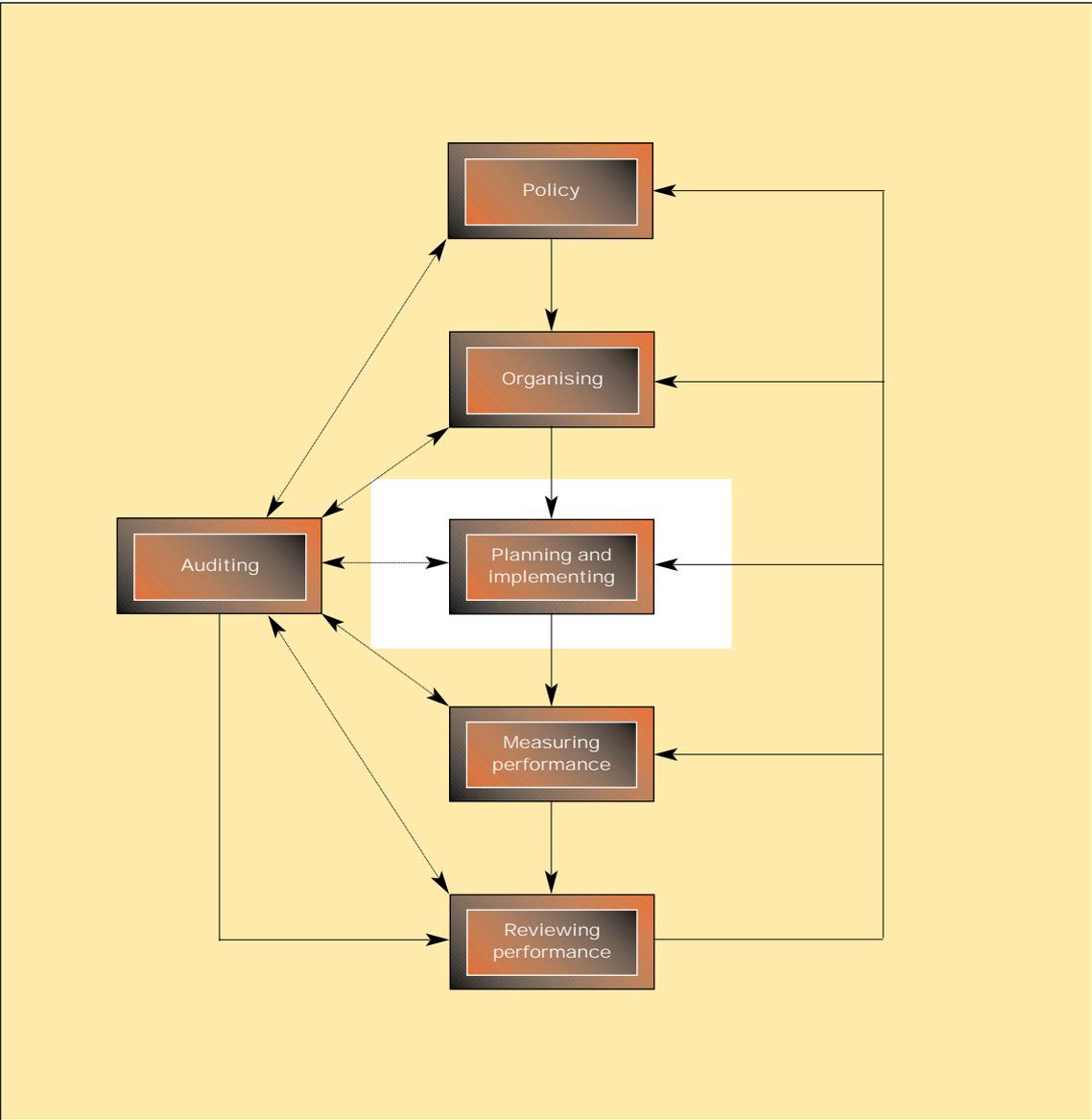


4

CHAPTER FOUR

Planning and implementing



KEY MESSAGES

Planning is essential for the implementation of health and safety policies. Adequate control of risks can only be achieved through co-ordinated action by all members of the organisation. An effective planning system for health and safety requires organisations to establish and operate a health and safety management system which:

controls risks;

reacts to changing demands;

sustains a positive health and safety culture.

Planning for health and safety

The results of successful health and safety management are often expressed as a series of negative outcomes, such as an absence of injuries, ill health, incidents or losses. But it is often a matter of chance whether dangerous events cause injury or loss (see Inset 1). Effective planning is concerned with prevention through identifying, eliminating and controlling hazards and risks. This is especially important when dealing with health risks which may only become apparent after a long latency period.

Prevention can only stem from an effective health and safety management system, and organisations need a framework or benchmark against which to judge the adequacy of the current situation. Although health and safety management systems vary in detail they have some general characteristics described here.

Workplace precautions

The ultimate goal of any health and safety management system is to prevent injury and ill health in the workplace. Adequate workplace precautions have to be provided and maintained to prevent harm to people at the point of risk. Risks are created in the business process as resources and information are used to create products and services (see Diagram 6). Workplace precautions to match the hazards and risks are needed at each stage of business activity. They can include machine guards, local exhaust ventilation, safety instructions and systems of work.

