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International frameworks, national problems: mining OHS regulation in South Africa and Australia

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Abstract

Effective occupational health and safety (OHS) regulation is a critical foundation for healthy and safe mining, but the nature of the risks and the diversity of the mining industry create particular challenges for OHS regulation and enforcement. Different national and legal contexts also introduce complexity for multinational operators. For all these reasons, mining OHS regulators must develop sophisticated approaches to enforcement that enable them to respond appropriately to the range of enforcement contexts in ways that are based on sound evidence about what works. Evidence reinforces the value of an approach to enforcement that combines strategies for both deterrence (punish) and compliance (persuade). Combined strategies are more likely to have impact and are also more likely to build organisational cultures that support effective OHS management.

Two recent studies of OHS management in the mining industry investigated the role of OHS regulation and enforcement in creating high performance in OHS. In Australia, the *Digging Deeper* project collected data on OHS management from a representative sample of 53 sites from across one state in Australia. In South Africa, the *Changing Minds, Changing Mines* project collected data on OHS and organisational culture from a representative sample of 32 sites. Given the global nature of the industry, many of the same companies were involved in both projects. Despite this, the South African industry's approach to dealing with compliance had not kept pace with changes in regulatory models. There was little consensus about ways to achieve and monitor regulatory standards with considerable debate and discussion about enforcement strategies by the regulator.

The South African mining industry should provide an ideal environment for effective OHS regulation in a developing country. The usual confounders of poor OHS performance are not apparent in the South African mining industry. However, OHS outcomes in the South African industry are far from exemplary. Barriers to regulatory change in South Africa include the economic importance of mining and payment systems both reducing the opportunity to mobilise pressure for change; investigation and monitoring systems (both internal and external) focussed on blame-seeking; risk acceptance in a nation with major public health concerns; failure to invest in technology reducing the practicability of risk controls; and much lower social expectations of working conditions, supported by high levels of racial and gender segmentation of the mining labour market.

The lessons for regulatory reform in mining from these studies include:

- Voluntary codes are not a substitute for strong government regulation.
- Regulator capacity, both in size and competence, is a critical underpinning for effective regulation.
- Reform strategies must deal with the economic importance of this industry.
- Regulatory strategies from different national environments cannot simply be transposed.
- Addressing the needs for social change should be part of the reform process, requiring engagement with the broader community.

These lessons may apply across different national contexts.

Keywords: occupational health and safety regulatory reform; occupational health and safety regulation; occupational health and safety in developing economies.

1. Introduction

Effective occupational health and safety (OHS) regulation is a critical foundation for healthy and safe mining, but the nature of the risks and the diversity of the mining industry create particular challenges for OHS regulation and enforcement. For example, legal compliance by a small gem mine will be quite different to compliance by a large underground gold mine. Different national and legal contexts also introduce complexity for multinational operators. For all these reasons, mining OHS regulators in jurisdictions around the world need to develop sophisticated approaches to enforcement that enable them to respond appropriately to the range of enforcement contexts in ways that are based on sound evidence about what works and which provide some level of consistency to this global industry. Evidence reinforces the value of an approach to enforcement that combines strategies for both deterrence (punish) and compliance (persuade) (Johnstone, 2004). Combined strategies are more likely to have impact and are more likely to build organisational cultures that support effective OHS management.

This paper reports on two recent studies of OHS management in the mining industry that investigated the role of OHS regulation and enforcement in creating high performance in OHS. The first study, *Digging Deeper*, investigated OHS management in a representative sample of sites in a major mining state of Australia (Shaw et al 2007). The second, *Changing Minds, Changing Mines*, developed a culture transformation strategy for the South African mining industry, including the industry's approach to regulation and enforcement (Shaw et al 2010). By comparing findings in Australia and South Africa, which share many of the same structural features, this paper seeks to distil lessons for regulatory reform for the mining industry in diverse national settings.

