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Arrangements for workers' safety and health in container terminals: Corporate core values and concrete practice

David Walters and Emma Wadsworth

Abstract

This paper presents an account of corporate strategies for occupational safety and health (OSH) management in container terminals operated by large global companies in four countries, and their delivery in the operation of terminal work activities. It indicates a substantial gap between these aims and approaches, their orientation at corporate and terminal management levels and the workers' experiences in the terminals. While this gap is evident everywhere, it is considerably more pronounced in the terminals of the low-income country included in the study. The paper indicates that in day-to-day practice, OSH is principally addressed through behaviour control strategies that fail to reach many aspects of occupational health and safety that workers perceive as important. It further indicates that contractor workers are hardest hit by such practice and suggests a radical rethinking of corporate approaches to safety and health is required to justify the claim that they represent 'corporate core values'.

Introduction

Global containerised transport of goods and the terminals where the ships carrying them are loaded and unloaded are emblematic features of economic globalisation. The '90% of everything' that describes the distant sources of consumer goods for advanced market economies owes its prominence to the global development of logistics networks to ensure continuous improvement in the volume, speed and continuity of a global flow of goods from remote producers to consumer markets. This is big business and it is hardly surprising that major global corporations are involved in highly competitive efforts to maintain their profit margins in a continuing race to move containerised goods faster, in greater quantities and more economically than their competitors (Rodrigue and Notteboom, 2011). Both national economic policies and the interests of capital are therefore bound up with ensuring these efficiencies. Container terminals are central to this effort and the consequences of business competitiveness are seen in the organisation of work and employment within them. The effects on the safety, health and welfare of operational workers in terminals in different global locations is therefore of interest.

It might be anticipated that the rationalisation of work operations that is a feature of container terminals (Bonacich and Wilson, 2008), would have led to improved arrangements and outcomes for occupational safety and health (OSH). There are some suggestions in the literature that this is so in relation to safety (Sisson, 2012), but few reliable studies. Most research concerns technical and engineering design issues or mathematical modelling of risk analysis techniques in specific ports (Chlomoudis et al, 2016; Mabrouki et al, 2014; Yang et al, 2010). Reviews demonstrate that such an approach does not engage with workers' lived experiences (Pallis, 2017; Parra et al, 2018). Other research addresses safety culture and leadership, but reflects the behavioural approaches to safety predominant in the industry and pays scant attention to their social and organisational contexts or outcomes (Shang and Lu, 2009).

While reviews of the incidence of work-related ill-health associated with dock-work identify musculoskeletal disorders (MSD), whole body vibration effects, noise-induced hearing-loss and accidental intoxication from exposure to noxious chemical and biological agents, it is unclear from the literature how much they remain a feature in containerised ports. Nor is there much information

concerning the presence and extent of new forms of occupational ill-health in such terminals. However, one detailed study of trends in accident data in an Italian port (Fabiano et al, 2010) suggests that changes accompanying containerisation may have resulted in increased risk of injury and ill-health associated with changed patterns of work organisation. Support for anticipating this is found in work on other sectors, which shows that a reduced and casualised workforce, along with agency, contractor and directly employed workers in the same worksites, are associated with poor OSH outcomes (e.g. Quinlan et al, 2001; Weil, 2014). Research further indicates that intensified production demands and tight delivery schedules, which are also common in loading and unloading ships, may contribute to raised levels of psycho-socially created ill-health and heightened risks of accidents (Quinlan and Bohle, 2008).

This paper draws on research undertaken in container terminals mostly operated by what were, at the time of the fieldwork, four of the largest global network terminal (GNT) operators. It is the fourth in a series of publications that have variously explored experiences of arrangements to manage OSH risks in these terminals. Previous publications have reported on the research in general (Walters and Wadsworth, 2016). One publication focused more explicitly on how OSH was managed in terminals in two countries with very different regulatory and economic contexts (Wadsworth et al, 2015); and a third reported in detail on workers' experiences of OSH outcomes and explored reasons for them (Walters et al, 2019). The aim of the present paper is to discuss the relationship to this experience, of OSH management strategies employed by GNT operators at corporate and terminal levels. It therefore first examines approaches to OSH taken at corporate level by the companies involved. Then it explores the understandings of their operation shared by managers and OSH advisers within the terminals constituting the business units of these companies in four countries. Drawing on new material as well as that from the previously published papers, it examines these understandings in relation to those of workers in the same terminals.

A key element of the corporate approach in all the organisations studied, is the extent to which OSH is said to be understood as a 'core business value' and therefore central to their strategic operation. This approach is typical of that found in other large organisations and derivative of current approaches to OSH management advocated by influential global organisations such as the International Standards Organisation and the International Social Security Association. The paper's discussion, therefore, explores the apparent gap identified in the findings between such aspirations and the experiences of workers in the terminals studied.

Study methods

A mixed-methods approach was used, collecting data at three levels. We conducted semi-structured face-to-face interviews with those responsible for OSH at the corporate level wherever possible, and obtained publicly available material on OSH strategies and outcomes. Some companies also supplied unpublished documentary OSH performance information (globally, regionally and for the participating terminals). At the national level, interviews with key informants, such as representatives of inspectorates and port authorities, augmented data from the literature on national legislative, labour relations, socio-economic and other relevant contexts. Within the terminals, in addition to a survey of the OSH experiences and concerns of the operational workforce, we interviewed managers responsible for key areas of the terminal operations and those dealing with OSH specifically, and workers and their trade union representatives, among both the directly and indirectly employed workforces.

