1.2.5 Risk awareness and risk assessment

Risk awareness

If seafarers are fully informed and aware of the risks to their health, safety and welfare, they are much more likely to ensure they avoid the risks and remain safe. This knowledge is attained through risk assessment and in other ways throughout our lives including training in theory and practical application, information, observation, instructions, supervision and personal experience. We can improve the quality and usefulness of the information available by effective knowledge management, which is covered in section 1.2.8.

Key terms

A **hazard** is a source of potential injury, harm or damage. It may come from many sources, e.g. situations, the environment or a human element.

Risk has two elements:

- The likelihood that harm or damage may occur.
- The potential severity of the harm or damage.

A key tool in ensuring that all involved in the work have a clear understanding and awareness of any hazards and their associated risks is the carrying out of a toolbox talk before the work commences.

Application of the knowledge in the workplace is influenced by our values, beliefs, attitudes and behaviours and by the views of others. This is facilitated by ensuring a safe working culture (see section 1.2.7).

Risk assessment

The risk assessment process identifies hazards present in a work undertaking, analyses the level of risk, considers those in danger and evaluates whether hazards are adequately controlled, taking into account any measures already in place.

Effective risk assessments:

- correctly and accurately identify **all** hazards;
- identify who may be harmed and how;
- determine the likelihood of harm arising;
- quantify the severity of the harm;
- identify and disregard inconsequential risks;
- record the significant findings;
- provide the basis for implementing or improving control measures; and
- provide a basis for regular review and updating.

Potential language difficulties should be taken into account. Temporary staff or those new to the ship or the Company who are not fully familiar with the safety management system or other operational details should be considered where relevant. Other seafarers who should be given special consideration include young persons and pregnant seafarers.

MGN 1838(M) and MGN 522(M+F)

Any risk assessment must address risks to the occupational health and safety of seafarers. Advice on assessment in relation to using personal protective equipment, manual-handling operations and using work equipment is given in Chapters 8, 10 and 18. In addition, specific areas of work involving significant risk, and recommended measures to address that risk, are covered in more detail in later chapters of the Code.

The assessment of risks must be 'suitable and sufficient' but the process need not be overcomplicated. This means that the amount of effort that is put into an assessment should depend on the level of risks identified and whether those risks are already controlled by satisfactory precautions or procedures to ensure that they are as low as reasonably practicable. The assessment is not expected to cover risks that are not reasonably foreseeable.

There are no fixed rules about how risk assessment should be undertaken. The assessment will depend on the type of ship, the nature of the operation, and the type and extent of the hazards and risks. The intention is that the process should be simple, but meaningful. The relevant legislation regarding risk assessments should be referred to when deciding on what

methodology will be employed. There is a requirement that seafarers must be informed of any significant findings of the assessment and measures for their protection, and of any subsequent revisions made. It is therefore advisable that copies are carried on board each vessel and that there is a process for regular revisions to be carried out. In particular, the risk assessment must be reviewed and updated as necessary, to ensure that it reflects any significant changes of equipment or procedure or the particular circumstances at the time, e.g. the weather or level of expertise of those carrying out the task.

Regs 7(1) and (6)

Risk assessment should be seen as a continuous process. In practice, the risks in the workplace should be assessed before work begins on any task for which no valid risk assessment exists.

A simple guide for small businesses can be found in Annex 1.2.

A very effective approach that is employed by some companies is to use a four-level process, as outlined below.

Risk assessment level 1

The ISM Code requires that the safety management objectives of the Company should, amongst other things, assess the risks associated with all identified hazards in respect of its ships, personnel and the environment, and establish appropriate safeguards.

These risk assessments, sometimes known as generic risk assessments, should therefore be carried out at a high level in the Company with appropriately knowledgeable and experienced personnel, and the results used to ensure that appropriate safeguards and control measures are contained within the Company's safety management system in the form of policies, procedures and work instructions.

Risk assessment level 2: task based

In addition to the general requirements under the ISM Code, the Merchant Shipping and Fishing Vessels (Health and Safety at Work) Regulations 1997 require that a suitable and sufficient assessment shall be made of the risks to the occupational health and safety of seafarers arising in the normal course of their activities or duties.