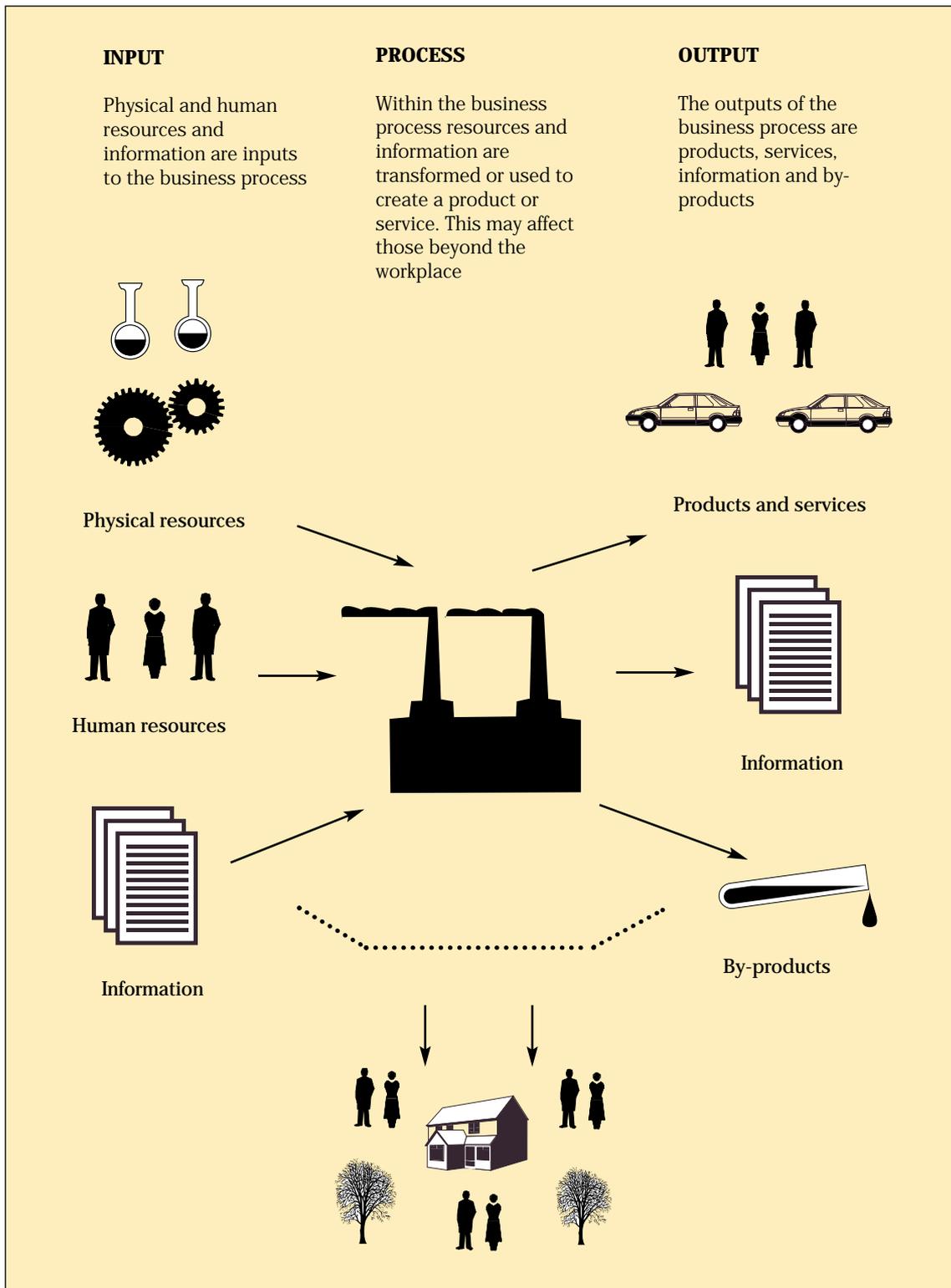


Diagram 6 *The business process* (Workplace precautions are needed at each stage)

This shows a manufacturing unit but the model also applies to other industries including construction, mines, universities, hospitals and local authorities.

Risk control systems (RCSs)

Risk control systems are the basis for ensuring that adequate workplace precautions are provided and maintained. Diagram 7 shows a typical range of activities for which risk control systems may be needed.

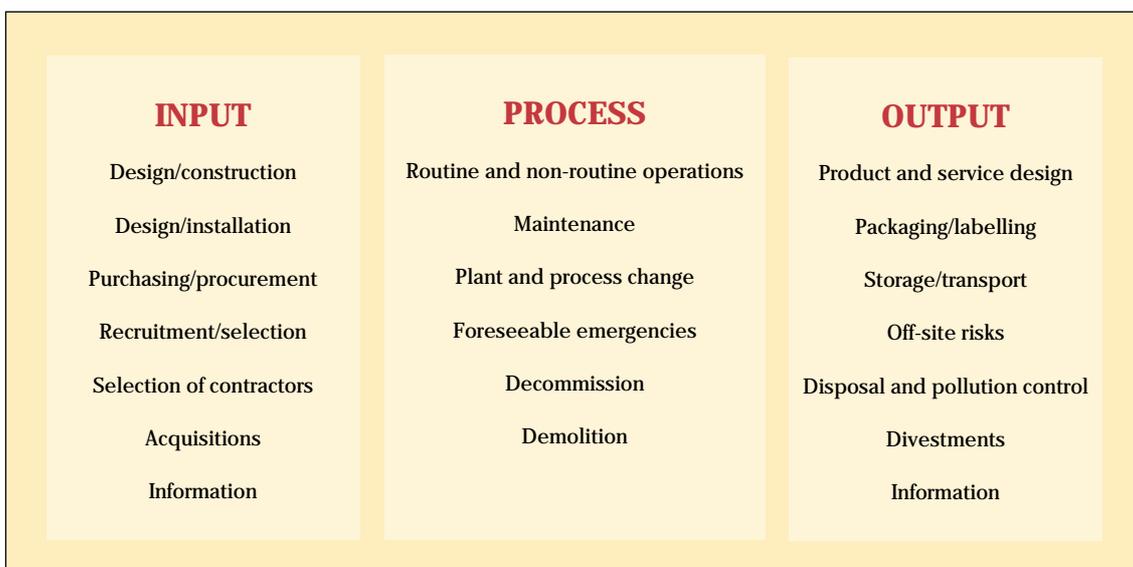


Diagram 7 Risk control systems

At the **input stage**, the aim is to minimise hazards and risks entering the organisation. At the **process stage**, the focus is on containing risks associated with the process. At the **output stage**, the RCSs should prevent the export of risks off-site, or in the products and services generated by the business.