Questionnaires, interview guides, participant information sheets and consent forms were drafted in accordance with Cardiff University ethical standards. They covered: OSH performance, outcomes and experiences; OSH management, including safety practices and working arrangements; and worker

representation, consultation and involvement. All interviews and surveys used the appropriate language for the country and region and took account of local terminology. The detail and coverage of these areas were altered to fit each interview respondent's background and position. Researchers spent several days in each terminal interviewing and facilitating the questionnaire survey. Survey data were analysed using bivariate and multivariate techniques. Analyses considered OSH management and performance experiences, comparing regions and economies, and workers grouped according to their job and employment types. Interview transcripts were coded to enable scrutiny of: the development, implementation and origins of OSH strategies and management arrangements; and the perceptions and experiences of their operation and the protection they afforded workers. Again, analyses compared experiences across regions, economies and groups of workers, thus allowing data triangulation.

In total, 11 terminals in four countries (two in each of two regions) were studied, with 1849 dockworkers completing a questionnaire and 178 people interviewed. Nine terminals were operated by GNTs and two by large national operators. Findings on safety management approaches in the latter two terminals did not differ substantially from those of the GNTs either at corporate or terminal levels.

In the following sections, the key elements of the approach to OSH responsibilities and the influences on them at the corporate level are outlined. This is followed by findings on the approach to OSH arrangements and management within the terminals as they were understood by respondents. Influences upon them are identified and discussed. For purposes of clarity and comparison, findings focus especially on the behavioural safety strategies with which the every-day approach to OSH in all the terminals was dominated, the gap between managers' and workers' perceptions concerning the efficacy of this approach, and differences in the situations of directly and indirectly employed workers in this respect and in terminals in different countries.

Corporate approaches to managing risks to safety and health in container terminals

Statements in annual reports and on the websites of the companies studied suggested that OSH strategies featured among core corporate values, and were driven by leadership at the highest levels. They indicated shared commitment to management arrangements to address risks systematically through undertaking risk assessment and introducing engineering or administrative controls in relation to both design and operation of plant and processes. Interviews with senior personnel with responsibility for the delivery of these strategies at corporate level elicited views generally consistent with these claims. They suggested that assessment of risks and their control were fundamental to the delivery of a safe and healthy work environment. They said their OSH management systems focused on continuous improvement, included procedures for information collection and dissemination on safety issues, and allowed both the monitoring of performance and timely interventions. Senior OSH personnel usually indicated that there was a high-profile, board-room level corporate commitment to 'zero-harm', which they suggested formed the basis of mission statements transposed into operational practice through attention to an organisational 'vision' of achieving high performance and continuous improvement in OSH outcomes. They explained that this was communicated to each terminal and its workforce, allowing the organisation's leadership to make clear its 'vision' of combining high performance and continuous improvement in OSH outcomes through: improvements in organisation safety culture, OSH competencies, training and skills of personnel and the adoption of OSH performance targets. They also suggested that accountability was promoted among workers and managers alike. While they expressed commitment to worker engagement with OSH matters, they showed little enthusiasm for the establishment of workplace institutions for worker representation and consultation on OSH, beyond those involving so-called 'direct consultation' between managers, supervisors and workers. This was despite the presence of statutory requirements on the former in all the countries where terminals were studied.

The effects of international and national voluntary standards on OSH management and the adoption of systems compliant with them were evident in these approaches which were ubiquitous across the GNTs. In common with current OSH management practices in large organisations operating in high risk industries (e.g. Kontogiannis et al, 2017), another emergent feature of the corporate OSH strategy was a shift in emphasis away from the collection and collation of data on lost time injuries (LTIs) and the measurement of performance standards against them (although this still took place) and towards greater attention to critical incidents which had not resulted in harm but which had a high potential to do so. As one corporate level safety adviser put it:

...that is what we are now trying to drive towards...how do we get our terminals to see a potential incident before it happens...we are looking more at the near misses we are looking at the observations...when people see something unsafe do they actually do something about it because we have a history of people probably seeing a lot but not doing anything about it and we want to change that mind set, so we have been doing a lot of communication campaigns...

Global level safety adviser (1)

Current safety management theory holds that there are significant differences between the causes of major incidents and those of more routine LTIs (e.g. Khazode et al, 2012). It argues that sole concentration on measures to achieve the reduction of LTIs will not lead to better prevention in relation to more serious incidents. Therefore, it is important to record and investigate 'critical' or 'high potential' incidents to promote organisational learning concerning their causes, and through this, their prevention. This thinking was also evident in several of the approaches to OSH governance among the GNTs at corporate level. Another senior adviser at this level said:

...we have...LTI calculated on the basis of that and then we have those special categories which are near misses with high potential so nothing happening could potentially have been a fatality, green incidents are less than LTIs so there was actual incidents, actual injury which could have been a high potential, LTIs with a high potential and fatalities and then we have some sort of frequency calculations for that specific...category which is the LTIs with high potential because this is one of the things we want to focus on a lot right now. Also seeing if an LTI could have led into a fatality so whether we could almost predict LTIs going down and the potentials going down...

Global level safety adviser (2)

Available data on reported work-related harm was inconsistent between the companies, providing an incomplete picture of the effects of these approaches, and preventing meaningful comparative analysis. Nevertheless, a few of the features are worth mentioning, in particular the suggestion of a falling injury rate. This is also anticipated by some accounts in the literature (e.g. Sisson, 2012), but none of the companies' data were sufficiently robust to be regarded as definitive. Moreover, across all companies, a far higher incidence of work-related harm than suggested by these data was reported in the worker survey (Walters et al, 2019). This was true for injuries and near misses: one-third of the respondents indicated they had received a work-related injury during the previous year and nearly two-thirds that they had been involved in a near miss.

