



NEBOSH International General Certificate in Occupational Health and safety



Element 1

Why we should manage workplace health and safety

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1.0 Learning outcomes and Assessment Criteria

The learner will be able to:

- **Justify** health and safety improvements using moral, financial and legal arguments
 - 1.1 **Discuss** the moral, financial and legal reasons for managing health and safety in the workplace
 - 1.2 **Explain** how the law works and the consequences of non-compliance
- **Advise** on the main duties for health and safety in the workplace and help their organisation manage contractors
 - 1.3a **Summarise** the main health and safety duties of different groups of people at work
 - 1.3b **Explain** how contractors should be selected, monitored and managed

1.1 Introduction to occupational health and safety

Occupational health and safety has continued to evolve from the onset of the '*Industrial Revolution*' to the present day. Although the objective of protecting the health, safety and welfare of people at (or otherwise affected by) work remains, the priorities and expectations are clearly different.

In the UK prior to the 1830s and 1840s children below the age of ten were employed in factories and mines. By the late 1870s thousands of workers were being killed each year. In 1875 alone 767 railway workers and more than 1000 coal miners were killed in workplace accidents.

As the developed world moves forward into the '*knowledge age*' the world of work is changing. Manufacturing and heavy engineering become less significant and the service sector and the management of knowledge and information takes on greater significance.

Understanding of the range of workplace hazards and techniques for protecting workers continues to grow and workers expectations for standards of living, work life balance, and good health in the twenty first century are much higher than they have ever been.

The management of occupational health and safety has become a multi-disciplinary affair with a range of specialist professionals interacting with and supporting generalist safety practitioners.

1.2 Morals and money

Society exerts pressure through three overlapping and interacting spheres of influence, as shown in Figure 1.1. This section outlines the moral and financial drivers for health and safety management. The legal framework for health and safety regulation is discussed at length in section 1.3.

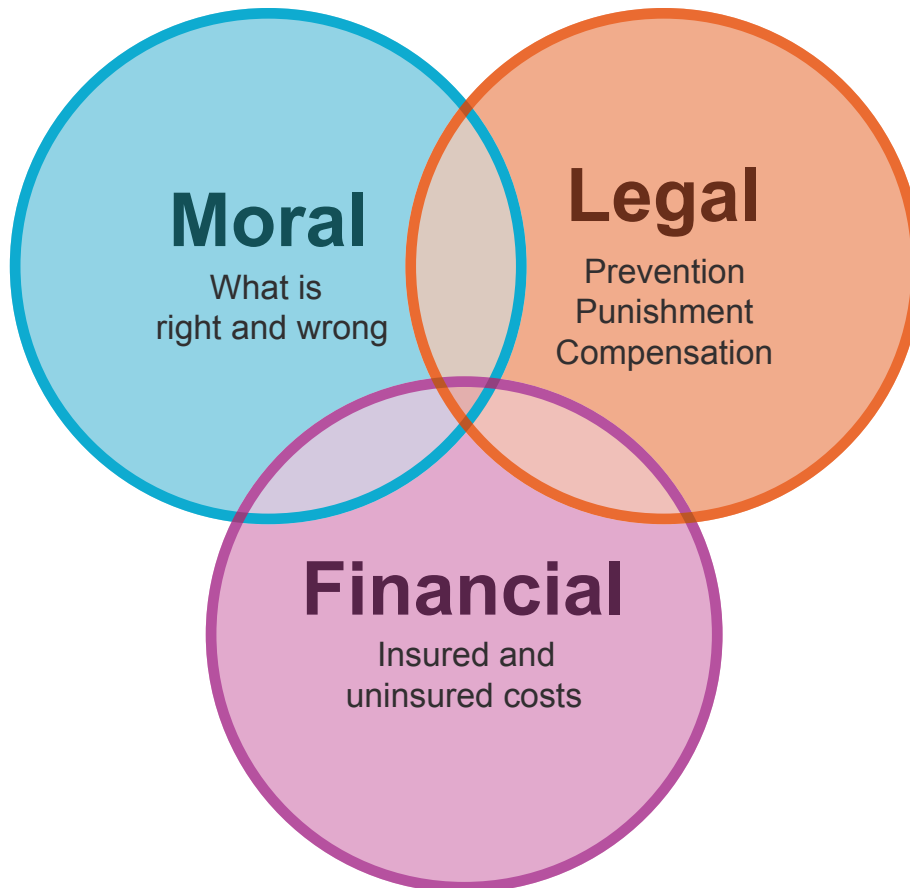


Figure 1.1: Moral, legal and financial drivers

Moral expectations of good standards of health and safety

Morals are the codes of conduct, or rules of behaviour imposed by a society regarding what is right and what is wrong. It is clearly wrong for people to be killed or seriously injured, or to suffer mental or physical illness because of their or others work activities.

The increasing globalisation of business has led the World Health Organization (WHO) to expressed concern that:

“In order to reduce costs, industries with their accompanying occupational hazards are being relocated to developing countries – home to 75 per cent of the global workforce.”

Both the WHO and the International Labour Organization (ILO) have warned that globalisation will considerably increase the number of work-related diseases and injuries in the 21st century.

Research in 2017 has estimated 2.78 million annual work-related fatalities. 2.4 million fatalities are attributed to work related illness with 380 500 being caused by occupational accidents. Fatal accident rates continue to rise in the lower income, developing nations.

For non-fatal injuries and illnesses in 2013 the ILO estimated that globally there were:

- 317 million non-fatal accidents in the workplace
- 160 million non-fatal work-related diseases in the workplace each year.

This means that every 15 seconds 151 workers were involved in workplace accidents and one worker died from a work-related accident or disease.

Agriculture, construction, fishing and mining in developing nations take a particularly heavy toll.

The global economic cost of occupational accidents and diseases has been estimated at 4% of the global gross domestic product (GDP).

The ILO prepared a report on *“Global Trends and Challenges on Occupational Safety and Health”* for the 19th World Congress on Safety and Health at Work in 2011. The report used 2008 data and provided estimates of the global position regarding work-related accidents and diseases as shown in tables 1.1 to 1.4.

Estimated numbers and incidence rates of fatal work-related accidents and diseases: global trends				
Year	Numbers of fatal accidents	Fatal accident incidence rates*	Numbers of fatal diseases	Total numbers of fatal accidents and diseases
1998	345 000	16.4	-	-
2001	351 000	15.2	2.03 million	2.38 million
2003	358 000	13.8	1.95 million	2.31 million
2008	321 000	10.7	2.02 million	2.34 million

Table 1.1: Estimated numbers and incidence rates of fatal work-related accidents and diseases: global trends

Calculated rates by employment sector			
WHO Regional Grouping	Agriculture	Industry	Services
High income countries (global)	10.2	4.3	1.6
LMIC* Africa Region	18.9	21.1	17.7
LMIC Americas Region	10.7	11.1	6.9
LMIC Eastern Mediterranean Region	20.0	10.1	5.3
LMIC European Region	19.1	10.3	4.5
LMIC South-East Asia and Western Pacific Regions	19.1	9.7	6.1
* LMIC – Low and Middle Income countries			
** Accident incidence rates are the numbers of accidents per 100.000 workers			

Table 1.2: Fatal work-related accident incidence rates** by WHO regional grouping (2008)