2. The *Digging Deeper* Project

The *Digging Deeper* Project was commissioned by the New South Wales (NSW) Mine Safety Advisory Council (MSAC), a multipartite body that advises the NSW government on OHS in mining. It was undertaken by a multidisciplinary team, including the first two authors of this paper. The project addressed three topics that were highlighted in a series of reviews and investigations of OHS in the NSW mining industry, particularly the 2005 Wran Mine Safety Review and the 1997 Johnston Review (Johnston, 1997; Wran and McClelland, 2005). The three topics were: production bonus and safety incentive schemes; hours of work and fatigue management; and the application of OHS management systems (OHSMS), including consultation. The purpose of the project was to examine how these issues affected OHS performance in the NSW mining industry and to develop key principles to inform regulation and enforcement policy.

2.1 Method

Digging Deeper was conducted using a method that required negotiated access to the industry as a whole and to selected sites in order to collect a mix of quantitative and qualitative data. A census of the industry enabled us to derive a picture of the industry and gave us the data necessary to enable the selection of a stratified randomised sample of sites for the site visits. Quantitative and qualitative data were collected during the site visits. Three *Future Inquiry* workshops (Blewett and Shaw 2006) were conducted to complete the data collection and test our findings prior to submitting the final report. The multi-method approach we used allowed us to triangulate our data, giving us confidence that the features identified from the data were a reflection of reality rather than methodological error (Maxwell, 2005).

2.2 Findings

There was a variable reaction amongst respondents to the role of the NSW mining industry's regulator (the Department of Primary Industries or DPI). It ranged from viewing the regulator as a resource and a valuable source of information, to viewing it as overly bureaucratic and a source of irritation. Those in the small to medium quarrying sector of the industry were particularly satisfied with the guidance received from the regulator. This was especially related to the development of occupational health and safety management systems (OHSMS); testament to the value and effectiveness of the regulator's program aimed at this group:

> *DPI – I find them really good. They'll come to your site, will do an audit, give you recommendations. They're good because they're proactive.* (Quarrying, mine manager).

For all sites, external corporate and legal requirements provided both the framework and the imperative for their OHSMS. Particularly for smaller sites and in the quarrying sector, regulation and enforcement by the regulator was a major driver for implementing an OHSMS. However, this did not necessarily result in token systems. The quarrying sites, particularly the small ones, were almost all positive about the contribution made by the regulator to their OHSMS, and the following quotation was typical of many:

> *We used the DPI guidelines – they were useful because they helped to formalize OHS and the operation. It helped the whole business. We used the same ideas for other parts of business, standardized forms and processes* (Small quarry manager).

Rather than using certification of OHSMS as a substitute for inspectorate scrutiny, DPI engaged with the industry in seeking to ensure that OHSMS were effective, flexible and addressed risks in the workplace. Particularly with small enterprises, this work has resulted in effective, systematic approaches that actively involve workforces in improving working conditions:

> *DPI play a constructive role. They talk to the guys. If you see them they make things happen* (Equipment operator).

All sites valued the advice from the regulator and the Inspectorate's safety alerts in particular were often raised as a useful source of information. Some wanted more information and better opportunities for benchmarking:

> *I would like to see DPI do better at communicating best practice through the industry. After all, they get to all mine sites …. they do it a bit, but could do it more* (Mine manager).

A varied response to the regulator's enforcement role was evident throughout the regions we visited and in each of the sectors. Common words to describe a positive relationship were, *fair*, *reasonable*, *open*. The advice provided by inspectors was valued and many sites showed respect for the inspectorate, even where there had been enforcement action.

> *Why is it good here? Because the governing body, DPI, put a lot of pressure on the site. 30-40 years ago there was none of this. Now, because of education and regulation, there are less people getting hurt, less claims, less court cases* (Equipment operator).

