OCCUPATIONAL HEALTH AND SAFETY AT SEA: the relevance of current experiences of regulating for a safer and healthier work environment on land?

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INTRODUCTION

This paper represents some tentative thoughts about ways of seeing the issue of health and safety in seafaring that are drawn from experience of examining approaches to managing health and safety in land based industry. In outline, the set of related ideas it presents are as follows:

- While the picture is far from complete, there is sufficient evidence to suggest that seafaring continues to rank amongst the most hazardous of occupations.
- As with land-based work, a large proportion of the toll of work-related death, injury and ill-health amongst seafarers' safety arises from failure to manage health and safety effectively.
- This failure is exacerbated by changes that have taken place in the structure and organisation of the industry internationally over the last quarter of a century that both contribute to altered and increased risks to health and well being and make prevention of harm to workers more difficult to both manage and regulate
- Such failures and the changes that exacerbate them however are not unique to the industry but are widespread features of change in the nature, structure and organisation of work and labour markets that have taken place everywhere during the same period

The paper therefore argues that while managing health and safety is in many ways a special case in the shipping industry, it also true that the industry represents a work environment in which the same global pressures that impact on regulating health and safety across all economic sectors in market economies are felt particularly acutely. As a consequence it suggests that an appreciation of what is known about the health

and safety consequences of these pressures in land-based experience, alongside the ways that modern health and safety management and regulation has attempted to respond to them, could lead a better understanding of some of the current challenges confronting the improvement of health and safety management at sea and effective means of addressing them.

An outline of the scale of the problem of known adverse health and safety outcomes in the shipping industry is first presented. This is followed by discussion of parallels between the kinds of structural and organisational changes that have taken place in land-based work and those that have led to the current profile of work at sea. It identifies land-based evidence suggesting that many of these changes have poor health and safety outcomes and points out that resources for inspection and enforcement of health and safety requirements do not match the increasingly complex economic environment in which work takes place. Again, it identifies parallels between this situation and the regulatory environment of the international shipping industry.

Strategies to address these challenges to health and safety management and its regulation on land are reviewed and their implications for understanding health and safety at sea considered. Starting from the development of the core principles of the current regulatory model for occupational health and safety management, it is demonstrated how this model has come to have a broadly international application. Of special interest is the way that the core principles are based around a holistic definition of health and safety and a focus on managing risks. The paper suggests that such a conceptualisation has major implications for ways of understanding employers' responsibilities for health and safety at work. It goes on to argue that while these core principles have the potential to be relevant to the changing world of work, there is growing evidence showing that in many cases they are poorly understood by duty holders. They have, therefore, to only a limited extent achieved their potential to address the challenge of change in the world of work. The paper concludes with a discussion of some of the reasons for this and considers their implications for the future improvement of the health and safety of seafarers.

Health and safety outcomes at sea

Analyses of health and safety outcomes in the shipping industry indicate cause for concern. Despite the well-known problems of under-reporting of injuries (and even fatalities) in the industry, it remains amongst one of the most dangerous according to official statistics and specific studies (Roberts 2004; Nielsen and Roberts, 1999; Hansen *et al* 2002). In the British merchant fleet for example, the relative risk of mortality caused by accidents at work has been reported to be 26.2 times greater than for all workers in the UK (Roberts 1998), while in the Danish merchant fleet the fatal accident rate was 11 times higher than for shore based industries (Hansen 1996). Moreover, there is a growing body of thought that argues that the hazards of work at sea are not only those associated with sinking ships or major accidents to individuals engaged in obviously dangerous activities. While these are of course serious enough, the poor health and safety outcomes of work at sea also embrace greater risks of ill-health from exposure to chemical and physical hazards. As is also the case on land, less is known about the full extent of work-related ill-health resulting from these exposures but what little that is known suggests a similar degree of comparatively poor outcomes. Exposure to hazardous chemicals is responsible for a significant number of deaths and chronic illnesses. The Norwegian Cancer Research Institute found deaths from mesothelioma among ships' engineers and engine ratings to be six times that of the general population, Seafarers have been found to be at significantly greater risks of other forms of cancer, which can be linked to their exposure to known carcinogens in their work (ILO 2004 see also Brandt *et al* 1994; Cocco *et al* 1994 ; Pukkala and Saarni 1996 ; Moen *et al* 1990; Nilson et al 1997; Moen *et al* 1995). Exposure to excessive noise and vibration result not only in shifts in hearing thresholds but also slower reaction times and attention lapses among seafarers (Szczepanski and Otto 1995; Smith 2001). Other common physical hazards include exposure to extremes of heat and cold and excessive solar radiation (ILO 2004).

