Occupational safety and health management essay

Increasingly complex work processes and changes in working conditions, together with the resulting new or changing types of hazard, need a new and systematic approach to safety and health at work. Solutions are required, which allow the employers to take account of safety and health principles at all operational levels and for all activities, and to convert them into appropriate measures on a routine basis. Occupational safety and health (OSH) has to be managed.

Occupational Safety and Health (OSH) Management

The concept of an OSH management system (OSHMS) is rather complex and there are several definitions available. The current debate about OSH management systems makes clear that there is no standardised understanding of the concept of occupational health and safety management and different approaches and models exist. It is often the case that only partial elements are regarded as complete management systems. Although the general overall objective is to improve safety and health of the employees, one can find at a more detailed level a variety of angles. For example:

- Prevention as an overriding company objective

The incorporation of occupational safety and health as an overriding company objective is a basic prerequisite for a successful occupational safety and health management system. The criterion of the ' overriding company objective' will thus be interpreted that safety and health are of equal ranking compared to other company objectives. It is important to know a which level and consequently how the issue of occupational health and

safety will sit as an overall objective alongside other chosen objectives, such as the improvement of competitiveness the reach and development of a market position or top-quality production, in order to determine whether the material attaches a high or medium focus to these objectives. The enterprise has to determine occupational safety and health measures and that these have to be observed in all organisational activities.

- Promotion of the employer's responsibility

The responsibility of the employer for occupational safety and health of those employed is a central element in the concepts of occupational safety and health.

- Improvement of the employees' participation and their representatives

One central issue is the participation of the employee, irrespective of whether they participate at the individual level/individual case or at the level of collective representation.

- Raising the motivation of the top management and employees

The motivation of top management is closely related to the promotion of the employer's responsibility. The top management of an enterprise is the key player for a comprehensive corporate policy in the field of occupational safety and health. Since this group of persons is usually occupied with their management duties, they have only few resources for other issues such as occupational safety and health. An OSHMS may increase and maintain the motivation of top management concerning issues of occupational safety and health.

- Improvement of the quality of the products and the services and the environmental conditions at enterprise level

The quality of products and services and the environmental conditions within the enterprise can be related to the introduction of an OSHMS. Internal control issues can play an important role regarding these two aspects.

- Reduction of operational costs

The objective to reduce the costs is not that which is mentioned most frequently. However, the reduction of accidents at work and the decrease of work-related ill-health can be seen as a priority. Effective health and safety policies can clearly contribute to cost-reduction strategies. Most important are questions about the costs arising for the employer in the event of an accident.

One can also consider keeping the additional resources that are required for the introduction of an OSHMS, if possible, at a low level and, if it can be achieved without friction, integrate an OSHMS into the operational processes.

- Creation and use of synergies in relation to other management systems

Usually enterprises or organisations already have some kind of management system. If an OSHMS is introduced, and then links to other systems have to be taken into account If possible, synergies must be used. In many cases, this will involve the ISO standards 9000 ff. and 14000 ff as well as the European Environmental Management and Audit Scheme (EMAS).

- Increasing transparency in the enterprise and towards external organisations and/or persons

Increasing transparency is also emphasised as an objective. This is often in order to improve relations with national/regional authorities.

Existence of a structured approach to hazard identification and risk management which can contribute to the provision of a safer and healthier working environment and the avoidance of a high proportion of accidents and occupational health problems. This should help reduce lost time through employee illness and injury as well as ensure business continuity.

The management of safety and health becoming more transparent and effective by translating the outputs of risk assessment, audits, inspections, legal reviews and incident investigations into action plans to minimise the risk of future accidents.

Improved staff morale, potential reductions in liability claims and lower insurance premiums.

Increased credibility from having an OSH management system implemented and independently assessed and certified.

Accident causation models

To prevent accidents and injuries efficiently in workplaces it is necessary to identify accident causation models. If managers know the root of an accident, they can set effective measures to tackle the vulnerabilities from first steps.

There are several theories on accident causation and the modelling of accident mechanisms. The first accident causation model, also known as the domino theory, is developed by Heinrich (1941) and implies the linear one-by-one progression of events leading to the accident and then injury.

Bird (1974) proposed the first update of the domino theory, which 2 years later has been detailed by Bird and Loftus (1976). As certain publications highlight (Kjellén, 1987; HSC, 1993), both Heinrich and Bird's models explain accident causation as a one-dimensional sequence of events.