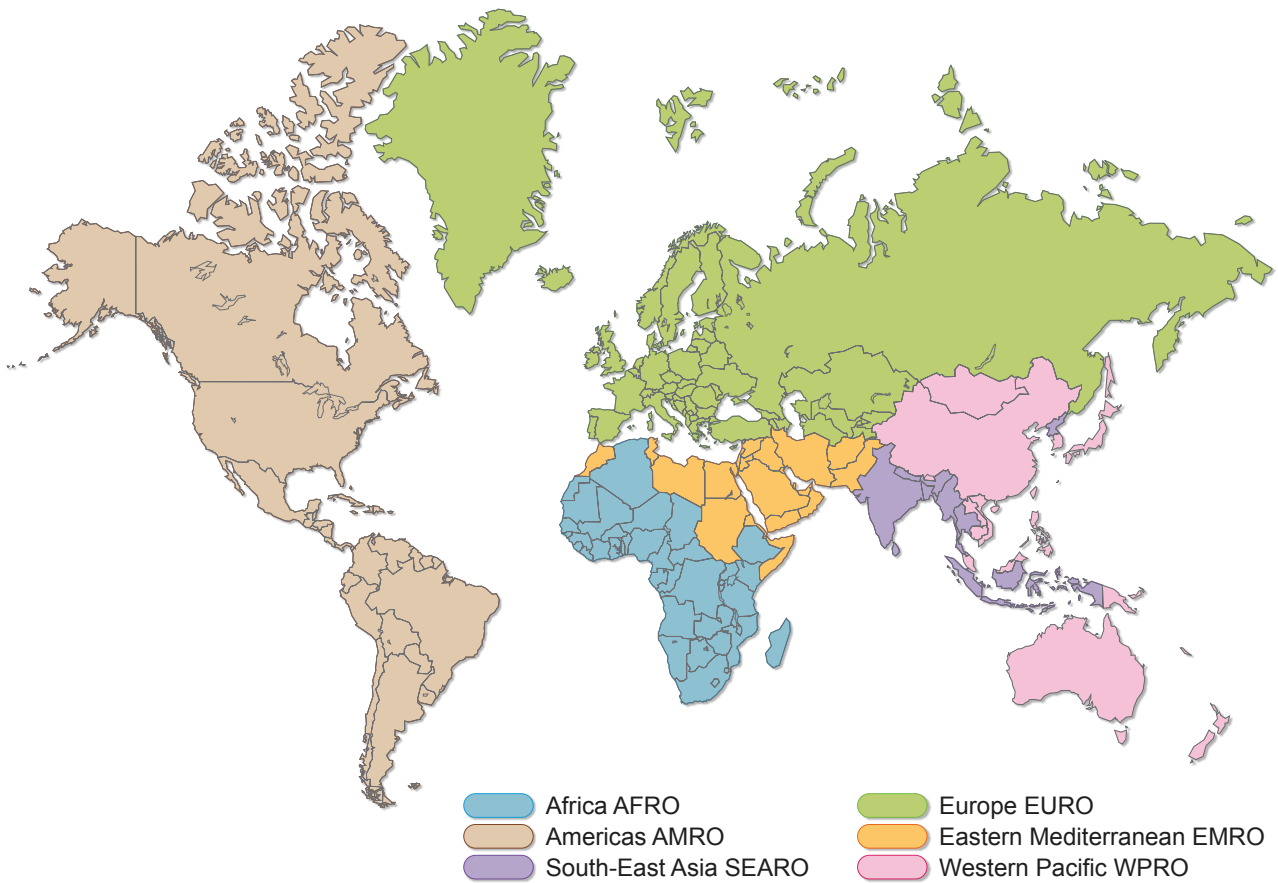


Figure 1.2: WHO Regional Groupings

Year	Numbers of accidents causing absences of 4 or more days	Non-fatal accident incidence rates*
1998	264 million	12 500
2001	268 million	12 200
2003	337 million	13 000
2008	317 million	10 600

*Accident incidence rates are the numbers of accidents per 100 000 workers

Table 1.3: Estimated numbers and incidence rates for non-fatal accidents at work resulting in absences of 4 or more days from work: global trends

Year	Numbers of fatalities caused by exposure to hazardous substances
1998	-
2001	438 480
2003	651 000
2008	910 000

Table 1.4: Estimated numbers of work-related deaths caused by exposure to hazardous substances: global trends

Direct comparisons of accident rates between countries can be difficult due to the various levels of sophistication of reporting systems, different definitions and cultural variables. Table 1.5 is based on 2001 research and makes a number of major assumptions and extrapolations for India and China due to the lack of available data.

Country	Estimated Number Of Fatal Accidents	Fatality Rate (Per 100,000 workers)	Non-Fatal Accidents >3 day absence (Average estimate)	Accident Rate (Per 100,000 workers)
UK	236	0.8	180 456	639
USA	6 643	4.9	5 069 963	3753
India	40 133	10.0	30 627 865	7609
Poland	1 463	10.3	1 116 420	7858
Kuwait	138	11.1	104 955	8442
China	90 295	12.3	68 909 715	9392
South Africa	1 908	16.8	1 455861	12 843
Indonesia	16 931	18.6	12 921 000	14 229
Brazil	14 895	19.7	11 366973	15 063
Nigeria	9 392	20.1*	7 167 362	15 312*

Table 1.5: Comparisons of Accident Statistics by Country

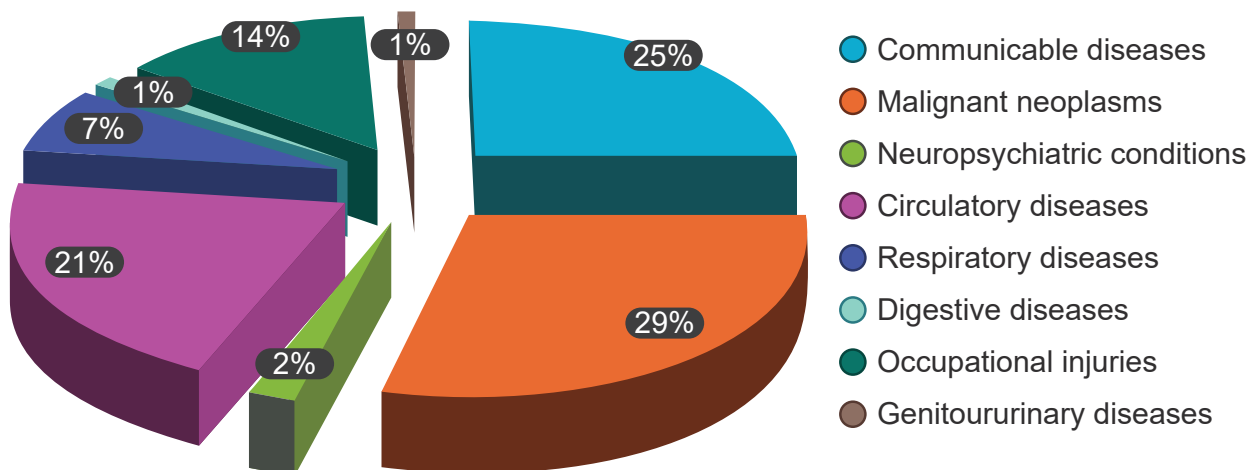


Figure 1.3: Global estimated work-related mortality by cause (2008)

The societal (moral) expectation of safe and healthy workplaces has evolved over time in many countries. The public expectation of good workplace standards currently in the UK is now much higher than it was in the 1950s, and much higher again than it was in the 1800s. In 1819 for example, the Cotton Mills Act was introduced in the UK to prevent children who were under 9 years of age working in cotton mills and limited those under 16 years of age to a maximum 16-hour shift per day.

For more than two hundred years, workers in the UK have organised themselves and campaigned for better working conditions and treatment from their employers. More enlightened, philanthropic employers have also helped to improve conditions over time, as has the introduction of laws such as the several ‘*Factories Acts*’ passed between 1833 and 1961.

More recently, better education has led to a more informed workforce about human rights and responsibilities, and a greater understanding of risk and accident causation. Significant technical advances in engineering and the greater use of management systems, including human resource, quality, health, safety and the environment are also evident. Other factors that appear to have driven societal expectations for good health and safety standards include the importance of an organisation’s brand or reputation, and the extent of pressure from customers and insurers.

The use of social media and immediate access to health and safety information is now common-place, clearly contributing to societal expectations of safe and healthy workplaces in UK, and the accountability of leaders, managers, supervisors and workers. For example, if something is seen in a workplace that may be breaking health and safety law and is likely to cause serious harm, it can be reported by telephone or online to the HSE to be dealt with as necessary. It is now more ‘*morally unacceptable*’ for people to be put at risk of serious harm.

Societal expectations for health and safety at work across the world, however, vary enormously. According to the International Labour Organisation (ILO), *'roughly half the world's population still lives on the equivalent of about US\$2 a day, and in too many places, having a job doesn't guarantee the ability to escape from poverty'*.