The ergonomic consequences of poor work design combined with working at sea lead to increased risks of musculoskeletal disorders (Toner et al 1994). Psychological and mental health problems are also more prevalent amongst seafarers than amongst many other occupational groups and can be related to the stress and fatigue associated with the organisation of work at sea. High suicide rates are a further documented feature of

work at sea (Roberts, 1998; Hansen 1996a). In addition there are a host of life style influenced poor health outcomes in relation to diet, alcohol and drug abuse, work-life balance and sexual health that are all prevalent and can be attributed to the living and working conditions experienced as part of employment at sea (ILO 2004:137-138).

Another major issue is the violence and trauma seafarers encounter as victims of maritime crimes such as piracy. While it is perfectly clear that this is not a straightforward subject for employers' responsibilities, as with the examples of criminal activities and harassment that are frequently experienced by land-based workers in both private and public services, there are elements under the control of employers that are relevant. For example, two issues in particular stand out. The first concerns the aspects of prevention and protection that are embraced within the employers' responsibilities to assess risks and organise work in ways that take adequate account of them. The second concerns the further employer responsibilities to help rehabilitate workers traumatised by such experiences.

Change in the structure and organisation of work and its implications for workers' health and safety

Many of the increased risks referred to above have of course long been associated with an occupation that has been known to be hazardous from ancient times. However, the prevalence of some is probably more closely associated with the consequences of changing technology, work practices and their management, and especially with change in crewing policies and with the development of a global labour market that are all very much features of modern times. In addition the relatively low profile of regulation at sea does little to mitigate poor health and safety outcomes and this too has possibly been exacerbated by relatively recent shifts in the way that the industry is regulated internationally.

Over the last quarter of a century such change and the reasons for it may have been more extreme at sea, but a similar order of things has occurred in land based production and services and for broadly the same reasons. It is now widely recognised that globalisation and the increased importance of international market-based,

regulation of economic activity has had a profound impact on what work is done, how it is done and how the conditions under which it is done are regulated throughout the world. There are mounting descriptions of this change, in which the altered context of productive activities in advanced market economies of Europe, North America and Australia/New Zealand have been described in these countries and internationally in the past twenty years.

Changes in the structure and organisation of work: Direct effects of these changes are becoming better documented with the results of national and international surveys[1]. Negative health and safety outcomes include the rapid growth in importance of the health effects of psycho-social aspects of work intensification and the shift from manufacturing to service based economies as well as growth in significance of musculoskeletal disease. At the same time, risks from more traditional chemical, physical and biological hazards have by no means disappeared. For example, in the EU it is estimated that one third of all occupational disease is the result of exposure to hazardous substances (Musu 2004). In the case of certain past exposures, such as that to asbestos for example, their negative health consequences are continuing to exert a mounting toll of mortality and morbidity that is likely to continue well into the present century. Hazardous work processes have been increasingly imposed on more vulnerable workers. This has occurred both in rich, regulated countries as a result of the trends in the structure and organisation of work and labour markets — and in less regulated economies, when multi-national business interests have gone off-shore to reduce labour costs and avoid regulation, resulting in workers in developing and newly industrialising countries being exposed to noxious production processes. While in advanced market economies, the impact of economic liberalism has continued to promote deregulation, arguably resulting in decreased traditional sources of protection for workers in these countries.

[1] There have been regular and ad-hoc surveys of the extent of the burden of work related ill-health in many countries in Europe and North America. In addition there have been cross-country surveys such as those undertaken by the European Foundation for Living and Working Conditions in the European Union (see European Foundation, 1992 and 1997 and Paoli and Merllie 2001). Most of these surveys show rising incidence of stress related conditions and MSD. Furthermore, they point to substantial incidence of work related ill-health that is not reported by conventional statutory reporting requirements, leading to estimates such as those in the UK where 25,000 people are believed to leave employment each year as a result of a work related injury and illness (HSC/DETR 1999). Such ill-health and injury is responsible for the loss of over 25 million working days annually (Jones et al 1998).

Enormous changes in the way in which work is done have also taken place in the shipping industry. Developments like containerisation, and specialised ships used to carry particular kinds of commodities, has led to work intensification in many areas of shipping with the consequent problems referred to previously of stress and fatigue amongst seafarers involved. More work being done faster, by fewer workers in situations in which flexibility, faster turn around times and increased speed generally are required, lead to the likelihood of similar health and safety consequences to those that are known to exist for shore based industries that have undergone broadly similar changes in work structure, organisation and delivery in recent times. As already pointed out, the effects of fatigue, the incidence of stress and the prevalence of MSD in seafaring all point to similar trends in the health and safety consequences of change in the organisation of work that are familiar in land based scenarios.