The activities in Diagram 7 are typical of those found in many organisations but this is not a definitive list. RCSs are needed for them. The nature and relative importance of RCSs will vary according to the nature and hazard profile of the business and the workplace precautions. For instance:

- Organisations relying on significant numbers of contractors will need an effective RCS to select and control contractors.
- Wherever the containment of hazardous materials is important (eg where flammables or toxics are used), maintenance and process change procedures are necessary to ensure plant integrity.
- Organisations supplying materials or substances for others to use will focus on specific output issues such as storage, transport, packaging and labelling.

Organisations need RCSs which are appropriate to the hazards arising from their activities and sufficient to cover all hazards. The design, reliability and complexity of each RCS needs to be proportionate to the particular hazards and risks.

Management arrangements

A set of management processes is necessary to organise, plan, control and monitor the design and implementation of the RCSs. These are the key elements of health and safety management which are described in this guidance. Here they are summarised as 'management arrangements' (see Diagram 8).

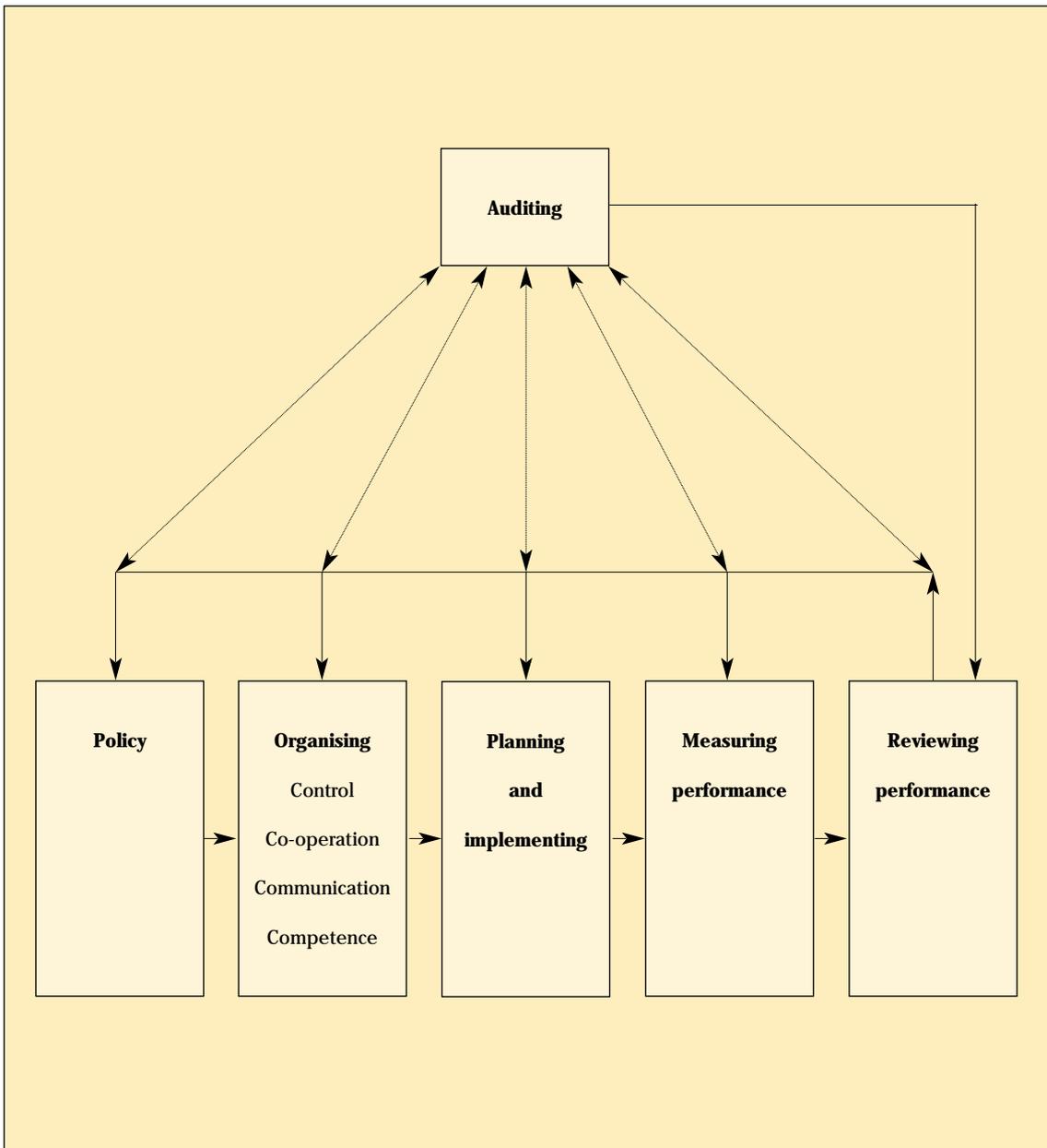


Diagram 8 Management arrangements

The three components can be assembled into a single 'picture' of a health and safety management system (see Diagram 9) which can form a framework for planning and auditing.