Multi-causality of accidents was introduced by Reason (1990) by the end of the 1980s. According to Reason, the accident causation process is an interaction between latent (potential) and active failures and in order to avoid this interaction, the pro-active involvement of top management is essential. Active failures are the immediate observable causes in an accident and they are easily identified. In contrast, latent failures may be present in the system for many years, before being revealed by active failures and they are difficult to detect, as they are hidden in the organisation (e. g.: poor design, gaps in supervision, lack of training).

In the safety science, the significant contribution of human errors to accidents is also widely recognised. Rasmussen (1987) suggested the SRK framework for Skill- based, Rule- based, and Knowledge-based behaviour in order to distinguish between three different levels of human cognitive control of the environment. This framework was chiefly meant to support the understanding of human cognition in different situations characterised by the level of familiarity.

A well-known behaviourist model of the late 1980s, which links the work of Rasmussen and Reason and is based on attribution theory, is that of Hale and Glendon (1987). Attribution theory is concerned with how people process information in determining the causality of events (Lacroix and Dejoy, 1989). The Hale and Glendon model considers that danger is always present in the workplace and conceptualises the role of human action in controlling danger, i. e. it investigates the factors affecting the individual behaviour in facing danger and it shows how people may, through their actions, create danger and also how they are able to control that danger and prevent harmful outcomes.

According to Kingston-Hewlett (1996; cited by Jacinto, 2003), the Hale and Glendon model is concerned with the non-observable elements of the system: perceptions and decisions. Despite the criticism the model received, it has been recognised as valid and useful, in the context of people at all levels in organisations, and at various degrees of remoteness from the immediate danger (HSC, 1993).

With the arrival of the socio-technical approach, the general theory regarding accident causation is that safety performance is influenced by internal (e. g. safety culture) or external factors (e. g. regulatory and governmental issues). Among models developed in the 1990s for the assessment of safety in this broader context, Rasmussen (1997) presented a multi-level model of a socio-technical system, with various actors, ranging from legislators, over managers and work planners, to system operators. The socio-technical system is decomposed according to organisational levels, which are then objects of study within different disciplines, and the general approach is to

explicitly identify the boundaries of safe operation, make them known to the actors and give them an opportunity to learn to cope with the boundaries. According to Kirwan (2001), Rasmussen's socio-technical framework can be used to look at the causes of accidents, not only focusing on individuals, but also tracing back to the accident's real root-causes. However, this sophisticated approach is most suited for complex and high-tech organisations. In parallel with the socio-technical approach, the 1990s also witnessed new developments regarding the analysis of human and organisational errors. Two leading researchers in this field are Reason (1997) and Hollnagel (1998).

Later developments of Reason's work (1997) include a more detailed model of organisational accident causation, which shows the influence and pathway of potential failures and outlines three levels of concern:

The organisation, the workplace and the person (or team).

In his model, Reason considers the causal sequence, from organisational factors, to local workplace conditions, to individual (or team) unsafe acts, to failed defences and bad outcomes.

Although Reason's model has had a major effect on the way in which accidents are conceived, O'Hare (2000) criticizes it for being difficult to apply as a practical tool and he proposes his own framework, known as the wheel of misfortune. The basic structure of the model is based on Helmreich's (1990) concentric spheres representing front line personnel, local and global conditions with an associated classification scheme.

Hollnagel (1998) is, as mentioned earlier, another leading theorist from the 1990s, who proposed the method CREAM (cognitive reliability and error analysis method). Hollnagel makes a distinction between causes (genotypes) and effects (phenotypes or manifestations) and describes the full context in which errors and accidents occur.

If we try to make a classification of the accident models presented above, we can divide them in three major groups. The first is " sequential accident models", a term also used by Hollnagel (2002), which describe the accident as a sequence of events in a specific order, e. g. the domino theory. The second is " human information processing accident models", a term also used by Lehto and Salvendy (1991), which describe the accident in terms of human behaviour and actions, e. g. SRK framework by Rasmussen, CREAM by Hollnagel, the Hale and Glendon model and the third is " systemic accident models", a term also used by Hollnagel (2002), such as Reason's model which include organisational and management factors and describe the performance of the whole system.

Accident Models Classification

This distinction is not obligatory, i. e. an accident model can be classified into different ways, based on the specific approach endorsed.

Laflamme (1990) classified accident causation models that are most quoted in the literature into four different approaches:

1. Decisional Models

2. Sequential Models

3. Energetic and Sequential Models

4. Organisational Models

Lehto and Salvendy (1991) made a distinction of accident causation models into three groups:

1. General models of the accident process

2. Models of human error and unsafe behaviour

3. Models of human injury mechanics

Kjellén (2000) described five categories of models:

1. Causal-Sequence

2. Process

3. Energy

4. Logical Tree

5. SHE-Management

Hollnagel (2002) classified the accident models into sequential, epidemiological and systemic.