Labour market changes: There has been a rapid increase in contingent labour with part-time temporary and peripheral workers playing more and more significant roles in the economy internationally as well as increased participation by women in the labour force. Of the range of nearly one hundred studies on the health and safety effects of precarious employment in industrialized societies published internationally between 1984 and 2000, the majority indicate that precarious employment is associated with a deterioration in occupational health and safety (OHS) in terms of injury rates, disease risk, hazard exposures, or worker (and manager) knowledge of OHS and regulatory responsibilities. Moreover, well over 90 percent of studies on outsourcing and organisational restructuring/downsizing, find a negative association with OHS. The evidence is also fairly persuasive for temporary workers, with 14 of 24 studies finding a negative association with OHS (Quinlan *et al* 2001). There are also important gender considerations to bear in mind when contemplating the effects of the changing world of work on health. In particular the 'double burden' of work experienced by many women[2], as well as the disruption of work-life balances for both women and men that are the consequence of many new forms of work organisation.

In shipping, the major changes that have occurred in the structure and organisation of the industry include a shift from stable and regulated labour markets to more

[2] See Vogel (2003) for a further detailed analysis of this situation.

casualised and less regulated ones. Independent, international ship management companies have emerged along with the widespread use of flags of convenience and the displacement of national regulatory systems with transnational and international ones. These changes along with wider acceptance of free market economic policies in the advanced market economies enabled the rapid development of a global labour market for seafarers, largely as a consequence of the industry's efforts to control labour costs. The result was that single nationality crews were replaced by multinational ones that could be employed more cheaply (ILO 2004). This has resulted in the same kinds of situations as those described in the previous paragraph for land-based work — and presumably with the same likely poor consequences for seafarers' health and safety. Moreover, such situations make the task of managing health and safety more difficult. Issues of communication, responsibility and monitoring become increasingly difficult, the more complicated the employment relationship becomes. In addition the multinational aspects of the crews imply greater demands for investment in training and better communication techniques to ensure appropriate levels of safety[3] – an experience also shared with some land based industries such as construction for example.

The evidence of much of the likely consequences of current changed work structure, organisation and practice remains hidden. Decline in manufacturing, heavy engineering and mining as well as in large relatively stable enterprises and the growth of the significance of work in small enterprises, contingent and peripheral employment, casualisation and outsourcing, has resulted in job insecurity and work intensification in an environment that has become far more difficult to regulate. Organisational aspects of these situations are increasingly less defined by individual employment relationships and more by 'structured networks of production'. As a result, influences from outside enterprises are beginning to have greater impact than employers on what is produced and how it is produced (and the consequent health and safety effects of production). The supply chain and the role of intermediary processes and actors in the wider economic (and sometimes social) environment in which work

[3] See for example Sampson and Zhao (2003) who in a paper on multilingual crews and the operation of ships conclude that safe working practices depend in part on adequate communication between crew members and suggest this requires more than a simple understanding of 'maritime vocabulary' or grasp of technical job-related terms.

takes place are increasingly recognised as important influences on the health and safety of workers. Again, although its consequences for its labour force also remain mostly hidden, the largely deregulated, free market driven business environment of the shipping industry in which there are a multiplicity of players involved in commissioning and managing work and where the labour force is required to be cheap, flexible, contingent, and casualised are likely to give rise to analogous health and safety consequences to those described for similar scenarios on land and for the same reasons.

Changing work contexts, organised labour and health and safety: It is widely accepted that trades unions have played a major role in achieving improvements in land-based health and safety. For example, writing in the *Journal of Public Health Policy*, Abrams states:

> 'Organised labour has been the essential factor central to most workplace health and safety improvements from the industrial revolution to the present'

They do so in many ways, through collective action, including strikes and other forms of industrial action as well as through negotiating the collective agreements that are part of the institutional mechanisms of industrial relations in most countries. More specifically, there is a body of evidence from studies across a whole range of countries that indicates that health and safety performance is improved through representative worker participation and that trade unions are the main form of support for such participation (Walters *et al* 2005). General trade union activity has been important in setting the framework for such participation and it is this framework, and the assumption of trade union power that is behind it that defines the regulatory model now internationally adopted for representing workers interests in health and safety.