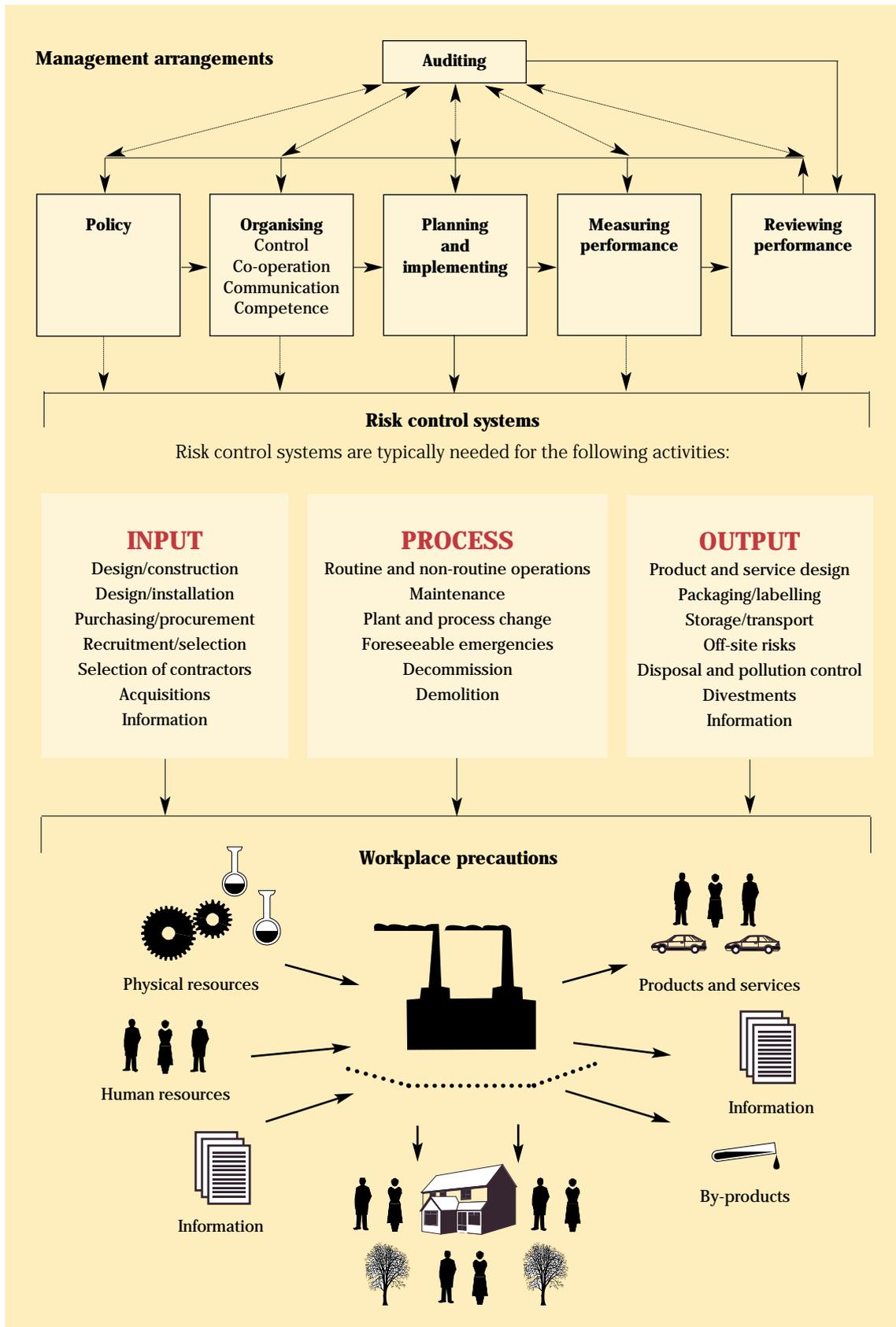


Diagram 9 Health and safety management system

This three-component framework can be applied to any organisation. In multi-site businesses, there need to be sufficient management arrangements at the centre to control and ensure that an adequate health and safety management system is provided at each business unit and site. The centre may wish to establish minimum expectations for management arrangements, RCSs and workplace precautions at each business unit and site.

Planning the overall health and safety management system

Organisations have to build an effective health and safety management system. They need to plan **how** to deal with each of the three 'components' in Diagram 9 and to **co-ordinate** the different activities at each level. Planning how to create and operate a health and safety management system ought to be a collaborative effort involving people throughout the organisation. It can also be a good way of demonstrating and gaining commitment to continuous improvement and promoting a health and safety culture.

Planning a health and safety management system involves:

- designing, developing and installing suitable management arrangements, RCSs and workplace precautions which are proportionate to the needs, hazards and risks of the organisation; and
- operating, maintaining and improving the system to suit changing needs and process hazards/risks.

A systematic approach is necessary to answer three key questions:

- Where are we now?
- Where do we want to be?
- How do we get there?

These questions may need to be asked at all levels or parts of an organisation, depending on the size and complexity of the business. For instance, the answers will be different at the centre of a large multi-site organisation from those at an individual site. Planning has to be co-ordinated to ensure consistent implementation of policy, avoid duplication of effort and avoid critical omissions.

An effective planning process (see Diagram 10) comprises three elements:

- accurate information about the current situation;
- suitable benchmarks against which to make comparisons;
- competent people to carry out the analysis and make judgements.



Diagram 10 Summary of the planning process

To answer the question 'Where are we now?', an organisation has to compare the current situation against **both** the health and safety management framework described earlier (Diagram 9) and specific legal requirements. This analysis provides a view of the current state of the health and safety management system. Further judgement may be necessary to establish if the system is:

- adequate for the organisation and the range of hazards/risks;
- working as intended and achieving the right objectives; and
- delivering cost-effective and proportionate risk control in the workplace.

Deciding 'where we want to be?' is partly determined by the law. The simplest objective will always be to achieve legal compliance. Some organisations may, however, strive for higher standards and this will shape the way they build their management system. They may wish, for example, to be an industry leader in health and safety and its management.

Deciding 'how do we get there?' involves practical decisions about how to move forward. For example, organisations might decide to devise new components of the health and safety management system or to improve existing ones. They may use risk assessment to help them make decisions about improving workplace precautions. They also have to make decisions about the design of RCSs and management arrangements. Advice on devising RCSs and risk assessment is provided later in this chapter.

It may not be feasible to do all these jobs at once. An overall plan is usually necessary, setting out what is to be achieved in what timescale. This will depend on what resources are available and the starting point. To achieve world-class performance may take some time. Careful decisions over priorities will be needed. In general, emphasis should be given to providing comprehensive and adequate workplace precautions and RCSs which meet minimum legal requirements. Within this framework the emphasis should be on high hazard/risk activities. If fundamental changes cannot be made right away or within a reasonable time, then short-term measures should be taken to minimise risks.

There are three complementary outputs from the planning process:

- health and safety plans with objectives for developing, maintaining and improving the health and safety management system, such as:
 - requiring each site of a multi-site firm to have an annual health and safety plan and an accident and incident investigation system (to meet specific standards);
 - establishing a reliable risk assessment process for COSHH;
 - involving employees in preparing workplace precautions;
 - completing all manual handling assessments by the end of the current year;
 - providing a new guard for a particular machine;
- specifications for management arrangements, RCSs and workplace precautions; and

- performance standards for implementing the health and safety management system, identifying the contribution of individuals to implementing the system (this is essential to building a positive health and safety culture).