There are vessel- and task-specific risk assessments that must be carried out on board each vessel. Whilst it is clear that the Company can assess the generic risk of, for example, working at height, working with electricity, movement about ship, etc., it is not possible for them to conduct a risk assessment for changing a navigation light bulb up the main mast on a given vessel on a given day because they would not be able to take into account all the factors that were applicable at that time on that vessel. For this reason, it is essential that any generic risk assessments are used in context, and not seen as being suitable for specific tasks. For this, task-based risk assessments (TBRAs) should be carried out on board each vessel by those involved in the work.

Two distinct types of TBRA may be used. First, a range of vessel-specific generic TBRAs that can be used for all routine and low-risk tasks can be developed. These should be periodically reviewed, but frequency would very much depend on the particular circumstances on the vessel and the level of risk.

The second type of TBRA would be used for specific high-risk jobs that are not routine, such as working aloft or enclosed space entry. These should relate to the specific persons who will be involved in the work and valid only for the duration of that job.

In both cases, the assessments should be carried out by a competent person or persons who understand the work being assessed. It is also preferable that seafarers who will be involved in the work should also be involved in the assessment process.

Risk assessment level 3: toolbox talk

A toolbox talk is another form of risk assessment carried out in support of a TBRA. Its prime purpose is to talk through the procedures of the job in hand and the findings of the TBRA with the seafarers involved.

When carrying out a toolbox talk, it is important to actively involve those carrying out the work and others who may be at risk, i.e. seafarers, sub-contractors and others on board ship who may be affected by the work. Full and active participation should be encouraged and any questions or concerns discussed and taken into consideration. Once finished, confirm that all fully understand their role in the task and the precautions in place (‘closed-loop communication’). This should then be recorded along with details of any relevant risk assessment referred to.

A toolbox talk should be conducted prior to any work being carried out that involves more than one person and where there is significant risk to persons or assets.

Risk assessment stage 4: personal assessment of risk

This is an informal assessment of day-to-day risks carried out as you are going about your work and life in general. It is a technique used to ensure that we perform even the most mundane of tasks without getting hurt. It is used to maintain awareness of our environment at all times and aid in the identification and control of immediate hazards as we go about our work. Use of personal assessment of risk should be developed and encouraged.

This is about taking a few minutes to step back, look at the job to be done, consider what could go wrong and how it may occur, and what steps you can personally take to avoid any incident occurring. As the work is proceeding, you should also monitor the worksite for any change in conditions that might alter the hazards and controls in place. If there is any concern, stop the work, re-assess the controls and, if necessary, re-plan and re-assess the task.

This approach may also be called a 'dynamic risk assessment'. If the person does not believe that the dynamic risk assessment is sufficient move back to stage 2.

Every task carried out on board the vessel should be subject to risk assessment. This does not mean that a risk assessment needs to be written every time a simple task is carried out, but the existing risk assessment must be referred to as part of a toolbox talk (stage 3) before the task can commence to ensure that the hazards and controls are fully understood, still relevant and appropriate.

Once the task commences, it is important to monitor the work site for any changes in conditions that might alter the hazards and controls in place. If there is any concern, stop work authority should be used.

In all cases, on completion of the task, it is important to record or feedback any lessons learned and make improvements for next time including, where appropriate, reviewing and updating existing risk assessments. Everyone should be encouraged to contribute.

It is recommended that a proactive hazard-reporting system with empowerment and expectation for immediate corrective action is also in place and that information on hazards and risks is shared as widely as possible.

1.2.6 Accountability

Maintaining a safe living and working environment on a vessel is a shared responsibility of all on board and ashore. All personnel have a role to play and they can adversely affect others on board by their acts and/or omissions. For these reasons, it is important that:

- there are well-defined rules and guidelines, which are clearly understood;
- responsibilities are clearly defined for all on board and ashore;
- consequences of unacceptable (safety) behaviour are made clear; and
- there is a fair, transparent and consistent response to unacceptable safety behaviour, commonly referred to as a 'just culture'.