There was also criticism of the regulator, with some employees reporting that inspectors were not available unless a serious incident had occurred. Others were critical of the lack of attention paid to workers and their representatives by DPI inspectors:

> *…Our inspector doesn't contact [employee representatives] as a matter of course and we don't get copies of reports* (Employee representative).

Some interviewees reported that they found the regulator inconsistent, overly bureaucratic, demanding and focussed on prosecution. These criticisms were more likely to be voiced in the coal sector and many managers on coal sites referred in a negative way to recent prosecutions arising from the most recent mining disaster.

> *The role of DPI has changed from support (where you could have an off-the-record chat about a problem) to policemen. It's driving people out of the industry – fear of prosecution. There are always prosecutions happening. New legislation has come in because they haven't been able to make the prosecutions stick. The department is part of the industry – but they don't take any responsibility. They can even come after you when you retire from the industry – when does your responsibility stop?* (Mine manager).

2.3 Discussion

Digging Deeper shows that the most important role for the regulator was to provide the encouragement at site level to implement effective management practices; to not merely focus on paper compliance, but undertake a thorough investigation of involvement, action, resource allocation and outcomes through talking to key players on site, including workers and their representatives. A traditional regulatory approach to supporting OHS management systems, focussed on formal OHSMS auditing and certification, would have been unlikely to lead to higher performance and would merely substitute traditional regulatory requirements with equally inflexible private requirements. Instead of setting the detailed specifications, our findings suggest that the regulator's role in promoting effective OHS management is more sensibly seen as monitoring and maintaining the boundaries of safe operation, making sure that an industry is meeting minimum requirements for OHS management, but allowing considerable autonomy within these boundaries to achieve their goal. This implies significant penalties when companies operate outside the boundaries.

The *Digging Deeper* study demonstrated that detailed, prescriptive rules for OHS management, as embodied in formal OHSMS, will not necessarily result in more reflexive, improvement-oriented approaches nor achieve high performance in OHS. Instead, monitoring, evaluation and promotion schemes must build the capacity of sites to develop their own unique systematic approaches and to ensure that they get timely information about how effectively these approaches are meeting organizational needs. This makes the role of the regulator even more important.

3. The *Changing Minds, Changing Mines* Project

The *Changing Minds, Changing Mines* Project was commissioned by the South African Mine Health and Safety Council (MHSC), a tripartite body that advises the South African government on OHS in mining. It was undertaken by a multidisciplinary team, including all authors of this paper. The aim of this project was to develop a health and safety culture transformation framework that will allow the South African mining industry to significantly improve its health and safety culture.

In order to achieve this aim, the project had a number of objectives and, in particular, sought to address the role of the regulator (the Department of Mineral Resources or DMR) in creating and

promoting such an industry culture.

3.1 Method

The method we used for the project involved extensive consultation and data collection. We interviewed 111 people from all identified stakeholder groups – corporations, unions, the regulator (DMR), relevant industry organisations and researchers. We visited a representative sample of 32 mine sites from all relevant commodity groups. On these site visits, we interviewed 1341 individuals, from labourers to general managers in 256 interviews, using the languages of choice of the interviewees. The survey we conducted on site achieved 3078 responses, close to 100% of those sampled. After analysing our data, a *Future Search* Conference was conducted to allow a cross section of the industry to consider the findings of the project, develop a draft Health and Safety Culture Transformation Framework and an implementation plan.

Future Search is a large group planning meeting that brings diverse people together to work on a specific and task-focused agenda (Weisbord and Janoff, 2000). As a participative planning process, it aims to engage all stakeholders in working on a particular task to find common ground. It seeks agreement to take action amongst people who may have disparate interests and agendas. The outcome of a future search conference is commitment by all participants to action plans that are grounded in reality. The conference involved over 100 participants who spoke more than eight languages and came from all levels of the industry, from senior public servants and company directors to mineworkers from remote communities.