Setting objectives

Health and safety objectives need to be specific, measurable, agreed with those who deliver them, realistic and set against a suitable timescale (SMART). Both short- and long-term objectives should be set and prioritised against business needs (advice on prioritising is given later in this chapter). Objectives at different levels or within different parts of an organisation should be aligned so they support the overall policy objectives. Personal targets can also be agreed with individuals to secure the attainment of objectives.

If initial diagnosis reveals a poorly developed system, the early emphasis will probably be on training people so that an improved health and safety planning process can be established as a basis for further development. Early decisions about the adequacy of workplace precautions and compliance with the law will also be necessary. As a foundation of competence is established, a sound health and safety planning and risk assessment process should emerge which will lead to improved control over significant risks. As improved control is established, the emphasis can shift to devising more comprehensive risk control systems and more effective management arrangements to establish a complete health and safety management system. As the specific components of the system are established and embedded, the emphasis can shift again to maintaining and developing the system to ensure there are no gaps or weaknesses and to consolidate the health and safety culture. The foundation has now been laid for a programme of continuous improvement.

Devising workplace precautions

The control of risks is necessary to secure compliance with the requirements of the HSW Act and the relevant statutory provisions. There are three basic stages in establishing workplace precautions:

- **hazard identification** - identifying hazards which could cause harm;
- **risk assessment** - assessing the risk which may arise from hazards;
- **risk control** - deciding on suitable measures to eliminate or control risk.

This approach applies both to the control of health risks and safety risks. Health risks do, however, present distinctive features which require a particular approach. Inset 10 provides further details. The approach underpins legislation which aims to improve the management of health and safety, eg the Management of Health and Safety at Work Regulations 1999 (MHSW Regulations),¹⁸ and the Control of Substances Hazardous to Health (COSHH) Regulations 1999.¹⁹

Inset 10 Controlling health risks

Health and safety at work law places a duty on employers to ensure the health as well as the safety of their employees. The principles for controlling health through risk assessment are the same as those for safety. However, the nature of health risks can make the link between work activities and employee ill health less apparent than in the case of injury from an accident.

Unlike safety risks, which can lead to immediate injury, the results of daily exposure to health risks may not become apparent for months, years and in some cases, decades. Health may be irreversibly damaged before the risk is apparent. It is therefore essential to develop a preventive strategy to identify and control risks before anyone is exposed to them. Failure to do so can lead to workers' disability and loss of livelihood. It can also mean financial losses for the organisation through sickness absence, lost production, compensation and increased insurance premiums.

Risks to health from work activities include:

- skin contact with irritant substances, leading to dermatitis etc;
- inhalation of respiratory sensitisers, triggering immune responses such as asthma;
- badly designed workstations requiring awkward body postures or repetitive movements, resulting in upper limb disorders, repetitive strain injury and other musculoskeletal conditions;
- noise levels which are too high, causing deafness and conditions such as tinnitus;
- too much vibration, eg from hand-held tools leading to hand-arm vibration syndrome and circulatory problems;
- exposure to ionising and non-ionising radiation including ultraviolet in the sun's rays, causing burns, sickness and skin cancer;
- infections ranging from minor sickness to life-threatening conditions, caused by inhaling or being contaminated by micro-biological organisms;
- stress causing mental and physical disorders.

Some illnesses or conditions such as asthma and back pain have both occupational and non-occupational causes and it may be difficult to establish a definite link with a work activity or exposure to particular agents or substances. But, if there is information which shows that the illness or condition is prevalent among the occupational group to which the sufferers belong or among workers exposed to similar agents or substances, it is likely that their work is at least a contributory factor.

Some aspects of managing risks to health will need input from specialist or professional advisers such as technical staff or occupational health hygienists, nurses and doctors. There is much that can be done to prevent or control risks to health by taking straightforward measures such as:

- consulting the workforce on the design of workstations;
- talking to suppliers of substances, plant and equipment about minimising exposure;
- enclosing machinery to cut down noise;
- researching the use of less hazardous materials;
- ensuring that employees are trained in the safe handling of all the substances and materials with which they come into contact.

continued overleaf

Inset 10 (continued)

To assess health risks and to make sure that control measures are working properly, you may need for example to measure the concentration of substances in air to make sure that exposures remain within relevant maximum exposure limits or occupational exposure standards. Sometimes surveillance of workers at risk of exposure will be needed. This will enable data to be collected for the evaluation of controls and for early detection of adverse changes to health. Health surveillance procedures available include biological monitoring for bodily uptake of substances, examination for symptoms and medical surveillance - which may entail clinical examinations and physiological or psychological measurements. The procedure chosen should be suitable for the case concerned. Sometimes a method of surveillance is specified for a particular substance, for example, in COSHH Approved Codes of Practice. Whenever surveillance is undertaken, a health record has to be kept for the person concerned.

Health surveillance should be supervised by a registered medical practitioner or, where appropriate, it should be done by a suitably qualified person (eg an occupational nurse). In the case of inspections for easily detectable symptoms like chrome ulceration or early signs of dermatitis, health surveillance should be done by a suitably trained responsible person. If workers could be exposed to substances listed in Schedule 6 of COSHH, medical surveillance under the supervision of an HSE employment medical adviser or a doctor appointed by HSE is required.

Although, as described, specialist help may be needed to control risks to health, employers themselves remain responsible for managing work activities in a way that will prevent employees being made ill by their work.

For more information, see *Health risk management: A practical guide for managers in small and medium-sized enterprises*.²⁰

In practice many decisions at these three stages are simple and straightforward and are taken together. Wherever the identification stage reveals a well-known hazard with a known risk, the methods of control and consequent maintenance may be well tried and tested. For example, stairs present an established risk of slipping, tripping and falling. They require traditional methods of control such as good construction, the use of handrails and the provision of non-slip surfaces along with the need to keep stairs free of obstructions. In other more complex situations decisions are necessary at each stage. These are outlined below.