Points 1 and 2 have been covered under 'Clearly defined expectations' (section 1.2.1) and 'Good communications' (section 1.2.2) above.

Just culture

A just culture policy is an important part of a positive health and safety culture. It clearly sets out the expectations for adherence to procedures in the workplace and provides a context for enforcing them. It recognises behaviours that exceed Company expectations as well as those that fall below expectation, but are not always the fault of the seafarer.

A just culture places responsibilities on management to provide support, training and resources such that seafarers will have the necessary competence to undertake their tasks to the required standard.

The just culture policy provides a process (with appropriate support) for managing behaviours that fall below expectations in a transparent and fair manner. A just culture seeks to improve the organisational culture and the performance of the organisation by modifying behaviour, encouraging seafarers to take greater personal responsibility for their actions and rewarding behaviour exceeding expectations. It also recognises that firm action may be needed in circumstances where, despite management having carried out their responsibilities, inappropriate behaviours are still evident.

The just culture decision tree is a guide for ensuring consistent management for those who exceed or deviate from Company standards. The model presents a simple, yet robust, means of dealing with both exemplary and inappropriate behaviours, linked with a structure for an appropriate management response. It also recognises that there are overlaps between the areas of any given established disciplinary response. It is essential that managers or supervisors fully understand the causal factors and root causes of an event before applying the decision tree. Where incorrect causes have been identified and applied to the model, there is a danger that inappropriate action is taken.

The decision tree operates on an increasing personal accountability baseline:

- On the proactive side, the baseline covers a range from expected behaviour to exemplary behaviour.
- On the reactive side, the baseline covers a range from initiating actions that were malevolent, reckless, etc. (at the most extreme end) through to a no-blame error.

The decision tree is linked to a Company action model:

- On the proactive side, Company actions range from actions for management to encourage behaviour through to rewarding seafarers for their exemplary work.
- On the reactive side, Company actions range from dismissal (at the most extreme response end) to coaching/mentoring (at the least extreme response end).

This recognises that both seafarer and Company have responsibilities for achieving improvements in behaviour and increasing the Company's safety culture.

