

# Safety and Health Management Systems

Daniel Podgórski, Ph. D.

Central Institute for Labour Protection - National Research Institute  
ul. Czerniakowska 16, 00-701, Warsaw, Poland

[www.ciop.pl](http://www.ciop.pl)

## 1. OSH management system movement

The evolution of OSH management strategies was initiated in the 1800s by the implementation of first OSH regulations. As a final phase of this long process the more systematic and voluntary approach to OSH management started just two decades ago. In line with this approach the occupational safety and health management system (OSH-MS) may be defined as a part of the overall enterprise management system that includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for implementing, reviewing and maintaining the OSH policy of the enterprise.

The first standard specifying principles of OSH-MS was the British guideline BS 8800 (1996). This standard was developed following the growing popularity of quality and environmental management systems (QMS and EMS), that in turn was the result of the adoption of ISO 9000 and ISO 14000 standards. Similar OSH-MS standards were established also in other countries. The examples are the Dutch standard NPR 5001 (1996) and the joint standard AS/NZS 4804:1997/2001 issued by Standards Australia and Standards New Zealand. In the case of Poland standardization of OSH-MS started in 1998 by appointing the Technical Standardization Committee for OSH Management. The work of this Committee resulted in adopting four standards: PN-N-18001:1999 (revised in 2004), PN-N-18002:2000, PN-N-18004:2001 and PN-N-18011:2006. The first one contains specification for the OSH-MS and may be used as the basis for conformity certification. The other standards are, respectively, the guidelines aimed at supporting enterprises in assessment of occupational risks, in practical implementation of OSH-MS and in auditing those systems.

In several other countries, a systematic approach to OSH management has been promoted on the basis of legal regulations rather than by voluntary standards. In the USA, the system of Voluntary Protection Programs (VPP) has been in force since 1982 under supervision of OSHA. Under this system, companies implement OSH management programmes on the basis of requirements proposed by OSHA (2000). Implementation guidelines for so called *internal control of work environment* were established by governmental bodies in Norway (1991/1996) and in Sweden (1992/1996). In Japan OSH-MS guidelines were introduced in 1999 by the Ordinance of the Japanese Minister of Labour.

In view of a growing interest towards elaboration and implementation of OSH-MS standards expressed in several countries, the International Standardization Organization (ISO) analyzed in 1996 (and also several times later) the need to initiate OSH-MS standardization process on international scale. As a result of discussions held among various countries and stakeholders the decision to undertake this process has not been taken by the ISO till now. The lack of international standards on OSH-MS encouraged an informal business grouping called OHSAS Project Group to elaborate specifications that would be suitable for developing certification business in the area of OSH. These activities resulted in preparation of OHSAS 18001:1999 and OHSAS 18002:2000 documents. Since these documents have not been produced within the formal standardization process they are not regarded as formal international standards.

## 2. A unique role of ILO-OSH 2001 Guidelines in a worldwide promotion of OSH MS

Issues concerning the OSH management system essentially refer to relations between employers and employees which are regulated by law and, on the international level, by the International Labour Organisation (ILO). Taking this into account the society of OSH professionals has been increasingly convinced that the more appropriate organisation for defining standards of systematic OSH management is not the ISO, but the ILO. Therefore the work on international guidelines on OSH-MS was undertaken by the ILO in 1997. As a result of this work a famous ILO-OSH 2001 document was adopted and published in 2001.

ILO-OSH 2001 Guidelines are intended for application at two levels: national and the level of an organization (enterprise). This constitutes the principal difference and advantage of this document as compared with other OSH-MS standards, which relate exclusively to the level of organizations. Provisions intended to be applied at the national level relate to the creation and functioning of structures responsible for the promotion of OSH MS in a Member State. These include, in particular, designation of a competent body to formulate national policies concerning OSH MS, implementation of these policies, and establishing national and tailored guidelines concerning implementation and maintenance of OSH MS in enterprises.

The national guidelines should be based on the OSH MS model defined in the ILO-OSH 2001, but need to be adjusted to the law and practice existing in a given country. Up to date many countries have already adopted the ILO Guidelines in various forms. For example in France in 2004 the AFNOR Strategic Committee on OSH adopted a resolution on the promotion of ILO-OSH 2001. In Poland it was assumed that the ILO Guidelines would be transposed to the national level by revision and harmonization of the PN-N-18001 standard. In the Russian Federation and ten other CIS countries a GOST standard (no. 12.0.230-2007), identical to the ILO-OSH 2001, was published and adopted for application in 2007.