Hazard identification

The essential first step in risk control is to seek out and identify hazards. Relevant sources of information include:

- legislation and supporting Approved Codes of Practice which give practical guidance and include basic minimum requirements;

- HSE guidance;
- process information;
- product information provided under section 6 of the HSW Act;
- relevant British and international standards;
- industry or trade association guidance;
- the personal knowledge and experience of managers and employees;
- accident, ill health and incident data from within the organisation, from other organisations or from central sources;
- expert advice and opinion and relevant research.

There should be a critical appraisal of all routine and non-routine business activities. People exposed may include not just employees, but also others such as members of the public, contractors and users of the products and services. Employees and safety representatives can make a useful contribution in identifying hazards.

In the simplest cases, hazards can be identified by observation and by comparing the circumstances with the relevant information (eg single-storey premises will not present any hazards associated with stairs). In more complex cases, measurements such as air sampling or examining the methods of machine operation may be necessary to identify the presence of hazards from chemicals or machinery. In the most complex or high-risk cases (for example, in the chemical or nuclear industry) special techniques and systems may be needed such as hazard and operability studies (HAZOPS) and hazard analysis techniques such as event or fault-tree analysis. Specialist advice may be needed to choose and apply the most appropriate method.

Risk assessment

There is a general requirement to carry out risk assessment under the MHSW Regulations 1999. (Guidance is given in the HSE leaflet *5 steps to risk assessment* INDG163.²¹)

Assessing risks to help determine workplace precautions can be qualitative or quantitative. In the simplest cases, you can refer to specific legal limits; for example, people are liable to fall a distance of 2 m from an open edge or they are not. In more complex situations, you may need to make qualitative judgements within a framework set by legal standards and guidance. The Control of Substances Hazardous to Health Regulations 1999 (COSHH) and the accompanying Approved Codes of Practice establish a decision-making framework if hazardous substances are used. Quantitative risk assessment (QRA) techniques may be used as a basis for making decisions in more complex industries. QRA is specifically referred to in the Offshore Installations (Safety Case) Regulations 1992.²²

To assess risks, you need a similar knowledge of activities and working practices as to conduct hazard identification. Again, the knowledge of employees and safety representatives can prove valuable. Risk assessments should be done by competent people. Professional health and safety advice may be needed in some cases, especially when choosing appropriate QRA techniques and interpreting results.

Risk control

When risks have been analysed and assessed, you can make decisions about workplace precautions.

All final decisions about risk control methods must take into account the relevant legal requirements which establish minimum levels of risk prevention or control. Some of the duties imposed by the HSW Act and the relevant statutory provisions are absolute and must be complied with. Many requirements are, however, qualified by the words, '**so far as is reasonably practicable**', or '**so far as is practicable**'. These require an assessment of cost, along with information about relative costs, effectiveness and reliability of different control measures. Other duties require the use of '**best practicable means**' - often used in the context of controlling sources of environmental pollution such as emissions to the atmosphere. Further guidance on the meaning of these three expressions is provided in Inset 11.

Inset 11

'So far as is reasonably practicable', 'So far as is practicable', and 'Best practicable means'

Although none of these expressions are defined in the HSW Act, they have acquired meanings through many interpretations by the courts and it is the courts which, in the final analysis, decide their application in particular cases.

To carry out a duty **so far as is reasonably practicable** means that the degree of risk in a particular activity or environment can be balanced against the time, trouble, cost and physical difficulty of taking measures to avoid the risk. If these are so disproportionate to the risk that it would be unreasonable for the people concerned to have to incur them to prevent it, they are not obliged to do so. The greater the risk, the more likely it is that it is reasonable to go to very substantial expense, trouble and invention to reduce it. But if the consequences and the extent of a risk are small, insistence on great expense would not be considered reasonable. It is important to remember that the judgement is an objective one and the size or financial position of the employer are immaterial.

So far as is practicable, without the qualifying word 'reasonably', implies a stricter standard. This term generally embraces whatever is technically possible in the light of current knowledge, which the person concerned had or ought to have had at the time. The cost, time and trouble involved are not to be taken into account.

The meaning of **best practicable means** can vary depending on its context and ultimately it is for the courts to decide. Where the law prescribes that 'best practicable means' should be employed, it is usual for the regulating authority to indicate its view of what is practicable in notes or even agreements with particular firms or industries. Both these notes or agreements and the views likely to be taken by a court will be influenced by considerations of cost and technical practicability. But the view generally adopted by HSE inspectors is that an element of reasonableness is involved in considering whether the best practicable means had been used in a particular situation.

Where legal requirements demand an assessment of cost, information about the relative costs, effectiveness and reliability of different control measures will be needed to make decisions about acceptable levels of control.

Decisions about the reliability of controls can be guided by reference to the preferred hierarchy of control which has now been incorporated into regulations such as MHSW and COSHH. The following is a summary of the preferred hierarchy of risk control principles:

- **Eliminate risks** by substituting the dangerous by the inherently less dangerous, eg:
 - use less hazardous substances;
 - substitute a type of machine which is better guarded to make the same product;
 - avoid the use of certain processes, eg by buying from subcontractors.

- **Combat risks** at source by engineering controls and giving collective protective measures priority, eg:
 - separate the operator from the risk of exposure to a known hazardous substance by enclosing the process;
 - protect the dangerous parts of a machine by guarding;
 - design process machinery and work activities to minimise the release, or to suppress or contain airborne hazards;
 - design machinery which is remotely operated and to which materials are fed automatically, thus separating the operator from danger areas.

- **Minimise risk** by:
 - designing suitable systems of working;
 - using personal protective clothing and equipment; this should only be used as a last resort.

The hierarchy reflects the fact that eliminating and controlling risk by using physical engineering controls and safeguards is more reliable than relying solely on people.

If a range of precautions is available, the relative costs need to be weighed against the degree of control provided, both in the short and long term. Some control measures, such as eliminating a risk by choosing a safer alternative substance or machine, provide a high degree of control and are reliable. However, physical safeguards such as guarding a machine or enclosing a hazardous process need to be maintained and this imposes an extra longer-term cost.

