

national research centre for

***OHS regulation***



## **Working Paper 42:**

# **Evaluating Mine Safety Legislation in Queensland<sup>1</sup>**

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## 1 Introduction

For historical and arguably pragmatic reasons, the mining industry in Queensland has always been the subject of a separate OHS regulatory regime, enforced by an independent mines inspectorate. One consequence of this separation of mining from mainstream OHS has been to isolate the industry from legislative and regulatory developments elsewhere. What became regarded as “best practice regulation” as regards OHS generally was largely ignored by the mining sector, its policy makers and its regulators, who continued to adopt forms of regulation which “mainstream” regulators had long rejected as unlikely to reduce levels of work related injury and disease to anything approaching acceptable levels.<sup>2</sup> However belatedly, all this is now changing. Statutory changes were made in Queensland in 1999 with the introduction of the *Coal Mining Safety and Health Act 1999* (QLD) (*CMSHA 1999*) and the *Mining and Quarrying Safety and Health Act 1999* (QLD) (*MQSHA 1999*).

It is these statutes that are the principal subject matter of this working paper, which has three purposes: (i) to provide an overview of the traditional approach to mine safety regulation and its limitations; (ii) to describe the main features of the new generation of mine safety legislation in Queensland; and (iii) to critically evaluate contemporary arrangements and identify what further reforms may be desirable. However, it does not purport to address either the role of worker participation, or enforcement and penalties.

## 2. Traditional Mines Safety Regulation and Its Shortcomings

Few would challenge the need for regulation of OHS in the mining industry. The industry is hazardous, and its long history of preventable industrial accidents and mining disasters suggests that voluntary approaches alone will be insufficient to achieve an acceptable level of OHS. While the industry has made considerable safety advances and its commitment to OHS has increased, nevertheless there is broad agreement that mandatory standards, or at least some combination of imposed standards and self-regulation, will be necessary to ensure that employers and their employees take risk management decisions that are in the best interests of the community in general, and of workers in particular. However, what is less clear is what form that regulation should take and in particular, what types of standards should most appropriately be applied to mine safety.

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<sup>2</sup> In particular, the philosophy espoused by the British Robens Report in 1972 (Committee on Safety and Health at Work, *Report of the Committee on Health and Safety at Work 1970-1972* (HMSO, London, 1972)), with its rejection of prescription and its reliance on general duties, was adopted by all the Australian states in the course of the 1980s (see R Johnstone, *Occupational Health and Safety Law and Policy: Text and Materials*, (2<sup>nd</sup> ed, Lawbook Co; Pyrmont NSW 2004)) but largely ignored by the mining sector.

In essence, OHS law may incorporate four main, conceptually distinct, types of standards aimed at influencing behaviour through a variety of techniques. These are prescriptive, general duties, performance-based and systematic process-based standards. This classification is now well recognized.<sup>3</sup> A *prescriptive approach* tells duty holders precisely what measures to take and requires little interpretation on their part. Such a standard identifies “inputs”, that is, the specific preventive action required in a particular situation. *General duties* (sometimes referred to as ‘goal setting’ regulation) set out principles which duty holders must follow, such as ensuring health and safety as far as practicable, leaving it to the discretion of the duty holder how they achieve those principles or goals. A *performance standard* specifies the outcome of the OHS improvement or the desired level of performance but leaves the concrete measures to achieve this end open for the duty holder to adapt to varying local circumstances. *Process based standards* identify a particular process, or series of steps, to be followed in the pursuit of safety, and range from the requirement to identify hazards and assess and control risks (found in many national standards) to the more ambitious requirement to engage in a systemic approach to OHS at the organizational level.

The most distinctive feature of traditional mine safety regulation in Queensland was that it relied very heavily upon the first of the above approaches supplemented in more recent years, to a modest extent, by some elements of the second, and glimmerings, at best, of the third and fourth. Even then, it was common for the relevant mines inspectorates to focus most of their attention on prescription, which their background and experience better equipped them to deal with, to the detriment and sometimes virtual exclusion of other types of standard.

In Queensland, metalliferous mines and quarries had been regulated under the *Mines Regulation Act 1964* (QLD) and the *Metalliferous Mining Regulations 1985* (QLD), both of which were based on legislative principles established in the 19<sup>th</sup> century. Indeed it has been pointed out that some of the wording dates directly from that time.<sup>4</sup> In consequence, the Act and regulations made under it failed explicitly to recognize or incorporate basic tenets of contemporary OHS theory and practice, including ‘the hierarchy of hazard control measures, the systematic management of risk, the systematic investigation of accidents, the systematic monitoring of occupational health, the reliability and availability of equipment, condition and performance monitoring and preventive maintenance, the theory of organizations, or the physical and mental limitations of human beings.’<sup>5</sup>

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<sup>3</sup> See N Gunningham and R Johnstone, *Regulating Workplace Safety*, (Oxford University Press; Oxford 1999) Ch 2. L Bluff, N Gunningham and R Johnstone, *OHS Regulation for a Changing World of Work*, (Federation Press; Annandale, NSW 2004).

