

## **Designing Safety in...and Keeping It There!**

**Ray Hurst CFIOSH, MInstRS  
President  
Institution of Occupational Safety and Health**

**Luise Vassie, BSc, PhD, MInstP, CMIOSH  
Head of Research and Technical Services  
Institution of Occupational Safety and Health**

### **Introduction**

The underlying principle of inherent safety - that is the elimination of hazards at the design stage rather than controlling them through additional layers of protection – is well established in the design of process plant and equipment. Analogously, the principle can arguably be broadly applied at the organisational level. That is embedding or designing safety into the organisational culture is preferable to addressing safety as an adjunct or afterthought.

In this paper we will examine the following elements that we believe are key to achieving this:

- decision making based on competent health and safety advice
- those at the top of organisations being clear about their duties in relation to health and safety
- the education of tomorrow's business leaders and professionals covering health and safety

### **Competent advice**

Legal guidance in the UK and elsewhere advocates 'competent advice' at an 'appropriate level.' According to Article 7 of the 1989 European Framework Directive, an employer shall designate one or more workers to carry out activities related to the protection and prevention of occupational risks:

- designated workers must have the necessary capabilities and means
- external services or persons consulted must have the necessary aptitudes and the necessary personal and professional means
- designated workers and the external services/persons consulted must be sufficient in number.

The Management of Health and Safety at Work Regulations 1992 introduced an explicit requirement for a 'competent person' to assist employers with health and safety matters. In the 1999 revision of the document, regulation 7 states: 'Every employer shall appoint one or more competent persons to assist him in undertaking the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions.'

The guidance supporting the Regulations and approved code of practice refers to the Qualifications and Curriculum Authority framework, which describes competence as: 'The ability to perform to the standards required in employment across a wide range of circumstances and to meet changing demands.'

In case law, *Gibson v Skibs A/S Marina and Orkla Grobe A/B and Smith Coggins Ltd* 1966 defines a competent person as: 'One who is a practical and reasonable man who knows what to look for and how to recognise it when he sees it.'

Current national competence standards for safety and health practitioners in the UK are generic and based on a safety management system. Standards cover five main topics in 10 mandatory units (ENTO, 2008):

- policy and culture
- communication
- risk identification and control
- monitoring
- audit and review.

The attempts to define competence thus far are not helpful, particularly for employers and recruiters, who don't know what qualifications and experience to look for when recruiting a health and safety adviser, or hiring a consultant. Currently, absolutely anyone can operate as a health and safety 'adviser' or 'consultant', without any qualifications or experience. Even if they were successfully prosecuted, there's nothing preventing them from continuing to practice. It's not unusual to see recruitment advertising for the equivalent of 'A-levels' for senior strategic roles. There is not a clear steer on what competence looks like. Companies and employers, from the owner-managed business to the multinational need to be clear about what type of advice they need. We believe that this lack of clarity about competent advice is damaging to:

- people whose lives and long term health are put at risk
- businesses, who waste time and money and potentially risk their futures with poor advice – either irresponsibly reckless or ridiculously over cautious
- the public, whose understanding of the real importance of health and safety is constantly tainted by negative media stories about crazy decisions made in the name of health and safety (IOSH, 2007a)
- national prosperity, through lost productivity and increased demands on health and social services.

Described as Scotland's worst industrial accident since 'Piper Alpha' in 1988, the ICL Technical Plastics Ltd factory explosion killing nine workers and injuring 40 others in 2004, is a tragic illustration of the potential consequences of not engaging competent advice (Health and Safety Executive, 2007). The source of the explosive atmosphere was a leak from a failed underground liquid petroleum gas (LPG) pipe, which had not been installed or maintained to

an acceptable standard. Engaging competent advice on a scheme of inspection and maintenance and implementing such a scheme can overcome the dangers presented by buried pipes.

Arguably, health and safety competence will be influenced by a number of factors, including: legislation, corporate culture, hazards, stakeholders, workers and managers, as well as health and safety practitioners. However, the interrelationship between these, if any, is not understood. According to Hale (2004), it is unclear whether firms that are good safety performers employ safety practitioners, or whether safety practitioners make their employers good at safety. There is a paucity of evidence on this issue. While economic conditions have been overridden by a steady rise in the number of employment opportunities in the health and safety field, the impact of this rise on health and safety performance has not been quantified on a macro level. Wright et al. (2004) found that large firms are more responsive to health and safety advice and intervention, partly because of the presence of in-house health and safety professionals, but also because of more clearly defined roles within the organisational structure. This raises a question over whether it was the in-house expertise or the organisational structure that is the key.