The design of all workplace precautions should consider the human factors outlined in Inset 2. In successful organisations the design of precautions is fully integrated into plant and work design procedures so that specifications simultaneously satisfy output, quality, and health and safety requirements. Employee involvement encourages solutions which are relevant and practical for those who have to implement them.

Devising risk control systems (RCSs)

The purpose of RCSs is to make sure that appropriate workplace precautions are implemented and kept in place. HSE experience suggests that organisations often place insufficient emphasis on this aspect of their health and safety system. The control systems should reflect the hazard profile of the organisation; the greater the hazard or risk, the more robust and reliable the control systems need to be. Inset 12 provides a framework for deciding which RCSs are necessary.

The planning of RCSs requires decisions on what control systems are necessary, and their design. The basic elements of policy, organising, implementing, measuring, reviewing and auditing can be used as a framework for designing the systems. This defines a management control loop (Plan-Do-Check-Act). A practical example of how this can be applied is shown below for a permit-to-work system:

Policy

- What is the purpose and objective of the permit-to-work system and what are its scope and limitations? For example, the purpose of the permit-to-work system is to establish control over high-risk maintenance or other unusual work.

Organising

- Control - who will be responsible for operating and running the system? For example, who will devise and design the system? Who will implement it? Who will monitor and review performance and audit its operation?
- Co-operation - how will system users be involved in its development to ensure its acceptance and effective working? How will deficiencies and weaknesses and failings in the system be reported?
- Communication - what communication is necessary to ensure the effective operation of the system and between the various parties issuing and using a permit? What documentation is involved and how can it be designed to be clear, effective and simple to use?
- Competence - what training, qualifications, skills and level of competence are required for:
 - those issuing permits?
 - those doing work under permits?
 - those monitoring, reviewing performance etc?

Implementing

- What workplace precautions are necessary for each type of permit? What are the rules of the system and how does it work? Are the rules simple so that they can always be easily applied? Are there sufficient resources to ensure that the system can be applied in full? What are the performance standards for the various individuals involved - who does what, when, and how (see Inset 5)?

Measuring performance

- How will the implementation and effectiveness of the system be measured? For example, will there be a periodic inspection of the work activity and of a sample of permits to ensure proper completion and effective use?

Reviewing performance

- How will the findings from the measuring activities be used to review and improve the system?

Auditing

- How will the system be independently audited and verified?

Inset 12 **Framework for setting risk control systems**

This inset states in general terms the range of possible activities for which RCSs may be needed. The RCSs should match the hazard profile of the business; more resources will be necessary for the more significant hazards.

First stage controls

Control of inputs

Objective: To minimise hazards entering the organisation.

RCSs are needed to control the flows of resources and information through the organisation. At the **input stage** the goal is to eliminate and minimise hazards and risks entering the organisation.

RCSs may be needed for:

- **physical resources** including:
 - the design, selection, purchase and construction of workplaces;
 - the design, selection, purchase and installation of plant and substances used by the organisation;
 - the plant and substances used by others, such as contractors on site;
 - the acquisition of new businesses;
- **human resources** including:
 - the recruitment and selection of all employees;
 - the selection of contracting organisations;
- **information** including:
 - information relating directly to health and safety, such as standards, guidance and aspects of the law, and any revisions;
 - other technical and management information relating to risk control and the development of a positive health and safety culture.

continued overleaf

Inset 12 (continued)

Second stage controls

Control of work activities

Objective: To eliminate and minimise risks within the business process.

At the process stage, hazards are created where people interact with their jobs, and the goal is to eliminate or minimise risks arising inside the organisation. RCSs may need to cover the four areas concerned with work activities and risk creation, namely:

- **premises** - including the place of work, entrances and exits, the general working environment, welfare facilities, and all plant and facilities which are part of the fixed structure, such as permanent electrical installations;
- **plant and substances** - including the arrangements for their handling, transport, storage and use;
- **procedures** - including the design of jobs and work procedures and all aspects of the way the work is done;
- **people** - including the placement of employees, their competence for the job and any health surveillance needed.

When specifying RCSs it is necessary in each case to consider:

- the operation of the business process in the 'steady state', including routine and non-routine activities;
- the business process in the 'steady state' during maintenance, including the maintenance activity itself, whether undertaken by contractors or on-site staff;
- planned changes from the 'steady state', arising from any change in the organisation structure, premises, plant, process, substances, procedures, people or information;
- foreseeable emergencies giving rise to serious and imminent danger, such as fire, injuries, ill health, incidents or the failure of control equipment (including first aid, emergency planning and procedures for the management of emergencies, and identification and control of danger areas);
- decommissioning, dismantling and removal of facilities, plant, equipment or substances.

Third stage controls

Control of outputs

Objective: To minimise risks outside the organisation arising from the business process, products and services.

Inset 12 (continued)

At the **output stage** the goal is to minimise the risks to people outside the organisation whether from work activities themselves or from the products or services supplied. RCSs may need to cover:

- products and services, and include consideration of:
 - design and research on the health and safety and safe use of products and services, including surveillance of users to identify evidence of harm;
 - the delivery and transport of products including packaging, labelling and intermediate storage;
 - the installation, setting up, cleaning and maintenance of products undertaken by employees or contractors;

- by-products of the work activities, such as:
 - off-site risks which might arise from the organisation's work activities both at fixed or transient sites;
 - outputs to the environment - particularly wastes and atmospheric emissions;
 - the disposal of plant, equipment and substances (including wastes);

- information, for example:
 - the health and safety information provided to those transporting, handling, storing, purchasing, using or disposing of products;
 - the information provided to those who may be affected by work activities, such as members of the public, other employers and their employees, the emergency services and planning authorities.

Devising management arrangements

The framework in this guidance provides a basis for making judgements on how to design management arrangements to suit an organisation. The scope and complexity of the management arrangements should reflect the business needs and hazard profile. What is suitable for a large multi-site organisation will not be appropriate for a small firm, but there needs to be appropriate activity across all six key elements of the framework (policy, organising, planning and implementing, measuring performance, review and audit).

Setting performance standards

Performance standards are needed to identify the contribution that people make to operating the health and safety management system.