There was considerable variation between terminals in different regions, but generally, causes of work-related harm were found in issues that were not covered by the safety management system in these terminals, but which were nevertheless embedded in the way work was organised and the terminals operated. Indeed, the gulf between the reported companies' accounts and workers'

experiences was starkly obvious in relation to forms of work-related ill-health such as fatigue, stress and MSDs. For example, nearly 90% of survey respondents indicated that there was no terminal policy on work-related stress, or if there was, they were unaware of it. Yet a large proportion also indicated that they experienced stress because of their work. This evidence of risks to health *not* addressed by OSH management systems echoed the findings of Fabiano et al (2010) on the OSH consequences of changes in the organisation of work following containerisation in an Italian port, and suggested they may apply more widely.

GNT data on injury rates also appeared to suggest substantial variation between terminals in high-income market economies and those in the low-income country, with the latter reporting far fewer injuries than the former. Rather than better safety performance, such variation likely reflects differences in reporting practice, since the low-income country terminals showed substantially poorer performance on other OSH indicators. Moreover, as the testimony of workers in these terminals attests, it was here that they reported the greatest experience of poor OSH outcomes and arrangements (see also Walters et al, 2019). Despite the challenges of under-reporting, where such information was available it also suggested that the frequency of recorded injuries was greater among the indirectly than the directly employed workforce. And the proportions of indirectly employed workers in the low-income country terminals were greater than they were elsewhere. We explore all these important matters with a more detailed examination of OSH management arrangements within the terminals.

Safety and health management in the terminals

Some of the key features of safety management strategies indicated at the corporate level could be seen in terminal level practices. Fundamental to the approach in each case was the design of a safe place of work, in which a key element was the separation of workers and machinery, through terminal design and traffic flow strategies, creating a physical separation between work and the man-machine interaction that managers believed responsible for many harmful incidents. There were also systems for safety management in place in each terminal. Managers regarded them to be similarly based on the systematic assessment of risks of all operational procedures, worker engagement with safe working practices, including through routine rehearsal of safety aspects of work during tool-box talks and the like at the start of shifts, along with arrangements for reporting incidents and communicating corrective actions, induction and on-going safety training and the provision of safety information.

Senior corporate level personnel had indicated in interviews that, while there was a corporate OSH strategy that should be followed, each terminal was regarded as a separate business unit with a degree of operational autonomy allowing greater responsiveness to local conditions. This they said was true as much for OSH management as for other operational elements. However, terminal level OSH management policies and practices generally reflected corporate strategies. That is, managers at all levels believed that terminal structure and operation had largely designed out most serious risks, leaving the main focus on ensuring safe behaviour through the application of rules governing workers' behaviour and their surveillance. There were various approaches to this, including encouraging workers to report colleagues' unsafe behaviour and various forms of accountability for transgressors. The Safety (and Environment) Departments in the larger terminals usually serviced these arrangements, as well as providing advice, training and in some cases participating in the surveillance of safety behaviours.

Below, we focus on three aspects of OSH management: the behaviour-based orientation of its daily practice; risk assessment as the basis of a systematic approach; and indirectly employed workers.

The behaviour-based approach — This approach to the operation of zero-harm corporate OSH strategies was strongly evident in all the terminals. Generally, managers believed these arrangements to be ‘fit for purpose’, as did those with specialist responsibilities for OSH. In contrast, nearly one-third of survey respondents described the level of staffing to support the effective operation of the arrangements to manage health and safety as insufficient. The greatest proportion with this view was in the low-income country terminals (42%). In addition, experience of OSH was not uniform, with those in certain job types (like receiving and delivery work and lashing), employment types (such as contract as opposed to direct employment) and areas (especially the low-income country) reporting poorer experiences than others.

In interviews with terminal managers and OSH advisers, and with workers and their representatives, it was clear that an emphasis on accountability was applied to surveillance of unsafe acts or workers’ failure to follow safety procedures. Workers and their representatives indicated such approaches substantially reduced workers’ feelings of trust in the terminal management’s commitment to their health, safety and welfare, despite managers’ assurances concerning a ‘no blame culture’. These findings confirm Hopkins’ (2005) critique of behaviour-based safety systems, in which he notes that ‘*where such distrust exists it is pointless for employers to introduce such programmes. The evidence is that they will fail*’. Nevertheless, such systems were widespread and, as evidenced by both the survey and interview analyses, workers were deeply distrustful of the underlying motives, perceiving them to be hostile to job security and of only limited value in addressing their OSH concerns:

They do safety observations which all managers have got to do, but that’s to get their bonus to be honest, they’re on a key performance indicator, as part of their KPI will be they have to do so many inspections a year....

Steward/Dock-worker, region 1, high-income country 2

Leadership from the corporate level on achieving ‘zero-harm’ appeared to have made a significant impact on the aims and aspirations of terminal OSH management, evident, for example, in the ways in which managers in all terminals stressed the importance of aiming for zero LTIs and, to this end, systematically reporting and investigating all incidents, regardless of severity. However, despite the emphasis on incident investigation, interviews with workers confirmed it was rare for investigations of routine injuries and unsafe incidents to go beyond their proximal causes, focusing on individual human error or unsafe behaviours rather than possible underlying organisational or situational causes:

Interviewer: But would an investigation get at that [underlying reasons for behaviour] or would it stop at that behaviour?

Respondent: Look, I don’t have too much faith in investigations, because I’ve seen too many things. I think the investigator will come up with the reason and then try and justify it, you know, probably the reverse way of the way it should be, you know, but I don’t think it’s as objective as it should be let’s say.