3.2 Findings

There was considerable debate and discussion in the industry about the role of the regulator and the best regulatory strategies for DMR. On the one hand, a number of senior people in the industry asserted that because they were aiming for best practice, the regulator should have limited scope for enforcement action on their sites:

> *If you are waiting for a regulator to tell you how to do your business, it's too late* (CEO, Mining company)

A number of sites saw value in having an inspector assess compliance:

> *We like having the DMR to do inspections at our mines because we see them as a "fresh pair of eyes" that may help us see things that we have overlooked. We are used to our work place and may not realize there is a problem. They also help us with lessons from other mines and coach us as well* (Operations manager).

The mine manager at one of the better performing sites we visited asserted that: *I want them to do a thorough inspection – the more faults they pick up the better* (Mine Manager).

In contrast, at other sites, considerable frustration was expressed about DMR's activities on the site:

> *The DMR approached the mining industry wrongly – they would visit mines to be vindictive, counterproductive, and to actually say I'm the guy with the big stick. It had no value. They wanted us to believe that by slapping mines with a Section 54, that the safety improved. And they're totally wrong* (Section Manager).

As this quotation exemplifies, many managers across the sites we visited expressed considerable frustration that DMR's enforcement actions were punitive and did not support improved risk control. We were also often told that inspectors lacked the industry experience to make enforcement decisions:

> *It doesn't help if an Inspector comes to me and tells me how I must do things, but he's never been underground in his life!* (Mine Overseer).

In contrast, the need for an inspectorate to enforce minimum standards is highlighted by this comment by a mineworker from another site:

> *The inspectors must come and make sure that management is following all the laws that they are suppose to follow so that this mine is not governed by the rules made by management to oppress people. We say this because the law says we are suppose to get proper PPE to do our jobs and this PPE must be supplied freely by the mine, and if it is damaged we have the right to return the damaged PPE to get new one. But in this mine it is not the case, they tell us to buy our own PPE and they deduct this money from your salary* (Workforce).

We were also told by mineworkers and employee representatives (health and safety representatives or HSRs) that inspectors can be 'shepherded' into the most compliant work areas on mine sites:

> *When the inspectors come to our mines they mustn't be accompanied by management to the different areas because they take them to areas that have safe conditions and this gives the inspectors the wrong impression* (Workforce).

In fact, many employee representatives told us that DMR inspectors did not always liaise with HSRs when inspectors visited the site:

> *We do not have any knowledge of what the DMR is or what they do. We know that sometimes there are people who come and do inspections but we don't know exactly what they do as we are not involved with them* (HSR)

As a consequence, inspectors would be missing out on valuable information needed to assess compliance, not least about compliance with obligations to consult with HSRs on sites.

There was a lot of support from sites for DMR to play a role in information exchange and benchmarking. Where local inspectors already played such a role, sites were very positive about such opportunities. On the other hand, everyone identified that resource constraints on DMR limited the effectiveness of their interventions. One CEO reported that:

> *There's a problem with capacity at DMR. The people that get deployed to inspect mine sites by and large have never had practical experience. They have good theoretical knowledge, but not enough mine experience. So their decisions are not given the levels of trust that we need* (CEO).

This same CEO asserted that a "strong inspectorate" is a "very effective tool" for the industry.

3.3 The Transformation Framework

The industry identified that the role of regulation in transforming the culture of the South African mining industry was central and included, as one of three goals for the Transformation Framework, the following goal:

> Standards will be clear, enforced by an effective regulator using fair sanctions that drive performance improvements (Shaw et al 2010: 45).

To achieve this goal, the following objective was defined:

> We will develop clear, concise and understandable legislation that includes enforceable minimum standards (*ibid*).

Work in this area is intended to achieve a suitable balance that will allow flexibility for those enterprises able to develop and implement their own management strategies to achieve compliance while still providing a suitable framework for those enterprises that need greater guidance.