However, one of the more obvious aspects of recent economic and political trends that have reshaped the world of work has been the decline in membership and influence of trade unions in most advanced market economies[4]. This is the result of several causes.

[4] Trade union membership in most advanced market economies has reduced substantially since its peak in the 1970s – for example in the UK, the US and in Australia it has nearly halved. It has declined throughout Western Europe, indeed only in countries where the Ghent system operates (i.e., where unions perform functions in the administration of unemployment benefit and social insurance), have

For example, the decline of industries where trade union membership was strong, the rise of non-standard forms of work in which trade union organising is more difficult as well as to the political hostility of neo-liberal governments and legislatures to trade unions. There are great differences between the role of trade union representation in shipping and in land-based industry of course. Nevertheless all of the above causes have some parallels in the relatively recent history of trade union representation of workers interests in seafaring. In the post-war period, relatively strong national seafarers' unions from western industrialised countries were able to establish moves towards effective representation at national and shipboard levels. However, as change has taken place in the organisation of labour supply for the industry such unions have lost ground. Increasingly, practices such as blacklisting and the general antagonism of crewing agencies towards trades unions have prevented ordinary seafarers from participating in trade union activity and unions generally from being able to act in a representative capacity at shipboard level. All this makes for substantial difficulty in achieving genuine and effective participatory approaches to health and safety management.

The impact of change in the world of work on-shore therefore resonates in a variety of ways with experience of change in the way in which the shipping industry has operated in the last quarter of a century. Land-based regulation of health and safety management has tried to address the challenges presented by such change. In the following section we look at how this has occurred and consider the implications of such development for understanding health and safety at sea.

trade unions maintained or improved upon levels of unionisation of the 1970s (see for example: Waddington 2001).

Developing a regulatory strategy to improve health and safety management

Current policy on achieving improvements in the work environment in most affluent market economies is based on the use of a combination of several instruments including regulation, market mechanisms, worker participation, education and enlightenment. Many of these approaches are deeply rooted in the history of societal and government responses to occupational health issues, the emergence of others is more recent. They were reinforced by major regulatory reforms in the 1970s and 1980s across a range of countries in Europe, North America and in Australia and New Zealand that sought to clarify and reinforce the principles of work environment regulation while at the same time replacing traditional prescriptive approaches with goal-setting measures to encourage self-regulation. The UK was among the first countries to change its regulatory approach in these directions — heralded by the Robens Report and implemented by the HSW Act 1974 in which general duties are goal-setting measures. 'Regulating self-regulation' was the *leitmotif* of the HSW Act. Similar changes were occurring (or occurred subsequently) in the European Union and in other industrialised countries world-wide (Gunningham and Johnstone 1999).

However, it is doubtful that the reforms of the 1970s and early 1980s lived up to all the expectations held of them. Awareness of this, and of the changes taking place in the organisation and structure of work, led to another round of reform from around 1990. In the EU, goal-setting and self-regulatory elements remained strongly emphasised in this second round of reforms but greater attention was paid to the challenge of improving work-related *health* as well as safety, redefining employers' responsibilities for these tasks and focusing on evaluating and managing *risks* associated with work. Implied in this change (and subsequently ratified by rulings from the European Court of Justice – see below) was a more holistic definition of health and safety in which a merely technical view of the subject was considerably broadened to include work environment, organisational and socio-economic perspectives.

These notions were encapsulated in the requirements in the EU Framework Directive 89/391, which placed responsibilities on employers to take an active, comprehensive, programmatic and enduring responsibility for OHS quality. It was to be achieved

through a *systematic managerial process* to detect, abate and prevent workplace hazards in which a *participatory approach* to the evaluation and management of risk was linked to principles of good preventive practice and the use of *competent employees/services* in its delivery

Behind these policy developments are some important key principles we have learned about *managing* the processes of preventing injury and ill-health at work. In particular there has been a shift away from a simplistic understanding that the *root causes* of injury and disease were to be found solely in unsafe behaviours and that more sophisticated explanations that combined environmental and organisational factors involved in the nature of production were required. This in turn led to a wider definition of employers' responsibilities for the health and safety consequences of the work under their control. Additionally, it has become clear that prevention strategies are not in practice so much about eliminating risk as they are about managing it and requirements for formal risk assessment and control procedures have as a result found their way into health and safety regulation. As a consequence regulatory agencies (at least in theory) now pay considerably more attention to inspection of arrangements with which duty holders systematically manage OHS quality.