Deputy delegate/Electrician, region 2, high-income country

According to workers and their representatives, investigators most frequently identified the workers’ behaviour that immediately preceded the accident as ‘the reason’ for its occurrence. This seemed to be a consequence of a management conviction that following the requirements of the safety management system would mean that accidents simply could not occur – and reflecting the widely held belief that all accidents were the result of workers failing to follow the required safety procedures — a belief which was reinforced by the corporate focus on changing workers’ behaviour to improve safety culture.

These approaches were especially pronounced in the attitudes of managers and seen in the OSH management arrangements made in the low-income country terminals. Here, while managers and their safety advisers emphasised the promotion of a 'safety culture', it was framed within a unitary perception of the nature of relations within the terminal (Fox, 1974). It was assumed that there was no possibility of any other 'culture' than that prescribed by the terminal management, which itself reflected the corporate values outlined above. Workers' primary task was to follow the safety procedures and care for themselves and others. Managers believed widespread behavioural change was required to achieve this since, while it was not part of workers' everyday lives beyond the terminal, such change was possible within the controlled environment inside the terminal. Security requirements restricted access to the terminal, giving opportunities to introduce training and certification in safety competencies for all workers, including those of contractors. The design of new terminals had meant surveillance could be organised under more centralised control with the use of cameras, recording equipment and loudspeakers, which were widely used:

...one of the big things...that's really helped in the incident investigations is the cameras. Cameras don't lie. You know, you talk to three people, you'll get three different interpretations of an event, but the cameras have been fantastic. And also we've got a new radio system where it records all the conversations which is fantastic too...

Safety Manager, region 2, high-income country

Beyond this, there were various strategies to achieve buy-in and engagement from workers while simultaneously inculcating and reinforcing messages primarily concerned with safety behaviour. Typically, this took place during a 'tool-box talk' or work group meeting, where tasks for the day were described and safety procedures emphasised. Some safety managers spoke of themed sessions that included a safety topic, which might be pursued over a period, with workers being encouraged to speak about their aspirations to work safely and persuade others to do likewise.

However, while good communication within organisations is often regarded as a key requisite of OSH management systems, our evidence makes plain that many respondents had not experienced this. Such communication that occurred was heavily orientated towards top-down instruction, often accompanied by surveillance to ensure compliance. And even here, arrangements providing information to workers, often required by law, were inadequate in practice. For example, on access to information concerning the preventive policies or procedures that underpinned OSH management systems, between half and two-thirds of survey respondents indicated they either had no access or simply did not know about them, despite repeated claim by managers that they were available to all (see also Walters and Wadsworth, 2016; Walters et al, 2019).

Risk assessment — Emblematic of the procedures underpinning OSH systems were those for risk assessment, and terminal managers and OSH advisors commented on their significance. However, workers were far less convinced. In some terminals there were strong indications that workers did not believe that managers were well versed in the nature of the work they were assessing:

They don't know how you work or what your safety is, they have to ask you as they're looking around.

Terminal Worker, region 1, high-income country 2

Eighty percent of survey respondents indicated that there was either no risk assessment in relation to their work, or if there was, it had not involved them (Walters and Wadsworth, 2019). Further analysis of the interviews with workers and their representatives suggested that this lack of awareness related to the approach taken by the terminal management rather than its absence from their OSH

management strategies. Indeed, workers generally perceived managerial interventions to assess risks somewhat cynically, and as being of limited value in addressing their OSH concerns.

They tend to check the photocopier on them days, and say yes that's running. ... some of the people that are doing it, they're not worth the paper they're written on, to be quite frank, because they don't know what they're looking for..."

Worker representative, region 1, high income country 2

Even when they had formed a more positive view of these efforts, they saw risk assessment as a purely technical or managerial function. A similar view is reflected in some literature on risk analysis in container terminals (Parra et al, 2018), where no mention occurs of worker consultation. Moreover, while managers often believed they operated a participatory approach to safety, in keeping with behavioural systems generally, at best this involved seeking engagement from workers to follow safety rules, rather than consultation with them over matters that might lead to the development of these rules, such as assessment of the risks they were intended to address. Consequently, as far as risk assessment was concerned, workers and their representatives had little, if any, experience of involvement.

In keeping with observations on behaviour-based approaches generally, while there was a widely held view among managers that OSH management systems had improved in recent years, it was to some extent acknowledged that priority had been afforded to *safety* as opposed to *health or welfare* (Frick, 2011). This acknowledgement was widely supported by the survey results which overall describe a perception, shared among workers and their representatives, that the focus on safety was unsatisfactory and meant that practice fell far short of the ideal described by managers (Walters and Wadsworth, 2016; Walters et al, 2019).

Contractor safety and health — Outsourcing of labour was a prominent feature in most of the terminals, though its extent varied. Its occurrence was strongly influenced by present and past contextual factors of national regulation and labour relations. Nevertheless, a common trend towards increased outsourcing of labour and terminal operational activities was evident in all countries and there was widespread acceptance among management that cost and competitiveness made this inevitable. As previously mentioned, the highest incidence of poor OSH outcomes was observed among the contract workers, something of which both workers and managers were aware.

There were broad similarities in how terminal managers said they managed safety and health for contractors and their workers which demonstrated a belief that they addressed the challenges that the use of contractors presented for OSH. They suggested that their safety management systems cared for *all* workers, including those employed by contractors. They generally believed that compliance with terminal requirements was an obligation placed on contractors as part of their contract and stressed it was the contractors' responsibility to ensure the safety behaviour of their workers and that their work and workers did not harm others. However, there was variation in the practices involved in ensuring this. This resulted from differences in the extent and ways in which terminal operators used a contractor-based workforce, which had been shaped significantly by the degree of resistance to contracting mounted by organised labour. However, there was little sign in any terminal of the influence of a steer from regulatory inspection concerning contractors' and their workers' safety and health, even though it was reported that these workers most often suffered the most serious injuries. Overall, there were few signs of planned and systematic approaches to managing the OSH elements of relations with contractors, despite claims concerning this made in interviews at the corporate level.

