

RISK ASSESSMENT

POPA LILIANA-VIORICA

Maritime University Constanta, Romania

ABSTRACT

Employers are required to ensure the health and safety of workers and other persons so far as possible, by the application of certain principles, including the evaluation of unavoidable risks and the taking of action to reduce them. Employers must ensure that measures are taken to ensure an improvement in the safety and health of workers and other persons in respect of those risks identified by the assessment. Employers must review the assessment when there is reason to believe that it is no longer valid, and make any necessary changes. Workers must be informed of any significant findings of the assessment and measures for their protection, and of any subsequent revisions made. The Company is also required to ensure that anyone working on the ship, whether or not they are directly employed by the Company, is aware of the findings of the Company's risk assessment and of the measures taken for their protection.

Keywords: *Employers, risks, workers, company, measures, assessment*

1. INTRODUCTION

Every year, millions of people in the EU are injured at work, or have their health seriously harmed in the workplace. That is why risk assessment is so important, as the key to healthy workplaces. Risk assessment is a dynamic process that allows enterprises and organizations to put in place a proactive policy of managing workplace risks. For these reasons, it is important that all types and sizes of enterprise carry out regular assessments. Proper risk assessment includes, among others things, making sure that all relevant risks are taken into account (not only the immediate or obvious ones), checking the efficiency of the safety measures adopted, documenting the outcomes of the assessment and reviewing the assessment regularly to keep it updated. The most important piece of European legislation relevant to risk assessment is the Framework Directive 89/391. This Directive has been transposed into national legislation. Member States, however, have the right to introduce more stringent provisions to protect their workers.

2. PURPOSE OF RISK ASSESSMENT

Employers in each workplace have a general duty to ensure the safety and health of workers in every aspect related to their work. The purpose of carrying out a risk assessment is to enable the employer to take the measures necessary for the safety and health protection of workers.

These measures include:

- prevention of occupational risks;
- providing information to workers;
- providing training to workers;
- providing the organization and means to implement the necessary measures.

Whilst the purpose of risk assessment includes the prevention of occupational risks, and this should always be goal, it will not always be achievable in practice. Where elimination of risks is not possible, the risks should be reduced and the residual risk controlled. At a

later stage, as part of a review program, such residual risk will be reassessed and the possibility of elimination of the risk, perhaps in the light of new knowledge, can be reconsidered.

The risk assessment should be structured and applied so as to help employers to:

- identify the hazards created at work and evaluate the risks associated with these hazards, to determine what measures they should take to protect the health and safety of their employees and other workers, having due regard to legislative requirements;
- evaluate the risks in order to make the best informed selection of work equipment, chemical substances or preparations used, the fitting out of the workplace, and the organization of work;
- check whether the measures in place are adequate;
- prioritize action if further measures are found to be necessary as a result of the assessment;
- demonstrate to themselves, the competent authorities, workers and their representatives that all factors pertinent to the work have been considered, and that an informed valid judgment has been made about the risks and the measures necessary to safeguard health and safety;
- ensure that the preventive measures and the working and production methods, which are considered to be necessary and implemented following a risk assessment, provide an improvement in the level of worker protection.

3. RISK ASSESSMENT TOOLS

There are many risk assessment tools and methodologies available to help enterprises and organizations assess their risks. The choice of method will depend on workplace conditions, for example the number of workers, the type of work activities and

equipment, the particular features of the workplace and any specific risks.

The most common risk assessment tools are checklists, which are a useful tool to help identify hazards. Other kinds of risk assessment tools include: guides, guidance documents, handbooks, brochures, questionnaires, and “interactive tools” (free interactive software, including downloadable applications which are usually sector-specific).

These tools can be either generic or branch/risk-specific. The Agency has developed a risk assessment tools database with tools from all over Europe. These tools are free and available online. The database is regularly updated with new tools.

4. HOW TO CARRY OUT A RISK ASSESSMENT

At EU-level there are not fixed rules about how risk assessments should be undertaken (you should check the specific legislation relating to risk assessment in your country). However, there are two principles which should always be borne in mind when approaching a risk assessment:

- to structure the assessment to ensure that all relevant hazards and risks are addressed (e.g. not to overlook tasks, such as cleaning, that might take place out of normal working hours, or ancillary departments such as waste compacting);
- when a risk is identified, to begin assessment from first principles by asking whether the risk can be eliminated.

A stepwise approach to risk assessment

The European Guidance on risk assessment at work proposes an approach based on a number of different steps. This is not the only method of carrying out a risk assessment; there are a variety of methodologies for achieving the same objective. There is no single “right” way to do a risk assessment and different approaches can work in different circumstances.