Parallel to these developments and at least in part stimulated by them[5] has been the growth in popularity of a range of occupational health and safety management systems such as those accredited by various standards organisations at national and international levels as well as proprietary versions of OHS management systems such as those marketed by Dupont etc. The shipping industry joined the ranks of those subject to health and safety management systems approaches with the introduction of the International Safety Management Code (ISM) during the1990s. Critics have pointed out that many such systems do not in fact contain all of the features of the systematic approaches advocated by the European regulatory requirements previously mentioned – for example they often have quite limited provisions for worker consultation and representation (Walters and James 1998). Nor is there a great deal of

[5] But they by no means entirely a consequence of such 'European approaches' since important influences on the development of health and safety management systems are found in both US and Japanese approaches to OHS management which themselves are located within more general schools of thought on management associated with these countries.

hard evidence to support claims made for their comprehensive success across anything like the range of different work situations that would be required to demonstrate it (Gallagher *et al* 2003). Other critics draw a distinction between such management systems and *systematic* health and safety management arguing that as well as requiring a comprehensive set of basic provisions such as employer responsibilities, an adequate definition of what comprises health and safety, competence and participation such systematic approaches cannot by definition be derived from bespoke packages imposed upon workplaces but must evolve from processes of assessment audit and review that are specific to particular workplaces (Frick and Wren 2000). Perhaps the most significant criticism of the application of health and safety management systems (and the one nearest to the concerns of the present paper is their acknowledged failure to deal effectively with managing health and safety in either small enterprises or in the fractured work structure and organisation that are increasingly the features of modern work practice (Gallagher *et al* 2003). This criticism would also be relevant to examining how the ISM code works in the fragmented management situations that are increasingly common in the shipping industry, where for example on any single vessel technical, commercial and personnel management may actually be undertaken by different companies.

Responding to change

The developments in regulating systematic health and safety management outlined in the previous section took place at a time when the fundamental structural and organisational changes in the world of work also described previously were taking place. Yet to some extent the ideal organisational model the regulatory approaches addressed was still that of a large, stable private sector organisation with a permanent, unionised, full-time workforce. Such an organisation would have been likely to have had a centralised management structure, specialised health and safety support services and worker representation for all its employees as well as relatively high visibility to the regulatory agency. As the previous outline of organisational change indicates, such a model has become increasingly less frequent in the modern world of work. Despite this, the broadened conceptualisation of the subject matter the regulatory principles addressed as well as the means of their application remain relevant.

For example an important consequence of the thinking behind the regulatory changes concerns ways in which they influence the validity of conceptual frameworks for understanding prevention of injury and ill-health. Traditional models of understanding how to prevent injury and ill-health have tended to polarise between those that are person orientated and those that focus more on the work environment. Person orientated approaches have been especially prevalent in approaches to preventing accidental injuries and fatalities. They mainly emphasise faulty human behaviour as the root cause of injuries and fatalities. In contrast work environment explanations emphasise aspects of the physical work environment such as dangerous machinery, toxic materials and ergonomically poor work equipment. However, one of the most obvious consequences of change in the nature and organisation of work is that especially in terms of its health effects, neither of these models is particularly helpful in understanding the processes at work or how they might be addressed to improve prevention of the psycho-social disease outcomes or the MSD that are major causes of ill-health and absence in modern work scenarios. What instead seems to be required are explanations that take account of the interaction between technology and organisational factors of the whole production system. This is precisely the change of consciousness that was developed in the thinking behind the EU Framework Directive previously outlined and which therefore is now widely recognised in OHS policy at national and international level and has legal support[6].

There is substantial evidence that this understanding, when it is included in approaches to systematic OHS management such as those envisaged by requirements found in the Framework Directive 89/391 and implemented in statutory measures in EU member states is one that works in improving both workplace OHS arrangements and their outcomes (Frick *et al* 2000). It is also a conceptualisation that is able to embrace many of the consequences of the changed world of work discussed previously – which former prescriptive measures would have missed. This is especially significant for managing health and safety issues at sea because, as

[6] See for example the decision of the ECJ in its judgement against the UK over the interpretation of the Working time Directive (Walters 2002:43). In this it followed the opinion of the Advocate General that in turn, relied on the Danish interpretation of 'working environment' to include working hours, psychological factors work organisation etc.

previously described, it is in the shipping industry that many such changes are particularly pronounced. It is important to ask therefore whether employers in the shipping industry apply the equivalent set of prevention principles to discharge their responsibilities to their workforce as those that are required of their land based equivalents, including:

- Avoiding risks and evaluating those that cannot be avoided
- Combating risks at source
- Adapting work to the individual
- Adapting to technical progress
- Replacing the dangerous with the non-dangerous
- Developing a coherent overall prevention policy that covers technology, organisation of work, working conditions, social relationships, and the influence of factors related to the work environment
- Giving collective protective measures priority over individual protective measures and
- Giving appropriate instruction and training to workers to enable them to work safely and without damaging their health.