As regards the tailored guidelines, they should reflect the general ILO-OSH 2001 objectives and system management principles, but first of all – they should take into account specific conditions and needs of the organization or a group of organizations, in particular their size (small, medium, large), organizational structure, existing hazards and the level of respective risk. Some solutions in this area have already been developed, e.g. a guide for OSH-MS implementation in Japanese construction sector (JCOSHA, 2006).

It should be underlined that the ILO Guidelines are at present the only international model for OSH-MS, compatible with other management system standards and, at the same time, ensure compatibility with national OSH regulations and inspection systems. ILO-OSH 2001 also reflects the fundamental ILO values, such as tripartism, and relevant international OSH standards, e.g. Convention no. 155 on Occupational Safety and Health (1981) and the Convention no. 161 on Occupational Health Services (1985).

### **3. Main issues in OSH management system implementation**

The third part of the ILO Guidelines, addressed to enterprise level, starts with an overall responsibility and duty of an employer in respect of assuring OSH, including compliance with legal regulations in a specific country. The employer should demonstrate visible commitment and leadership in OSH activities and introduce organizational solutions aimed at implementation of OSH-MS in the organization, in line with a model based on the Plan-Do-Check-Act (PDCA) cycle of continual improvement. Therefore the five key components of the system indicated by ILO Guidelines are: 1) Policy, 2) Organizing, 3) Planning and Implementation, 4) Evaluation and 5) Action for improvement. The PDCA cycle is a universal management system model applied also in QMS (ISO 9000) and EMS (ISO 14000) as well as in other OSH-MS standards, e.g. BS 8800, PN-N-18001 or OHSAS 18001. This makes ILO-OSH 2001 system highly compatible with other management systems specified in respective national and international standards.

However there are two major components which are specific only for OSH management and which are the basic prerequisites for the OSH-MS effectiveness in terms of preventing work-related injuries, ill health, diseases and incidents. The first one is the risk assessment and management, and the second is worker participation. Other important problems concerning OSH-MS implementation include cost effectiveness of OSH-MS and applicability of those systems in small- and medium-sized enterprises (SMEs).

#### **Risk assessment and risk management**

In all normative documents concerning OSH-MS, assessment and management of risks are regarded as a core element of the system. The OSH-MS standards stipulate that the organization should establish and maintain documented procedures for identification of hazards and assessment of related risks. These procedures should refer first of all to hazards present at the workplaces in the organization as well as other risks related to its activities, products or services that can be controlled and influenced by the organization.

The first step in the risk assessment process is the identification of all possible hazards to human health and life existing in the workplaces. Identified hazards shall be prioritized to determine which of them are most important at the moment and which should be the subject of risk assessment first. This process should be carried out in consultation with and involving workers and their representatives.

Estimation of risk level for identified hazards should be the next step. This step may cover all hazards or those selected as priority ones. Simple matrices, as proposed for example in BS 8800 or PN-N-18002 standards, are the easiest tools for risk estimation. They enable the estimation of a risk level on the basis of information on the probability of occurrence and the severity of potential harm of the hazardous event.

In Europe, the concept of occupational risk assessment as the main element of preventive actions necessary for ensuring safety and health protection of workers has been mainstreamed into the OSH legislation by incorporating it in the EU Framework Directive 89/391/EEC *on the introduction of measures to encourage improvements in the safety and health of workers at work* (so-called Framework Directive). Therefore risk assessment is perceived in the EU as a key component of OSH management, while the Framework Directive is considered as a specific EU legal standard on risk assessment (Frick, 2006).

Considering the importance of proper risk assessment as the first step in any risk management process aimed at the prevention of accidents and diseases and, from a broader perspective, that it is a cornerstone of the European approach to OSH management, the Risk Assessment is the leading topic for the European wide campaign to be carried out by the European Agency for Safety and Health at Work in 2008-2009. The campaign will take place in all 27 EU Member States and beyond. One of its main purposes is to communicate good practices for risk assessment and show the benefits to all stakeholders.

#### **Workers' involvement in OSH management systems**

There are many articles in OSH-related literature indicating that workers and their safety and health representatives play a significant role in creating and maintaining OSH-MS in their enterprise. This role stems from the fact that workers are simultaneously the subject and object of actions aimed at improvement of their safety and health. Furthermore, the workers doing the job, through their practical experience of the activity itself, are often in the best position to identify hazards and possible solutions. Workers' participatory approach to OSH management helps first in effective promotion of prevention principles in enterprises and supports reception of OSH practices by all company personnel (Walters & Frick, 2000). On the other hand, in enterprises where employers manage OSH issues without consultations with workers the safety records are usually significantly worse than in enterprises where such consultations are carried out.