The risk assessment procedure (incorporating elements of risk management) can be broken down into a series of steps.

1. Establish a program of risk assessment at work
2. Structure the assessment (decide on the approach: geographical/ functional/ process/ flow)
3. Collect information
4. Identify hazards
5. Identify those at risk
6. Identify patterns of exposure among those at risk
7. Evaluate the risks (the probability of harm/severity of harm in actual circumstances)
8. Investigate options for eliminating or controlling risks
9. Prioritize action and decide on control measures
10. Implement controls
11. Record the assessment
12. Measure the effectiveness of action

13. Review (if changes are introduced, or periodically)

14. Monitor the program of risk assessment.

For most businesses, especially small and medium-sized enterprises, a straightforward five-step approach (incorporating elements of risk management) such as the one presented below should work well.

Step 1. Identifying hazards and those at risk

Looking for those things at work that have the potential to cause harm, and identifying workers who may be exposed to the hazards.

Step 2. Evaluating and prioritizing risks

Estimating the existing risks (the severity and probability of possible harm) and prioritizing them in order of importance.

Step 3. Deciding on preventive action

Identifying the appropriate measures to eliminate or control the risks.

Step 4. Taking actions

Putting in place the preventive and protective measures through a prioritization plan.

Step 5. Monitoring and receiving

The assessment should be reviewed at regular intervals to ensure that it remains up to date.

However, it is important to know that there are other methods that work equally well, particularly for more complex risks and circumstances. Which approach to assessment is applied will depend upon:

- the nature of the workplace (e.g. a fixed establishment, or a transitory one)
- the type of process (e.g. repeated operations, developing/changing processes, work on demand)
- the task performed (e.g. repetitive, occasional or high risk)
- technical complexity.

In some cases a single exercise covering all risks in a workplace or activity may be appropriate. In other cases, different approaches may be appropriate to different parts of a workplace.

Step 1. Identifying hazards and those at risk

The identification of the hazards in all aspects of work should be approached by:

- walking around the workplace and looking at what could cause harm.
- consulting workers and/or their representatives about any problems they have encountered. Often the quickest and surest way to identify the details of what really happens is to ask the workers involved in the activity being assessed. They will know what process steps they follow, whether there are any short cuts, or ways of getting over a difficult task, and what precautionary actions they take.
- examining systematically all aspects of the work, that is:
 - looking at what actually happens in the workplace or during the work activity (actual practice may differ from the works manual)

- thinking about non-routine and intermittent operations (e.g. maintenance operations, changes in production cycles)
- taking account of unplanned but foreseeable events such as interruptions to the work activity
- considering long-term hazards to health, such as high levels of noise or exposure to harmful substances, as well as more complex or less obvious risks such as psychosocial or work organizational risk factors
- looking at company accident and ill-health records
- seeking information from other sources such as:
 - manufacturers' and suppliers' instruction manuals or data sheets
 - occupational safety and health websites national bodies, trade associations or trade unions
 - legal regulations and technical standards.

The identification of all those who might be exposed to the hazards. For each hazard it is important to be clear about who could be harmed; it will help in identifying the best way of managing the risk. Account should be taken of workers interacting with the hazards whether directly or indirectly, e.g. a worker painting a surface is directly exposed to solvents, while others workers in the vicinity, engaged in other activities, are inadvertently and indirectly exposed.

This doesn't mean listing everyone by name, but identifying groups of people such as 'people working in the storeroom' or 'passers-by'. Cleaners, contractors and members of the public may also be at risk.

Particular attention should be paid to:

- gender issues
- groups of workers who may be at increased risk or have particular requirements:
- workers with disabilities
- migrant workers
- young and old workers
- pregnant women and nursing mothers
- untrained or inexperienced staff
- temporary and part-time workers

It is important to identify how these people might be harmed, i.e. what type of injury or ill health may occur.

Step 2. Evaluating and prioritizing risks

The next step is to evaluate the risk arising from each hazard. This can be done by considering:

- how likely it is that a hazard will cause harm (e.g. whether it is improbable, possible but not very likely, probable, or inevitable over time)
- how serious that harm is likely to be (e.g. resulting in minor damage, a non-injury incident, a minor injury (bruise, laceration), a serious injury (fracture, amputation, chronic ill-health), a fatality, or a multiple-fatality)
- how often (and how many) workers are exposed.