Implementing a balanced and effective regulatory framework requires an inspectorate that is able to balance 'punish or persuade' strategies and work with the industry to improve OHS management. The *Future Search* Conference participants agreed on the need for further development of the South African inspectorate and this is reflected in the following objective from the Transformation Framework:

> We will create an effective, well-resourced inspectorate that can protect people at and around mines with integrity and job pride (*ibid*).

No individual inspector could be expected to have the complete range and depth of skills needed by such an inspectorate and ensuring that the necessary skills are available where needed involves careful human resource planning. This has been difficult, as the industry's growth has absorbed human resources, including recruitment by industry from the inspectorate. This is a world-wide problem facing mining inspectorates in all mining jurisdictions. Dealing with this requires a coordinated industry-wide strategy and the industry has demonstrated its preparedness to take action to ensure that the inspectorate has the human resources it needs. Many corporate stakeholders expressed preparedness to consider programs of secondment and industry placements to provide direct enterprise experience for inspectors. While such programs run the risk of promoting industry capture and poaching of employees, the opportunity they present as part of an overall professional development program is being investigated. In general, a professional development program that addresses overall skill gaps and ensures that inspectors receive mentoring and coaching is needed. This should be part of a strategy to recruit and retain appropriate people in the inspectorate.

3.4 Discussion

The study found that the South African industry's approach to dealing with compliance had not kept pace with changes in regulatory models. There was little consensus about ways to achieve and

monitor regulatory standards with considerable debate and discussion about enforcement strategies by DMR. The approach to achieving compliance to site-specific standards was, on the whole, prescriptive and site sanctions were focused on blame.

Recent developments in South Africa demonstrate some of these continuing challenges. The Government has announced their intention to proclaim two contentious undeclared provisions of the Mine Health and Safety Act, giving inspectors greater powers to close sites after serious incidents and establishing criminal liability for employers, managers and employees who act in breach of their duties under the Mine Health and Safety Act. Both of these provisions have long been in force in the Australian mining industry. In South Africa, these provisions have caused considerable debate, with a senior executive of the Chamber of Mines asserting:

> *Looking at a history behind these two clauses, they are introducing very punitive measures in regard to health and safety in mining. They do not strike a right balance between punitive and preventative measures, and that could scare off managers from sharing information related to accidents.* (Chilwane 2011)

4. Discussion

Achieving an effective regulatory framework for the mining industry is challenging. As well as the difficulties of developing sound regulations, establishing an inspectorate able to deal with the mining industry can be problematic. An effective inspectorate relies upon preparedness to use enforcement powers with vigour and flexibility, taking the specific circumstances of the duty holder into account. For example, an ideal inspectorate needs to be able to develop partnerships (as an effective way of dealing with some issues some times) without compromising its status as upholder of the law. Ideally an inspectorate is able to deal with the variety of firms within the industry; from the small to the very large businesses, and the different commodities and types of mining. At the same time, duty holders need a consistent approach – the same situation should be dealt with in the same way regardless of which inspector deals with it. This requires clear policy and well-executed procedures across the inspectorate. As this suggests, the role of the Inspector demands a high level of skill. These skills cover a wide range of disciplines and include areas that are not specific to inspection. For example, as well as skills relating to the nature of risk in the mining industry, an ideal inspector needs high-level management and organisational skills. A key skill for any inspector is the capacity to communicate at all levels and with all people as equals. The ideal inspector operates without bowing to artificial boundaries, such as status, that inhibit communication. He or she should be able to negotiate access to all levels on the sites visited.