Attwood et al. (2006), in their literature review of occupational accident models, presented the early accident models, the models based on holistic approaches and the primarily quantitative and statistical models.

Svenson (1999) states: " an accident can be explained in different ways depending on the accident analysis model that is used". This is because different models focus on different aspects and they are associated with different recommendations for improvement.

The need for OSH management

The reasons why health and safety should be well managed fall under the three main following headings (Bateman, King and Lewis, 1994): humanitarian, financial, and legal.

a) Humanitarian Consideration

Many people have been killed in workplace accidents or suffered major injuries due to occupational illness. Beside this, there are still many people who suffer from long-term health problems due to their work. The economic costs are considered later but it is clear that this scale of human suffering should be acceptable in an advanced, civilized society.

Fortunately, the picture is improving, partly due to gradual raising of health and safety standards. However, the contraction of the country's manufacturing and industrial base has also played a part.

b) Financial Costs

The financial costs of accidents serve as the second reason of the implementation of effective management of health and safety. Some of these costs are potentially measurable whilst others are hidden. Measurable costs refer to the compensation paid to employees in the form of damages and are sometimes the related legal and administrative costs. Although

these payment paid are made by the insurance company, in the long run the insurance premium paid will inevitably reflect the claims history of the employer.

Therefore, senior managers or safety specialists may be unaware of the size of the premium being paid. While the hidden costs of accidents are either impossible to quantify or their quantification would be totally impracticable. However, the hidden costs are usually far greater than the measurable costs, especially when the large numbers of minor injuries and non-injury accidents are taken into account.

c) Legal Sanction

Occupational safety and health is under the legislation, in terms of general or specific application. Much of it can give rise to claims for damages, but all could result in action by the relevant enforcing authority. Often the most damaging effect of legal sanctions can be on the organization's own image of itself. Legal fees also often match or even exceed the normal size of fines meted out.

Critical Success factors for Accident Prevention

The variety of cases makes it difficult to identify clearly the main success factors.

However, all the cases have some basic factors in common.

A detailed risk assessment is the logical and structural precondition for an effective risk elimination or reduction.

Strong motivation on the part of an important and powerful group (such as a department, a workers' steering committee, employer). High motivation by the initiators of the action to manage the risks or a specific risk and no strong objection by other parties in or outside the institution.

Support from top management. This is essential to ensure that necessary resources such as budget, human resources, equipment, etc., are made available for the project.

Involvement of relevant factors such as workers themselves, human resources, financial department, OSH practitioners, etc. An important group that has to be motivated and involved from the beginning are the workers. They should be involved not only in the risk analysis itself but also during the identification and implementation of possible solutions. Their practical and detailed knowledge and competence is often needed to develop workable preventive measures.

A good analysis and knowledge of effective potential solutions, best practices and scientific or technological innovations available.

A trusting and cooperative atmosphere among the key factors involved in the risk assessment process.

Absence of major obstacles to the adoption of the preventive or protective measures. These might include:

economic barriers such as lack of economic resources or negative cost-benefit assessment;

a lack of available solutions such as alternative technologies, machinery, work processes;

Negative effects for others (workers, departments) by transferring the risk to another area.

Besides these basic success factors, which are common to all the cases, the analysis of the cases shows that there are some additional success factors that motivate the actors to go further than usual to achieve results that are far above average.

Some of these additional factors are:

A high motivation to be the best in the sector, or just to be as good as possible, or to improve the image of the company or to improve the image of the safety and health department (e. g. NO ACCIDENT, CRUSHED FINGERS, BETTER LIFT);

The prominent role played by those in the workplace concerned (or the people at risk) in planning workflow (e. g. BETTERLIFT);

The existing difficulties in replacing sick workers (e. g. ROADWORKERS);

A high motivation to develop an integrated occupational safety and health approach (e. g. HOLISTIC RA, STRESS IN HOSPITALS, BETTERLIFT);

The existence of internal capacities to identify and develop effective solutions

The availability of simple solutions for high risks (e. g. VACCINATION, TEMPERATURE Control, BRAKE CLEANING);

Proper monitoring of the preventive or protective measures adopted (are the measures actually being implemented? are they working? are they adequate?)