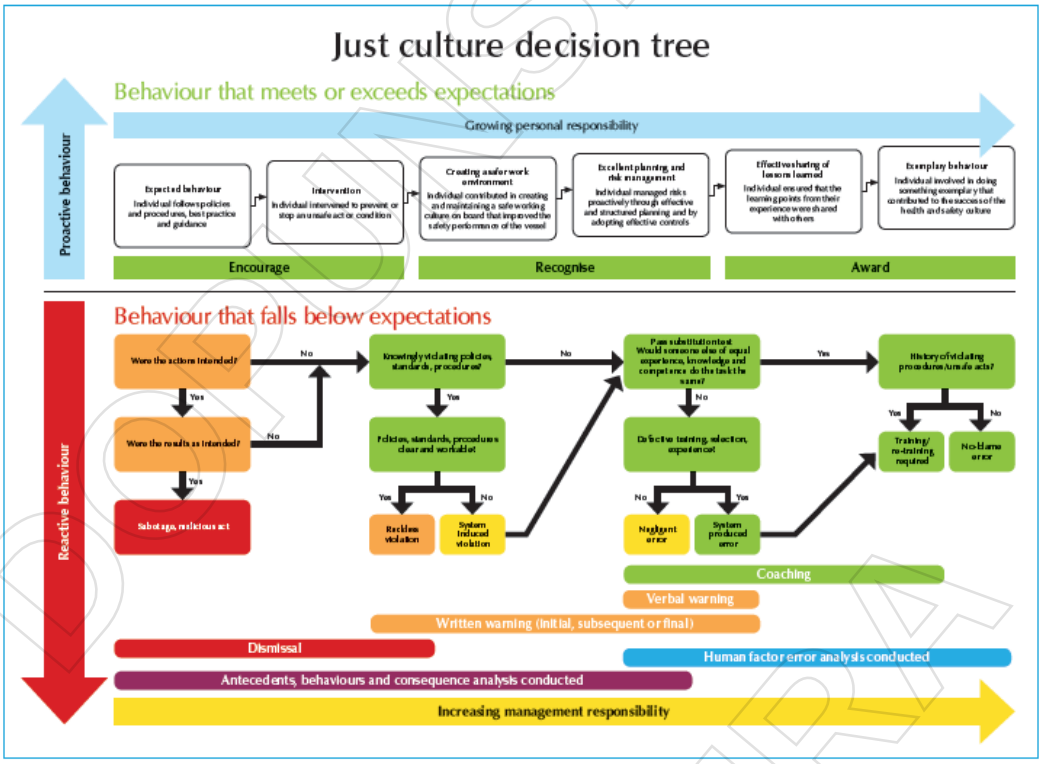
Substitution test

The substitution test asks a reasonable person: 'Given the circumstances that existed at the time of the event, could you be sure that you would not have committed the same, or similar, breach of procedures, standards, unsafe act, etc.?' This should be conducted by several people independently and reviewed by all involved to gain agreement and consensus.

Management of supervisory interventions

Management or supervisory interventions following breaches of procedures/codes of practice/standards or any formalised Company/vessel rules can be an effective and powerful way of modifying individual behaviour.

However, it is essential that the type of management response is appropriate. The just culture provides a framework to guide management in identifying an appropriate and common response. The decision tree should be used as a guide to ensure consistent handling of deviations from acceptable standards of behaviour.



1.2.7 Good safety culture

A good safety culture is one where safety is an integral part of everything that is planned, discussed, done and documented. With a good safety culture, everyone in the Company thinks about safety and new ways of improving it as a matter of course. They are constantly on the lookout for any unsafe acts or unsafe conditions, look out for each other, intervene to prevent accidents and incidents, actively share good ideas and always seek to improve.

In order to achieve a good safety culture, there are certain key components that need to be encouraged. This begins with ensuring that all seafarers fully understand their roles and responsibilities; not just what they have to do, but also why it is important. They need to be informed and share their knowledge to help inform others.

All personnel, at every level of the Company, need to be fully engaged and committed to nurturing and developing the safety culture. Compliance with safety rules should be established as a core Company requirement and good safety behaviours should be the norm.

Another key aspect to developing a good safety culture is the concept of continual improvement: the Company should be a learning organisation. This should be a personal commitment and responsibility of everyone in the Company. There need to be systems and infrastructure in place to facilitate this process. A proactive reporting system for unsafe acts and conditions, and improvement suggestions, should be in place, and all accidents and incidents should be investigated and findings widely disseminated. See section 1.2.8 on effective knowledge management for further information.

There needs to be an open and just culture that recognises that it is normal for human beings to make mistakes. It also needs to recognise that there are wider organisational factors that affect our behaviours and can create barriers to safe behaviours. It is vital that all are empowered and feel comfortable in reporting unsafe acts, unsafe conditions, accidents and incidents without fear of unjust reprisals. This is critical in a robust safety culture.

None of this should be radically different from what is being done now and often most of the component parts are in place in some form or another. However, for any culture to be truly safe, all the elements discussed in this chapter should be fully developed.

The National Maritime Occupational Health and Safety Committee has published guidance in *Guidelines to Shipping Companies on Behavioural Safety Systems*.

1.2.8 Effective knowledge management

From an occupational health and safety perspective, efficient management of knowledge can significantly improve learning and understanding and prevent accidents and incidents from being repeated. This is particularly useful in our industry where similar high-risk activities are being carried out on numerous autonomous units, such as a fleet of ships.

It has been said: 'Man learns from his mistakes, but a wise man learns from the mistakes of others.' By effectively collecting relevant information, organising it so it can be understood and distributing it to those who can use it, we can share experiences and increase our knowledge. Applying this knowledge to our own working environment will allow us to reduce the likelihood of the same type of accident or incident reoccurring on our vessel.