IOSH has commissioned a study at Cardiff University (UK) that assesses and compares the contributions of corporate culture and competent occupational safety and health advice to performance in health and safety, and considers the relationship between corporate culture and competent advice. The findings of this study are due to be published later in 2008 and it is anticipated they will go some way towards addressing the above mentioned issue.

Shaw and Turner (2003) reported on the UK Health and Safety Executive's 'Worker safety advisors' pilot in which temporary competent worker safety advisors were introduced into small and medium size enterprises (SMEs). The small scale study found that the majority of employers involved in the pilot reported improvements in health and safety management, including introducing or updating health and safety policies, setting up health and safety committees, and undertaking risk assessments. Over half of them felt that improvements were as a result of the intervention of worker safety advisors. However, the limitations of 'before and after' studies should be borne in mind.

More recently, in an IOSH sponsored study, Cameron et al. (2007), focusing on the construction sector, tested the hypothesis that good health and safety performance is dependent, to a measurable extent, on the provision and appropriate application of competent health and safety management. They found a small (0.25) but significant relationship between investment in health and safety professionals (as a percentage of turnover) and health and safety performance (in terms of accident frequency rate). Increasing investment in health and safety professionals was linked to a cut in accident rates, or better performance. However, this linear association tailed off as investment approached 0.1-0.2% of turnover. The smallness of the correlation is probably not surprising given the many other confounding influences on accident rates, such as safety culture, line manager training and worker involvement. This study also examined the relationship between aspects of the health and safety professional's role and the company's health and safety performance and found the following significant differences:

- Companies with in-house health and safety professionals have an accident rate nearly 60 per cent lower than those that only use consultants.
- Using consultants is more common in smaller companies (with a turnover of less than £25 million). In this category, companies that employ a mixture of health and safety staff and a consultant tend to perform best.

- Companies affiliated to an industry body, or with health and safety personnel who have professional body membership, have close to a 50 per cent lower accident rate than those with none.
- Companies with health and safety professionals who train staff in health and safety have accident rates that are one third lower than those that don't.
- Companies with health and safety personnel who vet or assess sub-contractors have close to a 60 per cent lower accident rate than those that don't.
- Companies with health and safety personnel who have significant management authority have a 60 per cent lower accident rate than those with professionals who just give advice.

Examining the OSH professional's contribution to health and safety performance, raises the issue of how individual health and safety competence leads to organisational health and safety competence, given that individual competence has been considered as a necessary but not sufficient input for organisational competence (Mabey et al., 1995), and that organisational competence requires a transfer mechanism allowing interchange between individuals and organisational structures (Kim, 1993).

In terms of the impact of health and safety management on organisations and their employees, Ward et al (2008), in a study sponsored by IOSH, found that when they compared organisational outcomes and employee outcomes for organisations with three categories of health and safety management approach, organisations that were 'very good' (the most proactive approach to health and safety management) employees showed more positive safety perceptions of safety climate, were more committed to their organisation and showed greater satisfaction with their job than employees in organisations that were categorised as 'yet to be fully engaged / complier'. These differences were statistically significant. As for organisational outcomes, increasing profit margin and improving reportable accident performance and days lost tended to be observed with a more proactive approach to health and safety management.

IOSH is lobbying the UK Government to clearly define competence, to recognise and promote the different levels of qualifications, experience and skills for health and safety advice so that companies and employers are clear about what type of advice they need and to legally regulate the profession. Other professions, including medicine, structural surveying and trades such as gas and electrical fitting are regulated – why not the health and safety profession? Regulation of the profession would show that the qualifications, experience and skills of health and safety professionals are just as vital to protecting people as they are in these other professions. Recent changes in the EU (resulting from the Services in the Internal Market and Recognition of Professional Qualifications Directives) mean, it's increasingly important that the profession is regulated, to make sure professionals from other European countries meet minimum UK standards (IOSH, 2007b).

The IOSH guides 'Consultancy – good practice guide' provides practical guidance on working as a competent health and safety consultant, and the complementary 'Getting help with health and safety' provides practical guidance to companies looking for a competent, credible health and safety consultant (IOSH, 2008a, b). IOSH will publish a guide on training and competence giving a framework on requirements for both health and safety professionals and the people they work with, later in 2008.