Accidents such as the Rana Plaza building collapse which killed 1 135 people (mostly workers in the garment industry), the 45-year life expectancy of workers in some opencast mines due to multiple health and safety risks, and the 152 million child victims of child labour provide stark examples of the worldwide differences in health and safety standards and expectations.

The financial costs of accidents

Accidents clearly cost money as a consequence of injured people, damaged plant and machinery and wasted product.

Globally the ILO estimates that the losses incurred as a result of compensation, lost working time, interruption of production, training and retraining, medical expenses, social assistance, etc., account for approximately 5% of the global gross national product (GNP).

The ILO acknowledges that best estimates may well underestimate the true economic and social costs because of the under-reporting of occupational accidents and the failure to recognise the work-related origins of certain diseases.

The pie chart at Figure 1.4 breaks down the costs by disease and injury type.

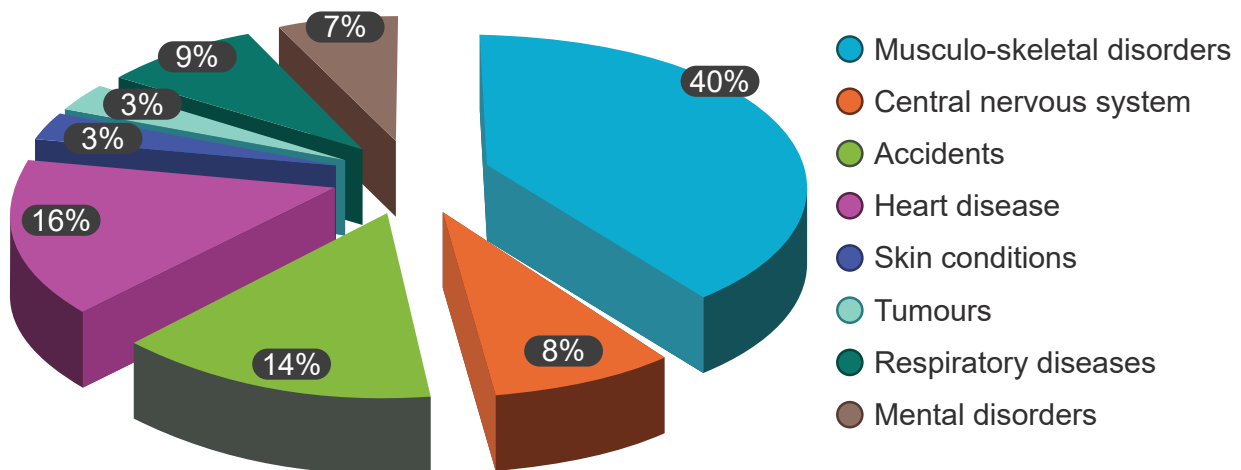


Figure 1.4: Costs of accidents and ill-health by disease and injury type

In the UK the HSE estimates that occupational injuries and new cases of work-related ill health cost Great Britain in the region of £15 billion split broadly 2/3 ill-health and 1/3 injuries. Whilst the majority of such costs are thought to fall on individuals (£8.6 billion), employers (£3 billion) and government/taxpayers (£3.4 billion) bear a similar proportion of the costs of workplace injury and ill health.

In the USA, OSHA (Occupational Health and Safety Administration) refers to 2007 research estimating the total cost of occupational injuries and illnesses at \$250 billion, with \$67 billion (27%) arising from medical costs and the remainder considered as indirect costs to industry and society.

The costs of highly visible accidents involving large scale loss of life or major property damage as a result of fire and explosion are often determined by official inquiries.

- **The BP Texas City fire** and explosion in 2005 cost over \$21 million in fines, \$2 billion in civil claims, and \$1 billion in reinstating the site.



- **The Buncefield oil refinery fire** in 2005 is believed to be the most expensive accident in UK history with a total cost of over £1 billion, including £9.5 million in fines.



Smaller accidents have proved much more difficult to cost as relatively few companies have systems in place to quantify them.

Over thirty years ago the Confederation of British Industry (CBI) gave evidence to the Robens Committee on Health and Safety at Work, stating:

“At the company level, if a readily applied and simple formula could be devised by which the financial loss caused by accidents and diseases could be measured, it would make a valuable contribution towards reducing industrial accidents and occupational ill health.”

In 1989 the HSE began a series of five case studies with organisations from different industrial sectors with the aim of developing a means accurately identifying the full cost of accidents.

The study findings were published 1993 in a HSE Guidance booklet ‘*The Costs of Accidents at Work (HSG96)*’ (now out of print).

The five participating organisations/projects were a construction project, a creamery, an independent transport company working with the creamery, a North Sea oil platform, and an NHS hospital. All had a history of average, or better than average health and safety performance.

The study used a definition of ‘*accident*’ covering a broad range of losses including injury

and ill health, damage to property, plant, materials and the environment, and the loss of business opportunity.

All personal injury accidents were included as were all other losses above a minimum reportable level which was set at the minimum unit of product or its financial equivalent.

The study accounted separately for financial and opportunity costs.

Financial costs are the basic costs incurred to return the situation to what it was before an accident happened. This covers both material and labour costs.

Opportunity costs (or lost opportunity costs) include those incurred through people stood idle or being unproductive as a result of dealing with the consequences of an accident, and energy costs from plant running idle and buildings being lit and heated.

The key findings of the study are presented in Table 1.6.

Note:

1. no major or catastrophic losses were experienced during the study
2. no prosecutions or significant civil claims, were undertaken during the study
3. there was probably under reporting as a result of the minimum level of loss criteria for reporting
4. the financial values quoted are actual 1990 figures and have not been adjusted for inflation.

The following should be considered in interpreting the findings:

Business	Total loss	Annualised loss	Representing
Construction	£245 075	£700 000	8.5% of tender price
Creamery	£243 834	£975 336	1.4% of operating costs
Transport	£48 928	£195 712	1.8% of operating costs company 37% of profits
Oil platform	£940 921	£3 763 684	14.2% of potential output
Hospital	£99 285	£397 140	5% of annual running costs

Table 1.6: HSG96 calculated losses for each organisation

As every business and every incident are different the only accurate way of determining costs is to measure them. An '*Incident Cost Calculator*' designed for this purpose is presented in table 1.7..

Incident Cost Calculator	
Date and time of incident	
Description	
Person(s) involved	

Dealing with incident (immediate action)		
Examples	Time spent	Cost (£)
First aid treatment		
Taking injured person to hospital/home		
Making the area safe		
Fire fighting		
Immediate staff downtime (work stopped)		
Other		

Investigation		
Examples	Time spent	Cost (£)
Staff time to investigate and report		
Meetings to discuss incident		
Time spent with HSE/LA enforcement officer		
Consultants fees		
Other		

Getting back to business		
Examples	Time spent	Cost (£)
Assessing/rescheduling work activities		
Recovering work/production		

Table 1.7 (1 of 3): Incident Cost Calculator

Getting back to business		
Cleaning/waste disposal		
Product reworking		
Repairing damage		
Hiring or purchasing tools, plant, equipment etc.		
Other		

Business costs		
Examples	Time spent	Cost (£)
Salary costs of injured person off work		
Salary costs of replacement workers		
Lost work time		
Overtime costs		
Recruitment costs for new staff		
Contract penalties		
Cancelled and lost orders		
Other		

Action to safeguard future business		
Examples	Time spent	Cost (£)
Reassuring customers		
Providing alternative sources of supply for customers		
Other		

Sanctions and penalties		
Examples	Time spent	Cost (£)
Compensation claim payments		
Solicitors fees and legal expenses		

Table 1.7 (2 of 3): Incident Cost Calculator

Sanctions and penalties		
Staff time dealing with legal case		
Fines and costs due to criminal proceedings		
Increase in insurance premiums		
Other		

Other		
Examples	Time spent	Cost (£)

Total		
-------	--	--

Table 1.7 (3 of 3): Incident Cost Calculator

Insurance policies don't cover everything and may only pay for serious injuries or damage. All other costs will have to be met by the employer. The amount of these uninsured costs varies between businesses and the types of incident, but is several times more than the costs of insurance.

Figure 1.5 shows examples of accident costs that would not be covered by employers' liability insurance.