To do so requires that a holistic understanding is developed concerning the effects of working at sea on health, safety and well-being for people thus engaged across the whole of their work and living experience while at sea (and in preparation to be so). Such an understanding would form a useful basis for prevention strategies that were aimed at achieving improvement across the broad range of seafaring work experience – and not simply focused on the behavioural proximal causes of injury.

Above all else what underpins the approach to systematic occupational health and safety management envisaged by current regulatory requirements is the idea that employers will assess risks to their workers in their own organisations, identify the most appropriate reduction and control strategies and implement them and monitor their effectiveness and appropriateness. This is absolutely not intended to be a paper exercise, but a very active and real process that is focused on the specific situation of

an individual organisation. The extent to which this actually takes place on land as well as at sea however is open to question.

A further difficult question concerns how to ensure such a conceptualisation of managing workplace risks is implemented in a *participative* way — as the regulatory framework requires it to be. The notion of worker participation in health and safety is rooted in two different sets of ideas that in practice overlap. One set concerns workers' rights to protect their health and safety from damage caused by its exploitation by employers. The origins of trade union representation on health and safety are largely grounded in this conceptualisation. The other set of ideas at the root of worker participation concerns the notion that managers need workers' knowledge and skills and therefore their participation if health and safety is to be managed effectively (Walters and Frick 2000). In practice workers' interests in health and safety can be represented simultaneously by direct engagement or indirectly through representation and there is some evidence to suggest that where workers' participation is most effective both occur together and act to stimulate and support one another. The logic of the regulatory requirement is therefore self-evident. Participative approaches to implementing self-regulatory OHS management are required because the involvement of workers and the their representatives provide, both the necessary expertise to ensure self-regulation is undertaken in an informed and effective way and because it also aids the necessary checks and balances on employers' self-regulation.

However, achieving such a situation in an increasingly non-unionised environment in which peripheral and contingent workers and fractured organisational settings are more and more common is widely acknowledged to be problematic and there is much to be learned on how to implement effective participatory strategies in these situations. The work environment on board ships is often typical of such scenarios but the extent and effectiveness of worker participation in health and safety, the supports and barriers to its operation at sea as well as its contribution to overall health and safety performance has been little studied.

The international changes in the structure and organisation of work and labour markets in the shipping industry referred to previously have contributed to the current limited role for workplace representation and its trade union support witnessed in the

industry. As we have already highlighted, for a number of reasons, organisation of labour in the shipping industry is a special case with only limited parallels with land-based experiences. However, such parallels exist and an important observation for the present discussion is that in recent times organised labour in land based industry has been subject to pressures that are not dissimilar to those already felt in seafaring. Changes in the structure and organisation of work and labour markets such as those described above as well as wider political and regulatory change puts increasing pressure on the ability of organised labour to represent workers' interests *at the workplace level*. In a recent Conference paper on union representation of seafarers, Sampson (2003) notes the empty 'union office' on board a ship and suggests that the most conspicuous union representation for seafarers such as that of the International Transport Federation, while important, is actually extraneous to the workplace of most seafarers. As has been widely demonstrated on land, the absence of workplace institutional structures of representation such as joint safety committees and safety representatives pose challenges for modern approaches to OHS management because worker representation is one of its key elements of such approaches. Growing awareness of this increasing problem in land-based situations has led to trade union efforts to find more effective means of representing the health and safety interests of workers in the fractured labour relations scenarios that are a consequence of the changes previously described. For example, there have been marked trends towards the achievement of better representation of workers interests in small enterprises and on multi-employer worksites, in which new strategies involving regional/territorial health and safety representatives, super safety representatives or health and safety convenors have all been tried with some success (see for example: Walters 2001; Walters 2004). Whether and to what extent such approaches may be relevant in seafaring remains to be explored.