Knowledge management is about:

- getting the right information;

  - understand what information and knowledge has value, can improve safety, operations or services, or is necessary for fast and effective decision making;
- making it easy to understand;
  - convert the information into a format that can be easily understood and acted upon at all levels in the Company;
- getting it to the people who need it, when they need it;
  - create the necessary technical and cultural 'delivery systems' and organise information and knowledge so it is useful and available;
- encouraging them to use it;
  - develop an organisational structure and culture that encourages seafarers to take what they know, apply it effectively for both continuous improvement and innovation, and share it with others.

Knowledge management does not have to be complicated or difficult. Most companies will have many of the elements in place already; it is often just a case of ensuring that they are all working together.

Getting the right information

Information is gathered from data retrieved, both internally and externally. Accident and incident investigations, Marine Accident Investigation Branch reports, safety alerts, audits and inspections, maintenance records, trip reports, safety meeting reports, masters' reviews, vessel visits, safety observations and improvement suggestions are but a few of the sources. It is likely that some form of analysis of the data will be needed. This can be achieved in several ways including the use of spreadsheets to create statistics. It is important to ensure that all personnel at all levels are involved in gathering this information.

Making it easy to understand

Different approaches may be needed for different levels of the organisation. For example, statistics presented as a spreadsheet may be appropriate for senior management but safety alerts, amendments to procedures, bulletins and learning points memos may be more effective in introducing any lessons from the accidents and incidents depicted in the statistics. It is important that the data received are converted into useful information that makes sense to the end user. It is helpful to ask for feedback from the end user on the usefulness of the information.

Getting it to those who need it, when they need it

This information must be presented so that it can be understood and is clear, useful and available to the end user. There are many ways that this can be done: posters, memos, video, computer-based training, amendments to the safety management system and safety alerts are some examples. The choice of the best medium to transmit the information will vary in each Company. Often a Company newsletter can be a very effective means of getting the information out to the fleet in an easy-to-understand way.

Encouraging them to use it

No amount of shared knowledge will be useful unless those receiving it are empowered and feel comfortable using it. An open and honest safety culture that encourages all seafarers to share the same high values and beliefs in healthy and safe working is essential. All should be encouraged to use the knowledge and to gather useful information to share.

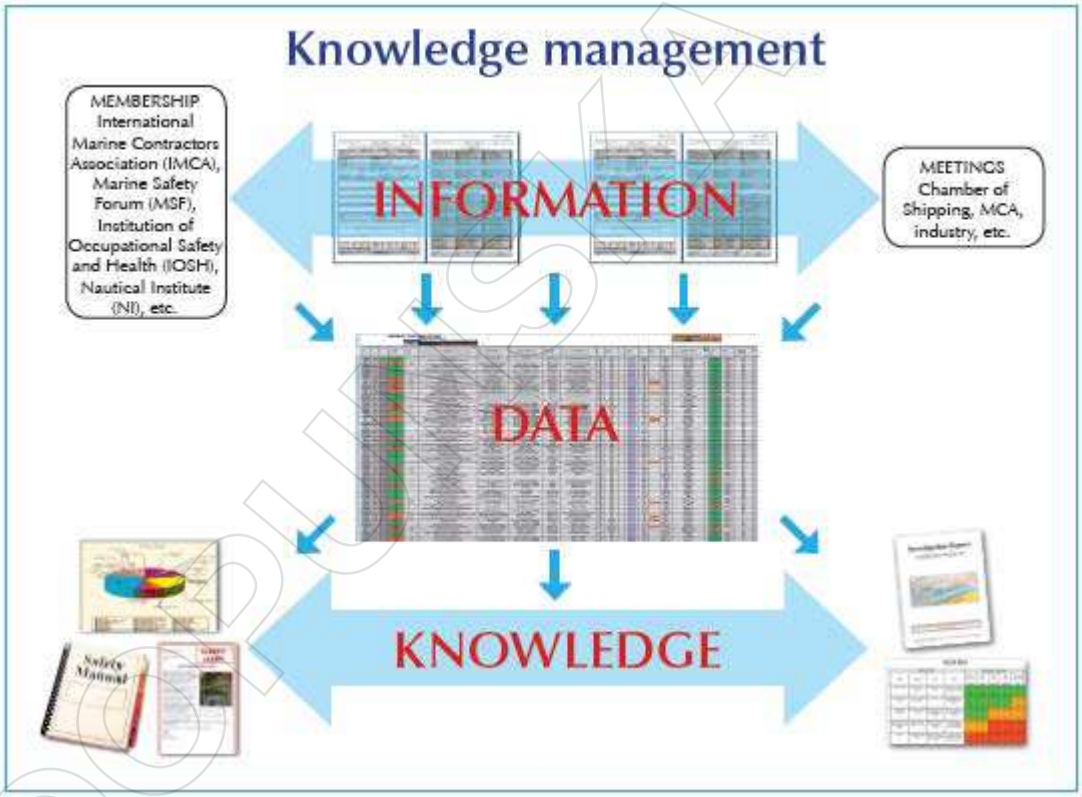
It is important to understand the difference between data, information and knowledge:

Data: 16JULBA3292ABZ0850ALCY1020A

Information: On 16 July, British Airways Flight 3292 leaves Aberdeen at 8.50 am and arrives at London City Airport at 10.20 am.

Knowledge: British Airways runs pretty much on time but airport construction is currently taking place. At that time of the morning, traffic in Aberdeen can add an hour to your journey from the south and there will be long queues at security due to the volume of passengers. If you want to catch the 8.50 am flight, give yourself an extra 90 minutes to get there.

In real terms, therefore, the basis of good knowledge management lies in having effective systems to gather, process, distribute, learn and review throughout the Company and industry to improve understanding of those things that can cause us harm and lead to accidents and incidents, and to encourage all to be fully engaged in the process.



Incident investigation

Effective incident investigation is a key component of a good knowledge management system. In the best systems, this would include all accidents, near misses, unsafe acts, unsafe conditions and non-conformities.

MGN 484(M)

The ISM Code requires that a safety management system includes procedures for reporting, investigating and analysing every non-conformity, accident and hazardous situation, in order to improve safety and pollution prevention. This should then lead to the implementation of corrective actions.

The safety officer will often undertake this work and guidance is provided in Chapter 13, Safety officials. However, on ships with no safety officer, the Company must make other arrangements to ensure that this function is carried out. Any accident or incident should be recorded so that it can be investigated to find out what went wrong and to see if anything can be done to prevent it happening again.

Every seafarer has a responsibility to:

- report deficiencies, conditions that are causing concern and things that could be improved so that those with specific safety responsibilities can put things right; and
- contribute views on how things could be made safer.

Lessons can also be learned from accidents and incidents on other ships and even in other sectors. Some industry organisations publish accident statistics and safety information and these may help to identify likely risks and suitable safety measures. Information can be found in marine guidance note MGN 484(M).

FIVE STEPS TO RISK ASSESSMENT

Step 1: identify the hazards

First, you need to work out how people could be harmed. When you work in a place every day, it is easy to overlook hazards, so here are some tips to help you identify those that matter:

- Walk around your workplace and look at what could reasonably be expected to cause harm.
- Ask your employees or their representatives what they think. They may have noticed things that are not immediately obvious to you.
- Consider published information on accidents and near misses on ships, which will highlight common hazards and high-risk activities.

MGN 484(M)

- If you are a member of a trade association or protection and indemnity insurance (P&I) club, contact them. Many produce very helpful guidance.
- Check manufacturers' instructions or data sheets for chemicals and equipment because they can be very helpful in spelling out the hazards and putting them in their true perspective.
- Have a look back at your accident and ill-health records – these often help to identify less obvious hazards.
- Remember to think about long-term hazards to health (e.g. high levels of noise or exposure to harmful substances) as well as safety hazards.
- Consider people who may be particularly vulnerable (e.g. young persons or pregnant seafarers).

Step 2: decide who might be harmed and how

For each hazard, you need to be clear about who might be harmed, because this will help you to identify the best way of managing the risk. That doesn't mean listing everyone by name, but rather identifying groups of people (e.g. 'people working in the storeroom' or 'passers-by').