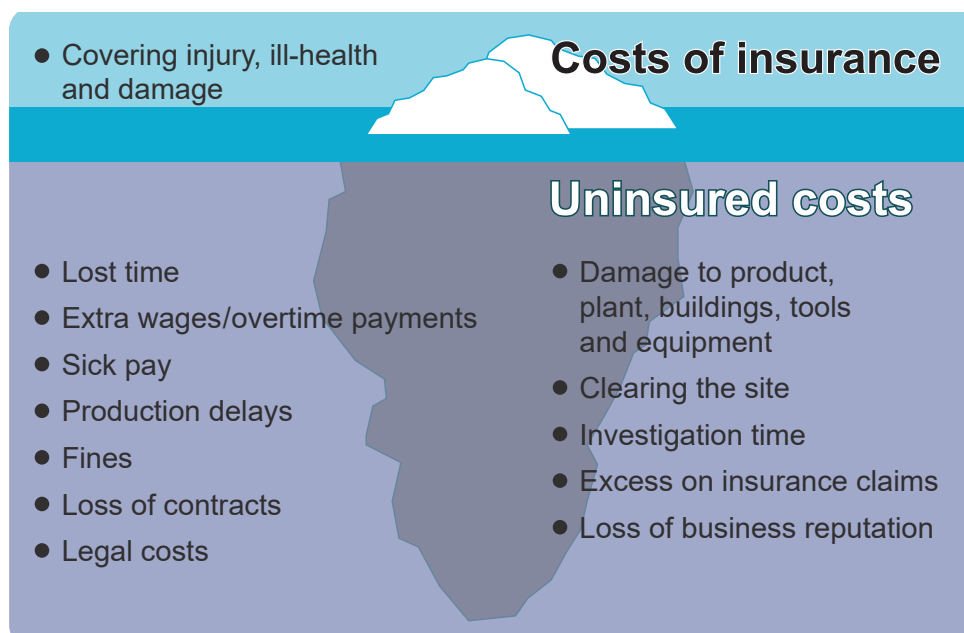


Figure 1.5: Accident cost iceberg – insured and uninsured costs

Possible costs to an organisation of work-related ill-health

Cases of work-related ill-health (as opposed to accidents) involve significant costs to organisations. In the UK the HSE estimate that in Great Britain during 2017/18, new cases of occupational ill-health cost society £9.7 billion, equivalent to £18 500 per case.

The cost of work-related ill-health to organisations can be categorised across five main areas:

- **Sick pay:** Occupational sick pay and/or statutory sick pay paid to employees when absent from work.
- **Insurance premiums:** The cost of Employers' Liability (EL) insurance premiums and the cost of corporate private health insurance premiums attributable to workplace accidents and work-related ill health.
- **Production disturbance:** The costs associated with work reorganisation and recruitment and induction of temporary or permanent replacement staff, to maintain output.
- **Administrative costs:** The costs associated with administering sickness, insurance and compensation claims, and conducting health surveillance.
- **Investigations and prosecutions:** The internal and legal costs arising from investigations and prosecutions by HSE or local authorities.

1.3 Regulating health and safety

- Laws – written codes of conduct setting rules for individual behaviour for the good of society have existed since Egyptian times, some 3 000 years BCE.
- The law is the cement of society and an essential element of societal change

International Organization for Standardization

ISO is an independent, non-governmental international organisation with a membership of 162 national standards bodies.

Through its members, it brings together experts to share knowledge and develop voluntary International Standards that support innovation and provide solutions to global challenges.



International Standards make things work. They give world-class specifications for products, services and systems, to ensure quality, safety and efficiency. They are instrumental in facilitating international trade.

The International Organization for Standardization contributes to good standards of health and safety in the following ways:

- they provide information on health and safety management (ISO45001 OHSMS) and technical issues (e.g. ISO 12100 – Principles for the manufacture of safe machinery);
- they provide a 'gold standard' to aim for;
- organisations can be certificated by independent accreditation bodies as having reached the required standard;
- multi-national organisations can have confidence that the standards are recognised as best practise in all territories.

The International Labour Organization

Introduction

The International Labour Organization (ILO) is an agency of the United Nations. It has a unique tripartite structure involving government, employer, and worker representatives. It is a forum in which the governments and socio-economic stakeholders from the member states can debate and elaborate labour standards and policies.



ACTRAV (the Bureau for Workers' Activities) provides the main link between the ILO and workers and coordinates all ILO activity related to workers and their organisations. The ACTRAV mandate is to:

- Strengthen representative, independent and democratic trade unions in all countries, to enable them to play their role effectively in protecting workers' rights and interests;
- Provide effective services to their members at national and international levels, and to promote the ratification and implementation of ILO Conventions.

Employers' organisations represent a key asset in any society. Successful businesses are at the heart of any strategy to create employment and improve living standards. The *ILO's Bureau for Employers' Organisations (ACT/EMP)* is responsible for the nurturing and development of the ILO's relationship with employers' organisations.

How the ILO works

The ILO aims to bring together governments, employers and workers to set labour standards, develop policies and devise programmes.

The ILO encourages this tripartism within its constituents and member States by promoting a social dialogue between trade unions and employers in formulating, and where appropriate, implementing national policy on social, economic, and many other issues.

The ILO accomplishes its work through three main bodies (The International Labour Conference, the Governing body and the Office) which comprise governments', employers' and workers' representatives.

The work of the Governing Body and of the Office is aided by tripartite committees covering major industries. It is also supported by committees of experts on occupational safety and health and related matters such as:

- Vocational training;
- Management development;
- Industrial relations;
- Workers' education;
- Special problems of women and young workers.

Mission and objectives



“The primary goal of the ILO today is to promote opportunities for women and men to obtain decent and productive work, in conditions of freedom, equity, security and human dignity.”

Juan Somavia, ILO Director-General

The ILO has four strategic objectives:

Promote and realise standards and fundamental principles and rights at work

The ILO promotes international labour standards aimed at making sure that economic growth and development go along with the creation of decent work. International labour standards therefore establish the basic minimum social standards agreed upon by all actors in the global economy.

Create greater opportunities for decent employment and income

The ILO promotes inclusive job-rich growth strategies to combat persistent poverty, increasing income inequality and slow job growth.

Enhance the coverage and effectiveness of social protection for all

Only 20 per cent of the world's population has adequate social security coverage, and more than half lack any coverage at all. Access to adequate social protection is a basic right. It is instrumental in promoting human welfare and social consensus on a broad scale; and is essential for fair growth, social stability and economic performance.

Strengthen tripartism and social dialogue

Social dialogue includes all types of negotiation, consultation and exchange of information between, or among, representatives of governments, employers and workers on issues of common interest.

In support of its goals, the ILO is involved in:

- Formulation of international policies and programmes to promote basic human rights, improve working and living conditions, and enhance employment opportunities;
- Creation of international labour standards and supervision of their application;
- An extensive programme of international technical cooperation to help countries put the policies into practice in an effective manner;
- Training, education and research activities to help advance all of the efforts.

ILO Plan of Action 2010–2016

The ILO's Plan of Action for 2010–2016 has five broad strategic goals:

1. To promote and support the development of a preventative OSH culture, through effective advocacy so as to increase awareness, knowledge and understanding of risks and hazards and how they may be effectively managed;
2. To promote and support ratification and implementation of key OSH standards, helping countries to develop their own national OSH policies, systems and programmes;
3. To reduce the implementation gap in respect of ratified Conventions, as identified by the ILO's Committee of Experts on the Application of Conventions and Recommendations;
4. To improve OSH conditions in SMEs and the informal economy, by building on experience gained and research undertaken in this area;
5. To take action to support the positive impact of OSH measures, such as collecting reliable statistical data to face the human and economic burden of work-related accidents and ill-health; developing a methodology for the evaluation of OSH in practice and promoting adequate and appropriate OSH inspection systems.

International Labour Standards

International labour standards are legal instruments drawn up by the ILO's constituents and set out basic principles and rights at work.

They are either conventions, or recommendations.

Conventions are legally binding international treaties that may be ratified by Member States;

Recommendations are non-binding guidelines.