ILO-OSH 2001 Guidelines clearly state that: *worker participation is an essential element of the OSH management system in the organization*. They also specifically require that: *the employer should make arrangements for workers and their safety and health representatives to have the time and resources to participate actively in the process of organizing, planning and implementation, evaluation and action for improvement of the OSH management system*. Despite the scientific evidence and ILO recommendations the level of workers' participation in OSH management often falls short of expectations. For instance poor employee participation has been identified as a weakness in OSH-MS in several Asian countries (Kogi, 2002). Also research carried out in Poland revealed that in many enterprises with OSH-MS in place workers and their representatives were not satisfactorily involved in actions within the system (Podgórski, 2005).

### **Cost-effectiveness of OSH MS and economic incentives**

Results of numerous research studies provide sound evidence that even routine activities aimed at improvement of OSH are beneficial for the employers, not only in terms of achieving compliance with legal regulations or satisfying society's needs but also because they bring substantial economic benefits by reducing costs of accidents, incidents, occupational diseases as well as by improving productivity and production quality. Research studies show that also implementation of standardized OSH-MS may bring economic benefits. In particular the comparison of average costs of implementation and maintenance of OSH MS in Polish enterprises (according to the PN-N-18001 standard) with the costs of achieving obligatory compliance with relevant OSH regulations revealed that the former are ca. 30 times lower than the latter (Rzepecki, 2007). The costs of OSH-MS implementation differ with regard to the size of enterprise and the type of activity. The highest costs have been recorded e.g. in mining and the lowest in service industry.

The scientific arguments concerning economic benefits connected with improvement can and should be used in OSH-MS promotional schemes. One of the possible economic incentive schemes is the system of a differentiated premium rate of work accident insurance. Supplementary Polish study showed that even 10% reduction of the premium paid by the company to the social insurance system results in financial savings comparable with the cost of implementation and maintenance of a formal OSH management system.

### **OSH management system model for SMEs**

The working conditions in SMEs are considered worldwide as less safe and healthy than in other economic sectors. For example in Europe SMEs account for more than 80% of all occupational injuries and 90 % of all fatal accidents. Therefore significant improvement of safety records in the SME sector should be regarded as priority and the implementation of OSH management systems in SMEs should be considered as one of the most effective and promising solutions to achieve this goal.

Unfortunately the OSH-MS models proposed in various standards and guidelines are generally aimed at larger enterprises. A comprehensive review of the international research on OSH-MS systems (Gallagher et al., 2001) concluded that these systems do not function well in SMEs. Moreover, annual spending per employee for OSH-MS system is higher for small enterprises than for bigger ones. The main reason for such status quo is that these systems are not well adapted to the needs of SMEs and often are too cumbersome for them. Although the ILO Guidelines foresee elaboration of tailored OSH-MS guidelines, which should consider specific conditions and needs of SMEs, they do not propose any definite solution in this area.

Given the above mentioned arguments, it is necessary that an efficient OSH-MS model be promptly developed, preferably at the international level, and disseminated among SMEs. This model should be supported by a set of practical and low-cost tools adjusted to SMEs' needs and approved by them. The possible features of such expected tools supporting implementation of OSH-MS in SMEs include: flexible and user-adaptive implementation, a self-guiding and intuitive approach, possibility of conducting in a user-friendly way the cost-benefit analysis of preventive actions, and assuring integration of OSH and prevention activities with day-to-day management of production processes.

## **4. Incorporating promotion of OSH MS into international & national OSH strategies**

The development and adoption of international OSH-MS guidelines by the ILO in 2001 was the major step towards effective dissemination and promotion of OSH management systems worldwide. In order to transform this result into significant increase of number of enterprises implementing OSH-MS there is a need for incorporating these issues into strategies and programmes aimed at improvement of OSH.

The promotion of systematic OSH management is currently realized on the international level by the new ILO instruments concerning Promotional Framework for Occupational Safety and Health. Although OSH-MS are not directly addressed in the Convention no 187, they are mentioned in the Recommendation no. 197 (2006), where in the chapter concerning the national system of OSH the Member States are called to promote a management systems approach to OSH as laid down in the ILO-OSH 2001 Guidelines.