<sup>4</sup> See R Billingham, *Mining and Quarrying Safety and Health Regulation 2000*, (Paper presented at the Queensland Mining Industry Health and Safety Conference, August 27-30 2000).

<sup>5</sup> Safety and Health Division, Queensland Department of Mines and Energy, *Proposal for Queensland Mines and Quarries Health and Safety Legislation: a discussion paper for circulation and comment*, (QLD Department of Mines and Energy, Brisbane 1997), 7.

Many of the deficiencies in the Queensland regulations were seen to stem from their high level of prescriptive detail – both the 1964 Act and the 1995 Regulations concentrated ‘on telling industry how things must be done rather than the standards of safety which must be achieved while doing the task...’<sup>6</sup> with the addition of the occasional ‘vague and general’ provision.<sup>7</sup> In its Discussion Paper concerning the proposed overhaul of mine safety regulation, the Queensland Department of Mines and Energy recognised that ‘it is never going to be possible to cover every situation with a prescriptive Regulation’ and that the old legislation was so outdated and fundamentally flawed as to be beyond repair;<sup>8</sup> rather than amend the existing Act, a new scheme of legislation based on modern principles of OH&S regulation was needed.<sup>9</sup>

In summary, notwithstanding a variety of amendments and purported reforms, at least until the late 1990s, and in some cases beyond, Queensland continued to place heavy (albeit not exclusive) reliance on prescriptive legislative requirements. Yet the deficiencies of this approach are both well documented and severe, and were identified as long ago as the British Robens Report of 1972, which pointed out that prescription tends to result in a mass of detailed law, difficult to comprehend and keep up to date, and that many problems ‘fall between the cracks’ of the detailed regulations, and are not addressed.<sup>10</sup> Prescription may also lead to apathy on the part of both workers and management and a reliance upon ‘going by the book’ and an encouragement of a minimum compliance mentality which militates against the development of a culture in which safety is everybody’s responsibility.<sup>11</sup> Finally, it can impose high costs on companies and reduces international competitiveness without commensurate improvements in safety.<sup>12</sup>

Certainly the traditional prescriptive approach was gradually modified during the 1990s, but as more and more amendments were introduced to compensate for its shortcomings, it

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<sup>6</sup> Queensland, *Parliamentary Debates*, Legislative Assembly, 24 March 1999, 733-735 (T McGrady, Minister for Mines and Energy and Minister Assisting the Deputy Premier on Regional Development).

<sup>7</sup> Department of Mines and Energy, above n 35, 7-8.

<sup>8</sup> Department of Mines and Energy and the Queensland Mining Council, above n 35, 8.

<sup>9</sup> Department of Mines and Energy, above n 35, 7.

<sup>10</sup> R Baldwin, C Scott and C Hood, *A Reader on Regulation*, (Oxford University Press; Oxford 1998) 15.

<sup>11</sup> E Bardach and R Kagan, *Going by the Book: The Problem of Regulatory Unreasonableness*, (Temple University Press; Philadelphia 1982). See also A Hopkins, *Safety, Culture and Risk*, (CCH; Sydney 2004).

<sup>12</sup> According to the Productivity Commission, legislative provisions prescribing staffing, training and experience requirements (ie statutory positions) inflate costs by inhibiting the introduction of modern human resource management practices; and prescriptive requirements can also raise capital costs (eg by inhibiting equipment from being used interchangeably between jurisdictions because of different prescriptive requirements, and by delays caused in approving new machines). Productivity Commission, *The Australian Black Coal Industry Inquiry Report: Volume 1* (1998) 255-260.

came to incorporate a mixture of regulatory styles and philosophies which served to further confuse duty holders as to what was required of them, and how best to discharge their responsibilities. It speaks volumes for the isolation of the mines safety regulatory regimes that they remained wedded to this muddled and still substantially prescriptive approach decades after reformed legislation based on the alternative general duties based “Robens model” had been introduced into the mainstream OHS legislation of all the Australian states.<sup>13</sup>

### **3. Reforms**

In 1999 Queensland engaged in substantial regulatory reform such that the gap between mine specific and mainstream OHS legislation was substantially narrowed. Although these reforms did not abolish mine-specific legislation, the new approach embraced a risk based strategy (hazard identification, risk assessment and control) coupled with a variety of process and systems based standards, consistent with (and sometimes going beyond) those adopted in mainstream industry during the 1990s. Indeed, in important respects, the mining sector went beyond mainstream OHS legislation in explicitly requiring certain duty holders to introduce OHS management systems and in certain circumstances, hazard management plans and similar initiatives.