A convention often establishes the basic principles to be implemented by ratifying countries, while a related recommendation supplements the convention by providing more detailed

guidelines on how it could be applied. Recommendations can also be autonomous, i.e. not linked to any convention.

Declarations

Declarations are resolutions of the International Labour Conference used to make a formal and authoritative statement and reaffirm the importance of certain principles and values. They are not subject to ratification; but are intended to have a wide application and contain symbolic and political undertakings by the member States.

Codes of Practice

These set out practical guidelines for public authorities, employers, workers, enterprises, and specialised occupational safety and health protection bodies (such as enterprise safety committees). They are not legally binding instruments and are not intended to replace the provisions of national laws or regulations, or accepted standards.

Codes of Practice provide guidance on:

- Safety and health at work in certain economic sectors (e.g. construction, opencast mines, coal mines, iron and steel industries, non-ferrous metals industries, agriculture, shipbuilding and ship repairing, forestry);
- Protecting workers against certain hazards (e.g. radiation, lasers, visual display units, chemicals, asbestos, airborne substances);
- Certain safety and health measures (e.g. occupational safety and health management systems; ethical guidelines for workers' health surveillance; recording and notification of occupational accidents and diseases; protection of workers' personal data; safety, health and working conditions in the transfer of technology to developing countries).

These guidelines call for coherent policies to protect workers from occupational hazards and risks while improving productivity. They present practical approaches and tools for establishing, implementing and improving occupational safety and health management systems, with the aim of reducing work-related injuries, ill health, diseases, incidents and deaths.

Applying and Promoting International Labour Standards

International labour standards are backed by a *supervisory system* that helps ensure that countries implement the conventions they ratify. The ILO regularly examines the application of standards in Member States and points out areas where they could be better applied. If there are problems in the application of standards, the ILO seeks to assist countries through social dialogue and technical assistance.

List of Current ILO Instruments regarding Occupational Safety and Health

C = Convention/**P** = Protocol/**R** = Recommendation

General provisions

- C155 – Occupational Safety and Health Convention, 1981
- P155 – Protocol of 2002 to the Occupational Safety and Health Convention, 1981
- R164 – Occupational Safety and Health Recommendation, 1981
- C161 – Occupational Health Services Convention, 1985
- R171 – Occupational Health Services Recommendation, 1985
- C187 – Promotional Framework for Occupational Safety and Health Convention, 2006
- R197 – Promotional Framework for Occupational Safety and Health Recommendation, 2006
- R097 – Protection of Workers' Health Recommendation, 1953
- R102 – Welfare Facilities Recommendation, 1956
- R194 – List of Occupational Diseases Recommendation, 2002

Protection against specific risks

- C115 – Radiation Protection Convention, 1960
- R114 – Radiation Protection Recommendation, 1960
- C139 – Occupational Cancer Convention, 1974
- R147 – Occupational Cancer Recommendation, 1974
- C148 – Working Environment (Air Pollution, Noise and Vibration) Convention, 1977
- R156 – Working Environment (Air Pollution, Noise and Vibration) Recommendation, 1977
- C162 – Asbestos Convention, 1986
- R172 – Asbestos Recommendation, 1986
- C170 – Chemicals Convention, 1990
- R177 – Chemicals Recommendation, 1990
- C174 – Prevention of Major Industrial Accidents Convention, 1993
- R181 – Prevention of Major Industrial Accidents Recommendation, 1993

Protection in specific branches of activity

- C120 – Hygiene (Commerce and Offices) Convention, 1964
- R120 – Hygiene (Commerce and Offices) Recommendation, 1964
- C167 – Safety and Health in Construction Convention, 1988
- R175 – Safety and Health in Construction Recommendation, 1988
- C176 – Safety and Health in Mines Convention, 1995

R183 – Safety and Health in Mines Recommendation, 1995

C184 – Safety and Health in Agriculture Convention, 2001

R192 – Safety and Health in Agriculture Recommendation, 2001

Levels of Legal Duty

Duties in international labour standards may be absolute (i.e. must be done) or may be qualified. The two major qualifications of health and safety law are those imposed by the phrases '*practicable*' and '*reasonably practicable*'.

Absolute Duties

Usually preceded by the word '*shall*' an absolute duty must be complied with. The employer has absolute duties to prepare a safety policy and to undertake risk assessments.

Practicable

If a duty applies so far as is '*practicable*' it is a less onerous duty than an absolute one. Practicable means feasible in the light of current knowledge and invention, *i.e.* if it can be done it must be done.

Reasonably Practicable

Reasonably practicable requires the degree of risk (likelihood x severity) of a particular activity or environment to be balanced against the costs (time, trouble and physical difficulty) of taking measures to avoid the risk.

The greater the risk, the more likely it is that it will be reasonable to go to very substantial expense, trouble and invention to reduce it.

If the consequences and the extent of a risk are small, the same substantial expense would be considered disproportionate to the risk and it would be unreasonable to have to incur them to address a small risk.

The size and financial position of the employer are not taken into account in consideration of what is '*reasonably practicable*'.

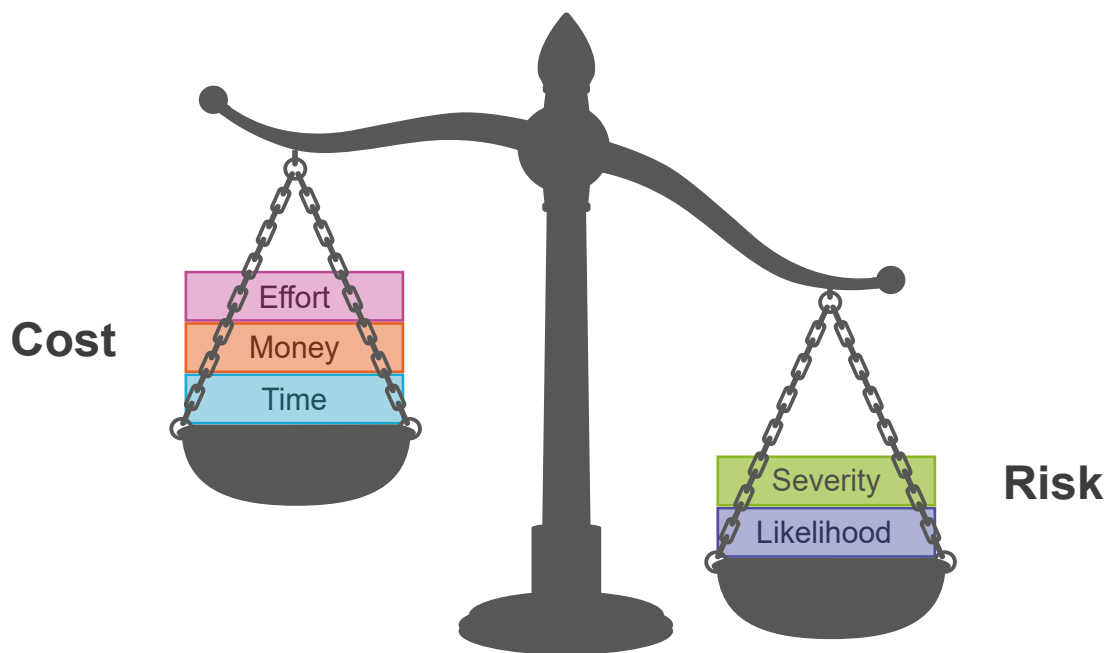


Figure 1.6: Reasonably Practicable

Employers Duties and Responsibilities

The ILO Recommendation concerning Occupational Safety and Health and the Working Environment (R164 – 1981) places the following obligations on the employer:

- To provide and maintain workplaces, machinery and equipment, and use work methods, which are as safe and without risk to health as is reasonably practicable.
- To give necessary instructions and training, taking account of the functions and capacities of different categories of workers.
- To provide adequate supervision of work, of work practices and of the application and use of occupational safety and health measures.
- To institute organisational arrangements regarding occupational safety and health and the working environment appropriate for the size of the undertaking and the nature of its activities.
- To provide, without any cost to the worker, adequate personal protective clothing and equipment which are reasonably necessary when hazards cannot be otherwise prevented or controlled.
- To ensure that work organisation, particularly with respect to hours of work and rest breaks, does not adversely affect occupational safety and health.
- To take all reasonably practicable measures with a view to eliminating excessive physical and mental fatigue.
- to undertake studies and research or otherwise keep abreast of the scientific and technical knowledge necessary to comply with the foregoing clauses.