Remember:

- Some seafarers require particular consideration: new and young seafarers, those for whom the working language of the ship is not their first language, or those new to the ship who may not be familiar with Company or ship safety procedures may be at particular risk. Extra thought will be needed for some hazards.
- Stevedores, contractors and surveyors may not be in the workplace all the time.

- Members of the public could be hurt by your activities.
- If you share your workplace, you will need to think about how your work affects others present, as well as how their work affects your staff – talk to them.
- Ask your crew if they can think of anyone you may have missed.

In each case, identify how they might be harmed, i.e. what type of injury or ill health might occur. For example, crew on roll-on/roll-off ferry car decks may be at risk from excess fumes.

Step 3: evaluate the risks and decide on precautions

Having spotted the hazards, you then have to decide what to do about them. The law requires you to do everything 'reasonably practicable' to protect people from harm. You can work this out for yourself, but the easiest way is to compare what you are doing with good practice.

First, look at what you're already doing; think about what controls you have in place and how the work is organised. Then compare this with the good practice and see if there's more you should be doing to bring yourself up to standard. In asking yourself this, consider:

- Can I get rid of the hazard altogether?
- If not, how can I control the risks so that harm is unlikely?

When controlling risks, apply the principles below, if possible in the following order:

- try a less risky option (e.g. switch to using a less hazardous chemical);
- prevent access to the hazard (e.g. by guarding);
- organise work to reduce exposure to the hazard (e.g. put barriers between pedestrians and traffic);
- issue personal protective equipment (e.g. clothing, footwear, goggles); and
- provide welfare facilities (e.g. first-aid and washing facilities for removal of contamination).

Improving occupational safety and health need not cost a lot. For instance, placing a mirror on a dangerous blind corner to help prevent vehicle accidents is a low-cost precaution considering the risks. Failure to take simple precautions can cost you a lot more if an accident does happen.

Involve staff, so that you can be sure that what you propose to do will work in practice and won't introduce any new hazards.

Step 4: record your findings and implement them

Putting the results of your risk assessment into practice will make a difference when looking after people and your operation.

Writing down the results of your risk assessment, and sharing them with your staff, encourages you to do this. When writing down your results, keep it simple, e.g. 'Tripping over rubbish: bins provided, staff instructed, weekly housekeeping checks' or 'Fume from welding: local exhaust ventilation used and regularly checked'.

A risk assessment does not have to perfect, but it must be suitable and sufficient. You need to be able to show that:

- a proper check was made;
- you asked who might be affected;
- you dealt with all the obvious significant hazards, taking into account the number of people who could be involved;
- the precautions are reasonable, and the remaining risk is low; and
- you involved your staff or their representatives in the process.

If, like many businesses, you find that there are quite a lot of improvements, big and small, that you could make, don't try to do everything at once. Make a plan of action to deal with the most important things first. Occupational safety and health inspectors acknowledge the efforts of businesses that are clearly trying to make improvements.

A good plan of action often includes a mixture of different things such as:

- a few cheap or easy improvements that can be done quickly, perhaps as a temporary solution until more reliable controls are in place;
- long-term solutions to those risks that are most likely to cause accidents or ill health;
- long-term solutions to those risks with the worst potential consequences;
- arrangements for training employees on the main risks that remain and how they are to be controlled;
- regular checks to make sure that the control measures stay in place; and
- clear responsibilities – who will lead on what action and by when.

Remember: prioritise and tackle the most important things first. As you complete each action, tick it off your plan.

Step 5: review your risk assessment and update if necessary

Few workplaces stay the same. Sooner or later, you will bring in new equipment, substances and procedures that could lead to new hazards. It makes sense, therefore, to review what you are doing on an ongoing basis.

Look at your risk assessment and think about whether there have been any changes. Are there any improvements you still need to make? Have your seafarers spotted a problem? Have you learned anything from accidents or near misses? Make sure your risk assessment stays up to date.

When you are running a business, it's all too easy to forget about reviewing your risk assessment – until something has gone wrong and it's too late.

If there is a significant change, don't wait: check your risk assessment and, where necessary, amend it. If possible, it is best to think about the risk assessment when you're planning your change – that way you leave yourself more flexibility.