## Directors' duties

Several catastrophic events over the last three decades have had their roots in leadership deficiencies; for example, the sinking of the Herald of Free Enterprise in 1987 in which 193 people died, the deaths of four teenagers in a canoeing incident in Lyme Bay and the Southall (1997) and Hatfield (2000) train crashes to name a few. However, there have only ever been seven companies prosecuted for the offence of Corporate Manslaughter. In fact the first successful prosecution for Corporate Manslaughter was the conviction of OLL for the deaths of the four teenagers at Lyme Bay, as other manslaughter cases have collapsed.

The main reason for cases collapsing in relation to large organisations is a lack of clear identification of the 'controlling mind' (a company director) and demonstration that this person failed in their duty of care to the deceased. This meant, for example in the case of the Herald of Free Enterprise, establishing a causal chain between the directors, layers of management and decision making and the failure to close the bow doors.

In April 2008, long-awaited legal reform takes place in the shape of the Corporate Manslaughter and Corporate Homicide Act 2007. This means that the 'identification principle' no longer applies and it will be sufficient to prove that the organisation had a duty of care to the deceased and that they were in 'gross breach' of this duty due to senior management failings in the way activities were managed and that these caused the death. 'Gross breach' falls far below what could reasonably be expected in the circumstances.

Unlimited fines but additionally remedial orders, requiring the convicted organisation to take steps to rectify any failure or deficiency that may have contributed to the accident and publicity orders, requiring the organisations to advertise details of its conviction are the penalties that could be imposed by the courts. Remedial orders may be wide-ranging but could include a requirement for mandatory training or retraining of senior managers in health and safety management, introduction of a behavioural safety programme, use of a third-party audit and access to competent advice.

The introduction of this law should be an opportunity to focus and refocus directors on health and safety management and leadership, particularly as legal compliance is reported as a key motivator for senior managers. Ashby and Diacon (1996) reported compliance with government regulation and the avoidance of legal liabilities as the main driving force behind senior managers' desire to manage health and safety. Wright (1998), reviewed empirical research on management motivation to proactively manage health and safety and found two main factors that motivate the initiation of health and safety improvements: fear of loss of corporate creditability and a perceived duty to comply with regulations. Senior managers also viewed health and safety as a significant performance determinant (Smallman and John, 2001).

Other reported drivers were the perceived business benefits of effective health and safety management such as increased profit and turnover, increased staff morale and retention. Directors of small and medium sized businesses reported the impact of the supply chain and worker protection as drivers (Miller, 2005).

Increasingly large organisations direct health and safety at board level, as more senior personnel consider that board level direction of health and safety to be best practice and health and safety is a matter requiring corporate direction. In 2003, 66 per cent of companies and organisations surveyed reported that they had board level direction of health and safety compared to 58 per cent in 2001 (Wright et al., 2003). A wide range of factors have elevated

consideration of health and safety management up the organisational agenda; for example, a general increase in the importance of health and safety, guidance on directors' responsibilities, concerns over corporate social responsibility, health and safety performance and fear of prosecution. However, there was still a significant proportion of organisations that did direct safety at this level, illustrating that there is more work to do to achieve the buy-in.

IOSH has worked with the UK Institute of Directors, the Health and Safety Executive and others to develop guidance on directors' duties in relation to health and safety. The guidance aims to provide practical guidance to director, board members and their equivalents on their health and safety responsibilities. It covers four key areas: plan, delivery, monitor and review, and focuses on the needs for directors to ensure strong and visible leadership, worker involvement and effective risk management, including access to competent advice (Institute of Directors and Health and Safety Commission, 2007). So, a clear definition of competence would support directors in implementing the guidance. Depending on the circumstances, juries may take into account whether defendants have followed the guidance when considering a Corporate Manslaughter or Corporate Homicide case.

IOSH would also like to see enforceable directors' duties and the above guidance forming the basis of an Approved Code of Practice.

## **Developing tomorrow's leaders and professionals**

Increasing competitive demands on business have resulted in new ways of working and greater emphasis on competence throughout the workforce. Human capital is increasingly recognised as the key to growth and competitiveness. It is important, therefore, that the curricula of vocational disciplines respond to these demands.