Other employer obligations include:

- To prepare, implement and practice appropriate emergency procedures;
- To cooperate and consult both with his workers and with other employers at his workplace;
- To prepare and communicate his policy on health and safety at work (discussed in **Element 2**).

Workers' Rights and Responsibilities

The ILO Declaration on Fundamental Principles and Rights at Work 1998 commits Member States to respect and promote basic principles and human/worker rights in the following four categories, whether or not they have ratified the relevant Conventions.

- Freedom of association and the effective recognition of the right to collective bargaining;
- The elimination of forced or compulsory labour;
- The abolition of child labour;
- The elimination of discrimination in respect of employment and occupation.

R164 recommends that to facilitate co-operation between the employer and the workforce, where it is appropriate and necessary to do so workers' safety delegates should be appointed and workers' safety and health committees, and/or joint safety and health committees should be established.

Workers responsibilities include the following:

- To cooperate with their employer;
- To take reasonable care for their own safety and that of their fellow workers;
- To report accidents and any dangerous situations at the workplace;
- To not misuse any equipment provided for them;
- To follow site rules;
- To not take alcohol or drugs during their working time.

The role of enforcement agencies

The ILO Convention concerning the promotional framework for occupational safety and health (C187 – 2006) requires that each member state shall establish, maintain, progressively develop and periodically review a national system for occupational safety and health, in consultation with the most representative organisations of employers and workers.

The national system for occupational safety and health shall include among others:

- Laws and regulations, collective agreements where appropriate, and any other relevant instruments on occupational safety and health;
- An authority or body, or authorities or bodies, responsible for occupational safety and health, designated in accordance with national law and practice;
- Mechanisms for ensuring compliance with national laws and regulations, including systems of inspection;
- Arrangements to promote, at the level of the undertaking, cooperation between management, workers and their representatives as an essential element of workplace-related prevention measures.

Enforcement agencies typically:

- Publish information such as guidance and codes of practice giving advice on good practice and legal compliance;
- Provide advice to employers on how to improve standards in the workplace;
- Carry out or commission research into topical issues,
- Inspect workplaces to check levels of compliance and take enforcement action where necessary to ensure compliance.

Approaches to enforcement

Approaches to enforcement range from the *prescriptive* to the *goal-setting*.

Prescriptive approaches specify precisely what an employer (or other duty holder) is expected to achieve to be legally compliant. Much of the health and safety legislation in the USA is considered to be prescriptive in nature.

Goal-setting approaches, such as those used in the UK since the 1970's and Europe generally since the late 1980's are risk management approaches based on the premise that those who create workplace risks are best placed to determine how to manage them.

As a simple comparison the USA and Europe have different approaches to workplace illumination.

In the USA the Safety and Health Regulations for Construction: 1926.56: Illumination. state that in general: "*Construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lighted to not less than the minimum illumination intensities listed in Table D-3 while any work is in progress:*"

D-3 is shown in Table 1.8 below:

Foot-Candles	Area of Operation
5	General construction area lighting
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, re-fuelling, and field maintenance areas.
5	Indoors: warehouses, corridors, hallways, and exit ways.
5	Tunnels, shafts, and general underground work areas: (Exception: minimum of 10 foot-candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Bureau of Mines approved cap lights shall be acceptable for use in the tunnel heading)
10	General construction plant and shops (e.g., batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active store rooms, mess halls, and indoor toilets and workrooms.)
30	First aid stations, infirmaries, and offices.

Table 1.8: Table D-3 - the Safety and Health Regulations for Construction: 1926.56

Whereas in Europe Annexe 1 of the Workplace Directive (89/654) merely states that:

“Workplaces must as far as possible receive sufficient natural light and be equipped with artificial lighting adequate for the protection of workers’ safety and health.”

In the UK Regulation 8 of the Workplace (Health, Safety and Welfare) Regulations requires that:

- *“Every workplace shall have suitable and sufficient lighting;*
- *The lighting... shall, so far as is reasonably practicable, be by natural light.”*

It falls on the employer to determine what is *“suitable and sufficient”* and *“reasonably practicable”*, although the HSE provides advice through guidance notes.

Enforcement Options

Enforcement options may be classed as *preventive* (i.e. designed to prevent workers being injured) or *punitive* (i.e. to punish an offender for breaking the law).

Approaches may be *informal* or *formal*.

Informal approaches involve the provision of verbal and/or written advice and guidance with a strong recommendation that the employer heeds the advice by a specified deadline to avoid more formal action. Informal action may be appropriate where the risk of injury is low and the level of trust in the employer is high.

Formal approaches may include one, or any combination, of the following:

- Issuing a legal notice to stop dangerous activities (prohibition notice);
- Issuing a legal notice requiring improvements in technical controls and/or management systems to ensure legal compliance (improvement notice);
- Issuing a fixed penalty notice to punish a minor or technical contravention of the law;
- Prosecuting corporations or individuals to punish them for breaches of health and safety legislation (the courts may impose fines and costs or prison sentences on those found guilty);
- Issuing a legal caution, where prosecution for a first or minor offence may not be considered in the public interest.

Nature and sources of health and safety information

There are many sources of information available to support hazard identification and risk management in the workplace. Broadly these can be categorised based on whether the information is available internally (within the organisation) or externally (sourced outside of the organisation).

Internal sources of information are restricted to the range of experiences within the organisation and can be further limited due to inadequate reporting or poor record keeping.

External sources of information provide opportunities to learn from a much broader field of experience and to benchmark against recognised best practise but may not be directly relevant in the context of a specific organisation.

Internal and external sources are generally complementary and used together help to provide useful, contextual information to help identify hazards and evaluate risks.

Internal Sources of Information

- Accident/incident and ill-health data and rates can help in the identification of hazardous events;
- Incident investigation reports may provide root cause information;
- Occupational illness records are likely to be less useful in cases where there is a long delay between exposure and illness;
- General sickness/absenteeism records may will provide useful information on workplace pressure and stress;
- Audit reports provide information on the ongoing effectiveness of the safety management system;
- Risk assessment records will contain information on identified hazards, evaluated risks and previously recommended control measures;
- Safe systems of work provided documented work instructions for workers to follow to help keep themselves and others safe;
- Maintenance records can be a useful source of information on machinery damage and damage to the building fabric;
- Training records, training needs analyses and competence maps can provide an indication of the competence of individuals and the overall workforce.

External Sources of Information

- National legislation and supporting guidance (e.g. in the UK Acts of Parliament, Regulations, Approved Codes of Practice and Guidance);
- International/Supra-national/National standards e.g. BS EN ISO 12100:2010 “*Safety of machinery – General principles for design – Risk assessment and risk reduction*” is a British, European and International standard;
- Manufacturers/Suppliers information such as material safety data sheets for hazardous substances and safe operating instructions for plant and equipment;
- The ILO. The ILO website (www.ilo.org) provides free access to ILO conventions, recommendations and Codes of Practice on a broad range of health and safety issues; and the International Occupational Safety and Health Information Centre (CIS) is the knowledge management arm of SafeWork. It provides online access to a range of resources including International Chemical Safety Cards (ICSC); and The ILO Encyclopaedia on Occupational Health and Safety;
- Professional Bodies for health and safety practitioners such as IOSH, the IIRSM or ASSE;
- Related professional bodies such as the Institute of Chemical Engineers, The Institute of Engineering and Technology; British Occupational Hygiene Society etc.;
- Trade/industry bodies such as the Chemical Industries Association;
- National/state enforcement agencies or government departments, e.g.
 - UK – Health and Safety Executive (HSE);
 - USA – Occupational Safety and Health Administration (OSHA);
 - Western Australia – Work Safe;
 - Canada – The Canadian Centre for Occupational Health and Safety (CCOHS);
- Commercial databases of health and safety information, e.g. Technical Indexes, Barbour or Croner;
- Specialist text books;
- Magazines and journals.