Another aspect of the regulatory thinking behind improving health and safety management in shore based work concerns the issue of competence. Employers' responsibilities to manage the collective health and safety of their workers *competently* are prominent features in the regulatory frameworks implementing EU requirements. They are mainly designed to try to ensure that employers invest in appropriate specialist support from prevention services. The roots of these requirements are largely based on continental European regulatory models governing

the provision of occupational health services. Here again they are likely to work best in relation to large stable enterprises with central support services. They are far less likely to function effectively in relation to smaller enterprises, fragmented organisation and management structures and multi-employer worksites all of which are common in current work scenarios. There are of course other approaches to competence – such as in the UK where the issue is traditionally something that is defined by the professionals and the market and where employers have enjoyed far more discretion than in continental Europe. Yet relatively little is known about what actually works best in these different approaches. Nor does a great deal seem to be known about what might be the most appropriate way of addressing competence in relation to OHS management in the shipping industry.

As the above demonstrates, although the regulatory approach to achieving improved health and safety outcomes through greater attention to their systematic management remains relevant to modern work scenarios, there is much still to be learned about the most effective ways of achieving this in shore based work — as there is at sea. In the shipping industry efforts have been made to introduce a health and safety management systems approach through the introduction of the ISM Code. However, perhaps some questions need to be addressed to how effective this approach is across the complete range of work situations to which it applies at sea. It would be useful to know for example what is the extent to which the ISM Code can be said to stimulate ship and shore based managers to undertake 'active, comprehensive, programmatic and enduring responsibility for OHS quality'. It is also important to learn how it is best deployed to create a '*systematic managerial process* to detect, abate and prevent workplace hazards' and whether the preconditions exist to enable seafarers to participate adequately in this process as well as whether the use of *competent employees/services* form part of its effective delivery.

Perhaps the most difficult question to address is how to achieve these approaches to occupational health and safety management in situations in which the impact of globalisation has resulted in a trend away from regulatory surveillance towards more market based means of achieving improved standards. Here again the shipping industry is a prominent case.

On-shore policies on how best to achieve compliance in self-regulatory situations have increasingly emphasised supplementing approaches based around regulatory inspection with a more multidimensional approach that exploited employers' economic self-interest and levers in their business environment to improve health and safety performance without the need for regulatory intervention. Great emphasis has been given to the economic case for health and safety improvement and there are few in the health and safety world who do not firmly believe the mantra that 'good health and safety is good for business'. However it is a moot question how widely such beliefs are held (or more to the point – are acted upon) in the world of business and commerce. At the same time improving health and safety performance has been linked to the corporate social responsibility agenda and there has been much discussion about the means of 'winning the hearts and minds of industry' in this respect[7]. In these latter strategies, procurement, the supply chain, insurance incentives, the role of intermediaries, as well as greater emphasis on the provision of accessible information education and advice were have been included in a multidimensional approach on the part of the regulatory authorities to securing better health and safety standards. Such trends characterise regulatory policies to a greater or lesser extent in many of the developed market economies of Europe, North America and Australia/New Zealand, they have especially risen to prominence in the UK in recent years (HSC/DETR, 2000; HSC 2004).

They are part of the need that is increasingly recognised by state and international level policy makers for more multidimensional regulatory strategies and for regulators to think smarter and more strategically to discover the best use of regulatory intervention. Here, an appropriate balance of inspection with education, information, advice and other means and the commitment of other agencies to health and safety is promulgated. In so doing current regulatory strategies can be seen to lay great emphasis on winning a voluntary engagement in prevention on the part of industry and to seek what is seen as 'an effective balance' between such voluntary means and the effective use of regulatory tools. However despite the persuasive logic of such rhetoric, the question of what works remains largely unanswered. Reviewing the socio-legal research literature for example, one cannot fail to observe that that while

[7] See for example in the UK, HSC/DETR, 2000; HSC 2004

the evidence on the impact of regulatory interventions is far from complete, on balance it demonstrates the case for the effectiveness of formal inspection and enforcement far more significantly than it does for other 'softer' regulatory intervention strategies.[8]

The lessons of these developments are particularly important for the shipping industry, itself an exemplar of an industry that for much of its activity is remote from surveillance and intervention of regulatory agencies. As Sampson and Bloor (2005) have demonstrated in their paper on regulatory strategies on health and safety in shipping, so far, approaches to smart regulation and enforced self-regulation have enjoyed only limited success in the industry and they highlight the problems of regulating a globalised industry. There is therefore a good case for considering what further may be learned from current strategic approaches of land based regulators to dealing with the demands of regulating increasingly hard to reach situations with diminishing resources, in a political and economic climate that is antipathetic to traditional regulation of health and safety.