However, when the mining industry did enter the OHS mainstream, this did not necessarily result in the extensive removal of detailed prescriptive requirements (often contained in regulations) that many reformers had hoped for. The result, as will become apparent, was sometimes an uncomfortable hybrid rather than the unequivocal adoption of best practice regulatory principles. In the following sections, the central features of contemporary Queensland legislation relating to mine safety are discussed.

#### ***Legislative Structure***

Queensland operates parallel, but not overlapping, legislation relating to, on the one hand, mainstream OHS, and on the other, the mining industry. Thus Queensland enacted the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*. The general health and safety legislation of that State, the *Workplace Health and Safety Act 1995* (WA) specifically excludes mines. The approach taken is to ensure that the mining and non-mining legislative regimes complement each other. Thus although the mining legislation contains additional provisions to address the unique hazards and greater risks associated with mining, it follows the structure and content of the general industrial safety legislation.

#### ***General Duties, Regulations and Codes***

Queensland has taken a somewhat different tack to the other mining states in its approach to general duties. Under the *Coal Mining Safety and Health Act 1999* (QLD) and the *Mining and Quarrying Safety and Health Act 1999* (QLD), the emphasis is on the control

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<sup>13</sup> See Johnstone, above n 10, 73-74.

and management of risk (examined further in the next section below). An “acceptable level of risk” must be achieved through measures that are put in place at each mine.<sup>14</sup> While the risk management approach adopted in the Queensland legislation has much in common with the general duty requirements as stated in other jurisdictions,<sup>15</sup> nevertheless there are some important differences, the implications of which are far from clear.<sup>16</sup> For example, a risk management approach implies a ranking of risks, under which low ranking risks may not merit action until some later date, whereas a “general duty” approach, would require immediate action to the extent that this was “reasonably practicable”.<sup>17</sup> The absence of general duties under the 1999 Queensland legislation is unfortunate. A virtue of general duties is their all-encompassing character, and their capacity to provide clear guidance to duty holders as to what is required of them and to ‘fill in the cracks’ in circumstances in which there are no applicable performance or prescriptive standards. While in many respects complementary to and overlapping with a risk management approach, the general duties, in establishing a set of general principles to guide duty holders, go beyond that approach. There is a compelling argument for introducing general duty provisions into the Queensland legislation.

Although the risk management approach is very broad and lacking in specific guidance to duty holders, this problem can be largely overcome through the use of complementary codes of practice (referred to in Queensland as advisory standards, ministerial guidelines or industry codes of practice). In many circumstances, these provide the greater practical and detailed guidance that employers may require but, rather than being prescriptive, simply offer one acceptable means of achieving the principles set out in the risk management approach. Moreover, many of these codes will be performance-based or process-based.<sup>18</sup> While there is no obligation to follow the methods contained in the

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<sup>14</sup> *Coal Mining Safety and Health Act 1999 (QLD) (CMSHA 1999)*, s 30; *Mining and Quarrying Safety and Health Act 1999 (QLD) (MQSHA 1999)*, s 26.

<sup>15</sup> For example in New South Wales under the OHS Act 2000, these relate to the basic and overriding responsibilities of employers, employees, manufacturers and others. These include an obligation to ensure health, safety and welfare, which is further broken down (without limitation) into a number of sub-categories. For example, in the case of employers (in relation to employees) the duty extends to: ensuring that any premises controlled by the employer are safe and without risks to health; ensuring that any plant or substance provided is safe and without risk to health; ensuring that system of work and the working environment are safe and without risks to health; providing such information, instruction, training and supervision as may be necessary to ensure the employees’ health and safety at work, and providing adequate facilities for the welfare of employees at work. See OHS Act s 8 (1).

<sup>16</sup> E Bluff and R Johnstone, *The Relationship Between “Reasonably Practicable” and Risk Management Regulation*, National Research Centre for Occupational Health and Safety Regulation Working Paper 27, (2004), 39. <http://www.ohs.anu.edu.au> (accessed 9 March 2005).

<sup>17</sup> *ibid* 29.