The availability of external support for complicated or advanced solutions (e. g. HPD-RAILROAD, NEEDLESTICK, SCREWDRIVERS);

The existence of public support for small and medium sized enterprises in a whole sector (e. g. VACCINATION);

Motivation to reduce the related costs of accidents and diseases in high-risk occupations or areas (e. g. ROADWORKERS, VACCINATION).

If such additional factors are added to the basic success factors, a strong risk reduction or even the elimination of the risk seems to be feasible.

One crucial factor in success is to connect the risk assessment phase successfully to the next step, namely the planning or risk management phase. The main aim of this phase is to identify and adopt the possible risk elimination or reduction measures.

In small and medium sized enterprises (SMEs) these capacities to plan and conduct larger projects and develop effective solutions are generally less developed. However, as some of the cases show, like larger companies, SMEs can be supported effectively by scientific or technological projects or public support activities.

Most of the case studies feature a mixture of preventive measures (eliminating risk at source, adapting the work to the individual, adapting to technical progress, giving appropriate instructions to workers, etc.). The adoption of these interconnected measures at various levels (organisational, individual, etc.) is also a key success factor.

After the solutions have been implemented, it is important not to forget to assess the results in order to identify the possible transfer of risks or egression of new risks. Risk assessment processes are part of a strategy of continuous improvement.

Key elements of successful OSH management

Step 1: Setting the policy

The same sorts of event that cause injuries and illness can also lead to property damage and interrupt production so you must aim to control all accidental loss. Identifying hazards and assessing risks, deciding what precautions are needed, putting them in place and checking they are used, protects people, and improves quality, and safeguards plant and production.

Your health and safety policy should influence all your activities, including the selection of people, equipment and materials, the way that work is done and how you design and provide goods and services. A written statement of your policy and the organisation and arrangements for implementing and monitoring it shows your staff, and anyone else, that hazards have been identified and risks assessed, eliminated or controlled.

A hazard is something with potential to cause harm. The harm will vary in severity. Some hazards may cause death, some serious illness or disability, others only cuts and bruises. Risk is the combination of the severity of harm with the likelihood of it happening.

Ask yourself:

1. Do you have a clear policy for health and safety; is it written down?

2. What did you achieve in health and safety last year?

3. How much are you spending on health and safety, and are you getting value for money?

4. How much money are you losing by not managing health and safety?

5. Does your policy prevent injuries, reduce losses and really affect the way you work? Be honest!

Step 2: Organising the staff

To make your health and safety policy effective you need to get your staff involved and committed. This is often referred to as a ' positive health and safety culture'.

The four ' Cs' of positive health and safety culture are:

1. Competence: recruitment, training and advisory support.

2. Control: allocating responsibilities, securing commitment, instruction and supervision. 3. Cooperation: between individuals and groups.

4. Communication: spoken, written and visible.

Competence

â- Assess the skills needed to carry out all tasks safely.

â- Provide the means to ensure that all employees, including your managers, supervisors and temporary staff, are adequately instructed and trained.

â- Ensure that people doing especially dangerous work have the necessary training, experience and other qualities to carry out the work safely.

â- Arrange for access to sound advice and help.

â- Carry out restructuring or reorganisation to ensure the competence of those taking on new health and safety responsibilities.

Control

â- Lead by example: demonstrate your commitment and provide clear direction, let everyone knows health and safety is important.

â- Identify people responsible for particular health and safety jobs especially where special expertise is called for, e. g. doing risk assessments, driving forklift trucks.

â- Ensure that managers, supervisors and team leaders understand their responsibilities and have the time and resources to carry them out.

â- Ensure everyone knows what they must do and how they will be held accountable – set objectives.

Cooperation

â- Chair your health and safety committee if you have one. Consult your staff and their representatives.

â- Involve staff in planning and reviewing performance, writing procedures and solving problems.

â- Coordinate and cooperate with those contractors who work on your premises.

Communication

â- Provide information about hazards, risks and preventive measures to employees and contractors working on your premises.

â- Discuss health and safety regularly.

â- Be ' visible' on health and safety.

Ask yourself:

1. Have you allocated responsibilities for health and safety to specific people? Are they clear on what they have to do and are they held accountable?