Provisions concerning the promotion of systematic OSH management are also included in the OSH Strategy of the European Union 2007-2012. In particular the European Agency for Safety and Health at Work will promote OSH management approach in SMEs through the exchange of experience and good practices. The EU OSH Strategy also calls for training of young entrepreneurs in OSH management and recommends implementation of economic aid for the introduction of OSH management schemes in SMEs.

In order to successfully implement the international OSH strategies it is essential that they be first transposed to the national level and enforced in each country. The new ILO promotional instruments as well as the European Strategy on OSH 2007-2012 foresee that the respective national strategies and programmes on OSH will be developed and adopted by the governments of the Member States. Therefore for the further development of the OSH-MS movement it is very important to guarantee that the promotion of OSH management systems is appropriately addressed in the national strategies, and that the promotional structures, policies and programmes are in line with the provisions of the ILO-OSH 2001 Guidelines.

## 5. Conclusions

The paper presents a review of selected issues of safety and health management systems considered the most important from two perspectives: 1) effectiveness of those systems in terms of capability to prevent occupational accident and diseases, and 2) promotion of systematic OSH management at the national level and worldwide. First of all in order to improve the effectiveness of OSH-MS a special attention should be paid to the implementation of proper risk assessment and management procedures. There is also a strong need to assure a real and active involvement of workers and their safety representatives in all OSH-MS activities. At the same time the promotion of OSH-MS should be improved by a better use of economic incentives, including e.g. work accident insurance systems with differentiated premiums stimulating enterprise to invest in OSH. The number of enterprises implementing OSH-MS will increase dramatically if a specific model of OSH-MS tailored to the needs and expectation of SMEs is developed and disseminated.

Other issues related to OSH-MS implementation, which are also vital but not analyzed in this paper, are e.g. the role of the Corporate Social Responsibility (CSR) concept in the promotion of OSH-MS, advantages and disadvantages of the third-party certification of OSH-MS, and the role of national labour inspectorates in the promotion of OSH-MS and their approach to companies with OSH-MS in place.

## References

- BS 8800:1996. *Guide to occupational health and safety management systems*, British Standards Institution (BSI), London, UK.
- Frick, K. (2006). European Union's Legal Standard on Risk Assessment, *Handbook of Standards and Guidelines in Ergonomics and Human Factors*, Lawrence Erlbaum Associates, Mahwah, USA, 471-492.
- Gallagher, C., E. Underhill & Rimmer M. (2001). *Occupational Health and Safety Management Systems: A Review of their Effectiveness in Securing Health and Safe Workplaces*. National Occupational Health and Safety Commission, Sydney, Australia.
- ILO-OSH 2001. *Guidelines on Occupational Safety and Health Management Systems*. International Labour Office, Geneva, Switzerland.
- Japanese Ministry of Labour (1999). *Guidelines for Occupational Safety and Health Management Systems*, Ministry of Labour Notification No. 53, April 30, 1999, Ministry of Labour, Tokyo, Japan.
- JCOSHA (2006). *Construction Occupational health and Safety Management System (COHSMS) Guidelines*. Japan Construction Occupational Safety and Health Association (JCOSHA), Japan.
- Kogi K. (2002). Work Improvement and Occupational Safety and Health Management Systems: Common Features and Research Needs, *Industrial Health*, 40, 121-133.
- OSHA (2000). *Revision to the Voluntary Protection Programs to provide safe and healthful working conditions*. Federal Register, 65, 45649-45663, Occupational Safety and Health Administration, Washington D.C., USA.
- PN-N-18001:1999/2004. *Occupational Safety and Health Management Systems - Requirements*. Polish Standardization Committee, Warsaw, Poland.
- Podgórski D. (2005). Workers' Involvement - A Missing Component in the Implementation of Occupational Safety and Health Management Systems in Enterprises, *Journal of Occupational Safety and Ergonomics (JOSE)*, 11(3), 219-231.
- Rzepecki J. (2007). *Assessment of economic effect of implementing OSH management systems in enterprises* (report of research study no. 3.A.09, in Polish), Central Institute for Labour Protection - National Research Institute, Warsaw, Poland.

Walters D. & Frick K. (2000). Worker participation and the management of occupational health and safety: Reinforcing or conflicting strategies?, *Systematic Occupational Health and Safety Management - Perspectives on an international development*. Elsevier Science Ltd., Oxford, UK, 43-65.