<sup>18</sup> Alternately, technical data sheets can be used rather than codes of practice. The latter have the advantage that they are less likely to be regarded (albeit erroneously) as *de facto* regulations. (Gunningham and Johnstone, above n 17, Ch 2). Because technical data sheets would not have any formal legal status, it would also be easier to modify them quickly, thereby reducing the danger of their becoming rapidly

various standards or guidelines, nevertheless, if they are not followed, then the onus is on the operator to demonstrate that they adopted an alternative method that manages risk equally well or better than the way suggested under the standard or guideline.<sup>19</sup>

The *Coal Mining Safety and Health Regulation 2001* and the *Mining and Quarrying Safety and Health Regulation 2001* impose requirements relating to safety and health management systems, standard operating procedures, electrical activities, equipment and installations, emergencies, hazardous substances, mine plans and other issues. The regulations adopt a generic approach rather than identifying particular hazards (with the exception of explosives). The emphasis is on risk management, and on requiring that procedures and practices be established in consultation with mine workers. The emphasis is on establishing performance standards specifying outcomes to be achieved rather than how to achieve them.

### ***Risk Management, Management Plans and Management Systems***

By the mid-1990s a new phase of regulation could be identified: systematic process based standards which identify a particular process, or series of steps, to be followed in the pursuit of OHS. Process standards have become increasingly sophisticated and comprehensive, to the point today where three quite distinct, but related approaches, can be identified. These are: (i) general risk management approaches (such as those which require duty holders to identify hazards and assess and control risks); (ii) more detailed and onerous risk based requirements (such as obligations to establish major hazard management plans including specified critical controls); and (iii) a more holistic and systemic approach to managing safety through the creation of safety and health management systems.

The desirability of the first of these approaches, is very broadly recognized, and is today incorporated in both mainstream OHS and in mine safety legislation as described below. However, the second and third approaches are still relatively novel. There remains considerable debate about whether the introduction of OHS management systems (or indeed hazard management plans) should be left to the discretion of employers or mandated by regulation and many policy-makers in the general field of safety, health and environmental regulation, remain unconvinced that the latter approach is necessary.<sup>20</sup>

But in the case of mine safety, the severity of the hazards and the particularly dangerous circumstances in which production must take place has persuaded legislators that an additional layer of legislative obligation is necessary. As one mine safety regulator has

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outdated. In this way, the accumulated wisdom that is often contained in specification standards would not be lost but would be located in a different form.

<sup>19</sup> *MQSHA 1999* s 45(b); *CMSHA 1999* s 48(b).

<sup>20</sup> The most sophisticated collection of articles concerns the closely related issue of environmental management systems. See C Coglianese and J Nash, *Regulating from the Inside: Can Environmental Management Systems Achieve Policy Goals* (Resources for the Future; Washington 2001).

pointed out: ‘mining itself is an industry where hazards are large, risks are inherent and change is continual. Successful management of risks associated with mining consequently requires a systematic approach.’<sup>21</sup> This was also essentially the view of the Warden’s Court Report on the 1994 Moura Mine Disaster, which recommended that mines be required to put in place Mine Safety Management Plans relating to key risk areas, and that these plans should be based on detailed risk/hazard analysis. Accepting this rationale, Queensland, introduced legislative requirements both requiring the introduction of OHS management systems across the board and the establishment of hazard management plans in specified circumstances. Details of the legislative requirements related to the three types of process standard identified above, are examined in the remainder of this section.

Mainstream OHS legislation was the first to adopt a general risk management approach primarily through an obligation inserted in an increasing number of regulations (or approved codes of practice) to identify hazards, and to assess and control risk.<sup>22</sup> The mine specific statutes in Queensland have also embraced risk management principles. Both the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999* specify that all mining operations must be carried out so that risks are at an acceptable level (defined as within acceptable limits and low as is reasonably achievable<sup>23</sup>) as described above. While mine owners and managers are given considerable discretion as to how to achieve this objective, the Minister can detail the way to achieve the acceptable level of risk in regulations or by establishing a “recognized standard”.<sup>24</sup>

However, what distinguishes the mine safety legislation of Queensland is the extent that it goes beyond general risk management obligations and requires duty holders to establish much more detailed and specific management plans. As regards coal mines, a principal hazard management plan (forming part of the safety and health management system) must identify, analyse and assess risks associated with any hazard that could cause multiple fatalities. It must include standard operating procedures and other measures to control risk.<sup>25</sup> The site senior executive must give a copy of the principal hazard management plan to a person who employs people at the mine whose work is affected by

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<sup>21</sup> Safety and Health Division Mines Safety Branch Business Plan, 2004/05 p5

<sup>22</sup> While this obligation to engage in risk management has much in common with the general duty requirements described previously, nevertheless there are some important differences of approach, and conceptually, it is important to keep the two sets of requirements separate. This conclusion has led Bluff and Johnstone to develop a series of propositions which clarify this relationship and whereby risk management principles would be applied as a means of complying with the general duty of care. (Bluff and Johnstone, above n 67, 40-42.