Contractor workers and their managers presented a different perspective, indicating that their ability to address their workers' OSH concerns was limited by what the terminal operator was prepared to do. This reflected tensions between them, which in the contractor managers' view, limited their decision latitude over matters including health-related working conditions, such as shift patterns and time off between shifts. They described senior terminal managers as 'more understanding' but middle managers who dealt with day-to-day operations as being less so. Such discordant signs suggested that the operational practice of OSH risk management was not as comprehensive in its coverage of contractor workers' health and safety as the terminal operators believed.

Outsourcing of terminal operational activities was an especially prominent feature of the organisation of work and employment in the low-income country, where indirectly employed workers made up the majority of each terminal's workforce. The general approach to contracted out work suggested by managers was that operational activities remained under the control of directly employed workers. However, outsourcing was more extensive than this in all these terminals. In every case, for example, lashing was performed by contractors who used migrant labour from a different part of the country. It was further evident that contractor labour was used in truck-trailer operations, rubber-tyre gantry crane operation and other specialised work.

In the 'best-case' scenarios described by managers they referred to systems for specifying safety requirements contractually, against which organisations were monitored and, if necessary, sanctioned. For example, in relation to health, safety managers explained that contracts included clauses covering a 12-hour maximum shift length. On safety, in some terminals contract workers were trained and issued with a card which expired after a year – to ensure they received refresher training. Managers stressed the importance of ensuring contractors were aware that they must work to the terminal operator's standards and they were monitored to ensure that workers did not work excessive hours. In their view, contracts included requirements in relation to the prevention of poor OSH outcomes. When pressed, however, they illustrated this by citing requirements for workers to undergo pre-work medicals and regular medical reviews. Beyond ensuring that contract workers were declared fit to work, it was unclear what preventive purpose these served. Occasionally, contractors were said to be audited and required to have their own safety manager as a contact point for the terminal management team, and encouraged to use the same personal protective equipment (PPE) procurement agencies as the terminal, to ensure consistency. At one terminal the procurement procedures were said to require tenderers to provide specifications of their health and safety standards. Managers indicated that they believed OSH requirements on contractors had increased in number and rigour. In some terminals there was a manager designated for the oversight of relations with contractors, although it was unclear what proportion of this dealt with OSH matters.

Performance was said to be monitored and occasionally contracts terminated as a result. Management at one low-income country terminal said they sought to influence OSH among contractor organisations by including non-negotiable terms in their contracts (as described above) and contract workers were said to be subject to the same safety systems and procedures as directly employed workers, including following the same corporate training, having their hours monitored to prevent excess working, and being subject to safety rewards and penalties, with violations further linked to contractors' payments.

Most terminal managers in the terminals in the low-income country said they could discipline individual contract workers for non-compliance, although they would tend to do so through the contractor rather than with the worker directly – except in the case of non-use of PPE. If contractors were deemed to be at fault in an incident they could be required to pay for any costs incurred, and individual workers were issued with warning letters. Managers in one terminal were clear that their approach was highly prescriptive:

...the other safety aspect is the behavioural aspects. That's where, for example, it's more characteristic here and some of it is more, I would say, punitive....basically we do have dialogues with the contractors and then we discuss it and procedures that we are implementing but encouraging them to implement without forcing them is not workable...the people here are not ready to just adopt the safety practices voluntarily.

General Manager, region 2, low-income country

However, despite terminal managers citing examples of ways in which they managed contractor safety and health issues, it needs to be remembered that the survey evidence makes it abundantly plain that contractor workers' experience of poor OSH outcomes was far greater than that of directly employed workers, especially in the terminals in the low-income country (Wadsworth et al, 2015; Walters et al, 2019).

There was also considerable variation in the facilities and conditions afforded to contract workers in these terminals. For instance, in some cases managers said indirectly employed workers had access to terminal facilities such as the canteen, free 24-hour paramedic service, on-site health centre, and eye, dental and health check-ups. However, in several cases researchers found no canteen access. In one terminal for example, 'welfare facilities' were old containers dedicated for this purpose, with toilet facilities and drinking water located nearby. Managers at all terminals acknowledged that directly employed workers had better conditions than contractors' workers but felt this was not something they could influence.

While managers stressed the importance of hearing the views of contractors, the arrangements made for participation and consultation with contractor workers were limited. Survey results suggested that contract workers had little access to representation, even where institutional arrangements for such representation existed. Jobs such as lashing and driving are widely acknowledged to be among the most physically demanding and so the survey findings indicating these workers faced the greatest risks were not surprising. But it is also significant that these activities were mainly undertaken by contract workers, and their working conditions were amongst the poorest reported. This suggests that corporate strategies to outsource these activities have a strongly negative effect on workers' experience of the resulting working conditions. While the behaviour-change techniques adopted by terminal managers to improve safety applied to the contract as well as the directly employed workers, and indeed both managers and workers frequently cited examples of actions taken to address contract workers' safety behaviours, these strategies did not address their health or welfare with the same degree of scrutiny or support. Workers' perception was that, here again, corporate priorities placed operational cost efficiencies and productivity over concern for their health or welfare. At its extreme, in the low-income country, many of the workers who experienced the poorest conditions of safety, health and welfare, were also temporary migrant workers. They came to the terminals in groups from villages located in different parts of the country. They often spoke a different language to the directly employed workers and managers, and their education and literacy levels appeared poor. They lived in overcrowded and poor housing and were dependent on the middle-men who organised their economic migration for basic amenities and transport. They felt disempowered and that their employment was extremely insecure. Their health and safety concerns were among those that generally went unrepresented, but their feelings of vulnerability and the precariousness of their employment prevented them from seeking representation. There were no strategies in place to address these matters.