A straightforward process based on judgment and requiring no specialist skills or complicated techniques could be sufficient for many workplace hazards or activities. These include activities with hazards of low concern, or workplaces where risks are well known or readily identified and where a means of control is readily available. This is probably the case for most businesses. In some other cases it may not be possible to identify the hazards and evaluate risks without professional knowledge, support and advice. This may arise in respect of the more complex processes and technologies in the workplace, or hazards, such as those related to health, which may not be readily or easily identifiable, and may require analysis and measurements.

Step 3. Deciding on preventive action

Having evaluated the risks, the next step is to put in place preventive and protective measures. Among the things to be considered at this stage are:

1. Whether risks are preventable or avoidable. Is it possible to get rid of the risk? This can be done, for instance, by:

- considering whether the task or job is necessary,
- removing the hazard,
- using different substances or work processes.

2. If risks are not avoidable or preventable, how risks could be reduced to a level at which the health and safety of those exposed is not compromised. When determining a strategy to reduce and control risks, employers should be made aware of the following additional general principles of prevention:

- combating the risk at source.
- adapting the work to the individual, especially as regards the design of work places, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work and work at a predetermined work-rate and to reducing their effect on health.
- adapting to technical progress.
- substituting the dangerous by the non-dangerous or the less dangerous (replacing the machine or material or other feature that introduces the hazard by an alternative)
- developing a coherent overall prevention policy which covers technology, organization of work, working conditions, social relationships and the influence of factors related to the working environment.
- giving collective protective measures priority over individual protective measures (e.g. controlling exposure to fumes through local exhaust ventilation rather than personal respirators).
- giving appropriate instruction to workers.

For guidance on the control of risk through these measures employers should be referred to specifications, in national legislation, national standards, published guidance and other such criteria, published by national authorities.

A further important general principle of which employers need to be aware is that they should not transfer risks. That is to say that in providing a solution to one problem, another problem should not be created.

For instance, it would be of doubtful benefit to provide double-glazing to office windows in order to reduce noise from outside, unless provision was made for adequate ventilation.

4.5 Step 4. Taking action

After the most appropriate preventive and protective measures have been identified, the next step is to put them in place effectively.

Effective implementation involves the development of a plan specifying:

- the measures to be implemented
- the means allocated (time, expenses etc)
- who does what and when
- when actions are to be completed, and
- a date for reviewing the control measures.

It is important to involve workers and their representatives in the process:

- to inform them about the measures implemented, about how they will be implemented, and who will be the person in charge of implementing them
- to train or instruct them about the measures or procedures that will be implemented.

Step 5 Monitoring and reviewing

Arrangements for monitoring and reviewing the protective and preventive measures should be introduced following the risk assessment to ensure that the effectiveness of these measures is maintained, and the risks controlled.

The information generated by monitoring activities should be used to inform the review and revision of the risk assessment.

Risk assessment should not be a once-and-for-all activity. The assessment needs to be reviewed and revised, as necessary, for a number of reasons, including:

- the degree of change likely in the work activity
- changes which might alter the perception of risk in the workplace, such as a new process, new equipment or materials, change of work organization, and new work situations including new workshops or other premises
- once the new measures have been introduced following the assessment, the new working conditions should be assessed in order to review the consequences of the change. It is essential that the risk is not transferred, that is to say that in providing a solution to one problem, another problem should not be created
- the assessment no longer being applicable because the data or information on which it is based is no longer valid
- the preventive and protective measures currently in place being insufficient or no longer adequate, e.g. because new information is available regarding particular control measures
- as a result of the findings of an accident or "near miss" (a near miss is an unplanned event

that did not result in injury, illness, or damage - but had the potential to do so)

5. DOCUMENTING THE RISK ASSESSMENT

A record of the results of risk assessments at work should be kept. Such a record can be used as a basis for:

- information to be passed to the persons concerned
- monitoring to assess whether necessary measures have been introduced
- evidence to be produced for supervisory authorities
- any revision if circumstances changes.

A record of at least the following details is recommended:

- name and function of the person(s) carrying out the examination
- the hazards and risks that were identified
- the groups of workers who face particular risks
- the necessary protection measures
- details of the introduction of the measures, such as the name of the person responsible and date
- details of subsequent monitoring and reviewing arrangements, including dates and the people involved
- details of the involvement of workers and their representatives in the risk assessment process.

The records of assessments should be drawn up with the consultation and participation of workers and/or their representatives and made available to them for information. The workers concerned should, in any case, be informed of the outcome of each assessment that relates to their work station, and the action to be taken as a result of the assessment.