<sup>23</sup> *CMSHA 1999* s 29; *MQSHA 1999* s 26.

<sup>24</sup> *CMSHA 1999* ss 71-72; *MQSHA 1999* ss 62-63.

<sup>25</sup> *CMSHA 1999* ss 62, 63.

the plan's requirements.<sup>26</sup> The executive must review principal hazard management plans and standard operating procedures in consultation with coal mine workers affected by the plans and operating procedures, as soon as practical after a new mine opens, or when changes are proposed for an existing mine.<sup>27</sup> In the case of mines covered by the *MQSHA* there are broadly obligations to include within the safety and health management system procedures for the operation of the mine and standard work instructions,<sup>28</sup> although only the *CMSHA* mandates review in consultation with workers. Unlike the NSW safety statutes, both QLD Acts do not mandate the preparation of emergency management plans. In QLD, coal mine operators must be party to a mine rescue agreement.<sup>29</sup> The *MQSHA* does not have an equivalent section, although the objects of the Act are to be achieved by, among other things, ensuring adequate emergency preparedness.<sup>30</sup>

Finally, at a holistic level, the Queensland mine safety legislation requires a Health and Safety Management System to be in place before mining is allowed. A systems approach involves managing safety or any other problem, in terms of systems of work rather than concentrating on individual deficiencies. That is, it involves the assessment and control of risks and the creation of an inbuilt system of maintenance and review. Both the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999* require the development, implementation and documentation of a safety and health management system that incorporates risk management elements and practices that ensure safety and health of persons who may be affected by the mining operation. The management system must be an auditable documented system that includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining a safety and health policy.<sup>31</sup> It must be adequate and effective to achieve an acceptable level of risk. In particular it must: define the mine's safety and health policy and set out a plan for its implementation; state how the mine operator intends to develop the capacity to implement the policy; include principal hazard management plans and standard operating procedures (procedures for operating the mine and standard work instructions in the case of the *MQHSA*); contain a way to measure, monitor and evaluate the management system and implement necessary corrective measures; and contain a plan for the review and continual improvement of the system and an immediate review in the event of a significant change in operations.<sup>32</sup> The regulator must be supplied with a copy and it must be available for audit or desk evaluation.

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<sup>26</sup> *CMSHA 1999* s 63.

<sup>27</sup> *CMSHA 1999* s 64.

<sup>28</sup> *MQSHA 1999* s 55.

<sup>29</sup> *CMSHA 1999* s 223.

<sup>30</sup> *MQSHA 1999* s 7.

<sup>31</sup> *CMSHA 1999* s 62 (2).

<sup>32</sup> *CMSHA 1999* s 62 (3).

### ***Duty holders and Their Responsibilities***

Both the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999* impose key obligations on the operator, to ensure the risk to workers while at the operator's mine is at an acceptable level, and to ensure that the operator's own safety and health and the safety and health of others is not affected by the way the operator conducts operations.<sup>33</sup> However, the operator in turn is under a duty to appoint a senior site executive with responsibility to develop and implement a safety and health management system and to develop, implement and maintain a management structure that helps ensure the safety and health of persons at the mine.<sup>34</sup>

However, the *CMSHA* and the *MQSHA* also impose obligations on an 'executive officer' being a member of the governing body of the corporation or someone 'concerned with, or tak[ing] parting the corporations management, whatever the person's position is called and whether or not the person is a director of the corporation'.<sup>35</sup> As indicated above, the phrase 'concerned in the management' has been broadly interpreted, making a number of levels of management potentially vulnerable to prosecution as individuals. However, there is a statutory defence, if the executive officer can prove (a) if the officer was in a position to influence the conduct of the corporation in relation to the offence –the officer exercised reasonable diligence to ensure the corporation complied with the provision; or (b) the officer was not in a position to influence the conduct of the corporation in relation to the offence.<sup>36</sup>

General obligations are also imposed on workers and others to work in a way that does not expose people to an unacceptable level of risk (includes ensuring that work under their control does not expose people to unacceptable risks)<sup>37</sup> Contractors have an obligation to ensure that the provisions of the Act and any applicable safety and health management system are complied with, to the extent they relate to the work of the contractor.<sup>38</sup>

The above account is intended to highlight the central features of mine safety legislation rather than to provide a comprehensive description of long and complex pieces of legislation. For this reason it will not examine provisions relating to such issues as: the reporting of certain accidents and incidents, certificates of competence, health

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<sup>33</sup> *CMSHA 1999* s44; *MQSHA 1999* s 38.