Discussion: the gap between the rhetoric and reality?

In other sectors where similar OSH strategies are found, observers have noted that in combination, the 'zero-harm' orientation of OSH governance and the management systems approach to its delivery often result in arrangements that are strongly behaviour-based (e.g. Quinlan (2014) on mining; Sampson et al (2019) on shipping; Frick (2011) in other sectors). These effects were evident in all the terminals studied, and the focus of attention to governance and management was weighted towards *safety* rather than *safety, health and welfare* management. Others have pointed to similar orientations elsewhere and argued that they are a function of corporate focus on behaviour-based approaches. Frick and Kempa (2011) note that in such systems:

Safety is given much more attention than health, despite the fact that diseases cause far more ill-health than accidents do. The prevention described more often revolves around control of 'safe' procedures than the prescribed upstream prevention of eliminating risks at the design stage...

Quinlan (2014) makes the same point and suggests a connection between the focus on behaviourally-orientated arrangements for safety at work within establishments, the dominant discourse on 'safety culture' among managers and safety professionals and the high-profile espousal of 'zero-harm' approaches at board room level. He argues that focus on changing workers' behaviour (although managers' behaviour may also be included) does not involve examining corporate or managerial decisions on finance, work organisation and operation. Far from being the 'core' business value claimed, this focus allows 'business as usual' in terms of the decisions necessary to maintain a pursuit of profit, while marginalising issues of the health, safety and well-being of commodified workers. It ensures that underlying business and organisational contributions to creating a poor working environment fall outside the remit of the strategies for safety and health and can therefore be ignored. The absence of systems for representation and consultation with workers that allow them some chance to influence the outcomes of such engagement, remove further possible resistance to a focus on matters for which workers themselves can be largely made responsible and held accountable, along with the use of highly prescriptive means to control their behaviour and punitive sanctions for what management regard as 'deviant'. A further effect of these arrangements and the attitudes to them expressed by managers was the presence of what Gray (2009) terms 'responsibilisation' among terminal workers, which was evident in the sense of vulnerability to punitive treatment they believed would follow failure to take 'responsibility' for their own safety through adherence to 'procedures'.

This was essentially the situation in the terminals studied. Leadership from the corporate level on achieving 'zero-harm' had made an impact, and managers believed that the management arrangements in place covered the most significant risks faced by workers. They were proud of these systems and committed to their continued improvement and the improvement of safety performance through features such as inducting new workers into the safety culture through training, then monitoring and supervising their adherence to its requirements. But workers and their representatives, while broadly agreed that the systems were effective in addressing *safe behaviour*, indicated that this dealt with only part of their concerns. In particular, it did not address their experience of work-related ill-health or the forms of employment and work organisation that, in their opinion, were its cause. Workers held that maximising productivity was the corporate priority, a belief reinforced by their everyday experiences. It is not surprising that they looked somewhat askance at the companies' efforts to protect their health, safety and welfare through behaviour change techniques and monitoring their safe behaviour in a manner they suggested contributed to feelings of employment insecurity and reduced trust.

Critique of behaviour-based safety management strategies draws attention to several factors that explain their weakness and there is a consensus (see Frick and Kempa 2011 for a review) that the application of such safety management systems often results in:

- Preoccupation with *safety* rather than *safety, health and welfare*
- Focus on the behaviour of individuals rather than organisational, operational or situational issues
- Approaches that over-emphasise strategies and practices of paper compliance
- Focus on top-down instructive communication, with resulting inadequate feedback loops to managers from their subordinates, workers and their representatives
- Inadequate attention to the health and safety consequences of work organisation and work processes and changes within them

All these features were present in the OSH management systems in place in the terminals studied and were a consequence of requirements of corporate level OSH governance. Our findings suggest they contributed to a significant gap between workers' experiences and the perceptions of corporate leadership and management concerning OSH arrangements, and that corporate governance focusing on zero-harm strategies and changing safety culture was at best only partially effective in bridging it. Arguably, two main features served to undermine it. First, we have shown that the approach is self-limited by its primary focus on safety, and therefore fails to address many of the workers' concerns. Second, while there may be 'low hanging fruit' to be harvested in terms of safety improvements using this approach, ultimately the lack of trust and marginalisation of institutional arrangements for representative worker participation undermine their credibility in the eyes of workers and their representatives, as our findings strongly demonstrate.

A large body of research indicates that trends in organisational management have features in common which lead to harmful effects for workers' health, safety and welfare (e.g. Benach et al, 2007; Quinlan et al, 2001; Weil, 2014). A parallel decline in the significance of the legal nexus surrounding the employment relationship and, by extension, the influence of collective approaches to employment relations, has contributed to increased influence of *business relationships* upon *workplace practices*. Many of these features lead to, *inter alia*, the reduction of employment security, greater focus on price and delivery outcomes and stronger pressure to increase work intensity, while simultaneously presenting myriad challenges for conventional approaches to communicating and managing OSH arrangements. The multi-employer worksites that result from contracting work out make it difficult to manage OSH and make arrangements to protect *all* workers. This also often results in the presence of companies on site with fewer resources to address OSH management than the large companies to which they are contracted, and further to place these contractors under considerable pressure to deliver according to unrealistic price and time schedules which compromise health and safety (e.g. James and Lloyd, 2008). Devolving organisational authority within large formerly centralised and hierarchical organisations to flatter matrices of more loosely associated business units contributes to serious problems of managerial authority on OSH issues and to a reduction in resources for specialist OSH services. Several accounts of the causes of major incidents identify failures of communication and management and *disorganisation* resulting from such organisational structures as significant (Le Coze, 2008; Hopkins, 2011, 2012; Woolfson, 2013).