Conclusions: instrumental research, some ways forward and the search for deeper understanding

The health, safety and well-being of seafarers is a cause for concern – not only as a consequence of major disasters and highly visible occurrence of fatalities and major injuries but also because of the hidden burden of work-related ill-health and pycho-social problems experienced at sea. It is of course important to address these problems on ethical and moral grounds, but it is also important because as the land based evidence overwhelmingly indicates, poor health, safety and welfare outcomes are a significant cost to the economy, they are a poor advertisement for recruitment and retention of labour for industries that experiences them and they are a sign of poor management more generally.

[8] There is an international literature demonstrating this that is far too extensive to list here. For recent reviews however see, Davis (2004) and also research commissioned by the HSE (Greenstreet Berman 2003).

A large part of strategic development in OHS policy in advanced market economies in recent years can be seen as an aspect of governmental, industry, professional and trade union responses to the challenges of globalisation. Shipping is and has arguably been for a long time, a globalised industry. Moreover, it is an industry in which, for various well- documented reasons, only a partial picture exists of the everyday health, safety and welfare consequences of the changing nature of work brought about by the pressures of globalisation. Such consequences in land-based sectors, as the previous pages have shown, are significant, widespread and better documented than those at sea. The argument here has therefore been that the shipping industry may be able to learn something from this land-based experience.

There are lessons on several levels. First, there is much to be gained from a more detailed examination of the large body of research that identifies and analyses the changes that have taken place in the structure and organisation of work and labour markets and the various health and safety consequences that have resulted. Second a deeper understanding of the implications of the shift that has taken place in the conceptualisation of health and safety in regulatory thinking would aid better understanding of the increased dimensions of managing health and safety in modern work scenarios. Such increased dimensions mean that behavioural and technical approaches to improving health and safety are no longer regarded as complete. Work organisational factors and a more holistic approach to understanding the extent and nature of managing risks to workers health, safety and well-being, is required, from both a managerial and legal perspective. Third, the changes that have taken place in the structure and organisation of work mean that traditional approaches to managing health and safety no longer relate to the structural and organisational contexts in which work gets done, health and safety needs to be managed, and workers informed and represented. This is as true of the shipping industry as it is of many land-based sectors. Effective management strategies to address this as well as strategies to better inform and represent workers' interests are therefore needed. Last but by no means least, a better understanding is required of what works in regulatory and other approaches aiming to promote improved health and safety in an environment in which smart regulation and enforced self-regulation is desired. Here again, there is a growing body of land-based research concerning the efficacy of 'new strategies' to

persuade or coerce employers to improve their health and safety performance without resorting to regulation and its enforcement.

While it seems clear that there will be no easy solutions readily transferable from land-based experiences to address the current challenges to managing health and safety in the shipping industry, such experiences as those outlined in this paper would seem nevertheless to offer some pointers to gaining a better understanding of possible supports or constraints to what might work in the sector.

Finally, it is important to bear in mind that in looking for support from shore-based experience, focus here has been skewed towards an applied and instrumental understanding of such experience and the notion that the transferability of good practice needs to be further investigated across sectors. In this sense, the thesis has been that there may be elements of shore-based experience that are helpful in understanding better ways forward for much needed health and safety improvements at sea. However, social scientists are also interested in understanding the underlying conditions that create these experiences as well as the dynamics of processes that govern their operation. This interest extends to several issues implicit in the foregoing text and it would be over-simplistic and misleading to conclude that the instrumental approaches outlined above providing more than a partial understanding of the issues involved.

In most of the key areas described there is a need for further critical research into the underlying processes that affect successful implementation of ways to improve the management of health and safety on land. This is particularly so when addressing the consequences of change in the structure, organisation and regulation of work and labour markets. Developments discussed here result from changes in the drivers of the global economy and they represent enormous challenges to pre-existing notions of nation-state regulatory, economic and social welfare policies. Policy on occupational health and safety is a small but integral part of this larger picture. It needs to be understood in this context. It also important to bear in mind that these days, regulatory strategy cannot and does not ignore socially determined perceptions of risk or notions of accountability and social justice. It is worth noting in this respect that prominent amongst the examples of tragedies that have been instrumental in shifting public

perceptions of accountability and social justice in recent times have been several that have involved the shipping industry. In the public outcry that has followed such events the primary issue is not whether they were occupational or environmental disasters, but that people were placed at unacceptable risk and that duty holders/experts/regulators etc. had failed in undertaking their basic social responsibilities. Thus, further defining features of modern times, especially in advanced market economies, are debates surrounding corporate criminal responsibilities and the means of extending the effective application of the crime of manslaughter to serious corporate health and safety misdemeanours. A fact that perhaps the shipping industry also needs to bear in mind.

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