<sup>34</sup> *CMSHA 1999* s 41(i) (e); *MQSHA 1999* s 38 (i) (d)

<sup>35</sup> *CMSHA*, s 262; *MQSHA* s 241.

<sup>36</sup> *CMSHA* s 262 (4); *MQSHA* s 241 (4).

<sup>37</sup> *CMSHA 1999* s 39; *MQSHA 1999* s 30.

<sup>38</sup> *CMSHA 1999* s 43; *MQSHA 1999* s 40.

assessments, exposure limits; safety in underground operations, or the highly contentious provisions relating to a ceiling on hours of work (particularly underground) and fatigue. Provisions relating to worker participation will be discussed in a separate article.

#### **4. Taking Stock**

In terms of legislative reform, the mining industry, led by Queensland (and followed by New South Wales) has come a long way. From being decades behind mainstream OHS legislation, mining sector legislation has shifted to a point where, in some respects at least, it is substantially ahead. Indeed, the Queensland (and New South Wales) legislation satisfies almost all the key criteria set out in the National Mine Safety Framework Implementation Plan, as key features of a desirable legislative framework.<sup>39</sup>

However, this is not to imply that no further improvements are necessary. In this section the limitations of the contemporary regulatory regime are considered and some potential ‘next steps’ identified. It begins by documenting three important weaknesses of the current approach: the failure to achieve a balance between prescriptive and other types of standards; the failure to “mainstream” mine safety regulation; and the failure to introduce a safety case regime in the mining sector.

Sections 2 and 3 documented a journey away from the prescriptive regulation of past generations, towards an increasing use of general duties, performance standards, and process and systems based regulation. But that journey is far from complete. Some contemporary provisions, rather than replacing prescription, have been superimposed on a set of regulations which, even in their new form, are still largely prescriptive. Nevertheless, it must be acknowledged that Queensland has achieved a significant shift from prescription to generic risk based standards (to achieve an acceptable level of risk) and performance standards (where specified outcomes must be achieved in terms of gas and dust levels etc). It has, for example, removed restrictions on the use of aluminium in underground coal mines and also allows non flameproof diesels underground.

What is being argued for here is not the total removal of prescriptive regulation but rather the desirability of achieving a better balance between different types of regulatory standards, for any given set of circumstances. Coglianese and Lazar have argued that the optimal choice will depend upon a number of circumstances. When objectives can be clearly defined and are easily measured (or assessed), they suggest that performance-based regulations are desirable, on the basis that duty holders can be assumed to have superior knowledge to regulators about how best to achieve a given result. Such an outcome based approach will accordingly, be the most cost-effective. In contrast, where it is difficult for government to measure performance and the target group is made up of

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<sup>39</sup> These are: detailed duty of care obligations for all those involved at the mine (here Queensland is deficient), requirement to use modern risk management practices, incorporation of safety and health management systems, consultative arrangements between management and mine employees with the ability of employees to appoint representatives, reporting and investigation of accidents, and requirement for emergency response. See Conference of Chief Inspectors of Mines, National Mine Safety Implementation Plan, <http://www.ga.gov.au/ccim/> accessed 29 August 2005.

heterogeneous firms facing heterogeneous conditions, then they argue that process/systems based (what they call management based), regulation will probably be preferable to its alternatives.<sup>40</sup> This may still leave a role for prescriptive regulation, in a minority of circumstances (most significantly where there is no viable alternative to applying a particular tried and tested method to achieve a safety outcome or to ensure that certain specific actions have been taken.<sup>41</sup>). At present, it is clear that Queensland is closer to achieving such a balance than either New South Wales or Western Australia.

Regulatory reform is also incomplete in the sense that mine safety regulation has not yet been fully “mainstreamed”. Arguably, this is unfortunate, insofar as the maintenance of separate mine-specific legislation serves to perpetuate the view that the industry is so inherently and intractably dangerous as to merit special treatment. Certainly mining confronts distinctive and severe hazards, but these could be addressed by mine-specific regulations and codes without the need for a separate regulatory regime. This is the approach that has been taken in the UK, where a single statute and a single organisation apply to all OHS issues, including mining. As a corollary, there is no longer any separate mining inspectorate but simply a mining division within the Health and Safety Executive. This has the further advantage of minimizing the risk of regulatory capture.<sup>42</sup> Yet no State has fully achieved such mainstreaming. In Queensland separate but parallel regimes exist for mainstream OHS and the mining industry, notwithstanding repeated criticisms of this approach.