All these features were evident in the terminals studied. Outsourcing dock labour is a well-established pattern. There were indications that the zero-harm approach towards OSH arrangements was the way corporate governance exerted its influence over the otherwise semi-autonomous terminals, but in so doing, the meaning of 'occupational *health, safety and welfare*' was considerably narrowed to that of 'occupational *safety*'.

As previously noted, a greater proportion of workers who responded to our survey believed there was a high risk to their health from their work, with stress and fatigue also reported by over 60%. Experience of poor health outcomes was associated with high levels of poor safety outcomes. This

adds further substance to the findings of Fabiano et al, and indicates parallels with findings in other sectors on the OSH consequences of re-organised work and employment arrangements intended to improve cost and delivery efficiencies. It further suggests that wider trends in organisational management help to contextualise the governance and management of OSH in the terminals and explain their results. It is well established that work-related health outcomes like high levels of stress, fatigue and MSDs, are associated with features of work organisation, such as the pace of work, extent of repetitive tasks and degree of decision latitude, as well as with issues of employment security etc. These matters are dictated by the wider organisational and operational management of the terminal companies and outside the influence of behaviour safety strategies — or indeed efforts to influence ‘safety culture’ within the terminals. It is also interesting to note that where these outcomes were most pronounced, trends in employment practices mean that:

...workers are casual employees that come to the port for short periods...These workers are hired by private contractors who offer poor pay, poor safety conditions and no long-term benefits...here are considerable social costs associated with the process of port redevelopment, which are being borne by the workforce. The rationalisation of workforce numbers, increased casualization and de-unionisation of port labour are leading to worsening conditions of employment.

Hill, 2008: 164-165

Research in other sectors suggests that substantial improvements in contract workers’ working conditions lie within the reach of corporate influence (Walters and James, 2011; James et al, 2015; Sampson et al, 2014). Greater attention could be applied to developing corporate standards concerning these matters without necessarily risking excessive interference with the freedom of business units to manage the financial and organisational aspects of their business relations with contractors. However, research also shows that the drivers of such engagement are not solely corporate but also come from the wider environment in which businesses operate. Such contextual drivers were most especially limited in the low-income country where the experiences of contract workers were poorest.

The extent and quality of worker participation in health and safety was also strongly affected by contractorisation and least developed in the terminals with high levels of indirectly employed workers. They were almost non-existent among the contract workers in the low-income country, where over 90% had no safety committee and almost 90% said they had no elected health and safety representative (Walters and Wadsworth, 2019). Even where workers were members of autonomous trade unions, these were often not recognised by their employers and had no platform from which to make representations about OSH matters (Wadsworth et al, 2015). Consultation on health and safety, when it occurred in these contexts, generally took the form of direct consultation between individual workers and their supervisors, managers or employers (depending on the size of the contracting organisation) or with supervisors or managers from the terminal company. The quality of this so-called ‘consultation’ was strongly affected by the power imbalance between the parties and generally contractor workers’ feelings of vulnerability and insecurity meant they felt unable to raise issues or offer observations or opinions on OSH matters they thought would contradict those of the contractor or terminal management.

Conclusion

Our findings indicate that the position occupied by corporate strategies for the governance and management of workers’ occupational health, safety and welfare in relation to wider corporate strategies for managing the business and operation of container terminals limits their coverage to a narrow aspect of what might more holistically be considered the ‘work environment’. Despite rhetoric

concerning the centrality of a commitment to preventive health and safety in core corporate business values and practices, what emerged in the organisations studied was an understanding of OSH which did not conflict with the principles of profit maximisation that are among the drivers of the increased use of contractors in the core operational activities of terminals as well as in the way work is organised to maximise speed and efficiency in loading and unloading operations and the logistics of containerised transport. Corporate OSH strategies were in practice largely limited to the governance and management of *safety*, and to a particular form of such governance in which notions of developing 'safety culture' and behaviour modification predominated. We suggest this results in the everyday operational practice of *safety* management in ways that largely ignore a range of occupational health and welfare issues that are essentially the consequence of corporate business and operational strategies and practices aimed at increasing productivity and profitability. These are among the factors that workers regard as influencing both their health and welfare and their safety, but they lie beyond the reach of corporate approaches that are largely focused on achieving behaviour changes in relation to safety.

The paper also suggests there is a substantial difference between experience of the delivery of corporate strategies in terminals operated by the same global companies but in different economic and regulatory contexts — suggesting that such contexts remain important determinants of OSH practice; and further that such strategies are experienced very differently by directly employed workers when compared with those employed indirectly.

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References

- Benach, J., Muntaner, C., Santana, V. (eds.) (2007) *Employment Conditions and Health Inequalities: Final Report to the WHO Commission on Social Determinants of Health (CSDK)*. WHO: Geneva.
- Bonacich, E., Wilson, J. (2008). *Getting the goods: Ports, labor, and the logistics revolution*. Cornell University Press: Ithaca.
- Chlomoudis, C.I., Pallis, P.L., Tzannatos, E.S. (2016). A Risk Assessment Methodology in Container Terminals: The Case Study of the Port Container Terminal of Thessalonica. *Journal of Traffic and Transportation Engineering*, 4(5): 251- 258.
- Fabiano, B., Currò, F., Reverberi, A.P., Pastorino, R. (2010). Port safety and the container revolution: A statistical study on human factor and occupational accidents over the long period. *Safety Science*, 48:980–990.
- Fox, A. (1974) *Beyond Contract: Work, Power and Trust Relations*. Faber and Faber: London.
- Frick, K. (2011) Worker influence on voluntary OHS management systems — a review of its ends and means. *Safety Science*, 40:974-987.
- Frick, K., Kempa, V. (2011) *Occupational Health and Safety Management Systems — When are they good for your health?* (Report 119), European Trade Union Institute: Brussels.
- Gray, G. (2009). The responsabilization strategy of health and safety: Neo-liberalism and the reconfiguration of individual responsibility for risk. *British Journal of Criminology*, 49(3):326-342.