Standards for people at all levels are needed to ensure:

- the effective design, development and installation of the health and safety management system;

- the consistent implementation and improvement of the health and safety management system, ie the management arrangements, RCSs and workplace precautions; and
- that positive rewards can be provided for individuals in recognition of the effort put into accident and ill health prevention.

Performance standards are the foundation for a positive health and safety culture. The format of standards was considered earlier (see Inset 5). At the planning stage, decisions are needed about the appropriate standards to match the needs of the business and the health and safety management system. Performance standards could cover the following:

- policy formulation and development;
- methods of accountability;
- health and safety committee and similar consultation meetings;
- involvement of people in risk assessments and writing procedures;
- collection and dissemination of information from external sources;
- the involvement of senior managers in safety tours and accident and incident investigations;
- preparation of health and safety documentation, performance standards, rules and procedures;
- health and safety plans and objectives;
- the risk assessment process;
- implementation of RCSs and workplace precautions;
- the active monitoring arrangements including inspections;
- the accident and incident reporting and investigation system;
- audit and review.

Prioritising health and safety activities

Systems of assessing relative hazard and risk can contribute to decisions about priorities. They are also a useful aid to answering questions of importance and urgency arising at other stages in planning and implementing a health and safety management system, for example:

- prioritising different health and safety objectives;
- deciding on the hazard profile of the business to reveal those areas where more robust and reliable workplace precautions and RCSs will be needed;
- deciding monitoring priorities;
- establishing priorities for training and improving levels of competence;
- what, if any, immediate action is needed to prevent further injury following an accident;
- what, if any, immediate action is necessary to prevent injury following an incident or the discovery of a hazard;
- when reviewing the results of monitoring activities and the results of injury, ill health and incident investigations;
- deciding the extent of the resources needed and the speed of the response which should be made following a particular accident or incident.

While there is no general formula for rating hazards and risks, several techniques can help in decision-making. **These differ from the detailed risk assessments needed to establish workplace precautions to satisfy legal standards.** The techniques involve a means of ranking hazards and risks. Some systems rank hazards, others rank risks. Assessing relative risk involves some means of estimating the likelihood of occurrence and the severity of a hazard. A simple form of risk estimation is described below to illustrate the general principles.

Simple risk estimation

Hazard - the potential to cause harm will vary in severity. The likely effect of a hazard may, for example be rated:

Major

Death or major injury (as defined in RIDDOR²³) or illness causing long-term disability.

Serious

Injuries or illness causing short-term disability.

Slight

All other injuries or illness.

Harm may not arise from exposure to a hazard in every case. In practice the likelihood and severity of harm will be affected by how the work is organised, how effectively the hazard is controlled, and the extent and nature of exposure to it. In the case of health risks, the latent effects and the susceptibility of individuals will also be relevant. Judgements about likelihood will also be affected by experience of working with a hazard; for example, the analysis of accident, ill health and incident data may provide a clue. The likelihood of harm may be rated:

High

Where it is certain or near certain that harm will occur.

Medium

Where harm will often occur.

Low

Where harm will seldom occur.

In this case risk can be defined as the combination of the severity of harm with the likelihood of its occurrence, or:

$$\text{Risk} = \text{Severity of harm} \times \text{Likelihood of occurrence}$$

This simple computation enables a rough and ready comparison of risks. If hazards could affect more than one person you could assign a relative weighting to reflect this.

This example presents the most simplified method of estimating relative risk. In practice, organisations need to use systems suited to their own needs. Hazard rating systems have been developed by Dow²⁴ and ICI (the Mond Index).

Implementing the health and safety management system

If workplace precautions, RCSs and management arrangements are well designed and recognise existing business practice and human capabilities and fallibilities, they will be easier to implement. Adequate documentation can also contribute to consistent application. In some cases the law requires suitable records to be maintained (eg a record of risk assessments under the MHSW Regulations¹⁸ and COSHH¹⁹). Safety case regulations covering offshore installations²² and railways²⁵ require you to keep more detailed records of process hazards, risks and precautions.

You should document other health and safety system information so that it is proportionate to business needs, hazards and risks. The control of relatively minor hazards affecting all employees (such as ensuring passages and gangways remain free from obstruction) can be dealt with by a number of simply stated general rules. The control of more hazardous activities may need more detailed workplace precautions and RCSs. The control of high hazard activities may demand detailed workplace precautions and an RCS which needs to be strictly followed, such as a permit-to-work system.

All the components of the health and safety management system need to be adequately inspected, maintained and monitored to secure continued effective operation. Risk assessments and workplace precautions should be reviewed in the light of changes and technological developments. The type, frequency and depth of maintenance should reflect the extent and nature of the hazard and risks revealed by risk assessment. The balance of resources devoted to the various RCSs will also reflect the hazard profile of the business.

For a summary of recent research by HSE into the experiences of organisations that have implemented new management systems, see Appendix 4.

Even in a well-designed and well-developed health and safety management system there is still the challenge of ensuring that all requirements are complied with consistently. The main way of achieving this is by rewarding positive behaviour according to the maxim of 'what gets rewarded gets done'.

After an accident or case of ill health, many organisations find that they **already** had systems, rules, procedures or instructions which would have prevented the event but which were not complied with. There are many reasons why such 'violations' occur. The underlying causes often lie in systems which are designed without taking proper account of human factors, or violations are condoned implicitly or explicitly by management action or neglect (see *Reducing error and influencing behaviour*³, and *Improving compliance with safety procedures: Reducing industrial violations*²⁶). Managers need to take positive steps to address human factors issues and to encourage safe behaviour. They need to recognise that the prevailing health and safety culture is a major influence in shaping people's safety-related behaviour.¹¹

Some organisations have applied performance management techniques and behaviour modification to promote and reward safe behaviour and reduce unsafe behaviour.^{28,29} Such techniques can play an important part in accident and ill health prevention and promoting a positive health and safety culture. However, they are no substitute for a sound health and safety management system. They achieve their best effect where the health and safety system is relatively well developed and where employees are actively involved in the behavioural safety process.