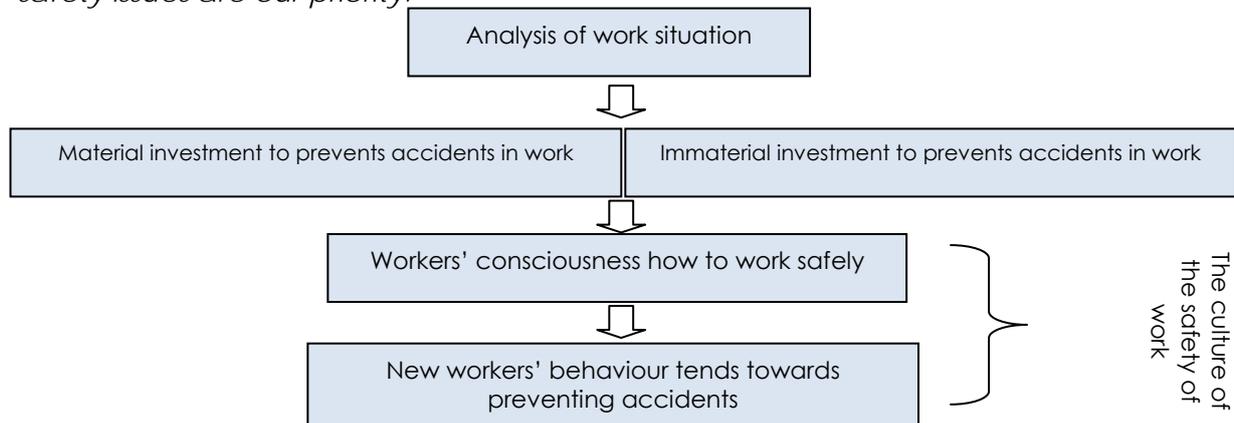


Fig. 2. Relations between accidents prevention and building of safety culture in the company

The concern all over the world creates new culture of organization. One element of them is the culture of safety of work. The culture depends on state of human consciousness (on individual) according to his safety behaviour in process of work. Conscious workers create the culture of the safety of work. So the ArcelorMittal concern organizes actions to improve workers' culture of the safety of work. Figure 2 presents relation between accidents prevention, consciousness and behaviours workers.

All actions cause that injury rates in the company are better and better. For example in 2006 were 5.3, nowadays 3.9. In 2008 the company plans to decrease the injury rate to 3.0. The company uses two indicators:

Frequency Rate = Number of accidents x 1 000 000 / Worked workhours

Severity Rate = Number of days-off after accidents x 1 000 / Worked workhours

Averagely every year 100 work accidents take place in the four steelworks plants of the ArcelorMittal Poland (Steelworks Plant Katowice, Steelworks Plant T. Sendzimir, Steelwork Plant Cedler, and Steelwork Plant Florian). About 64.7 % of all accidents in the ArcelorMittal Poland are caused by human errors and routine, whereas 35.3 % of accidents are due to bad work organization, the majority of which means lack of compliance with safety regulations concerning work organization and

the remaining part a consequence of inattention, forgetfulness or lack of knowledge (figure 3).<sup>[6]</sup>

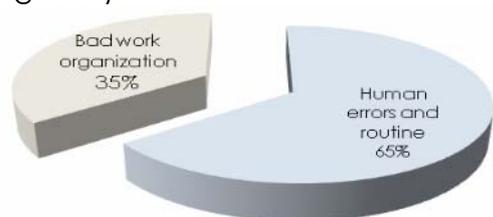


Fig.3. Reasons of accidents in work [6]

Accidents are most frequent at locksmith, smelter and electrician workstations. Most common injuries include bruises which account for ca. 50 % of all injuries [6]. After each accident, prevention measures stipulated in accident circumstances and causes protocol are taken. It becomes the basis on which the director issues official orders

concerning the improvement of working conditions. Each accident that occurs is discussed with workers with special attention given to the circumstances and causes of the accident.

Meetings of the supervisory staff and the management on health and safety issues are obligatory. Moreover, organizational and technical actions are taken, as needed. If necessary, a given worker undergoes additional training or receives briefing. In some cases instructing the employee on the importance of due care at work is enough. To protect workers from injuries the company equips them with protective clothing and individual protection measures. Prior to their distribution they are tested in the working environment (steel toe capped shoes, new types of safety glasses including goggles that do not steam up while being used). Workers are reminded to pay special attention to the use of appropriate work methods and equipment that protects them from injuries.<sup>[7]</sup> In the analyzed company health and safety staffs carry out periodic control checks as scheduled and current controls of workstations and working conditions in their respective areas. During the controls areas and spots that pose a threat to workers' health and life are indicated and the responsible staffs are informed of the existing irregularities. The revealed defects and irregularities are then eliminated within the periods given in recommendations issued on the basis of control protocols. The plant also undergoes controls of the National Sanitary Inspection.

## 6. CONCLUSION

The aforementioned actions aim at raising awareness on the importance of safety systems in steelworks plants. The example of ArcelorMittal Poland illustrates the implemented principles of work safety strategy. The appropriate units within the company also run trainings on health and safety to increase safety of work. More over the company organizes the meeting, competitions and celebrates the "Safety Day". In this way metallurgical company builds the culture of the safety of work that is a part of the all the culture of organization. The ArcelorMittal Poland is leader in steel market in Poland. So its actions are very important for benchmarking. Others steelworks plans follow them.

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