- Hill, D. (2008) Developing India's Ports: Balancing Economic and Social Objectives. In: Reveley, J., Malcolm, T. (eds.) *Port Privatisation: The Asia-Pacific Experience*. Edward Elgar Publishing: Cheltenham.
- Hopkins, A. (2012) *Disastrous Decisions: The Human and Organisational Causes of the Gulf of Mexico Blowout*. CCH: Sydney.
- Hopkins, A. (2011) Risk management and rule-compliance: decision-making in hazardous industries. *Safety Science*, 49:110-120.
- Hopkins, A. (2005). What are we to make of safe behaviour programs? *Safety Science*, 44:583-597.
- James, S., Lloyd, C. (2008) Too much pressure? Retailer power and occupational health and safety in the food processing industry. *Work Employment and Society*, 22(4):1-18.
- James, P., Walters, D., Wadsworth, E., Sampson, H. (2015) Regulating the employment dynamics of domestic supply chains. *Journal of Industrial Relations*, 57(4): 526-543.
- Khanzode, V., Jhareswar M., Pradip K. (2012) Occupational injury and accident research: A comprehensive review. *Safety Science*, 50:1355-1367.
- Kontogiannis, T., Leva, M., Balfe, N. (2017) Total Safety Management: Principles, processes and methods, *Safety Science*, 100B:128-142.
- Le Coze, J. (2008) Disasters and organisations: from lessons learnt to theorising. *Safety Science*, 46:132-149.
- Mabrouki, C., Bentaleb, F., Mousrij, A. (2014). A decision support methodology for risk management within a port terminal. *Safety Science*, 63:124–132.
- Pallis, P. (2017). Port Risk Management in Container Terminals. *Transportation Research Procedia*, 25(1):4411–4421.
- Parra, N., Nagi, A., Kersten, W. (2018) Risk assessment methods in seaports: A Literature Review. Accessed 15/03/19: <https://www.utu.fi/en/sites/hazard/publications/Documents/HAZARD%20Publication%2024%20Risk%20Assessment%20Methods%20in%20Seaports%20-%20a%20Literature%20Review.pdf>
- Quinlan, M. (2014) *Ten Pathways to Death and Disaster: Learning from Fatal Incidents in Mines and Other High Hazard Workplaces*. The Federation Press: Annandale.
- Quinlan, M., Bohle, P. (2008). Under pressure, out of control or home alone? Reviewing research and policy debates on the OHS effects of outsourcing and home-based work. *International Journal of Health Services*, 38(3):489-525.
- Quinlan, M., Mayhew, C., Bohle, P. (2001) The global expansion of precarious employment, work disorganisation, and consequences for occupational health: a review of recent research. *International Journal of Health Services*, 31(2):335–414.
- Rodrigue, J., Notteboom, T. (2011) Global networks in the container terminal operating industry. Part 1: How global are global operators? *Port Technology International*, 49:10-14.
- Shang, K-C., Lu, C-S. (2009). Effects of safety climate on perceptions of safety performance in container terminal operations. *Transport reviews*, 29(1): 1-19.

Sisson, M. (2012) Automation and safety on container terminals: Accidents and injuries on the quayside have reduced dramatically over the past 50 years, so how can we continue this trend into the future? *Port Technology International*, 47:70-73.

Sampson, H., Turgo, N., Acejo, I., Ellis, N., Tang L. (2019). *Between a Rock and a Hard Place: The Implications of Lost Autonomy and Trust for Professionals at Sea, Work Employment and Society*. Doi 10.1177/0950017018821284.

Sampson, H., Walters, D., Wadsworth, E., James, P. (2014) Making headway? Regulatory compliance in the shipping industry. *Social and Legal Studies*, 23(3):383-402.

Walters, D., James, P. (2011) What motivates employers to establish preventive management arrangements within supply chains? *Safety Science*, 49(7):988-994.

Wadsworth, E., Bhattacharya, S., Walters, D. (2015) Representing workers on arrangements for occupational health and safety in a global industry: Dockworkers experiences in two countries. *Policy and Practice in Health and Safety*, 13(2):87-107

Walters, D., Wadsworth, E. (2016). *Experiences of arrangements for health, safety and welfare in the global container terminal industry*. International Transport Workers Federation & Institution of Occupational Safety and Health. Available at: <http://www.iosh.co.uk/~media/Documents/Books%20and%20resources/Published%20research/Global%20container%20terminal%20industry.pdf?la=en>

Walters, D., Wadsworth, E., Bhattacharya, S. (2020) What about the workers? Experiences of arrangements for safety and health in global container terminals *Safety Science* 121 474–484

Weil, D. (2014) *The Fissured Workplace: Why work became so bad for so many and what can be done to improve it*. Harvard University Press: Boston.

Woolfson, C. (2013) From Piper Alpha to Deepwater Horizon. In: Nichols, T., Walters, D. (eds.) *Safety or Profit? International Studies in Governance, Change and the Work Environment*. Baywood: New York.

Yang, Z. L., Bonsall, S., Wang, J. (2010), Facilitating uncertainty treatment in the risk assessment of container supply chains. *Journal of Marine Engineering and Technology*, 9(2): 23–36.