Currently, the curricula of business and management qualifications rarely make mention of health and safety, while other organisational risk issues receive comprehensive coverage. Of particular note, is the paucity of strategic level health and safety content in the Masters in Business Administration (MBA) programme. As a result, many upcoming business leaders are destined to arrive in the boardroom without health and safety on their agenda.

Senior managers are responsible for the overall direction and coordination of an organisation's major activities. They are responsible for organisation-wide planning, organising, directing and controlling and for providing strategic leadership to the organisation. In summary, they are responsible for the success or failure of the organisation. Specifically in relation to health and safety, their influential role has long been recognised (Health and Safety Commission, 2000, 19 and Health and Safety Executive 1999, 46), although their competence to lead effectively in this area has been questioned (Miller, 2005).

Senior managers typically have several years of experience at operational and strategic levels. Their educational backgrounds are variable: graduate/postgraduate and non-graduate. However, the role of a senior manager is recognised as being complex and diverse. Furthermore, changing business priorities in response to issues such as technological advance, market pressure and corporate social responsibility have indicated changes in skill requirements for senior managers (Kettley and Strebler, 1997).

In terms of management education, the Masters in Business Administration (MBA) programme with a high-international profile is considered to be the passport to a successful management career (AMBA, 2008). The UK produces 10,000 MBAs per year – the highest



number outside North America (AMBA, 2008). The MBA syllabus varies from institution to institution; however, it usually consists of a number of core modules such as, marketing, economics, human resource management and operational management, and a number of electives such as, small business issues and e-commerce. Despite the strategic importance of health and safety management, its coverage in MBA programmes is negligible. Hawkins and Booth (1998) reported that the coverage of health and safety management MBA programmes in British management was non-existent or very limited at best and that management academics did not consider that it was a relevant issue for contemporary business managers. More recently, Robert Gordon University has launched a specialist energy MBA programme – MBA Oil and Gas Management. This programme features an elective, but not core module, on health, safety and risk in an organisational context.

By making it part of the curricula along with other issues, we believe that tomorrow's business leaders will better recognise the value of health and safety. Cameron et al. (2007) indicated that increased levels of line manager training are significantly associated with improved health and safety performance - companies with line managers who have only the equivalent of two days training in health and safety have an accident rate more than eight times higher than companies where line managers have a level 3 vocational qualification (A level). IOSH is calling on business schools and universities to include strategic level health and safety in vocational qualifications, especially MBA programmes.

Equipping managers with the competence to recognise the importance of health and safety could help prevent incidents similar to the fire and explosion at the Hickson and Welch chemical plant, UK in 1992 that killed four employees (Health and Safety Executive, 1994). This incident provides a salutary reminder of the potential consequences of failing to continuously review competence and training needs of employees at all levels of an organisation. Prior to this incident the company had reorganised, removing layers of management and giving team leaders increased responsibility; however, the competences of the team leaders was not reviewed in the context of their new roles and responsibilities. Aside from management education programmes, there is limited coverage of appropriate health and safety management material in several other vocational training and education programmes, which may be the first degree programmes of aspiring middle and senior managers; for example, construction (Carpenter et al., 2001) and engineering (Lee, 1999). This issue is not unique to the UK (Dingsdag, et al.). IOSH is currently working with engineering professional bodies to help make sure adequate health and safety knowledge is provided to engineering undergraduates. Some recent progress has been made at Liverpool University, UK where engineering graduates are learning about health and safety risk in a practical way, but there is much more work to be done to ensure that health and safety is a core discipline in these programmes.

## Summary

This paper has considered three fundamental elements for embedding health and safety into the roots of the organisation:

- decision making based on competent health and safety advice
- those at the top of organisations being clear about their duties in relation to health and safety
- the education of tomorrow's business leaders and professionals covering health and safety

For each element the current situation and challenges have been highlighted along with the suggested requirements for change. Examples of how IOSH is working with a range of stakeholders to effect change, offering clear guidance and solutions have been provided. Additionally, new research from our funded programme is helping to fill knowledge gaps in relation to better understanding the impact of health and safety assistance in relation to health and safety performance.

## Bibliography

AMBA, <http://www.mbaworld.com>, 2008

Ashby, S. G. and Diacon, S. R. Motives for occupational risk management in large UK companies. *Safety Science*, 22, 229-243, 1996.