Meeting these challenges in Australia has required significant investment of public and industry resources. In a global industry, however, this is not sufficient for the industry to meet its moral obligations. Mine workers working for the same company in Australia and South Africa should reasonably be able to expect that equivalent regulatory standards will apply. For developing nations, this can be a further challenge, but the South African mining industry should provide an ideal environment for effective OHS regulation in a developing country. OHS legislation in South Africa has

recently been strengthened (Republic of South Africa 2008) and DMR has increased its regulatory activity in recent times. Thus, traditional regulatory approaches are growing stronger and are supported by a relatively strong union representing mineworkers, claimed to be the largest and most powerful in South Africa, actively engaged in regulatory debates. The South African mining industry is very healthy and dominated by the largest and most stable mining companies in the world. In addition, the major companies and the industry association (Chamber of Mines) are all members of the International Council on Mining and Metals, the international body that has established the most prominent global code of conduct to improving OHS and labour standards in the mining industry (International Council on Mining and Metals 2008). All of the companies that are members of the Chamber of Mines have specifically committed to achieving exemplary OHS performance by 2013 (Chamber of Mines South Africa 2008). Thus, the usual confounders of poor OHS performance (weak labour unions and regulators, marginal industries, lack of employer engagement) are not apparent in the South African mining industry. However, the OHS outcomes in the South African industry are far from exemplary: fatality rates remain extremely high and the rates of occupational diseases are staggering (Department of Minerals and Energy 2008). Why has OHS regulatory change not achieved significant improvement in OHS outcomes for the South African industry?

One key issue in South Africa is the economic importance of mining. When the industry contributes some 20% to the GDP and accounts for roughly one-third of the market capitalisation of the Johannesburg Stock Exchange (The International Marketing Council of South Africa 2011), regulatory strategies that are seen to threaten the economic viability of the industry are difficult to sustain. Australia's recent experience with the ill-fated mining super profits tax shows that such barriers are not unique to developing economies! While bonus payment systems exist in both countries, the "at risk" component in South Africa is necessary in order to receive a living wage and thus the payment system reduces the opportunity of unions to mobilise and create industrial pressure for change. The low cost of labour in South Africa has created a disincentive to invest in new technology, as a number of industry executives reported in interviews, and there has been considerable union resistance to technological change because of the potential labour displacement effects. Thus, the opportunity to use technology to control risk has been severely constrained.

Management systems and regulatory approaches have also constrained improvements. To a far greater extent than in the Australian industry, South African investigation and monitoring systems both within companies and those used by the regulator are focussed on blame, seeking to identify individuals who can be held to account for incidents, rather than seeking the underlying causes of risks on minesites. The national context also contributes to OHS outcomes in the mining industry. South Africa faces many high profile public health risks, including HIV/AIDS, tuberculosis and other diseases closely linked with the mining industry. This leads to a level of risk acceptance or fatalism – poor OHS performance by the mining industry in South Africa does not lead to the level of social disapproval that would occur in Australia. The strong social and organisational hierarchies that exist in South African society and the South African mining industry also limit expectations of decent working conditions. The South African mining industry is highly segregated by race and gender – black male

workers are over-represented in the lowest occupational categories, mirroring segmentation that exists across the South African labour market (DMR 2009: 8 – 9). While the Australian industry is also highly segregated by gender (Minerals Council of Australia, 2007), the social homogeneity of the industry has supported higher expectations of working conditions by the workforce and broader society.

5. Conclusion

The lessons for regulatory reform in mining from these studies are that while voluntary codes are important, they are not a substitute for strong government regulation. In the absence of a strong regulator, many of the same companies operated to different standards in Australia than in South Africa, despite their commitment to the ICMM Sustainable Development Framework. As this suggests, regulatory capacity is critical, both in size and competence. Without regulators able to engage effectively and robustly with industry, legislation remains "fine words on paper". How this is operationalised, though, requires careful attention the economic importance of the industry. Only engaging in vigorous enforcement strategies, the "punish" side of the enforcement scales, may merely result in backlash from the industry and a subsequent weakening of regulatory power. As this suggests, simply transposing regulatory strategies from different national environments is not an effective approach to change. Instead, an approach that engages with the whole community, increasing social expectation of the mining industry and its regulation, is much more likely to achieve the outcome desired by all stakeholders in the industry, an industry that provides *a zero harm environment that treats everyone with dignity and respect* (Shaw et al 2010: 45).

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