6. EMPLOYERS' ROLES AND RESPONSIBILITIES

Employers should carefully prepare what they are going to do in order to meet their responsibilities to make a risk assessment, and put in place the measures necessary for the safety and health of workers. It is recommended that they do this through an action plan for the elimination or control of risks.

The action plan should include:

- commissioning, organizing and coordinating the assessment
- appointing competent people to make the assessments

- the person carrying out the risk assessment can be:

- the employers themselves
- employees designated by the employers
- external assessors and service providers if there is a lack of competent personnel in the workplace
- people can demonstrate their competence by showing that they have the following abilities:

- an understanding of the general approach to risk assessment
- the capacity to apply this understanding to the workplace

- the ability to identify situations where they would be unable to adequately assess the risk without help, and be able to advise on the need for further assistance

- consulting workers' representatives on arrangements for the appointment of those who will make the assessments
- providing the necessary information, training, resources and support to assessors who are the employer's own employees
- ensuring adequate coordination between assessors (where relevant)
- involving management and encouraging the participation of the workforce
- determining the arrangements to be made for reviewing and revising the risk assessment
- ensuring that the preventive and protective measures take account of the results of the assessment
- ensuring that the risk assessment is documented
- monitoring the protective and preventive measures to ensure that their effectiveness is maintained
- informing workers and/or their representatives of the results of the assessment and of the measures introduced (making the records available to them).

7. WORKERS' ROLES AND RESPONSIBILITIES

It is important that workers participate in the risk assessment. They know the problems and the details of what really happens when they perform their tasks or activities, so they should be involved in the assessment. Their practical knowledge or competence is also often needed to develop workable preventive measures. Workers' participation is not only a right, it is fundamental to make the employers' occupational health and safety management effective and efficient. Workers and/or their representatives have the right/duty to:

- be consulted on arrangements for the organization of the risk assessment and for the appointment of those undertaking the task
- participate in the risk assessment
- alert their supervisors or employers regarding perceived risks
- report any changes in the workplace
- be informed of the risks to their safety and health and of the measures necessary to eliminate or reduce these risks
- be involved in the process of deciding on the preventive and protective measures to be put in place
- ask the employer to put in place appropriate measures and to submit proposals to minimize hazards or to remove the danger at source

- cooperate to help the employer to ensure that the working environment is safe
- be trained/receive instructions on the measures to be put in place
- take care as far as possible of their safety and health and that of others persons affected by their acts in accordance with the training and the instructions given by the employer

In addition, it is important workers representatives are trained so that they understand risk assessment and their role in it.

8. CONCLUSIONS

Persons carrying out risk assessments at work should have knowledge of and/or information on:

- hazards and risks which are already known to exist, and the way that they arise
- the materials, equipment and technology used at work
- working procedures and organization and interaction of workers with the materials used
- the type, likelihood, frequency, and duration of exposure to the hazards. In some cases this may mean the application of modern, validated techniques of measurement
- the relation between exposure to a hazard and its effect
- the legal standards and requirements relevant to the risks present in the workplace
- what is regarded as good practice in areas where there are no specific legal standards.

Employers should make sure that whoever is making the risk assessment, whether an employee or an external consultant, speaks to the employees, or other people such as contractors who actually carry out the work.

Where employees of different employers work in the same workplace, assessors may need to share information about risks and the health and safety measures in place to address those risks. Facilitating this is a matter for the employer to arrange.

9. REFERENCES

- [1] HMSO, *Report of Lord Donaldson's inquiry into the Prevention of Pollution from merchant Shipping*, HMSO, 1994
- [2] Department for Environment, Transport and Regions, *Guidelines for Environmental Risk Assessment and Management*, Crown, London, 2000
- [3] Queensland Transport and GBRMPA, *Oil Spill Risk Assessment for Coastal Waters of Queensland and the Great Barrier Reef Marine Park*, 2000
- [4] Port of London Authority, *Operational Risk Assessment of Port of London 1999-2001*, Marine and Risk Consultants Limited, 2001
- [5] Anatec, *UK & European Ship Routeing – Voluntary Observing Ships* (Technical Note), Department for Transport, 2003

[6] TWT/WWF, *Implementing the recommendations of the Sea Empress Environmental Evaluation Committee: A Review of Progress*. The Wildlife Trusts and WWF, 1999

[7] Safetec UK, *Identification of the Environmental High Risk Areas (MEHRA's) in the UK*, Department for Environment, Transport and Regions, 1999

[8] Owen, J., *Risk Assessment of shipping in environmentally sensitive areas*, Cardiff University, 1999