Cameron, I., Hare, B. and Duff, R. *Superior Safety Performance – OSH Personnel and Safety Performance in Construction*. Wigston: IOSH, 2007.

Carpenter, J., Williams, P. and Smith, N.C. *Identification and Management of Risk in Undergraduate Construction Courses*. CRR392/2001. Sudbury: HSE Books, 2001.

Corporate Manslaughter and Corporate Homicide Act 2007. London: HMSO.

Dingsdag, D. P., Biggs, H.C. and Shehan, V.L. Understanding and defining OH&S competency for construction site positions: Worker perceptions. *Safety Science*, (in press).

ENTO. Health and Safety National Occupational Standards.  
<http://www.ento.co.uk/standards2/hands/index.php>, 2008

European Council Directive on the introduction of measures to encourage improvement in the safety and health of workers at work, No 89/391/EEC (OJ[1989]183/1).

Hale A. R. 'OSH intervention delivers better safety: faith, fact or fantasy?' *IOSH Conference*, Harrogate, 20–21 April, 2004.

Hawkins, J. and Booth, R. T. Safety and health management system guidance: A view founded on BS 8800: 1996. *Journal of the Institution of Occupational Safety and Health* 2(1), 7-24, 1998.

Health and Safety Commission. *Revitalising our Potential*. Suffolk: HSE Books, 2000.

Health and Safety Executive. *The Fire at Hickson and Welch Ltd: A Report of the Investigation by the Health and Safety Executive into the Fatal Fire at Hickson and Welch Ltd, Castleford on 21 September 1992*. Sudbury: HSE Books, 1992.

Health and Safety Executive. *The Costs to Britain of Workplace Accidents and Work related Illhealth in 1995/1996*. Sudbury: HSE Books, 1999.

Health and Safety Executive. ICL Plastics Ltd/ICL Tech Ltd investigation fact sheet.  
<http://www.hse.gov.uk/press/2007/gnnsco09107.htm>, 2007



- Institute of Directors and Health and Safety Commission. *Leading Health and Safety at Work*, INDG417. HSE: London, 2007.
- IOSH. *Stop Taking the Myth*. <http://www.iosh.co.uk/files/conkers/StoptakingtheMyth.pdf>, 2007a
- IOSH. *Get the Best*. <http://www.iosh.co.uk/files/getthebest/Getthebest.pdf>, 2007b
- IOSH. *Consultancy – Good Practice Guide*. Wigston: IOSH, 2008a
- IOSH. *Getting Help with Health and Safety*. Wigston: IOSH, 2008b
- Kettley, P. and Strebler, M. T. *Changing Roles for Senior Managers*, IES Report 327. Brighton: Institute for Employment Studies, 1997.
- Kim D K. The link between individual and organizational learning. *Sloan Management Review* 35 (1): 37–50, 1993.
- Lee, J. F. *Education of Undergraduate Engineers in Risk Concepts*. London: Health and Safety Executive, 1999.
- Mabey C, Salaman G and Storey J. *Human resource management: a strategic introduction*. Oxford: Blackwell, 1995.
- Management of Health and Safety at Work Regulations. London: HMSO, 1999
- Miller, M. *Director Leadership of Health and Safety*. HSL/2005/21. Buxton: HSL, 2005.
- Smallman, C. and John, G. (2001) British directors' perspectives on the impact of health and safety on corporate performance. *Safety Science*, 38, 227-239, 2001.
- Shaw, N. and Turner, R. *The worker safety advisors (WSA) pilot*. RR144. Sudbury: HSE Books, 2003.
- Ward, J., Haslam, C. and Haslam, R. *Occupational Safety and Health – Promoting Good Health and Good Business*. Wigston: IOSH, 2008 (in press).
- Wright, M. S. *Factors Motivating Proactive Health and Safety Management*, CRR179/1998. Sudbury: HSE Books, 1998.
- Wright, M. S., Marsden, S. and Holmes, J. *Health and Safety Responsibilities of Company Directors and Management Board Members*, RR 135/2003. Sudbury: HSE Books, 2003.
- Wright, M., Marsden, S., and Antonelli A. *Building an Evidence Base for the Health and Safety Commission Strategy to 2010 and beyond: A Literature Review of Interventions to Improve Health and Safety Compliance*. RR196. Sudbury: HSE Books, 2004.