1.4 Who does what in organisations

The promotion of safety and health should be considered an essential function of day-to-day good management and should not be considered as something superimposed on more important things or something of low priority which only gets done when (or if) the manager gets time.

The main duties to manage health and safety are typically placed upon the employer. As most large employers are bodies corporate it is the most senior employees, *i.e.* board level directors and senior managers that enable the fulfilment of the employers' duties.

Leaders and managers

The general management literature suggests that the key difference between leaders and managers is that:

*“Managers are people who do things right and
leaders are people who do the right things”*

And that the:

“Unique and essential function of leadership is the manipulation of culture.”

If leadership is viewed as a process rather than an innate personal quality, the key requirements for a leader are to:

- Set a clear and credible vision of the future state the organisation is trying to achieve;
- Establish the style and tone of communication, the social architecture and organisational culture;
- Create an atmosphere of two way trust between leaders, managers and the workforce;
- Visibly demonstrate commitment, persistence, and willingness to take risks/accept losses, consistency, self-knowledge and above all learning.

Directors Role as Health and Safety Leaders

Research by the HSE, in the UK, has shown that:

“Directors exert a fundamental influence over either standards of health and safety management or levels of health and safety performance.”

The research also estimated that effective board leadership can deliver a 5 –10% reduction in workplace accidents and ill-health.

Joint UK guidance from the HSE and Institute of Directors (IoD) on leading health and safety at work which advocates strong and active leadership from the top by:

- Visible, active commitment from the board;
- Establishing effective ‘downward’ communication systems and management structures;
- Integration of good health and safety management with business decisions.
- The guidance recommends board directors follow a four stage cycle for leading health and safety of: planning, delivering, monitoring and reviewing.

Specific recommendations include:

- Ensuring that health and safety is a regular agenda item for board meetings;
- Naming a board level director as the health and safety ‘*champion*’ to send a strong signal that the issue is being taken seriously and that its strategic importance is understood;
- Taking responsibility and ‘*ownership*’ of health and safety, at board level and ensuring that:
 - Health and safety arrangements are adequately resourced;
 - Competent health and safety advice is readily available;
 - Risk assessments are carried out;
 - Employees or their representatives are involved in decisions that affect their health and safety;
- Increasing ‘*visibility*’ of board members on the ‘*shop floor*’. Board members should be seen to follow all safety measures themselves and to immediately address any breaches;
- Gathering first-hand information for board level performance reviews;
- Publishing details of health and safety and wellbeing performance annual reports to investors and stakeholders;
- Including an assessment of senior managers’ contribution to health and safety performance in their appraisals.

Managers

Middle managers provide the connection between strategic apex and operating core of an organisation. For managers to be able to do things right, and to become committed to the organisation's health and safety objectives an effective infrastructure has to be in place:

- A robust health and safety management system (e.g. ISO45001);
- Management health and safety training;
- Clear targets for health and safety management (proactive – including positive behaviours);
- Provision of adequate resources to enable objectives to be met;
- Monitoring and review of performance against targets;
- Recognition and reward for good health and safety performance.

Supervisors

The lack of effective supervision is known to have contributed to a number of major accidents such as Piper Alpha and BP Texas City. Problems can arise because of poorly defined responsibilities, heavy workloads, inadequate resources, or as a result of removing supervisory roles altogether.

Key supervisory functions include:

- Planning and allocating work;
- Making decisions;
- Monitoring performance and compliance;
- Providing leadership and building teamwork;
- Ensuring workforce involvement.

Because of the regular contact they have with workers supervisors can make an important contribution to ensuring that: everyone knows how to work safely and without risk to their health; and that all workers follow the organisation's rules.

Supervisors can have a significant, positive impact on a range of issues that are known to affect health and safety performance such as:

- Compliance with procedures;
- Training and competence (through planning and directing work; and, supporting, training, coaching and guiding individual team members)
- Safety-critical communication;
- Staffing levels and workload;
- Shift work and fatigue;
- Organisational culture.

The traditional ‘*supervisor*’ represents a crucial link between job planning and execution. However, it is worth remembering that supervisory functions may be shared between a number of front-line ‘*shift managers*’, or between individual employees in a self-managed teams (SMT).

Whatever the management structure, supervision remains a critical issue and its importance should be duly and proportionately reflected within an organisation’s safety management system. Whatever method of supervision is used, the role of a supervisor or team leader is important in implementing effective controls.

It is management’s job to decide on the appropriate level of supervision for particular tasks. The level depends on the risks involved as well as the competence of employees to identify and handle them.

A degree of supervision of fully competent individuals will always be needed to ensure that standards are being met consistently.

There are also instances when a greater degree of supervision is required. Examples include:

- New starters;
- Trainees;
- Employees doing jobs which present special risks, e.g. working alone or at shift changeovers.

Figure 3.1 shows the relationship between supervision and competence.

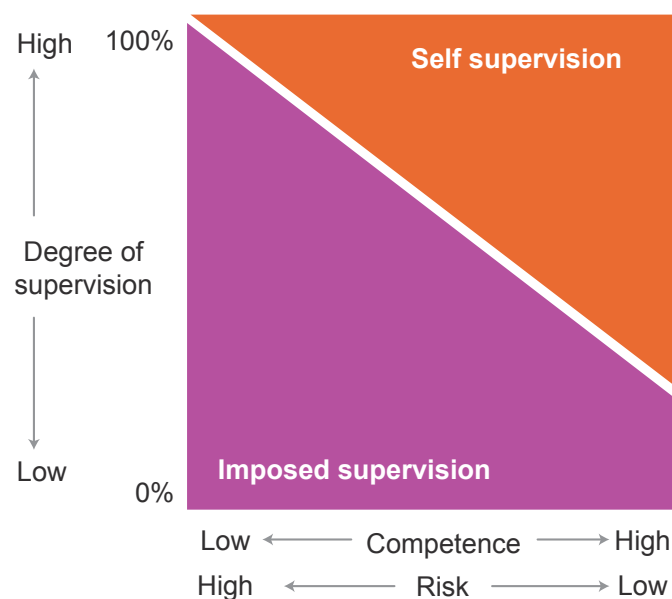


Figure 3.1: Required levels of supervision

Planning and co-ordination of contracted work

Where clients use contractors there are shared responsibilities for ensuring the health and safety of client and contractor workforces and anyone else who may be affected by the work. If not properly managed accidents are likely.

A contractor's employee may possibly be at a greater risk than the client's employee whilst working on the client's site due to:

- unfamiliarity with the client's site
- unfamiliarity with the client's site rules and procedures
- often contractors are used for high risk activities
- lack of appropriate training
- poor supervision.

Health and safety requirements should be written into the contract for the work, clearly defining the responsibilities of each party.

Responsibilities will vary depending on the nature of the contract as per Table 1.9.

Labour only contract	Where an agency provides staff to work under the employers direct control the contractor should be treated as an employee. The responsibilities of the agency regarding provision of competent workers and personal protective equipment should be clearly defined.
Fixed price contract	The most common type of contract. The five steps discussed below apply particularly to a fixed price contract.
Separate site	If the contracted work can be completely separated by secure fencing the contractor is responsible for health and safety on the separate site. The client may still have responsibilities regarding hazards that cannot be separated in this way e.g. noise, and access and egress to and from the separate site may still overlap with the clients undertaking.