Beyond this, Queensland has not yet been prepared to take what is arguably the logical next step, and introduce a safety case regime into the minerals industry. The safety case approach was first applied to the off-shore oil safety regime in the UK following the recommendations of the Cullen Report of 1990 following the Piper Alpha disaster.<sup>43</sup> It has subsequently been applied to major hazard facilities in numerous jurisdictions internationally and is generally regarded as having achieved significant success in addressing the risks of disaster in such facilities.<sup>44</sup>

The essence of the safety case regime is an obligation on the operator to demonstrate to the regulator that the operator has the capacity to identify the hazards, assess the risks, implement controls and to manage the controls so they work in practice (i.e. to ‘make their safety case’). In particular they must provide a detailed description of the facility,

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<sup>40</sup> C Coglianesse and D Lazar, ‘Management-Based Regulatory Strategies’, in John D. Donahue and Joseph S. Nye Jr., eds. *Market Based Governance* (Brookings Institution Press; Cambridge, Mass and Washington, D.C. 2002) 205-208.

<sup>41</sup> See further Gunningham and Johnstone Ch 2, above n 17.

<sup>42</sup> See for example WG Carson, *The Other Price of Britain’s Oil: Safety and Control in the North Sea*, (Robertson; Oxford 1981).

<sup>43</sup> Cullen, Lord (Chairman), *Piper Alpha Inquiry* (1990).

<sup>44</sup> Wilkinson, above n 113. But see Hyler K Safety Case Regulation for the Mining Industry, NRCOHSR Working Paper 37, <http://www.ohs.anu.edu.au>

identify all potential major hazards, carry out a systemic assessment of the nature of such events and their consequences, put in place and monitor controls and embed this control system in a comprehensive safety management system.<sup>45</sup> The regulator's job is to examine the case made for safety and to ask key questions: have the hazard identification and risk assessment processes been done properly; are the controls appropriate and, if so, can the management system result in the controls being effectively and consistently applied?<sup>46</sup> The crucial distinction between this approach and current mine safety legislation is the responsibility placed on the operator to submit their plans to the regulator for approval. Those plans are then audited and if satisfactory, form the basis for accreditation. The safety case approach can only work effectively if there is a technically sophisticated and well resourced regulator with the capacity to oversight the plans and to distinguish between credible safety strategies and mere 'paper systems'.

In 2005 precisely such an approach was proposed for the Western Australian minerals industry by the Mine Safety Improvement Group.<sup>47</sup> It was argued that safety case requirements should apply to all mines (subject to the proviso that the smaller the mine, the simpler the safety case) and should address all risks including those to occupational health and risks which can cause single fatalities. It was emphasized that effective consultation with the workforce in the development and implementation of the safety case would be essential, and that adequate training would be a prerequisite to such consultation. It was also stressed that such a regime would require a new regulator (distanced from the industry so as to prevent the sort of 'capture' that the current mines inspectorate has been vulnerable to<sup>48</sup>) and with specialist skills in risk management systems, safety systems of work, behavioral safety and effective communication.

Finally, it is important to identify a number of issues that are not fully addressed, and arguably cannot be fully addressed, by mine safety regulation alone, but which will have a crucial bearing on OHS outcomes in this sector.

First, there is the issue of worker participation. The mining industry has a long history of industrial conflict, and of acrimonious relations between companies and their associations on the one hand, and workers and their unions on the other. This history makes any co-operative approach to issues of workplace safety very difficult to achieve. While statutory provision for worker consultation and (where they exist) broader statutory rights for workers and/or their representatives to stop work or issue notices in particular circumstances are important, they can only ever provide a partial solution.<sup>49</sup> This is

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<sup>45</sup> Mine Safety Improvement Group, above n11, at p 33-34.

<sup>46</sup> This summary is based on S Kruse and P. Wilkinson, *A Brave New World: Less Law, More Safety?* Paper delivered to New South Wales Minerals Council Health and Safety Conference, 15-18 May 2005, Leura, NSW.

<sup>47</sup> Mine Safety Improvement Group, above n 11.

<sup>48</sup> See Ritter, above n 3, Appendix 4.

<sup>49</sup> See forthcoming

particularly the case where trade unions are weak or non-existent – which under federal industrial relations policy, is increasingly the case. Fundamentally, the lack of trust between the two sides of industry substantially constrains best OHS outcomes, and there is no short term fix for such a deep seated mining industry malaise.<sup>50</sup>

Second there is the issue of enforcement and penalties. No law is likely to be effective in the absence of effective enforcement. But here again, the prognosis is not encouraging. There have been very few prosecutions by the Queensland mining inspectorate but very little formal analysis of the reasons for this. An internal review of the inspectorate in 2005 is understood to be highly critical of current practices, but has not been released into the public domain. In the absence of any detailed published study, it is hard to do more than flag what may well be an important but under-recognised flaw in current regulatory arrangements.