2. Do you consult and involve your staff and their representatives effectively?

3. Do your staff have sufficient information about the risks they run and the preventive measures?

4. Do you have the right levels of expertise? Are your people properly trained?

5. Do you need specialist advice from outside and have you arranged to obtain it?

Step 3: Planning and setting standards

Planning is the key to ensuring that your health and safety efforts really work. Planning for health and safety involves setting objectives, identifying hazards, assessing risks, implementing standards of performance and developing a positive culture. It is often useful to record your plans in writing. Your planning should provide for:

â- Identifying hazards and assessing risks, and deciding how they can be eliminated or controlled;

â- Complying with the health and safety laws, which apply to your business;

â- Agreeing health and safety targets with managers and supervisors;

â- A purchasing and supply policy which takes health and safety into account;

â- Design of tasks, processes, equipment, products and services, safe systems of work;

â- Procedures to deal with serious and imminent danger;

â- Cooperation with neighbours, and/or subcontractors;

â- Setting standards against which performance can be measured.

Standards help to build a positive culture and control risks. They set out what people in your organisation will do to deliver your policy and control risk. They should identify who does what, when and with what result. Three key points about standards

Standards must be:

â- Measurable;

â- Achievable;

â- Realistic.

Statements such as ' staff must be trained' are difficult to measure if you don't know exactly what ' trained' means and who is to do the work. ' All machines will be guarded' is difficult to achieve if there is no measure of the adequacy of the guarding. Many industry-based standards already exist and you can adopt them where applicable. In other cases you will have to take advice and set your own, preferably referring to numbers, quantities and levels which are seen to be realistic and can be checked. For example:

â- completing risk assessments and implementing the controls required;

â- maintaining workshop temperatures within a specified range;

â- Specifying levels of waste, wastewaters or emissions, which are acceptable;

â- specifying methods and frequency for checking guards on machines,

ergonomic design criteria for tasks and workstations, levels of training;

â- arranging to consult staff or their representatives at set intervals;

â- monitoring performance in particular ways at set times.

Ask yourself:

1. Do you have a health and safety plan?

2. Is health and safety always considered before any new work is started?

3. Have you identified hazards and assessed risks to your own staff and the

public, and set standards for premises, plant, substances, procedures,

people and products?

4. Do you have a plan to deal with serious or imminent danger, e. g. fires,

process deviations etc?

5. Are the standards put in place and risks effectively controlled?

Step 4: Measuring the performance

Just like finance, production or sales, you need to measure your health and

safety performance to find out if you are being successful. You need to know:

â- Where you are;

â- Where you want to be;

â- What is the difference and why.

Active monitoring, before things go wrong, involves regular inspection and checking to ensure that your standards are being implemented and management controls are working. Reactive monitoring, after things go wrong, involves learning from your mistakes, whether they have resulted in injuries and illness, property damage or near misses.

â- Active monitoring (before things go wrong). Are you achieving the objectives and standards you set yourself and are they effective?

â- Reactive monitoring (after things go wrong). Investigating injuries, cases of illness, property damage and near misses identifying in each case why performance was substandard.

You need to ensure that information from active and reactive monitoring is used to identify situations that create risks, and do something about them. Priority should be given where risks are greatest. Look closely at serious events and those with potential for serious harm. Both require an understanding of the immediate and the underlying causes of events. Investigate and record what happened find out why. Refer the information to the people with authority to take remedial action, including organisational and policy changes.

Ask yourself:

1. Do you know how well you perform in health and safety?

2. How do you know if you are meeting your own objectives and standards for health and safety? Are your controls for risks good enough?

3. How do you know you are complying with the health and safety laws that affect your business?

4. Do your accidents investigations get to all the underlying causes or do they stop when you find the first person who has made a mistake?

5. Do you have accurate records of injuries, ill health and accidental loss?

Step 5: Learning from experience, auditing and review

Monitoring provides the information to let you review activities and decide how to improve performance. Audits, by your own staff or outsiders, complement monitoring activities by looking to see if your policy, organisation and systems are actually achieving the right results. They tell you about the reliability and effectiveness of your systems. Learn from your experiences. Combine the results from measuring performance with information from audits to improve your approach to health and safety management. Review the effectiveness of your health and safety policy, paying particular attention to:

â- The degree of compliance with health and safety performance standards (including legislation);

â- Areas where standards are absent or inadequate;

â- Achievement of stated objectives within given timescales;

â- Injury, illness and incident data analyses of immediate and underlying causes, trends and common features.

These indicators will show you where you need to improve.

Ask yourself:

1. How do you learn from your mistakes and your successes?

2. Do you carry out health and safety audits?

3. What action is taken on audit findings?

4. Do the audits involve staff at all levels?

5. When did you last review your policy and performance?

OSH Policy

An OSH Policy is a method of stating how you, your employees, contractors and visitors are expected to behave when they are on Company property or performing Company related activities. As an employer or r