Table 1.9: Different types of contract

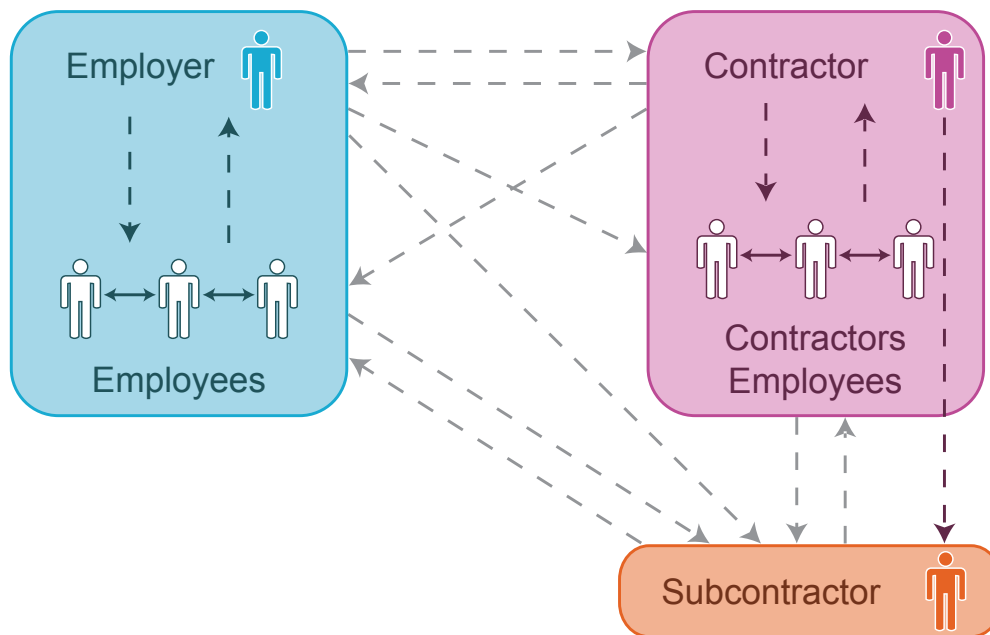


Figure 1.7: The complexity of client contractor relationships

Figure 1.7 represents a situation where a client (the employer) appoints a contractor to do work on site where the work will involve the contractors employees and a specialist sub-contractor who will be working in the same area as the employer own staff.

The extent of the responsibilities of each party will depend on the circumstances.

ILO Conventions and Recommendations

The ILO Convention C155 “Occupational Health & Safety Convention, 1981” Article 17 states that;

“Whenever two or more undertakings engage in activities simultaneously at one workplace, they shall collaborate in applying the requirements of this Convention.”

The requirements being that Member States draw up, implement and periodically review a policy on occupational safety, occupational health and the working environment. The aim of the policy shall be to prevent accidents and injury to health arising out of, linked with or occurring in the course of work, by minimising, so far as is reasonably practicable, the causes of hazards inherent in the working environment.

This convention is supported by the ILO Occupational Health & Safety Recommendation R164 1981, Recommendation 11 which states;

“Whenever two or more undertakings engage in activities simultaneously at one workplace, they should collaborate in applying the provisions regarding occupational safety and health and the working environment, without prejudice to the responsibility of each undertaking for the health and safety of its employees. In appropriate cases, the competent authority or authorities should prescribe general procedures for this collaboration.”

Supporting this convention and recommendation is the ILO Code of Practice “*Safety and Health in Construction*”, which in chapter 2 details the responsibilities of clients and contractors and how they should work together.

- Clients:
- a.** Co-ordinate, or nominate a competent person to co-ordinate, all activities relating to safety and health on their construction projects;
 - b.** Inform all contractors on the project of special risks to health and safety of which the clients are or should be aware;
 - c.** Require those submitting tenders to take into account for the cost of safety and health measures during the construction process.
 - d.** In estimating the periods for completion of work stages and overall completion of the project, clients should take account of safety and health requirements during the construction process.

Co-operation
and
co-ordination

- a.** Whenever two or more employers carry out activities at one construction site, they should co-operate with one another as well as with the client or client's representative and with other persons involved in the construction work being carried out in putting in place the required safety and health measures.
- b.** Whenever two or more employers carry out activities simultaneously or successively at one construction site, the principal contractor, or other person or body with actual control over or primary responsibility for overall construction site activities, should be responsible for planning and co-ordinating safety and health measures in compliance with any national laws or regulations.
- c.** In compliance with any national laws and regulations, where the principal contractor, or other person or body with actual control over or main responsibility for overall construction site activities, is not present at the site, they should nominate a competent person or body at the site with the authority to ensure on their behalf that co-ordination takes place and safety and health measures are put in place.
- d.** Employers should remain responsible for the application of the safety and health measures which effect the workers under their responsibility.
- e.** Employers and self-employed persons carrying out activities simultaneously at a construction site should co-operate fully in the implementation of safety and health measures.
- f.** Employers and designers should effectively discuss and communicate matters affecting safety and health.

Selection and ongoing management of contractors

A five step approach can be used to manage contractors and ensure safe working:

1. planning
2. choosing a contractor
3. contractors working on site
4. keeping a check
5. reviewing the work.

Step 1: Planning

Defining the job

The client should clearly identify all aspects of the work they want the contractor to do, including work falling within the preparation and completion phases.

Risk management

Both the client and prospective contractor should be involved in the risk management process.

The client should already have a risk assessment for the work activities of his own business. The contractor's role involves assessing the risks for the contracted work.

The client and the contractor need to agree the risk assessment for the contracted work and the preventative and protective steps that will apply when the work is in progress. If subcontractors are involved, they should also be part of the discussion and agreement.

Specify conditions

Contractors must be made aware of the expected standards of performance. Health and safety arrangements, procedures, permit systems and safety policy statement should be shared with the contractor who should confirm their understanding and agree to work accordingly.

Step 2: Choosing a contractor

Contractors will be selected based upon a range of criteria including: availability, cost, technical competence, reliability and health and safety.

The client has to take reasonable steps to satisfy themselves that the contractor is competent to do the job safely and without risks to health and safety.

The degree of competence required will depend on the work to be done.

The best way of being satisfied of a contractor's competence is through first-hand experience. A contractor is demonstrably competent if he has previously been used successfully on a similar job (through a cycle of risk management, monitoring and review).

A pre-tender questionnaire (PTQ) may be used to broadly determine the suitability of a contractor. Questions should be designed to check the contractors:

- experience in the type of work to be done
- health and safety policies and practices
- recent health and safety performance (number of accidents etc.)
- qualifications and skills relevant to the contract
- selection procedure for sub-contractors (if sub-contractors are to be allowed), or their safety method statement
- arrangements for:
 - health and safety training e.g. safety passport
 - supervision
 - consulting the workforce
- independent assessment of competence
- memberships of relevant trade or professional body.

References may be needed to verify the information provided.

Once a contractor has been appointed pre-commencement meetings will be required to clarify responsibilities and to ensure effective management arrangements are in place.

Step 3: Contractors working on site

Specific arrangements will be required to:

- manage the movements of contractors on site through visitor sign in controls and possibly permits-to-work
- ensure that all technical and management controls are in place before allowing the work to begin e.g.:
 - numbers of persons and supervisor details are confirmed
 - the correct work equipment is provided
 - access and egress to location of work are discussed and agreed
 - suitable personal protective equipment is available and being worn
 - safe system of work/method statements are understood
 - any necessary permits to work are in place
 - reporting, communications and monitoring arrangements have been agreed.

Arrangements will also be required for:

Information, instruction and training

All parties need to consider what health and safety information needs to be passed between them and agree appropriate ways to make sure this is done.

Instruction and training provided needs to take account of the risks arising from each parties work.

Co-operation and coordination

The client should set up regular meetings or briefings to ensure effective liaison between all the parties involved.

Consultation

The workforces should be part of the liaison arrangements set up by the client and should be involved from the outset.

Management and supervision

The greater the risk posed by the contractor's work the greater the management and supervisory responsibilities of the client.

The client will require sufficient knowledge and expertise to manage and supervise the contracted work.

Step 4: Monitoring the contract

All parties should monitor their health and safety performance to check that risk assessments are current and that control measures are effective.

The level of monitoring depends on the risks – the greater the risks, the more frequent the monitoring.

Contractors and sub-contractors should carry out day-to-day checks to see that what should be done is being done, and clients should make periodic checks on the contractor's performance to see if the work is being done as agreed.

Information from proactive monitoring and reactive investigations should be used to learn lessons and improve future performance.

Where requirements are not being met the client should take appropriate action to ensure the work is undertaken to the required standard.

Step 5: Reviewing the work

Both the client and the contractor should review the work after completion to see if performance could be improved in future.

The client should review both the job and the contractor. Consideration should be given to the effectiveness of the planning, the contractor's performance, and how smoothly the job went.

Lessons learnt should be recorded and used to influence future decisions.

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Version 1.0 2019