Third, legislated change may only be very partially effective in influencing the culture of the organization itself, or of a particular work site. For example, a culture of risk taking may exist at site level, being tolerated by levels of management and supervision. This is of considerable import - on some accounts “some eighty percent of accidents or incidents can be linked to ‘risk-taking’”. Such risk taking does not just happen. Rather “Employees develop a perception of what is expected and ‘permissible’ – in the way they see others (peers, supervisors and managers) behave around them. This is the ‘work environment’ of employees and it has a powerful influence on risk-taking in the organisation.”<sup>51</sup> Indeed, Pitzer argues that: ‘at the risk of over-simplifying a very complex and dynamic process in a business, the development of risk-taking behaviour in an organisation is not something that “happens at employee level” The total system, upstream in the organisation, should be managed and affected and changed where necessary.’<sup>52</sup>

Fourth, there is also a substantial ‘disconnect’ (in the words of the 2005 New South Wales Mine Safety Review) between ‘the intentions of both [the mines inspectorate] and the companies, on the one hand, to reduce risk through systems and management plans and, on the other, the reality of risk encountered at the “coal face”.’<sup>53</sup> The result is that risk assessment, hazard management plans and OHS management systems, which Head Office may have spent considerable energy developing and introducing, may have relatively little impact at site level. The challenge of identifying the best strategies through which a firm which is committed to achieving given OHS outcomes (whether prescribed by regulation or otherwise) may best succeed in doing so, and of aligning

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<sup>50</sup> On longer term solutions see Gunningham forthcoming.

<sup>51</sup> C Pitzer, M Adam and P McGurkin, *Safemap at BHP Cannington Mine* [www.qrc.org.au/\\_files/docs/conferences/QMC\\_2000/conf\\_pitzer.pdf](http://www.qrc.org.au/_files/docs/conferences/QMC_2000/conf_pitzer.pdf) (accessed 29 September 2005).

<sup>52</sup> Pitzer et al, above n 173.

<sup>53</sup> Wran and McClelland, above n 16, 7.

individual manager and site goals with those of the corporation itself, is unresolved for even some of the largest and most sophisticated organizations.<sup>54</sup>

Finally, there is the issue of contractor safety. An estimated one third of industry workers are now not mine employees but are engaged by contractors. It is also the case that the incidence of work related injury amongst the latter is substantially higher than among the former. Certainly mine safety legislation can make some impact on the practices of contractors, and existing provisions not only impose specific statutory duties on contractors and their workforces, but also require contractors to comply with the operator's mine safety management plan and system or (where contractors are sufficiently large and sophisticated) to develop their own plan in a form which is consistent with that of the operator.<sup>55</sup> However, given the economic pressures that contractors and sub-contractors face, and their difficulty in engaging skilled and experienced workers in the current employment market, legislation alone is unlikely to be sufficient to address one of the most serious contemporary OHS challenges.<sup>56</sup>

## **5. Conclusion**

The mine safety legislative reforms of Queensland represent a considerable advance on previous regulatory regimes. There has been a substantial shift away from detailed prescriptive standards towards a goal setting and process based approach. The introduction of a risk based approach and the mandatory requirement to develop and implement a safety management system and hazard management plans are particularly important innovations. The latter go substantially beyond the framework of 'mainstream' OHS legislation. The shift away from imposing duties on individual mine managers and other statutory duty holders and towards greater responsibility for the operator and the Site Senior Executive is also appropriate in locating responsibility where decision-making power lies.

But the road to regulatory reform is long and tortuous and the current provisions should be regarded as important steps along the road rather than the end of the journey. No state has yet fully 'mainstreamed' its mine safety legislation by incorporating it fully within a general OHS statute that applies to all industries (with mine safety regulations providing sector-specific provisions).

Finally, there are serious obstacles to further progress towards 'zero harm' as a result of a breakdown of trust between workers and management (which statutory worker participation provisions can only mitigate to a limited extent), serious weaknesses in current enforcement regimes, substantial challenges in engaging with what is sometimes

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<sup>54</sup> For a graphic example, see Ritter Report, above n 3 .

<sup>55</sup> CMHSA 2002 Pt 5 Div 6; MHSa 2004 Pt 5 Div 6.

<sup>56</sup> See generally M Quinlan "Flexible Work and Organisational Arrangements" in L Bluff, N Gunningham and R Johnstone *OHS Regulation for a Changing World of Work*, (Federation Press; Sydney, 2004) 120-146.

a dysfunctional culture at individual worksites, a disconnect between Head Office aspirations and 'coal face' practices, and as yet unresolved difficulties in bringing some contractors up to acceptable levels of OHS performance.